Response to Public Comments

Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

December 29, 2010

Docket #: EPA-R03-OW-2010-0736

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Introduction

On September 24, 2010, EPA published the TMDLs for nitrogen, phosphorus, and sediment for the Chesapeake Bay and its tidal tributaries and embayments for public review and comment. The Draft Chesapeake Bay TMDLs were available for public comment from September 24, 2010, to November 8, 2010.[1] Comments were accepted electronically via Docket ID No. EPA-R03-OW-2010-0736 at www.regulations.gov, by mail and by hand delivery.

EPA received over 14,000 public comments on the draft TMDL, including over 13,000 mass mail campaign letters from over 20 organizations. EPA coded[2] over 730 letters,[3] parsing these letters into approximately 4,000 individual comments. This document contains these individual comments and EPA's responses to them.

The final response to comments document consists of the following:

- **Introduction:** Familiarizes commenters with the process EPA used to divide comments into similar issues for response; helps commenters learn how to find their comments
- **Chapter 1 – Comments and Responses Part 1 and Part 2:** All the public comments broken out into issue categories, along with EPA responses
- **Attachment 1:** Includes tables, graphs and figures referred to in several responses

This Introduction describes the following:

A. Methodology EPA used to sort and code public comment letters
B. Components of a coded comment letter
C. Locating comments and EPA's response in the final document
D. Duplicates, attachments, and Graphs, Figures, Tables and Pictures

[1] EPA did not consider comments received after the deadline and/or considered late by the Water Docket.
[2] EPA coded public comment letters using issue categories developed for the draft TMDL. See Table 1.
[3] EPA only coded those that were posted to www.regulations.gov as unique comment letters. EPA's Water Docket determined whether letters contained the same content as others and posted only those that are unique.

A. Methodology EPA Used to Sort and Code Public Comment Letters

In responding to public comments, EPA used the following methodology to sort and code comment letters into similar topics for response (see next page for an explanation of terms):

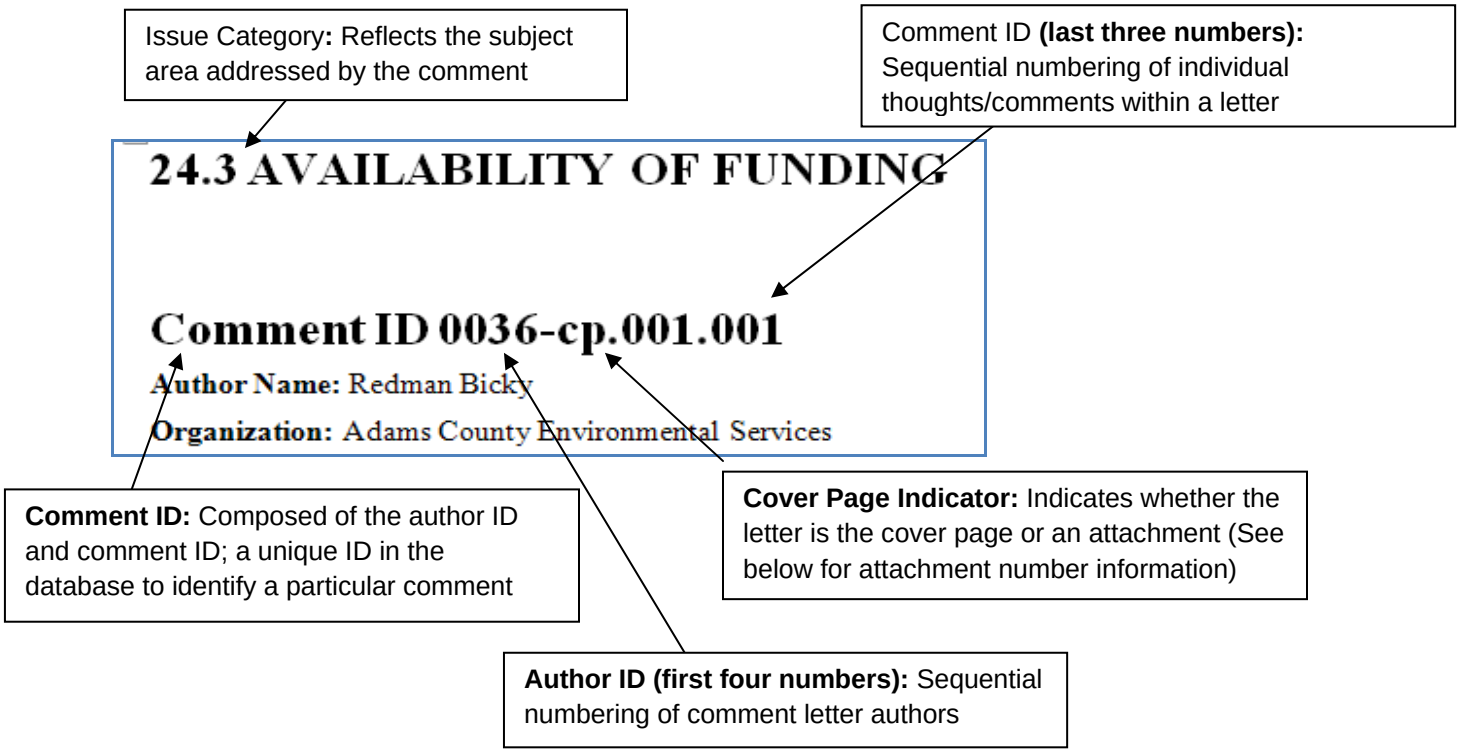
1. Reviewed each letter in its entirety and assigned each letter an Author ID.
2. Identified the major or substantive subjects addressed in each letter and assigned them to specific issue categories, resulting in multiple comment IDs for most letters. Not all letters contained substantive comments.
3. Prepared and reviewed a response for each comment, and made revisions to the TMDL document if appropriate.

The next section describes how a coded comment letter looks after it has been coded (so the reader can locate specific comments and responses). Note that a comment letter may have been split up into multiple comment IDs, each of which have associated responses.

B. Components of a Coded Comment Letter

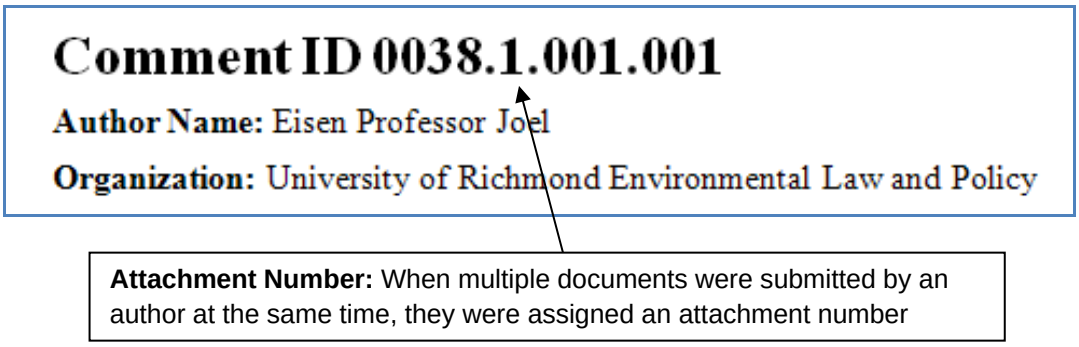
The following diagram illustrates the components of a coded letter once they have been entered into the comments database. Refer to the section below on *Locating Comments and EPA's Response in the Final Document* to learn how to find a comment and the response.

Comment Letters with No Attachments



Comment Letters with Attachments

If a comment letter had an attachment, the numbering will look like the example below (for attachment 1).



C. Locating Comments and EPA's Response in the Final Document

The Table of Contents will assist readers in locating comments and their associated responses, which are grouped by issue category; Table 1 is the list of issue categories that EPA used in parsing and coding comments.

Table 1. Issue Categories: The table is a listing of all issue categories used for coding.

TABLE 1 - Issue Categories

Category Code	Issue Category
1	General Opposition
2	General Support
3	History of the TMDL & Background
3.1	Executive Order 13508
3.2	State Partnership
3.3	General/Miscellaneous
4	Legal Comments
4.1	Listing
4.2	EPA authority to establish the Bay TMDL
4.3	Scope of the Bay TMDL - 303(d) segments compared to Consent Decree and MOU segments
4.4	General/Miscellaneous
5	Watershed Listings and Impairment Description
5.1	Scope of Bay TMDL - overall watershed
5.2	Segmentation scheme
5.3	Listings
5.4	General/Miscellaneous
6	Water Quality Standards
6.1	Current WQS
6.2	Proposed WQS
6.3	General/Miscellaneous
7	Sources of Nutrients and Sediments
7.1	Agriculture
7.2	Atmospheric Deposition
7.3	Forest Land
7.4	Septics

TABLE 1 - Issue Categories

Category Code	Issue Category
7.5	Non-regulated Stormwater Runoff
7.6	Ocean Inputs
7.7	Streambank and Tidal Shoreline Erosion
7.8	Tidal Resuspension
7.9	On-site Wastewater Treatment Systems
7.10	Wildlife
7.11	Natural Background
7.12	MS4s
7.13	Industrial Discharge
7.14	CAFOs
7.15	SSOs
7.16	CSOs
7.17	NPDES Discharge
7.18	Municipal Discharge
7.19	Land use
7.20	General/Miscellaneous
8	Chesapeake Bay Program Models
8.1	Watershed Model
8.2	Airshed Model
8.3	Water Quality and Sediment Transport Model
8.4	Land Use Change Model
8.5	SPARROW Model
8.6	General/Miscellaneous
9	Criteria Assessment Program
10	Climate Change Simulation
11	Critical Conditions
12	Seasonal Variation
13	Margin of Safety
14	Temporary Reserve
15	Daily Loads
16	Allocation methodology
16.1	Nutrient Allocation Methodology

TABLE 1 - Issue Categories

Category Code	Issue Category
16.2	Sediment Allocation Methodology
16.3	General/Miscellaneous
17	Adjustment Agreements
17.1	New York
17.2	West Virginia
17.3	Nitrogen to Phosphorus Exchange
18	Reasonable Assurance
19	Accountability Framework
19.1	Two year milestones
19.2	Federal actions/consequences
19.3	General/Miscellaneous
20	WIPs
20.1	New York
20.2	Pennsylvania
20.3	Virginia
20.4	West Virginia
20.5	Maryland
20.6	District of Columbia
20.7	Delaware
20.8	WIP Evaluation Methodology
20.9	General/Miscellaneous
21	TMDL Allocations
21.1	Full Backstop Allocations
21.2	Hybrid WIP Backstop Allocation
21.3	General/Miscellaneous
22	WLA
22.1	MS4s
22.2	Industrial Discharge
22.3	CAFOs
22.4	SSOs
22.5	CSOs
22.6	NPDES Discharge

TABLE 1 - Issue Categories

Category Code	Issue Category
22.7	Municipal Discharge
22.8	Stormwater
22.9	General/Miscellaneous
23	LA
23.1	Agriculture (AFOs)
23.2	Atmospheric Deposition
23.3	Forest Land
23.4	Septics
23.5	Non-regulated Stormwater Runoff
23.6	Ocean Inputs
23.7	Streambank and Tidal Shoreline Erosion
23.8	Tidal Resuspension
23.9	On-site Wastewater Treatment Systems
23.10	Wildlife
23.11	Natural Background
23.12	General/Miscellaneous
24	TMDL Costs & Funding
24.1	Economic Impacts
24.2	Burden to States
24.3	Availability of Funding
24.4	General/Miscellaneous
25	Water Quality Data & Monitoring
25.1	Watershed Monitoring
25.2	Tidal waters (Bay and tidal tributaries)
25.3	QA/QC
25.4	Database
25.5	General/Miscellaneous
26	Future Growth
26.1	Allocations for Growth
26.2	Offsetting New or Increased Loadings
26.3	General/Miscellaneous
27	Trading to meet WLAs and LAs

TABLE 1 - Issue Categories

Category Code	Issue Category
28	Revising the TMDL
29	Federal facilities and lands
30	Sediments behind Susquehanna River Dams
31	Filter Feeders
32	Public Involvement
32.1	Public meetings
32.2	Webinars
32.3	Public Comment Period
32.4	Public Notices (federal register, newspaper, etc.)
32.5	General/Miscellaneous
33	Miscellaneous Comments
34	TMDL Timeline
35	TMDL Schedule
36	Appendix A
37	Appendix B
38	Appendix C
39	Appendix D
40	Appendix E
41	Appendix F
42	Appendix G
43	Appendix H
44	Appendix I
45	Appendix J
46	Appendix K
47	Appendix L
48	Appendix M
49	Appendix N
50	Appendix O
51	Appendix P
52	Appendix Q
53	Appendix R
54	Appendix S

TABLE 1 - Issue Categories

Category Code	Issue Category
55	Appendix T
56	Appendix U
57	Appendix V
58	Appendix W
59	Appendix General/Miscellaneous
60	Mass Campaign Comments
60.1	NRDC
60.2	NWFAF
60.3	Supports NYS DEC (comment -0389)
60.4	Use of EPA's authority to improve MD's WIP

D. Duplicates and Attachments

Duplicates

Note that comments were considered duplicative when the comment letter was an exact duplicate of another comment letter, but was nonetheless published at www.regulations.gov as a unique comment. For duplicate letters, EPA identified the comment ID of the primary letter that was responded to; readers can refer to the response in that letter.

In the example below, the commenter can find the response to their comments (identified as comment ID 0436.1.001.010) under the response generated for the letter with the comment ID 256.1:

> *Comment ID: 0436.1.001.010*
>
> *"This comment is duplicative of comment number 0265.1.001.010. Please see the response to comment number 0265.1.001.010."*

Attachments

Attachments that contained additional data or information and were considered a comment on the draft TMDL were coded into the appropriate issue category, similar to standard comment letters. These comments and responses will appear in Chapter 1.

Attachments that were not considered a comment on the draft TMDL were not coded to an issue category. In cases where the author referred to an attachment in the text of the comment, EPA added a cross-reference to the appropriate document ID. EPA considered all attachments in responding to comments, but only responded to those that were directly relevant to the draft TMDL and were therefore considered as a unique comment.

Graphs, Figures, Tables and Pictures

EPA's response to comment database is not capable of displaying graphs, tables, figures, and pictures. Standardized text was inserted into comments to direct readers to the original copy of the letter. Below is an example of the standard text used under such circumstances.

> *[Original comment letter contains additional information in Table 1 on page 17 of the pdf. See original comment letter.]*

Additionally, some of EPA's responses include graphics. These have been provided in Attachment 1 to the document, with text in the associated comment that refers the reader to Attachment 1.

Response to Public Comments: Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

Issue Category: 1. General Opposition

Pages 1 – 59

December 29, 2010

Docket #: EPA-R3-OW-2010-0736

1 - GENERAL OPPOSITION

Comment ID 0060.1.001.003

Author Name: Bredwell III Paul

Organization: U.S. Poultry & Egg Association, National Turkey Federation (NTF), and National Chicken Council (NCC)

Under the proposed TMDL, however, thousands of family farms, as well as already heavily-regulated processing operations with stringent permit limitations for nitrogen and phosphorus, could face what may be costly and scientifically unsupportable nutrient reduction mandates.

Response

Please see the response to Comment ID 0136-cp.001.002.

Comment ID 0061-cp.001.001

Author Name: Haterius Stephen

Organization: National Association of State Departments of Agriculture (NASDA)

The National Association of State Departments of Agriculture (NASDA) respectfully requests the U.S. Environmental Protection Agency (EPA) withdraw its draft Chesapeake Bay Total Maximum Daily Load (Draft TMDL) released for public comment on September 24, 2010. 75 Fed. Reg. 57776 (Sept. 22, 2010) (Docket Number EPA-R03-OW-2010-0736) (hereinafter Draft TMDL).

Response

EPA has received requests to withdraw its draft Chesapeake Bay TMDL, and after careful evaluation has determined not to withdraw the TMDL and to finalize the TMDL by December 31, 2010. See also response to comment 0060.1.001.001.

Comment ID 0061.1.001.001

Author Name: Haterius Stephen

Organization: National Association of State Departments of Agriculture (NASDA)

We believe that EPA should withdraw the Draft TMDL and instead work with the states in the Chesapeake Bay watershed and the District of Columbia (Chesapeake Bay jurisdictions) to develop TMDLs in 2011 for tidal waters in the Chesapeake Bay watershed impaired by nutrients and sediments.

Response

Please refer to the response for comment 0061-cp.001.001.

Comment ID 0062.1.001.001

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

The agricultural and forestry organizations listed below respectfully request the U.S. Environmental Protection Agency (EPA) to withdraw its draft Chesapeake Bay Total Maximum Daily Load released for public comment on September 24, 2010.

Response

Please see the response to Comment ID 0061-cp.001.001.

Comment ID 0073-cp.001.001

Author Name: Comment Anonymous

Organization:

The current proposed bay tdmls will likely have very serious negative effects on the farming community.

Response

EPA understands your concerns regarding the potential impacts of the Chesapeake Bay TMDL on the farming community. The implementation of this TMDL is not intended to restrict development or impede economic vitality in any community. For further information regarding the costs of implementation, please see the response to comments 0052.1.001.001 and 0052.1.001.002. Also, please see the response to comment 0139.1.001.006 which discusses the issue of economic impacts to individual farmers.

Finally, please see the response to 0139.1.001.017 which discusses the issue of cost analysis and economic benefits of improved water quality and comment 0038.1.001.024 which outlines the federal effort towards the Bay.

Comment ID 0074-cp.001.001

Author Name: Comment Anonymous

Organization:

Have you people lost your minds!!!

We are in a deep recession/depression and you want localities to DOUBLE their taxes to suit your arrogant, UNfunded mandate? Unless you want another tax revolt on the scale of the American Revolution I suggest that you rethink burdening the taxpayers of the Chespeake Bay region.

We will NOT take this lying down!

Response

Please see the response to Comment 0136-cp.001.002.

Comment ID 0075.1.001.003

Author Name: Downes Paul

Organization: Mountaire Farms Inc.

Under the proposed TMDL, however, thousands of family farms, as well as already heavily-regulated processing operations with stringent permit limitations for nitrogen and phosphorus, could face what may be costly and scientifically unsupportable nutrient reduction mandates.

Response

Please see the response to Comment ID 0136-cp.001.002.

Comment ID 0080-cp.001.001

Author Name: French T. A.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--NY already has the cleanest water in the watershed and effective pollution control programs.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0082-cp.001.001

Author Name: Szlucha Terry

Organization: T & D Enterprises

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--NY already has the cleanest water in the watershed and effective pollution control programs.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0083-cp.001.001

Author Name: Pearson Richard

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--NY already has the cleanest water in the watershed and effective pollution control programs.

Response

Please see the response to Comment ID 0080-cp.001.002.

Comment ID 0084-cp.001.001

Author Name: Kolb Barbara

Organization: Blue Ridge Vineyard

We oppose the federal government's attempt to take over states and private rights to regulate the Chesapeake. We are

much more careful in disposing of waste water than the federal government could ever be, because we support the private sector's right to preserve the environment in this case

Response

EPA understands your concerns regarding the potential impacts of Chesapeake Bay TMDL. The implementation of this TMDL is not intended to restrict development or impede economic vitality in any community. For further information regarding the costs of implementation, please see the response to comments 0052.1.001.001 and 0052.1.001.002. EPA developed this TMDL pursuant to the Clean Water Act and at the request of and working closely with the States. See Section 1 of the TMDL.

Comment ID 0088-cp.001.001

Author Name: Herrala G. W.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--NY already has the cleanest water in the watershed and effective pollution control programs.

Response

Please see the response to Comment ID 0080-cp.001.002.

Comment ID 0090-cp.001.001

Author Name: Bloomer J.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--NY already has the cleanest water in the watershed and effective pollution control programs.

Response

Please see the response to Comment ID 0080-cp.001.002.

Comment ID 0091-cp.001.001

Author Name: Klein John

Organization:

we already have the cleanest water in the watershed and pollution control program.The cleaner the better but lets get away from foreign fuels.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0092-cp.001.001

Author Name: Herrala K. L.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--NY already has the cleanest water in the watershed and effective pollution control programs.

Response

Please see the response to Comment ID 0080-cp.001.002.

Comment ID 0096-cp.001.001

Author Name: Morris Brian

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--NY already has the cleanest water in the watershed and effective pollution control programs.

Response

Please see the response to Comment ID 0080-cp.001.002.

Comment ID 0098-cp.001.001

Author Name: Scott D.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--NY already has the cleanest water in the watershed and effective pollution control programs.

Response

Please see the response to Comment ID 0080-cp.001.002.

Comment ID 0099-cp.001.001

Author Name: Magargle Richard

Organization:

I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--NY already has the cleanest water in the watershed and effective pollution control programs.

Response

Please see the response to Comment ID 0080-cp.001.002.

Comment ID 0100-cp.001.001

Author Name: Comment Anonymous

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--NY already has the cleanest water in the watershed and effective pollution control programs.

Response

Please see the response to Comment ID 0080-cp.001.002.

Comment ID 0103-cp.001.001

Author Name: Laudeman Todd

Organization: Tioga County Landowners Group

I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--NY already has the cleanest water in the watershed and effective pollution control programs.

Response

Please see the response to Comment ID 0080-cp.001.002.

Comment ID 0103.1.001.003

Author Name: Laudeman Todd

Organization: Tioga County Landowners Group

The EPA's draft TMDL is inequitable, unattainable, and threatens to be punitive to NY's economy, residents, and communities without markedly improving water quality for the Chesapeake Bay. Proposed mandates are in spite of the fact that NYS water is cleaner than any of the other Bay jurisdictions in the watershed.

Response

Please see response to comment 0080-cp.001.002 .

Comment ID 0104-cp.001.003

Author Name: Anderson R. N.

Organization:

I oppose adoption of the proposed draft TMDL for the Dhesapeake Bay for the following reasons:

New York's excellent record of watershed management should be recognized, not punished with these excessive requirements.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0105-cp.001.001

Author Name: Yates Keith

Organization:

from everything i've read thus far, New York State has already done most of what is reasonably possible to clean up it's section of the Susquehanna River watershed, and thus the Chesapeake Bay.

Response

Please see the response to Comment ID 0080-cp.001.002.

Comment ID 0121-cp.001.001

Author Name: Supa Alice

Organization: South Main Millennium Coalition

I oppose implementing the proposed Chesapake Bay TMDL limits because New York State already has the cleanest water in the water shed and effective pollution control programs.

Response

Please see the response to Comment ID 0080-cp.001.002.

Comment ID 0133-cp.001.001

Author Name: Foster Pansy

Organization: Triple F Jerseys, LLC

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--NY already has the cleanest water in the watershed and effective pollution control programs.

Response

Please see the response to Comment ID 0080-cp.001.002.

Comment ID 0135-cp.001.001

Author Name: Vallese P.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--NY already has the cleanest water in the watershed and effective pollution control programs.

Response

Please see the response to Comment ID 0080-cp.001.002.

Comment ID 0136-cp.001.002

Author Name: Comment Anonymous

Organization:

When Washington passes new rules & laws they do not think of the impact on the people in the long run, they only think of the impact in the short term. I understand we need to protect our waterways but this possible new ruling / law is going way overboard to protect the waterways at the expense of people's livelyhood and I think that is wrong. We need to go about this in a more moderate way so as to not put people in financial trouble with increased taxes & regulations. This is wrong to protect the water & marine life at the expense of people.

Response

For further information on funding sources, please see the response to Comment ID 0038.1.001.024 outlining the federal efforts towards Chesapeake Bay restoration.

Comment ID 0138-cp.001.006

Author Name: Patterson, Jr. W.

Organization: Shepherd's Haven Farm

Too many of EPA personnel live in this watershed and are not being very objective about the process and desired outcome.

Response

EPA respectfully disagrees with the commenter's opinion that EPA is not being objective in developing the Chesapeake Bay TMDL. While EPA is establishing this TMDL, it represents the product of decades of scientific research, monitoring, assessment, and model application, and years of focused dialogue and analysis among EPA, our six watershed state and District partners, and numerous stakeholders. Additionally, the Bay TMDL has benefited from the input of thousands of professionals and citizens dedicated to the restoration of the Chesapeake Bay.

Comment ID 0145.1.001.001

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

We believe that the TMDL is not approvable in the form presently posted.

Response

EPA respectfully disagrees with the commenter's assertion that the Chesapeake Bay TMDL is not approvable in its present form. Under the Clean Water Act and existing TMDL regulations, EPA is required to use the best available data and information. Building upon decades of Chesapeake Bay region focused scientific investigations, monitoring of the Bay's tidal waters, watershed and airshed since early 1980s, tracking of implementation practices and technologies for the past 25 years, and application of continually upgraded modeling tools by the partnership since the 1980s, the Bay TMDL was developed consistent with these requirements.

Comment ID 0145.1.001.003

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

we respectfully request that the TMDL be withdrawn immediately due to both its incomplete status and its inaccurate posting

Response

Please see the response to Comment ID 0061-cp.001.001.

Comment ID 0145.1.001.010

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

The underlying basis for the TMDL is not yet complete, thereby clearly indicating that the TMDL itself is not yet complete, so plainly the TMDL is not approvable in its present form. Accordingly, we believe that EPA should immediately withdraw the TMDL, and we so request.

Response

Please see the response for comment 0145.1.001.006.

Regarding your comment to withdraw the TMDL, please see the response to comment 0062.1.001.004.

Comment ID 0151.001.002

Author Name: Woodford RC

Organization: Chenango County Board of Supervisors

the best way to achieve the important public benefit of clean water at a regional level is through locally led conservation efforts, rather than a top-down federal, one-size-fits-all regulatory approach such as EPA's TMDL for the Chesapeake Bay watershed

Response

Please refer to the response for comment 0080-cp.001.002 regarding New York allocations.

EPA agrees that ensuring that the nutrient and sediment reductions occur is the responsibility of all stakeholders involved including federal agencies and state and local jurisdictions. EPA encourages all stakeholders to develop partnerships with each other to provide innovative and effective ways for meeting the TMDL goals. It will be a challenge to meet the 2025 deadline but EPA is committed to work with its stakeholders and jurisdictional partners in order to achieve this.

Comment ID 0151.001.006

Author Name: Woodford RC

Organization: Chenango County Board of Supervisors

we object to EPA's discriminatory regulatory process that disproportionately burdens our farm communities with costly mandates, weakens our rural economies, disrupts local food systems and provides no additional water quality protection for the Chesapeake Bay watershed

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL and the response for comment 0073-cp.001.001.

Please refer to the response for comment 0080-cp.001.002 regarding New York allocations.

Comment ID 0151.001.007

Author Name: Woodford RC

Organization: Chenango County Board of Supervisors

we oppose EPA increasing its federal regulatory control and usurping state and local jurisdiction and authority in order to impose their TMDL, instead of working collaboratively with State agriculture and environmental protection agencies, Soil and Water Conservation Districts and local communities to address Bay watershed water quality concerns

Response

EPA notes, however, that the Chesapeake Bay TMDL is not a Federal regulation.

EPA agrees that ensuring that the nutrient and sediment reductions occur is the responsibility of all stakeholders involved including federal agencies and state and local jurisdictions. EPA encourages all stakeholders to develop partnerships with each other to provide innovative and effective ways for meeting the TMDL goals. It will be a challenge to meet the 2025 deadline but EPA is committed to work with its stakeholders and jurisdictional partners in order to achieve this.

Please refer to the response for comment 0080-cp.001.002 regarding New York allocations.

Comment ID 0151.001.013

Author Name: Woodford RC

Organization: Chenango County Board of Supervisors

while the Chenango County Board of Supervisors fully supports responsible efforts to improve water quality in the Chesapeake Bay watershed and protect our State's environment and natural resources, we object to the unfair and unattainable mandate the Chesapeake Bay TMDL forces upon our local governments, local communities and family farms

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0191.1.001.001

Author Name: Smith Robert

Organization: Farm Credit East, ACA

On behalf of Farm Credit East, I am writing to express our strong opposition to the draft Chesapeake Bay Total Maximum Daily Load (TMDL) allocations recently issued by the Environmental Protection Agency (EPA). The proposed reductions are unattainable and fail to recognize and properly account for the excellent efforts that New York farmers have already made in addressing water quality issues in the Chesapeake Bay watershed.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0192.1.001.001

Author Name: Comment Anonymous

Organization:

"We are all strongly committed to the goal of restoring and ensuring the long-term health of the Chesapeake Bay ecosystem," the group wrote. "However, we believe that the draft TMDL allocations released by EPA place unattainable pollution reductions on New York and, if finalized, will jeopardize the economic well-being of communities within New York's Bay Watershed and the agricultural industry on which the entire state relies."

Response

Please see the response to Comment ID 0080-cp.001.002.

Comment ID 0194.1.001.001

Author Name: Ashley Keith

Organization: Home Builders Association of Metro Harrisburg

While the home building industry is committed to better water quality, we have serious concerns that EPA's demands and policy decisions will lead to a cleaner Chesapeake Bay.

Response

EPA hears your concerns and thanks you for your comments on the draft Chesapeake Bay TMDL.

Please see the response to 0139.1.001.017 which discusses the issue of cost analysis and economic benefits of improved water quality and comment 0038.1.001.024 which outlines the federal effort towards the Bay.

Comment ID 0197.1.001.001

Author Name: Vickers Bradd

Organization: Chenango County Farm Bureau

On behalf of the farm families of Chenango County NY and surrounding area, particularly those located within the Upper Susquehanna and Chenango Watersheds, Chenango County Farm Bureau is writing in regards to the U.S. Environmental Protection Agency's (EPA) request for public input on the development of a TMDL for the Chesapeake Bay. We appreciate the opportunity to provide comment for consideration in the development of the TMDL. Our member farmers believe strongly in efforts to continually improve water quality and are opposed to the inclusion of agriculture as well as the inclusion of waters in New York State within the Chesapeake Bay TMDL.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0197.1.001.007

Author Name: Vickers Bradd

Organization: Chenango County Farm Bureau

Again, we oppose the establishment of a Chesapeake Bay TMDL and do not believe New York should be included in any regulatory initiative. We stand ready to work with EPA as well as our long-term partners in the New York State Department of Environmental Conservation on positive steps to improve the environmental sustainability of our farms.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0211.1.001.020

Author Name: McCarthy R.

Organization: Town of Erwin, New York

NOW THEREFORE, BE IT RESOLVED, that while the Town of Erwin fully supports responsible efforts to improve water quality in the Chesapeake Bay Watershed and protect our State's environment and natural resources, Town of Erwin finds the proposed EPA TMDL allocations to be arbitrary, capricious, and contrary to law, and accordingly, we object to the unfair and unattainable mandate the Chesapeake Bay TMDL forces upon our local governments, local communities, in particular those with WWTPs, and family farms; and be it further

RESOLVED, that the Town of Erwin urges not to adopt the proposed TMDL limits; and be it further

RESOLVED, that the Town of Erwin requires EPA to respond to the concerns raised by New York State Department of Environmental Conservation, Steuben County, Steuben County Soil and Water Conservation District and Town of Erwin, and be it further

RESOLVED, that the Town of Erwin requires EPA to adapt the proposed TMDL limits to address the concerns raised by New York State Department of Environmental Conservation, Steuben County, Steuben County Soil and Water Conservation District and Town of Erwin,

Response

Please see the response to Comment ID 0080-cp.001.002.

Comment ID 0219.1.001.001

Author Name: Cary Russell

Organization: Madison County, New York

EXPRESSING OPPOSITION TO THE CHESAPEAKE BAY TOTAL MAXIMUM DAILY LOAD (TMDL) REGULATORY PROPOSAL BY THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA)

WHEREAS, clean water and healthy watersheds are a priority for New York farmers, which play a critical role in proven and successful local efforts to conserve and protect New York's natural resources; and

WHEREAS, the U.S. Environmental Protection Agency Region 3 is implementing a Chesapeake Bay TMDL which imposes new and costly federal regulations on approximately 19 counties, 650,000 residents and 2,000 New York family farms within the NY portion of the Chesapeake Bay watershed area; and

WHEREAS, New York accounts for 10% of the total watershed area which is mostly forested (76%), is home to 4% of the total population in the watershed with agriculture (21 %) being the dominant business sector; and

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0219.1.001.008

Author Name: Cary Russell

Organization: Madison County, New York

NOW THEREFORE BE IT RESOLVED that while Madison County fully supports responsible efforts to improve water quality in the Chesapeake Bay watershed and protect our State's environment and natural resources, we object to the unfair and unattainable mandate the Chesapeake Bay TMDL forces upon our local governments, local communities and family farms; and

BE IT FURTHER RESOLVED, that Madison County urges its Congressional and State representatives to intercede with EPA, and enact superseding legislation if required, to delay implementation of the Chesapeake Bay TMDL and request that EPA report to them on their response and adaptations regarding the aforementioned concerns;

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0222.1.001.002

Author Name: Taylor K.

Organization:

I do feel, though, that , due to a lack of attention being paid to assisting small communities with the task of creating sewage treatment facilities, these goals are unlikely to be met.

In Moorefield WV,, for example, the EPA approved plans to build a sewage treatment plant that is four miles north of the sewage production area (when other closer sites were available). They approved a site which is next to the river for

which open vats were planned (open vats permit overflow in heavy rains to say nothing of stench) ; composting adjacent to the vats in flood zone was apparently also approved. This same site will require digging under the river which is likely to cause a "sink trap" like effect with its attendant maintainance expenses. The EPA approved the site despite the fact that the highway department was denied use of the same land due to its being a historic battlefield and Indian Burial Ground. The EPA went against the WV Dept. of Culture and History in approving the site.

Moorefield has had to fire two sets of engineers-after paying them. The first group submitted a plan which was ultimately critiqued by another engineer and shown to produce a minimal 14% loss of raw sewage. The next group designed the open lagoon system next to the river. They went over the charges anticipated, and were fired . Now we do not have the design engineers directing the project.

My concern is that-with the EPA's help-we are likely to build a plant which will not meet the TMDL restrictions, and will add to the pollution due to occasional overflow and composting in a flood plane, with the added "attraction" of being extremely high maintenance-all for the projected fee of $37 million.

The EPA is fulfilling half the job by setting the goals. We need more effective assistance in directing communities to make the appropriate choices of engineering talent , plant sites, etc., if we are to be effective in implementing those goals. Our experience has shown that leaving it to inexperienced local town councils to make these decisions alone is a good way to waste public grant money.

Response

EPA agrees that ensuring that the nutrient and sediment reductions occur is the responsibility of all stakeholders involved including federal agencies and state and local jurisdictions. EPA encourages all stakeholders to develop partnerships with each other to provide innovative and effective ways for meeting the TMDL goals. It will be a challenge to meet the 2025 deadline but EPA is committed to work with its stakeholders and jurisdictional partners in order to achieve this.

Please see the response to 0038.1.001.024 outlining the federal effort towards the Bay and the response to comment 0501.1.001.005 regarding public sector point sources.

Comment ID 0224.1.001.001

Author Name: Fiala Barbara

Organization: Broome County Executive's Office

Broome County recognizes the importance of a healthy and thriving Chesapeake Bay and commends efforts to restore the Bay ecosystem. However, we feel that the EPA's draft Total Maximum Daily Load (TMDL) is inequitable, unattainable, and threatens to be punitive to our State and our local economies.

Response

Please see the response to comment 0080-cp.001.002

Comment ID 0226.1.001.013

Author Name: Harris, Jr. Cecil

Organization: Hanover Courthouse, Hanover County, Virginia

We support Virginia's and EPA's goals to improve and protect the Chesapeake Bay and our local rivers and streams. On balance, we submit this proposed TMDL is incomplete and ignores the balance in implementation costs with environmental benefit. The TMDL does not demonstrate any appreciation for the major financial commitments already made by local governments and others to meet already strict nutrient standards.

Response

EPA appreciates the support for environmental goals. EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. See Section 8 of the final TMDL response for comment 0067.1.001.009. Section 8 of the final TMDL report describes the methodology by which EPA evaluated the jurisdictions' final Phase I WIPs, the process for developing the backstop allocations, the WIP evaluation findings and the resulting backstop allocations EPA established for each jurisdiction.

Please see the response to comment 0139.1.001.017 which discusses the issue of cost analysis and economic benefits of improved water quality and response comment 0038.1.001.024 which outlines the federal effort towards the Bay.

Please see the response to comment 0501.1.001.005 for more information regarding funding to municipalities and states for updates to infrastructure such as POTWs/WWTPs and MS4/stormwater systems.

Please see the response to comment 0648-cp.001.002 for more information regarding credits for water quality improvements.

Comment ID 0226.1.001.014

Author Name: Harris, Jr. Cecil

Organization: Hanover Courthouse, Hanover County, Virginia

Rather than establishing an incomplete TMDL based on a flawed model with uncertain consequences, we would request EPA work to continue to refine the TMDL in cooperation with affected and interested parties and work to provide funding and support to federal, state and local authorities for implementation of existing technologies under an adaptive management approach. We are missing the forest for the trees. On balance, enforcing reasonable rules will have a greater impact toward reducing pollution to our streams, rivers and the Chesapeake Bay than establishing any type of numeric load limit. Many citizens and environmental interests are increasingly frustrated by the lack of progress

and we would submit rightfully so. Unfortunately, we believe this is resulting in an ever increasing misplacement of priorities. There is an increasing tendency to focus on more complicated derivations of the same topic when we should be collectively pursuing and enforcing existing rules such as those that currently exist in Virginia.

Response

Please see Section 4 of the TMDL and the responses to comments 0238-cp.001.002 and 0379.1.001.006 for more information on the models utilized in the Chesapeake Bay TMDL development. Also, please see the response to comment 0153.001.003 regarding the TMDL development and public participation process. Finally, please see the response to 0139.1.001.017 which discusses the issue of cost analysis and economic benefits of improved water quality and comment 0038.1.001.024 which outlines the federal effort towards the Bay.

Comment ID 0235.1.001.017

Author Name: Helsel, Jr. Gordon

Organization: City of Poquoson, Virginia

Arbitrary deadlines, unsubstantiated technical requirements, and immense financial burdens are being imposed with little regard to achievability, common sense or the on-the-ground financial problems facing local governments.

Response

The Clean Water Act requires TMDL to be established as a level necessary to implement the applicable water quality standards in the Bay, which is explained in the response to comment 0139.1.001.017. The implementation of this TMDL is not intended to restrict development or impede economic vitality in any community. For further information regarding the costs of implementation, please see the response to comments 0052.1.001.001 and 0052.1.001.002.

Comment ID 0263.1.001.005

Author Name: Foley Sharon

Organization: Harrisonburg-Rockingham Regional Sewer Authority (HRRSA)

HRRSA believes that the Draft Bay TMDL is fundamentally and materially flawed. These deficiencies are thoroughly documented in the comments of the Virginia Association of Municipal Wastewater Agencies, Inc. ("VAMWA"). We request that EPA fully consider and address all of VAMWA's comments, which we generally support and hereby incorporate by reference as if fully set forth herein.

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL and the response to comment 0184.1.001.004.

Comment ID 0266.1.001.007

Author Name: Fagerstrom Angela

Organization: City of Binghamton, New York

WHEREAS, the best way to achieve the important public benefit of clean water at the regional level is through a locally led conservation efforts, rather than a top-down federal, one-size fits all regulatory mandate such as the EPA's TMDL for the Chesapeake Bay watershed;

Response

EPA agrees that ensuring that the nutrient and sediment reductions occur is the responsibility of all stakeholders involved including federal agencies and state and local jurisdictions. EPA encourages all stakeholders to develop partnerships with each other to provide innovative and effective ways for meeting the TMDL goals. It will be a challenge to meet the 2025 deadline but EPA is committed to work with its stakeholders and jurisdictional partners in order to achieve this.

EPA notes, however, that the Chesapeake Bay TMDL is not a Federal regulation.

Comment ID 0266.1.001.014

Author Name: Fagerstrom Angela

Organization: City of Binghamton, New York

WHEREAS, we object to EPA's regulatory goals being proposed without confirmation of these goals meeting the intended water quality improvement

Response

The Clean Water Act requires TMDL to be established as a level necessary to implement the applicable water quality standards in the Bay, which is explained in the response to comment 0139.1.001.017.

Comment ID 0266.1.001.018

Author Name: Fagerstrom Angela

Organization: City of Binghamton, New York

RESOLVE that while the City of Binghamton fully supports responsible efforts to improve water quality in the Chesapeake Bay watershed and protect our State's environment and natural resources, we object to the unfair and unattainable mandate the Chesapeake Bay TMDL forces upon our local governments, local communities and family farms

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0275.1.001.001

Author Name: LaClair André

Organization: Broome County Environmental Management Council (BCEMC), Binghamton, New York

The BCEMC recognizes the importance of a healthy and thriving Chesapeake Bay and commends efforts to restore the Bay. However, we feel that the EPA's draft Total Maximum Daily Load (TMDL) is inequitable, unattainable, and threatens to penalize our State and local economies.

Response

Please see the response to Comment ID 0080-cp.001.002

Comment ID 0281.1.001.004

Author Name: Hammes Dale

Organization: Loudoun Water

We understand that the Draft TMDL is fundamentally and materially flawed. These deficiencies are thoroughly documented in the comments of the Virginia Association of Municipal Wastewater Agencies, Inc. ("VAMWA"). We request that EPA fully consider and address all of VAMWA's comments, which we generally support and hereby incorporate by reference as if fully set forth herein.

Response

Please see the response to comment 0184.1.001.004.

Comment ID 0283-cp.001.003

Author Name: Mason James

Organization:

I am firmly against this TMDL in it's present form.

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL and the response for comment 0145.1.001.006.

Comment ID 0287-cp.001.001

Author Name: Ristow Aaron

Organization: Upper Susquehanna Coalition

1. The draft TMDL is inequitable, unattainable, and threatens to be punitive to NY's economy, residents, and communities without markedly improving water quality for the Chesapeake Bay.

Response

Please see the response to Comment ID 0080-cp.001.002

Comment ID 0288.1.001.001

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

VAMWA submitted comments on December 18, 2009, in response to EPA‘s September 19, 2009 Notice and Initial Request for Public Input regarding the development of a Chesapeake Bay TMDL. In addition to laying out guiding principles for a reasonable and effective TMDL,[FN1] VAMWA commented extensively on the need for "regulatory stability" for POTWs relative to the existing upgrade program currently underway and also offered many policy and technical recommendations. [FN2]

Unfortunately, EPA has largely disregarded VAMWA‘s December 2009 Comments.

[FN1] These Guiding Principles included sound science, cost-effectiveness, feasibility, an holistic approach, ancillary benefits, climate change mitigation, and regulatory stability. Although EPA has acknowledged that many of these are important concepts, EPA's Draft TMDL is inconsistent with its avowed goals. Specifically, EPA has failed to: (1) base allocations on sound science; (2) consider cost-effectiveness as a part of making source sector allocations (there are no discussions regarding how much the Bay TMDL will cost, whether we will be spending our dollars in the most cost-effective way, and whether there will be an adequate environmental and economic benefit for our financial commitment); (3) make appropriate timing accommodations to make the TMDL realistically feasible (a phase-in of efforts or tying implementation to funding); (4) consider and include additional reasonable options for reductions (filter feeders, innovative nutrient reduction technologies, air deposition); (5) weigh various clean-up options based upon the potential for ancillary benefit (for example, cover crops can provide not only nutrient reductions but also additional positive environmental and aesthetic impacts); (6) avoid actions that may negatively contribute to climate change (additional POTW reductions can result in more greenhouse gas emissions and the unnecessary use of expensive electricity (and associated fuels) along with expensive treatment chemicals whose manufacture and distribution have additional environmental impacts); (7) and preserve existing POTW allocations.

[FN2] VAMWA's December 2009 Comments are attached hereto as Appendix 1 [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A1], and are incorporated by reference. VAMWA also incorporates by reference all References listed at the conclusion of these comments and all additional Appendices attached to these comments. Additionally, VAMWA incorporates by reference all EPA files or documents, no matter the form, and all materials from EPA Chesapeake Bay teams, committees, subcommittees, or workgroups pertaining to Bay clean-up efforts.

Response

EPA notes that the final TMDL allocations are significantly revised based on final State WIPs and consideration of comments including this one. The Clean Water Act requires a TMDL to be established as a level necessary to implement the applicable water quality standards in the Bay, which is explained in the response to comment 0139.1.001.017.

Please see the response to comments 0238-cp.001.002 and 0379.1.001.006 for more information on the models utilized in the Chesapeake Bay TMDL development.

Please see the response to 0139.1.001.017 which discusses the issue of cost analysis and economic benefits of improved water quality and comment 0038.1.001.024 which outlines the federal effort towards the Bay.

Please see the response to comment 0501.1.001.005 for more information regarding funding to municipalities and states for updates to infrastructure such as POTWs/WWTPs and MS4/stormwater systems.

Please see the response to comment 0153.001.003 regarding the TMDL development and public participation process.

Comment ID 0288.1.001.002

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

Moreover, EPA has incorrectly and illegally rejected Virginia‘s Draft WIP and instead has proposed "backstop" allocations based on EPA‘s previously proposed, but withdrawn and never promulgated, "reasonable assurance" regulation. The result is a TMDL that is fundamentally flawed on both technical and legal grounds. EPA‘s present course is obviously and openly straining the otherwise collaborative, multi-jurisdictional Bay Program partnership. Beyond the unfortunate implications of those actions for the Bay Program, VAMWA is concerned that EPA‘s recent approach may delay rather than further the Bay restoration process.

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL and refer to the response for comment 0067.1.001.009. Section 8 of the final TMDL report describes the methodology by which EPA evaluated the jurisdictions’ final Phase I WIPs, the process for developing the backstop allocations, the WIP evaluation findings and the resulting backstop allocations EPA established for each jurisdiction.

EPA respectfully disagrees with the commenter’s assertion that the draft Chesapeake Bay TMDL is fundamentally and materially flawed. Under the Clean Water Act and existing TMDL regulations, EPA is required to use the best available data and information. Building upon decades of Chesapeake Bay region focused scientific investigations, monitoring of the Bay’s tidal waters, watershed and airshed since early 1980s, tracking of implementation practices and technologies for the past 25 years, and application of continually upgraded modeling tools by the partnership since the 1980s, the Bay TMDL was developed consistent with these requirements.

Comment ID 0295.001.001

Author Name: Cross J.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because:

- NY already has the cleanest water in the watershed and effective pollution control programs.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0304.1.001.004

Author Name: Thompson Glenn

Organization: U.S. House of Representatives

We are strongly against the increased regulation associated with the Total Maximum Daily Load proposal. We are not in favor of any further regulation that would impose more economic hardship on our citizens and local industry. Osram Sylvania is the one remaining industry in our Borough and we cannot afford the loss of that industry. Nor is the Borough Council for the idea of mandated 'caps' and hard compliance deadlines on the amount of effluence that can be discharged and ultimately flow into the Chesapeake Bay Watershed.

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL and the response for comment 0067.1.001.009. Section 8 of the final TMDL report describes the methodology by which EPA evaluated the jurisdictions' final Phase I WIPs, the process for developing the backstop allocations, the WIP evaluation findings and the resulting backstop allocations EPA established for each jurisdiction.

Please see the response to 0139.1.001.017 which discusses the issue of cost analysis and economic benefits of improved water quality and comment 0038.1.001.024 which outlines the federal effort towards the Bay.

Please refer to the response for comment 0080-cp.001.002 regarding New York allocations.

Comment ID 0304.1.001.006

Author Name: Thompson Glenn

Organization: U.S. House of Representatives

As all the meetings being held are South of our area, we will likely be unable to comment personally. We depend on you, our Congressman, to fairly represent us in this TMDL proposal. We too have a concern that residents would be provided with clean water. However, there must be a common sense approach to this issue. With so many people out of work and already hard pressed to pay the taxes levied upon them, this may not be the time for additional regulations and upgrading of management facilities to the degree that the EPA proposes.

An immediate Concern among our residents in Elk County is the possible damage to rural water supplies by Marcellus Shale drilling. People need their water protected at the source as well. Why has DEP and EPA fallen short in this "big business" area, but continues to over-regulate the little guy.

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL and the response for comment 0153.001.003 which outlines the Chesapeake Bay TMDL public participation process.

Please see the response to 0139.1.001.017 which discusses the issue of cost analysis and economic benefits of improved water quality and comment 0038.1.001.024 which outlines the federal effort towards the Bay.

The implementation of this TMDL is not intended to restrict development or impede economic vitality in any community. For further information regarding the costs of implementation, please see the response to comments 0052.1.001.001 and 0052.1.001.002.

Regarding your comment on the Marcellus Shale drilling, please see the response to comment 0190-cp.001.002.

Comment ID 0314.001.001

Author Name: Santulli Thomas

Organization: Southern Tier Central Regional Planning and Development Board (STCRPDB)

Southern Tier Central Regional Planning and Development Board (STCRPDB) is concerned about the draft Chesapeake Bay Total Maximum Daily Load (TMDL) issued by the Environmental Protection Agency (EPA). We recognize the need for improved water quality in the Bay. However, the approach presented in the Draft TMDL is neither equitable nor achievable .

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0317.001.001

Author Name: Kipp B.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you should oppose implementing the proposed Chesapeake Bay TMDL limits because:

NY already has the cleanest water in the watershed and effective pollution control programs.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0318.001.001

Author Name: Cross A.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because. . .

NY already has the cleanest water in the watershed and effective pollution control programs.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0328.1.001.002

Author Name: Kimpton Steven

Organization: INVISTA

The Draft TMDL Should Provide Sufficient Waste Load Allocations to Allow for Future Growth at INVISTA-Seaford

In 2009, certain operations at the INVISTA-Seaford manufacturing facility were curtailed, including nylon polymerization and carpet fiber processes. Remaining production includes specialty staple products using polymer that is manufactured at other INVISTA facilities.

This change in production has reduced the amount of process wastewater generated at INVISTA-Seaford. In order to provide more effective and efficient treatment, INVISTA is installing a smaller capacity treatment system to better address its current wastewater demands.

However, to ensure maximum operational flexibility at the site, the existing treatment facility will not be dismantled. This provides INVISTA the option to reinstate its larger treatment plant operations if the Seaford facility elects to increase production or seek other manufacturing partners to expand the site's operational footprint.

During the past two years, INVISTA-Seaford has conducted several discussions with the State of Delaware Department of Natural Resources and Environmental Control (DNREC) pertaining to its facility's restructuring efforts and how such restructuring of the facility would affect its NPDES Permit. At DNREC's request, INVISTA voluntarily agreed to reduce the facility's TMDL waste load allocation for Total Nitrogen ("TN") from a moving 12-month cumulative average net load limit of 430,700 pounds to a 215,000 pounds moving 12-month cumulative average net load limit. Even though the

pending revised TN permit load of 215,000 pounds is above the INVISTA Seaford's facility present discharge of nitrogen to the Nanticoke River, it is a significant reduction for the Seaford facility.

There were no formal discussions at that time pertaining to total phosphorus, as DNREC had previously determined the facility's waste load allocation for total phosphorus to be zero [defined as "none detectable" using an approved analytic method that has a method detection level of 0.1 mg/L.]

The final decision to reduce production at Seaford was made with careful and thoughtful consideration for the many impacts to both INVISTA employment and the local community. If the facility's future growth is limited by a greatly reduced TMDL, current job opportunities and growth potential could be at risk. Our inability to significantly increase production could impair INVISTA-Seaford's long-term viability as well as impact our potential to provide increased employment in southern Delaware.

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL and Please refer to the response for comment 0067.1.001.009. Section 8 of the final TMDL report describes the methodology by which EPA evaluated the jurisdictions' final Phase I WIPs, the process for developing the backstop allocations, the WIP evaluation findings and the resulting backstop allocations EPA established for each jurisdiction.

Please see the response to 0139.1.001.017 which discusses the issue of cost analysis and economic benefits of improved water quality and comment 0038.1.001.024 which outlines the federal effort towards the Bay.

For further information regarding the costs of implementation, please see the response to comments 0052.1.001.001 and 0052.1.001.002.

Comment ID 0329.1.001.001

Author Name: Harrington Marilou

Organization: Town of Caroline, New York

Resolution 11-5 from the Town of Caroline regarding A resolution of the Caroline Town Board expressing opposition to the Chesapeake Bay Total Maximum Daily Load (TMDL) regulatory proposal by the United States Environmental Protection Agency (EPA).

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0329.1.001.008

Author Name: Harrington Marilou

Organization: Town of Caroline, New York

Now, therefore, be it resolved that the Town of Caroline objects to the unattainable mandate and lack of parity represented in the Chesapeake Bay TMDL allocations for the State of New York compared to other Bay states and watershed jurisdiction; and

Be it further resolved, that the Caroline Town Board urges its Congressional and State representatives to intercede with EPA, and enact superseding legislation if required, to delay implementation of the Chesapeake Bay TMDL and request that EPA report to them on their response and adaptations regarding the aforementioned concerns.

Response

Please see the response to Comment ID 0080-cp.001.002

Comment ID 0347-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

America needs a long vacation from reglatory agencies such as the EPA!!!!!!!!!!!!!!!

Response

EPA thanks you for your comments on the Draft Chesapeake Bay TMDL. Without a more specific identification of your concerns, it is impossible for EPA to provide a fuller response.

Comment ID 0353.001.001

Author Name: Klossner L.

Organization:

I am very opposed to the Docket ID No. EPA-R03-OW-2010-0736 implementing the Chesapeake Bay TMDL limits because

--NY already has the cleanest water in the watershed and effective pollution control programs

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0355.1.001.001

Author Name: Williams Jesse

Organization: Williams Cattle Company LLC

1. We do not believe the Chesapeake Bay Model being used to estimate nutrient and sediment runoff to the bay is based on accurate data. WE believe EPA should not move ahead with costly mandates until flawed modeling and data are corrected and until the science and data have been proven.

Response

EPA respectfully disagrees with the comment. With regards to comments concerning the models used for the TMDL, please refer to responses to comment 0379.1.001.006 and 0238-cp.001.002.

Comment ID 0361.1.001.001

Author Name: Weidenbach Richard

Organization: Delaware County Soil and Water Conservation District (SWCD), New York

The Delaware County Soil and Water Conservation District strongly opposes the Draft Chesapeake Bay TMDL allocations for New York State as proposed by EPA.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0361.1.001.005

Author Name: Weidenbach Richard

Organization: Delaware County Soil and Water Conservation District (SWCD), New York

New York State is and has been committed to improving the long term health of the Chesapeake Bay. New York State's "track record" of nutrient reductions factually supports this claim. However, we cannot and will not support or be party to

a regulatory approach that is subjective, arbitrary and unattainable. EPA needs to scientifically re-calibrate its model to reflect "real life" values and credit New York State for its notable and voluntary nutrient reductions it has achieved as a good neighbor before we will support and/or partake in any further efforts to achieve further nutrient reductions to the Chesapeake Bay.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0370-cp.001.001

Author Name: Page T.

Organization:

• I appreciate all that you and Governor McDonnell have done to oppose and slow adoption of EPA's TMDL. I agree with your criticisms of the EPA TMDL, the process and timetable EPA has used to draft the TMDL and require adoption of a state WIP, and the flaws in EPA's Chesapeake Bay model.

Response

EPA thanks you for your comments on the draft Chesapeake Bay TMDL. Please see the response to comments 0137.1.001.004 and 0153.001.003 for more information on the process and timetable used to develop the TMDLs and WIPs. With regards to comments concerning the models used for the TMDL, please refer to responses to comment 0379.1.001.006 and 0238-cp.001.002.

Comment ID 0382-cp.001.001

Author Name: Combs Tina

Organization: Chamber of Commerce, Martinsburg and Berkeley County, West Virginia

I am writing in response to the draft Chesapeake Bay TMDL regulations to voice concerns regarding the potential negative impact the regulations will have on Berkeley County and the other Eastern Panhandle counties that lie within the affected watershed.

Response

EPA hears your concerns and thanks you for your comments on the Draft Chesapeake Bay TMDL.

Comment ID 0386.001.001

Author Name: Ayers M.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake bay TMDL limits because . . .

>NY already has the cleanest water in the watershed and effective pollution control programs.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0389.1.001.002

Author Name: Iwanowicz Peter

Organization: New York State Department of Environmental Conservation

New York recognizes the importance of the Chesapeake Bay restoration, the interrelation of nutrient and sediment pollution sources above and below the fall line and within the Bay itself, and the large volume of fresh water the Susquehanna River discharges to the Bay. New York honors its time-tested obligation to protect water resources within its borders, as well as water quality downstream, and it will continue to voluntarily implement a Bay restoration program to improve water quality in the Bay. New York is not opposed to entering into a future agreement with EPA to formalize its efforts to restore the Bay, but New York cannot agree to the allocations in this Draft TMDL.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0391.1.001.004

Author Name: Downes Paul

Organization: Mountaire Farms Inc.

Although Mountaire Farms supports the goals and objectives of the Chesapeake Bay restoration, we have serious concerns regarding the assumptions and data that are used in developing the TMDL and whether EPA has the authority to take the approach that it has.

Response

EPA thanks you for your comments on the draft Chesapeake Bay TMDL. With regards to comments concerning the models and data used for the TMDL, please refer to responses to comment 0379.1.001.006 and 0238-cp.001.002.

Comment ID 0399.001.001

Author Name: Comment Anonymous

Organization: Town of Erwin, New York

RESOLUTION MEMORIALIZING THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY IN OPPOSITION TO THE CHESAPEAKE BAY TOTAL MAXIMUM DAILY LOAD REGULATORY PROPOSAL DOCKET ID NO. EPA-R03- OW-2010-0736, AND REQUIRING THE ENVIRONMENTAL PROTECTION AGENCY TO ADAPT THE PROPOSED TOTAL MAXIMUM DAILY LIMITS TO ADDRESS THE CONCERNS RAISED BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, STEUBEN COUNTY, STEUBEN COUNTY SOIL AND WATER CONSERVATION DISTRICT AND TOWN OF ERWIN

WHEREAS, clean water and healthy watersheds are a priority for New York farmers, which play a critical role in proven and successful local efforts to conserve and protect New York's natural resources; and

WHEREAS, the United States Environmental Protection Agency ("EPA"), Region 3, has issued draft Chesapeake Bay Total Maximum Daily Load (TMDL), which imposes new allocations and costly federal regulations on approximately 19 counties, 650,000 residents and 2,000 New York family farms within the New York State portion of the Chesapeake Bay Watershed area; and

WHEREAS, EPA is requiring each State within the Chesapeake watershed to develop a Watershed Implementation Plan ("WIP")

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0399.001.018

Author Name: Comment Anonymous

Organization: Town of Erwin, New York

NOW THEREFORE, BE IT RESOLVED, that while the Town of Erwin fully supports responsible efforts to improve water quality in the Chesapeake Bay Watershed and protect our State's environment and natural resources, Town of Erwin finds the proposed EPA TMDL allocations to be arbitrary, capricious, and contrary to law, and accordingly, we object to the unfair and unattainable mandate the Chesapeake Bay TMDL forces upon our local governments, local communities, in particular those with WWTPs, and family farms; and be it further

RESOLVED, that the Town of Erwin urges not to adopt the proposed TMDL limits; and be it further

RESOLVED, that the Town of Erwin requires EPA to respond to the concerns raised by New York State Department of Environmental Conservation, Steuben County, Steuben County Soil and Water Conservation District and Town of Erwin, and be it further

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0419.1.001.004

Author Name: Sharma Lalit

Organization: City of Alexandria, Virginia

EPA's proposed approach for establishing WLAs for WWTPs served by CSSs is flawed for the following reasons:

• Consumes Allocation Needed by Other Sectors: The WWTP WLAs needed is shown as the "green" (DWF) and "blue" (CS-C) shaded area for the '91- '00 hydrology as shown in Figure 3. [Please see page 5 of the original letter (Docket ID EPA-R03-OW-2010-0736-0419.4)]. However, EPA's approach also includes the "stranded load" shown as the "gray" shaded area of Figure 3, which arbitrarily consumes allocations needed by the other sectors. For example, the total nitrogen "stranded load" consumed by EPA's approach is about 672,460 pounds per year as shown by the differences in Tables 1 and 2 (above). [Please see pages 2 and 7 of the original letter (Docket ID EPA-R03-OW-2010-0736-0419.4)]. However, if EPA continues with its approach, the allocations provided in Table 2 would be needed to handle the 2003 or 2004 annual average loads.

• Does Not Promote Maximizing Combined Sewer Flow Treatment at WWTP: Even with the annual average flows provided in Table 2, there may be years with more rainfall than 2003 and 2004 that will require allocations larger than those shown in Table 2. Establishing the allocations as a hard cap does not promote maximizing flow through the WWTP, which is required by EPA's CSO Control Policy. WWTP operators would have to judge whether accepting additional wet weather flow would put them at risk of exceeding their mass permit limitation (i.e. penalized for treating wet weather flow). This is completely inconsistent with the CSO Control Policy. If the WWTP permit contained a concentration limitation for wet weather flows (flows above the permit design capacity), the operator would be encouraged to empty the CSO storage facilities as fast as possible, which would prepare the storage facility to capture more volume from the next storm. Otherwise, the portion of the wet weather flow that could have been captured, had the WWTP operators not being placed at peril of exceeding the allocations, would instead be discharged at the permitted CSO outfalls. Therefore, if EPA is going to continue with its proposed approach, it must include the performance standards for wet weather flows that exceed the flows used to establish the WLAs in Table 2. Additionally, it is also important that EPA include the Table 2 footnotes in EPA's TMDL report to provide the proper guidance to the NPDES permit writers and document the assumptions used to establish the WLAs.

Response

Please refer to the response for comment 0067.1.001.009. Section 8 of the final TMDL report describes the methodology by which EPA evaluated the jurisdictions' final Phase I WIPs, the process for developing the backstop allocations, the WIP evaluation findings and the resulting backstop allocations EPA established for each jurisdiction.

Please see the response to 0139.1.001.017 which discusses the issue of cost analysis and economic benefits of improved water quality and comment 0038.1.001.024 which outlines the federal effort towards the Bay.

Please see the response to comment 0501.1.001.005 for more information regarding funding to municipalities and states for updates to infrastructure such as POTWs/WWTPs and MS4/stormwater systems.

Comment ID 0421-cp.001.001

Author Name: Comment Anonymous

Organization: Cloverfield Farm

The TMDL regulations that are proposed by the EPA concerning the Chesapeake Bay and its watershed are greatly flawed due to the facts that they are based on inaccurate information and are in contradiction to the laws of the constitution.

Response

EPA disagrees that the TMDL is greatly flawed or in contradiction to constitutional requirements. EPA is establishing the TMDL that meets water quality standards in the Bay pursuant to its authority under the CWA. The TMDL uses a robust data set and scientifically sound models. Please see Section 6 of the TMDL and the response to comment 0139.1.001.017. EPA notes, however, that the Chesapeake Bay TMDL is not a Federal regulation but is established pursuant to existing regulations.

Please also see Section 4 of the TMDL and the response to comments 0238-cp.001.002 and 0379.1.001.006 for more information on the models utilized in the Chesapeake Bay TMDL development.

Comment ID 0421-cp.001.003

Author Name: Comment Anonymous

Organization: Cloverfield Farm

Goals that have been set by the EPA concerning that TMDL are unrealistic. They fail to recognize that the bay is already cleaner than it was twenty five years ago due to the voluntary practices that are taken by farmers to reduce nutrient and sediment runoff from farmland. Furthermore they also fail to recognize that fact that there is a very large per acre population of people in the bay watershed that continues to grow rapidly and greatly increase the amount of runoff that is produced by thier daily activities.

Response

Please see the response for comments 0073-cp.001.001 and 0137.1.001.004.

Comment ID 0431.1.001.009

Author Name: Tolbert James

Organization: City of Charlottesville, Virginia

We want to emphasize that the City of Charlottesville is supportive of the general goals of the Chesapeake Bay cleanup but we have serious concerns about the process and current direction. We strongly urge the Commonwealth of Virginia to make the necessary modifications to the WIP to achieve the stated end results and to ensure that Virginia remains in control of key programs without EPA backstops. We also have serious concerns about the over reliance on nutrient trading schemes which, in effect, sacrifice one stream for the benefit of another. This is a short-sighted approach to a much more complex issue.

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL and the response for comment 0246.1.001.004.

Regarding specific comments on a jurisdiction's WIP, please refer to the response for comment 0034-cp.001.001.

Please see the response to comment 0139.1.001.017 where EPA discusses trading as a possibility to aid in alleviating some of the financial burden across the Bay jurisdictions.

Comment ID 0435.1.001.001

Author Name: Lentz Kristen

Organization: Department of Public Works, City of Norfolk, Virginia

The City of Norfolk (City) has reviewed the proposed Chesapeake Bay (Bay) Total Maximum Daily Load (TMDL) developed by the Environmental Protection Agency (EPA). The residents of Norfolk benefit directly from the Bay through tourism, commercial businesses, and recreation. With approximately 140 miles of shoreline, the quality of the Lafayette and Elizabeth Rivers and the Bay, improvements to the quality of the Chesapeake Bay is a primary concern to our coastal community of 240,000. We are committed to doing our part to protect this invaluable resource.

We have commented through our membership in the Hampton Roads Planning District Commission (HRPDC) and Virginia Municipal Storm Water Association (VAMSA) and request that the EPA fully consider and address all of HRPDC [Comment Letter contains additional information in the form of an attachment. See original comment letter 0435.1. See comment EPA-R03-OW-2010-0736-0293.1] and VAMSA [Comment Letter contains additional information in the form of an attachment. See original comment letter 0435.1. See comment EPA-R03-OW-2010-0736-0436] comments, which we generally support and hereby incorporate as attachments. We have also submitted additional comments of particular concern for the City. Attached is a detailed discussion of technical concerns and recommended revisions to the proposed TMDL.

Although the City realizes that the EPA proposed TMDL and Virginia Watershed Implementation Plan (WIP) are necessary steps in the direction to improve water quality in the Chesapeake Bay watershed, we cannot support the TMDL in their current version. We recommend that the EPA consider extending the TDML development until May 2011,

allowing additional time for public review and comment. We also recommend the EPA consider allowing the Commonwealth of Virginia to continue to ramp up and implement the Tributary Strategies previously developed to address the health of the Bay. It is important to recognize the costs to implement these proposed goals need to be balanced with the resources that can reasonably dedicated to this effort.

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL. Regarding your comment to delay the adoption of the TMDL, please see the response to comment 0062.1.001.004.

Please refer to the response for comment 0315.001.001 regarding tributary strategies, WIPs and the Bay TMDL.

Please see the response to 0139.1.001.017 which discusses the issue of cost analysis and economic benefits of improved water quality and comment 0038.1.001.024 which outlines the federal effort towards the Bay.

Comment ID 0435.1.001.003

Author Name: Lentz Kristen

Organization: Department of Public Works, City of Norfolk, Virginia

Representatives from the City of Norfolk (City) have reviewed the proposed Chesapeake Bay (Bay) Total Maximum Daily Load (TMDL) developed by the Environmental Protection Agency (EPA).

The City has always been a leader in storm water management in the Commonwealth of Virginia. We were one of the first Phase I localities to adopt a storm water management program to address storm water runoff. Being the oldest locality and the urban center of the Hampton Roads community, the City experiences many unique challenges in managing storm water including obsolete, aged infrastructure and submerged storm water outfalls with tidal inundation. The City also experiences flooding from both precipitation and tidal sources and is directly impacted by relative sea level rise.

With our commitment to the environment, balancing the needs to improve storm water quality and the City resources is also of paramount concern. The City storm water rates remain the highest in all the Phase I communities in the Commonwealth of Virginia. The substantial increase in storm water rates that will result from Bay TMDL implementation, including the proposed "backstops", will negatively impact the City's ability to continue to meet water

quality standards and address flood reduction that improves the quality of life and health of our citizens.

The Federal government's commitment to the environment, in general, and to improve the Bay specifically, regrettably becomes another unfunded mandate on the state and local governments. The requirements placed upon the states within the Bay watershed are burdensome without also providing adequate resources, authority, and time to implement the mandate. The health of the Bay would be better served if the Commonwealth of Virginia and the localities within Virginia continued in a stepped approach to cleaning up the Bay as in the established Commonwealth Tributary Strategies.

The City is committed to restoring the Bay; however, we cannot support the Draft TMDL in its current form. Our concerns, discussed in general terms above, are detailed below. In addition, we have submitted our recommendations to update the Draft TMDL to achieve the water quality goals in an incremental and balanced approach.

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL and the response for comment 0067.1.001.009. Section 8 of the final TMDL report describes the methodology by which EPA evaluated the jurisdictions' final Phase I WIPs, the process for developing the backstop allocations, the WIP evaluation findings and the resulting backstop allocations EPA established for each jurisdiction.

Please see the response to 0139.1.001.017 which discusses the issue of cost analysis and economic benefits of improved water quality and comment 0038.1.001.024 which outlines the federal effort towards the Bay.

Please see the response to comment 0501.1.001.005 for more information regarding funding to municipalities and states for updates to infrastructure such as POTWs/WWTPs and MS4/stormwater systems.

Comment ID 0435.1.001.012

Author Name: Lentz Kristen

Organization: Department of Public Works, City of Norfolk, Virginia

Although the City realizes that the proposed TMDL and WIP are a step in the right direction to improve water quality in the Chesapeake Bay watershed, we cannot support the TMDL in its current state during this time of economic recession, in light of so many discrepancies and uncertainties associated with the Bay model. We highly recommend that the EPA extend the TDML development until May 2011, allowing additional time for public review and comment. We also recommend the EPA consider allowing the Commonwealth of Virginia to continue to ramp up and implement the Tributary Strategies.

We look forward to continuing to work with the EPA and the Commonwealth of Virginia to address the above-noted concerns and comments to improve the health of the Bay.

Response

The Clean Water Act requires TMDL to be established as a level necessary to implement the applicable water quality standards in the Bay, which is explained in the response to comment 0139.1.001.017. Please see the response to comments 0238-cp.001.002 and 0379.1.001.006 for more information on the models utilized in the Chesapeake Bay TMDL development.

Regarding your comment to delay the adoption of the TMDL, please see the response to comment 0062.1.001.004.

Comment ID 0446.1.001.001

Author Name: Beegle Douglas

Organization: Penn State University

A serious deficiency in the Chesapeake Bay TMDL is that it does not address the underlying issues related to the structure of agriculture in general and the implications for nutrient management in the Chesapeake Bay watershed.

Response

EPA respectfully diagrees with the comment. Please see the response to comments 0238-cp.001.002 and 0379.1.001.006 for more information on the models and data utilized in the Chesapeake Bay TMDL development (including agriculture). Please also see the response for comment 0073-cp.001.001.

Comment ID 0466.1.001.001

Author Name: Suarez Julie

Organization: New York Farm Bureau (NYFB)

While the intent of cleaner water throughout the Chesapeake Bay Watershed is admirable, NYFB is disheartened about the priority emphasis on top-down regulation and enforcement the Environmental Protection Agency (EPA) has taken with the draft TMDL.

Response

Please refer to the response for comment 0080-cp.001.002 regarding New York allocations.

Comment ID 0473.1.001.006

Author Name: Pechart Michael

Organization: Pennsylvania Department of Environmental Protection and Department of Agriculture

In general, Pennsylvania is concerned that EPA's approach to the Draft Chesapeake Bay TMDL is neither practical, equitable, nor cost-effective and could reverse progress in meeting our water quality goals.

Response

EPA hears your concerns and thanks you for your comments on the Draft Chesapeake Bay TMDL. EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL. EPA reminds the commenter that EPA is under a legal obligation to establish a TMDL that meets water quality standards in the Bay which is explained in the response to comment 0139.1.001.017.

The implementation of this TMDL is not intended to restrict development or impede economic vitality in any community. For further information regarding the costs of implementation, please see the response to comments 0052.1.001.001 and 0052.1.001.002.

Comment ID 0478-cp.001.005

Author Name: Fleury Thomas

Organization: Cityline Partners

We respectfully request that you delay any action on adoption and implementation of TMLD measures for the Chesapeake Bay until 12/31/13 based on the following rationale:

5) Why the rush to yet another unfunded federal mandate while we atre working our way out of the worse real esatate market since the Great Depression. This is kicking a man while he is down, and with limited funds and manpower, the real estate industry is currently ill equipped to stave off these measures, and need s more time to present its plausible alternatives.

Response

EPA reminds the commenter that EPA is under a legal obligation to establish a TMDL that meets water quality standards in the Bay which is explained in the response to comment 0139.1.001.017. The implementation of this TMDL is not intended to restrict development or impede economic vitality in any community. For further information regarding the costs of implementation, please see the response to comments 0052.1.001.001 and 0052.1.001.002.

Regarding your comment to delay the adoption of the TMDL, please see the response to comment 0062.1.001.004. Regarding your

comment that the TMDL development process was rushed, please see the response to comment 0137.1.001.004.

Comment ID 0481.1.001.001

Author Name: Andes Fredric

Organization: Federal Water Quality Coalition

the Draft TMDL exceeds EPA's authorities. To address this issue, we recommend that EPA withdraw the Draft TMDL and support the efforts of the watershed jurisdictions to improve water quality. Toward that end, we urge EPA to provide additional funding, modeling and technical assistance to ensure that the implementation measures selected by states are well-designed, equitable, achievable and will result in measureable water quality improvements. If EPA chooses not to withdraw the Draft TMDL, at a minimum, it must revise the TMDL in a manner that conforms with EPA's statutory limitations and better reflects and encourages the on-the-ground efforts of the watershed jurisdictions to improve water quality.

Response

Please refer to the response for comment 0061-cp.001.001.

Comment ID 0507.1.001.001

Author Name: Sullivan Sean

Organization: Liberty University and Thomas Road Baptist Church

Since the signing of the original Chesapeake Bay Agreement in 1983, federal, state and local authorities have expended tremendous time and resources towards meeting this lofty goal, and significant progress has been made. As a result, Liberty is very concerned by the sudden shift in approach reflected in EPA's draft Total Maximum Daily Load ("TMDL") for the Chesapeake Bay (the "Draft TMDL").

It appears that, in its haste to comply with the deadlines and substance of the agency's settlement agreement in Fowler v. United States, [FN2] EPA has rushed the development of the Draft TMDL to the point that it has proposed a program fundamentally at odds with the Clean Water Act and the Administrative Procedure Act.

[FN2] No. 1:09-CV-00005-CKK (D.D.C. filed, Jan. 5, 2009).

Response

Regarding your comment that the TMDL development process was rushed, please see the response to comment 0137.1.001.004.

Comment ID 0514.1.001.002

Author Name: Schwartz Jerry

Organization: American Forest & Paper Association (AF&PA) and National Alliance of Forest Owners (NAFO)

AF&PA and NAFO have joined other comments filed today by groups representing a wide range of organizations in the regulated community. Those comments challenge the legality of the TMDL on a variety of grounds, including lack of due process. They also address various technical and policy issues regarding the TMDL. These technical comments have been supplemented in more detail with respect to forests and forest management by the National Council for Air and Stream Improvement, Inc. (NCASI)(attached). AF&PA and NAFO strongly support the comments filed by NCASI as well and are filing these limited additional comments to further demonstrate the lack of due process inherent in certain aspects of EPA's waters quality modeling supporting the TMDL.

Response

EPA thanks you for your comments on the draft Chesapeake Bay TMDL. Please see the response to comments 0137.1.001.004 and 0153.001.003 for more information on the process and timetable used to develop the TMDLs and WIPs.

Comment ID 0515.1.001.002

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

As described in detail below, we believe that the TMDL is not approvable in the form presently posted. Some requirements in the TMDL are not achievable within the limits of technology. Error correction and additional information and documentation are required, as well. Some aspects of the TMDL do not appear to have been fully researched or developed, and the TMDL itself has not been peer-reviewed. Accordingly, the EPA should withdraw or refrain from implementing the TMDL in its present form.

Response

Please see the response for comment 0145.1.001.006.

Regarding your comment to withdraw the TMDL, please see the response to comment 0062.1.001.004.

Comment ID 0515.1.001.030

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

Restoring the Bay's WQ and vitality is an important mission for the EPA and, as described above, our communities are heavily invested and we are actively participating daily in meeting this mission. Nevertheless, based on the points covered above, as well as others submitted through this abbreviated public comment process, we believe it appropriate for the EPA to withdraw the TMDL, then correct, refine and calibrate the underlying models, "go back to the drawing board" and make needed revisions and updates, so as to come up with an improved TMDL regulatory proposal based on transparent, publicly-available, and supportable modeling grounded on accurate data inputs and computations, which is realistic, workable, and has a reasonable assurance of being successfully implemented to achieve the long-term goal of restoring the Bay. Should the EPA determine to proceed with implementation of a TMDL based on the present draft, however, the agency must take adequate time to review and fully address all comments recieved, so as to correct all errors, shortcomings, and omissions identified. We also favor an approach that permits the WIPs to be developed after the TMDL is finalized, so that each jurisdiction can properly follow its individual regulatory procedures and process, in order for the WIPs to completely correspond to and address the requirements of the TMDL, while focused on the firm, clear set of goals.

Response

EPA thanks you for your comments on the draft Chesapeake Bay TMDL. EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL. Please see the response to comments 0137.1.001.004 and 0153.001.003 for more information on the process and timetable used to develop the TMDLs and WIPs. Regarding your comment to withdraw the TMDL, please see the response to comment 0062.1.001.004.

Comment ID 0518.1.001.002

Author Name: DuVal Barry

Organization: Virginia Chamber of Commerce (VCC)

Virginia does not need, nor should the EPA demand additional draconian clean up actions at this time, especially with no regard to the economic impact and costs of their demands.

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please refer to the response for comment 0067.1.001.009. . Section 8 of the final TMDL report describes the methodology by which EPA evaluated the jurisdictions' final Phase I WIPs, the process for developing the backstop allocations, the WIP evaluation findings and the resulting allocations EPA established for each jurisdiction.

Please see the response to comment 0139.1.001.017 which discusses the issue of cost analysis and economic benefits of improved water quality and comment 0038.1.001.024 which outlines the federal effort towards the Bay.

Comment ID 0534.1.001.001

Author Name: Golazeski Daria

Organization: Broome-Tioga Stormwater Coalition (BTSC)

The Broome-Tioga Stormwater Coalition (BTSC) recognizes the importance of a healthy and thriving Chesapeake Bay and commends efforts to restore the Bay ecosystem. However, we feel that the EPA's draft Total Maximum Daily Load (TMDL) is inequitable, unattainable, and threatens to be punitive to our State and our local economies. We support the position of the NYS Department of Environmental Conservation and its water quality partners, and their assessment as put forward in the draft Watershed Implementation Plan.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0541.1.001.001

Author Name: Knapp Leslie

Organization: Maryland Association of Counties (MACo)

The Maryland Association of Counties (MACo) represents all 23 Maryland Counties and Baltimore City. MACo recognizes the need to halt and reverse the ongoing deterioration of the Chesapeake Bay and its tributaries, but does have several concerns relating to the establishment of the Total Maximum Daily Load (TMDL) requirements for Maryland.

Response

EPA thanks you for your comments on the draft Chesapeake Bay TMDL.

Comment ID 0568.1.001.001

Author Name: Eisel James

Organization: Delaware County, New York

While the Delaware County Board of Supervisors has been a partner in the restoration of the Chesapeake Bay since

2000, we have grave concerns with the Draft Total Maximum Daily Load for Nitrogen (N), Phosphorus (P), and sediment issued by USEPA. These concerns are summarized in Board of Supervisor's Resolution No. 193, adopted on the 27th of October 2010 and attached as Appendix A.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0568.1.001.012

Author Name: Eisel James

Organization: Delaware County, New York

Resolution No. 193
Title: Opposition to Recently Proposed Total Maximum Daily Load Allocations for the Susquehanna River in New York State Watershed Affairs

WHEREAS, Delaware County supports the reasonable, cost effective and science-based protection of natural resources while protecting the economic integrity of the county; and

WHEREAS, Delaware County has demonstrated its commitment to protecting water quality by adopting (August 1999, Resolution No. 213) and implementing its Delaware County Action Plan county-wide; and

WHEREAS, even though Delaware County in partnership with other New York State counties have made significant improvements in water quality with regard to phosphorus, nitrogen, and sediment since the mid-1990s, it has been summarily dismissed by the Environmental Protection Agency (EPA) while other signatory states in the basin have increased their pollution footprint; and

WHEREAS, the New York State Department of Environmental Conservation (NYSDEC) provided reasonable and achievable thresholds for pollutant loading reductions from various sources for phosphorus, nitrogen and sediment through the Watershed Implementation Plan (WIP); and

WHEREAS, EPA has rejected the NYSDEC WIP as they believe it was significantly flawed; and

WHEREAS, EPA allocations would require all farms to meet Concentrated Animal Feeding Operations (CAFO) standards, a standard that would bankrupt most farms; and

WHEREAS, EPA allocations would require approximately 50% of the existing impervious surfaces (parking lots) to be retrofitted with stormwater best management practices, an exercise that would be detrimental to local businesses; and

WHEREAS, EPA allocations would require wastewater treatment facilities to upgrade nitrogen and phosphorus reduction strategies that would place an unaffordable tax burden on village taxpayers and result in businesses leaving

the basin; and

WHEREAS, EPA allocations would dictate even the smallest population centers to be classified as an MS-4, a stormwater classification that would require those communities to spend millions of dollars to treat stormwater for a relatively small amount of nutrient reduction.

NOW, THEREFORE IT BE RESOLVED, the Delaware County Board of Supervisors strongly opposes this USEPA unfunded TMDL mandate which is untenable and economically destructive.

BE IT FURTHER RESOLVED, that this resolution be sent to all appropriate county, state and federally elected officials that have a represented interest in the Susquehanna River Basin, EPA Administrator Lisa Jackson, Regional Administrator Shawn M. Garvin from Region 3, Regional Administrator Judith A Enck from Region 2 and NYSDEC Commissioner Acting Commissioner Peter Iwanowicz.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0571.1.001.024

Author Name: Rountree Glynn

Organization: National Association of Home Builders (NAHB)

VII EPA Should Not Use the Chesapeake Bay Program or The TMDL as a National Model.

EPA has repeatedly claimed that the Chesapeake Bay TMDL will be used as a model for other nutrient reduction programs across the U.S. Because of the breadth, peculiarities, and cost of this effort, however, this TMDL would make a poor choice for replication and, thus, should not set the bar for future efforts. EPA.

The Chesapeake Bay Strategy issued as a result of the Chesapeake Bay Executive Order reveals how complicated the restoration program, in its totality, will be. The program will not only be complicated, but it will be costly in the extreme, with many never-before-used regulatory provisions that will likely need revision. Nowhere else will such a program take place in the future because no one else will be able to afford it. It remains to be seen whether the Chesapeake Bay states can afford it. The existing Chesapeake Bay Program has come about because of the millions of dollars that the federal government has spent since the 1980s to monitor, research, and model the Bay using state-of-the-art software. It is doubtful that the federal government will continue to send dollars to the Bay states to restore the Chesapeake Bay. The Chesapeake Bay Program should be held out to future states that must reduce nutrients in impaired waters for its "lessons learned" experiences, not for its program content which was developed for a unique situation that will not be duplicated.

Response

EPA appreciates the comment. Please see the response to comment 0571.1.001.005.

Comment ID 0572.1.001.002

Author Name: Robinson Steve

Organization: National Association of Conservation Districts (NACD)

While we continue to look for ways to improve, misguided federal regulation will ultimately do more harm than good. Forcing producers to comply with unattainable and unfunded mandates, based on faulty information about agriculture's actual contribution to the Bay, will only cause frustration, and result in significant economic and social impacts. To truly move forward, EPA needs a plan that is attainable, provides realistic benchmarks and funding and takes into account the unique, demographic pressures of the region.

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL and Please see the response for comment 0073-cp.001.001.

Comment ID 0605.2.001.007

Author Name: Payne L.

Organization: City of Lynchburg, Virginia

We understand that the Draft TMDL is fundamentally and materially flawed as a technical matter, especially with regards to the James River components. Serious chlorophyll standard and computer modeling deficiencies are thoroughly documented in the comments of the Virginia Association of Municipal Wastewater Agencies, Inc. ("VAMWA'). We request that EPA fully consider and address all of VAMWA's comments, which we generally support and hereby incorporate by reference as if fully set forth herein. [See EPA-R03-OW-2010-0736-0288.1]

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL and the response to comment 0184.1.001.004.

Comment ID 0608.1.001.004

Author Name: Pallansch Karen

Organization: Virginia Sanitation Authority, City of Alexandria

We believe that the Draft TMDL has some significant deficiencies which have been thoroughly documented in the comments of the Virginia Association of Municipal Wastewater Agencies, Inc. ("VAMWA"). We request that EPA fully consider and address all of VAMWA's comments, which we generally support and hereby incorporate by reference as if fully set forth herein. [See comments 288.1 & 293.1]

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL and the response to comment 0184.1.001.004.

Comment ID 0609.1.001.001

Author Name: Aubertine Darrel

Organization: Senate of the State of New York

I write as the Chair of the New York State Senate Standing Committee on Agriculture and the Legislative Commission on Rural Resources to express my opposition to the above referenced proposed Total Maximum Daily Loads (TMDL) for the Chesapeake Bay (Bay).

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0633-cp.001.001

Author Name: Bertoni John

Organization: Wastewater Treatment Plant, Village of Endicott, New York

Although we do agree that the water quality of the Bay area is of great importance, the approach laid out in the EPA's draft TMDL plan is not only unachievable but irresponsible.

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by

the States and consideration of comments including this one. Please see Section 8 of the TMDL and response for comment 0080-cp.001.002 regarding New York allocations.

Comment ID 0633-cp.001.006

Author Name: Bertoni John

Organization: Wastewater Treatment Plant, Village of Endicott, New York

The EPA's draft TMDL plan is unfair, unrealistic, and irresponsible.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0652.1.001.001

Author Name: Pandish Steven

Organization: William H. Gordon Associates, Inc.

As a citizen of the Commonwealth of Virginia and a member of the engineering community, I endorse the goal to improve water quality and recognize the need for new regulations. I also recognize that, if properly applied, new regulations may advance this goal. Conversely, if the regulations result in disproportionate and unknown burdens on stakeholders, the ultimate goal of improving water quality may be compromised. I believe the latter is true with regard to TMDLs for the Chesapeake Bay.

Response

EPA reminds the commenter that EPA is under a legal obligation to establish a TMDL that meets water quality standards in the Bay which is explained in the response to comment 0139.1.001.017.

Comment ID 0657.1.001.003

Author Name: Murphy Robert

Organization: Town of Colonial Beach, Virginia

We understand that the Draft TMDL is fundamentally and materially flawed. These deficiencies are thoroughly documented in the comments of the Virginia Association of Municipal Wastewater Agencies, Inc. ("VAMWA"). We request that EPA fully consider and address all of VAMWA's comments, which we generally support and hereby

incorporate by reference as if fully set forth herein. [See comments of EPA-R03-OW-2010-0736-0288].

In closing, what is distinctly missing from EPA's Draft TMDL is any appreciation for the major commitments very recently made by EPA and Virginia (the State's adoption and EPA's approval of the Virginia Regulations in 2005 and 2007) and the major financial commitments that local governments have made to implement those requirements including incurring significant public debt (typically with 20 to 30 year repayment terms) and constructing major new facilities (typically built to last 20 to 30 years). As an organization with a demonstrable commitment to clean water, we object to the waste inherent in EPA's threatened override of the Virginia Regulations and Virginia WIP through the Draft TMDL and its elements that relate to our WLAs.

Response

Please see the response to comment 0184.1.001.004. Please see the response to comment 0501.1.001.005 for more information regarding funding to municipalities and states for updates to infrastructure such as POTWs/WWTPs and MS4/stormwater systems. Please also see the response to 0139.1.001.017 which discusses the issue of cost analysis and economic benefits of improved water quality and comment 0038.1.001.024 which outlines the federal effort towards the Bay.

Comment ID 0684-cp.001.001

Author Name: Saunders Jim

Organization: Saunders Brothers,Inc.

Please reconsider your Chesapeak Bay Regulations. They will force many farmers out of business

Response

EPA notes that the TMDL is not a regulation but is established pursuant to existing regulatios implementing the federal Clean Water Act. Please see the response for comment 0073-cp.001.001.

Comment ID 0690.001.001

Author Name: Crispell C.

Organization:

In regards to the Docket ID No. EPA-R03-OW-2010-0736 I oppose implementing the proposed Chesapeake Bay TMDL limits because, N.Y. already has the cleanest water in the watershed and effective pollution control programs.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0696.001.001

Author Name: Belote James

Organization: Nancock Farms

My name is Jim Belote. I am the owner operator of a four generation family Century Farm in Accomack County. I am also retired as an Extension Agent for agriculture having worked 24 years in Accomack County and 10 years in Virginia Beach and Chesapeake. I have a Master's Degree in Horticulture from North Carolina State and a B.S. Degree in Agronomy from Virginia Tech and have been involved in Soil and Water Conservation for 34 years. I have served as a Director for many years on the Eastern Shore Soil and Water Conservation District and the Virginia Dare Soil and Water Conservation District. I was also the County TMDL representative for Virginia Cooperative Extension for years in Accomack County and have been involved in the Bay Program as related to agriculture since its beginning.

In regards to the proposed program, I do not like what you have proposed. I do not think it will work as written and I predict it will mostly be a failure. It intrudes further on private property rights and requires enormous sums of taxpayer and private money. That has been the problem with the Bay Program from the beginning and apparently it will continue to be.

Response

EPA appreciates the commitment of the commenter towards environmental proection. EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL and the response for comment 0073-cp.001.001.

Comment ID 0696.001.003

Author Name: Belote James

Organization: Nancock Farms

For 20 plus years the Bay Program has consumed billions of taxpayer dollars. According to recent news accounts, the Bay program has spent an average of $291 million a year over the last five years alone and leadership now wants to spend $491 million a year while our country is going bankrupt. To date, we have a Bay Program based on a computer program that could never show the results needed and billions of taxpayer money spent with little, if any, accountability. Some would term this fiscal irresponsibility. Has there been a misuse of public funds? Why has so much been spent with so little results? Is there a question of competence?

I believe there has been over the years a misrepresentation of facts by those who know better. People knew some things were wrong but did it anyway and billions of taxpayer dollars have been spent and for what?

An outside independent investigative unit should be appointed to investigate this program to date to see why so much money has been spent but so few results obtained. Where has the money gone? Who is responsible for the mess we are in and how do we straighten things out so that the bay is improved as we all desire? We need a new approach to the bay. It should be objective and not political. It should respect private property rights. People should not have regulations shoved down their throat. They should want to do it and we all should be more respectful of how much things cost.

Response

The Clean Water Act requires TMDL to be established as a level necessary to implement the applicable water quality standards in the Bay, which is explained in the response to comment 0139.1.001.017. Please also see the response for comment 0038.1.001.024 which outlines the federal effort towards the Bay. With regards to comments concerning the models used for the TMDL, please refer to responses to comment 0379.1.001.006 and 0238-cp.001.002.

Comment ID 0705.001.001

Author Name: Cuffee-Glenn Selena

Organization: City of Suffolk, Virginia

The City of Suffolk's MS4 operates under a general Phase II MS4 permit issued by the Virginia .Department of Conservation and Recreation. As a small locality in the Tidewater Region of Virginia, we have concerns with the proposed implementation of EPA's "Pollution Diet" and the possible impacts to our community. While we understand and agree that the health of the Chesapeake Bay should be of concern to everyone, and must be addressed, we are concerned with many of the approaches proposed by the EPA. We are apprehensive with regard to the tools being used to both determine the load allocations, and to monitor the diet. We all know most diets prove unsuccessful because they are impossible to stick with; either the diet is too onerous or the results do not come quickly enough. Like the EPA, we are committed to a successful diet. However, in order to be successful, we respectfully request that the criteria to meet the milestones be obtainable for a small community like Suffolk, and affordable for our citizens. Additionally, the schedule established should be realistic in allowing time for the desired results.

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL and the response for comment 0370-cp.001.001.

Comment ID 0724.001.002

Author Name: Bernardo John

Organization: Town of Union, Endwell, New York

However, we feel that the EPA's draft Total Maximum Daily Load (TMDL) is inequitable, unattainable, and threatens to be punitive to our State and our local economies.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0726.001.004

Author Name: Belfield G.

Organization: Town of Tappahannock, Virginia

We understand that the Draft TMDL is fundamentally and materially flawed . These deficiencies are thoroughly documented in the comments of the Virginia Association of Municipal Wastewater Agencies, Inc. [("VAMWA")]. We request that EPA fully consider and address all of VAMWA's comments, which we generally support and hereby incorporate by reference as if fully set forth herein .

[("VAMWA")]- See#0288.1

Response

EPA respectfully disagrees. Please see the response to comment 0184.1.001.004.

Comment ID 0728.001.008

Author Name: Proto Frank

Organization: Tompkins County Water Resources Council

while the Tompkins County Water Resources Council fully supports responsible efforts to improve water quality in the Chesapeake Bay watershed and protect our State's environment and natural resources, we object to the adoption and implementation of the proposed regulations without further consultation with the affected states; RESOLVED, further, That the Tompkins County Water Resources Council urges its Congressional and State representatives to intercede with EPA, and enact superseding legislation if required, to delay implementation of the Chesapeake Bay TMDL and request that EPA report to them on their response and adaptations regarding the aforementioned concerns;

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0735.001.003

Author Name: Smiley Don

Organization: Utilities, Inc.

We understand that the Draft TMDL is fundamentally and materially flawed. These deficiencies are thoroughly documented in the comments of the Virginia Association of Municipal Wastewater Agencies, Inc. ("VAMWA"). We request that EPA fully consider and address all of VAMWA's comments, which we generally support and hereby incorporate by reference as if fully set forth herein.

Response

Please see the response to comment 0184.1.001.004.

Comment ID 0736.001.004

Author Name: Middaugh Robert

Organization: James City County, Virginia

As such, we have concerns with the draft Chesapeake Bay TMDL, Docket ID No. EPA-R03-OW-2010- 0736.

Response

EPA thanks you for your comments on the draft Chesapeake Bay TMDL.

Comment ID 0741.001.001

Author Name: Caskey W.

Organization: Isle of Wight County

In spite of our endorsement of improving Bay water quality, we object to the EPA's approach to the TMDL for several reasons. We are regulated as a small MS4 with unique characteristics that preclude retrofit techniques available to more urban localities; we also lack significant tracts of county-owned land that would typically be targeted for urban retrofits.

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL and the response for comment 0067.1.001.009. Section 8 of the final TMDL report describes the methodology by which EPA evaluated the jurisdictions' final Phase I WIPs, the process for developing the backstop allocations, the WIP evaluation findings and the resulting backstop allocations EPA established for each jurisdiction.

Please see the response to 0139.1.001.017 which discusses the issue of cost analysis and economic benefits of improved water quality and comment 0038.1.001.024 which outlines the federal effort towards the Bay.

Please see the response to comment 0501.1.001.005 for more information regarding funding to municipalities and states for updates to infrastructure such as POTWs/WWTPs and MS4/stormwater systems.

Comment ID 0742.001.007

Author Name: Wells John

Organization: Town of Leesburg, Virginia

We understand that the Draft TMDL is fundamentally and materially flawed. These deficiencies are thoroughly documented in the comments of the Virginia Association of Municipal Wastewater Agencies, Inc . ("VAMWA"). We request that EPA fully consider and address all of VAMWA's comments, which we generally support and hereby incorporate by reference as if fully set forth herein .[See #293]

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL and response to comment 0184.1.001.004.

Comment ID 0743.001.001

Author Name: Declue Robert

Organization: Water Quality Coordinating Committee (WQCC)

On behalf of the Chenango County Water Quality Coordinating Committee (WQCC), I am corresponding with you in protest of the draft Chesapeake Bay Total Maximum Daily Load (TMDL) allocations as currently proposed.

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0746.1.001.001

Author Name: Carl Jimmie

Organization: Southern Tier Chesapeake Bay TMDL Commenting Coalition

This letter and its Attachment B contains the comments of the Southern Tier Chesapeake Bay TMDL Commenting Coalition (Southern Tier Coalition) a unique, loosely formed coalition representing many of the major New York stakeholders who will be impacted by, and have to pay for, the severe nitrogen, phosphorus and sediment reductions which the Draft Chesapeake Bay TMDL (Draft TMDL) is proposing be imposed on the New York portion of the Bay. As shown on Attachment A, our members represent both point and non-point agricultural sources, as well as municipal and industrial point sources, including dischargers of urban stormwater. Members of the Coalition have three things in Common:

1. We are committed to continuing to be responsible, environmental stewards within our watersheds and within the larger Chesapeake Bay watershed.

2. We object to the artificially low, inequitable and unfair nitrogen, phosphorus allocations which have been assigned to New York in the Draft TMDL.

3. We emphatically state for the record that the cost of achieving the proposed nutrient reductions cannot primarily be paid for by local, or even New York dollars.

[Comment Letter contains additional information in the form of an attachment. See original comment letter 0746.1]

Response

Please refer to the response for comment 0080-cp.001.002.

Comment ID 0770.001.001

Author Name: Ayers C.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake bay TMDL limits because...

--NY already has the cleanest water in the watershed and effective pollution control programs.

Response

Please see the response to Comment ID 0080-cp.001.002.

Response to Public Comments: Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

Issue Category: 2. General Support

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December 29, 2010

Docket #: EPA-R3-OW-2010-0736

2 - GENERAL SUPPORT

Comment ID 0035-cp.001.001

Author Name: Bowman Daniel

Organization:

The EPA's efforts to help clean up the waterways on the Chesapeake Bay are a long time coming and a real need. Having grown up on the Bay and watching both water quality decline and the amount of crabs and fish in the Bay decline is not some grand statement, it's an observable and measurable fact. I've been involved in the Bay as a crabber, fisherman, assistant to a crab pickers when a kid, power boater and predominantly now, sail boater and I appreciate the place the Bay holds for both a production and harvest economy and its value for the recreational and tourism economies and I know that they are not independent from each other.

A clean Bay would be a more productive Bay in terms of crab, fish and oyster harvests. Improving water quality and setting limits to harvests will allow the Bay to recover and grow. As it grows and cleans up, its real value as a regional economic driver will grow. And its intrinsic value to everyone that lives within its watershed areas will grow. The rescue of the Bay needs to be presented as a long term benefit to local economies and the health and welfare of citizens in the region. But this will not happen if left to local politics which have failed to produce anything more than studies, not results.

Response

EPA agrees that the Chesapeake Bay serves a vital role in the economies and the health and welfare of citizens in the region.

Comment ID 0038.1.001.001

Author Name: Eisen Professor Joel

Organization: University of Richmond Environmental Law and Policy

On behalf of myself and the 26 students in the University of Richmond Environmental Law and Policy course, Fall 2010, I urge the EPA to adopt a TMDL that restores the health of our national estuary, the Chesapeake Bay. I attach students' full comments.

Response

EPA appreciates the commenter's support. It is EPA’s intention that the Chesapeake Bay TMDL will help to restore the water quality in the Chesapeake Bay.

Comment ID 0038.1.001.002

Author Name: Eisen Professor Joel

Organization: University of Richmond Environmental Law and Policy

Stricter regulations with actual consequences need to be put into place quickly. The more time wasted the more bay lost and the worse off the economy in the long run. Something needs to be done now, and if it hurts for a short time it will get better, but of nothing is done, it will continue worsen. As a Virginian, and a citizen who deserves the right to have a clean bay, I say save the Bay.

Response

EPA agrees that if no action is taken, the Chesapeake Bay likely will degrade. The Chesapeake Bay TMDL is intended to improve the water quality or the Bay.

Comment ID 0038.1.001.006

Author Name: Eisen Professor Joel

Organization: University of Richmond Environmental Law and Policy

The Chesapeake Bay is an extremely important estuary for the millions of people that live in the areas surrounding it. Taking precautions now to protect the Bay will allow future generations to enjoy its splendor and reap its benefits for decades. An enforceable plan needs to be implemented in order to ensure that pollution feeding into the Bay is reduced and the ecosystem remains harmonious. The EPA TMDL is important in helping achieve this goal. This number is not arbitrary. According to section 303d 1D of the TDML, the daily estimate takes into consideration "the normal water temperatures, flow rates, seasonal variations, existing sources of heat input, and the dissipative capacity of the identified waters of parts thereof." Compliance to this section of the Clear Water Act is important in cleaning up the Bay and keeping pollutants out of it. The Virginia Watershed Implementation Plan is supposed to be the first steps in addressing this pollution problem, but it has a long way to go.

Response

Thank you for your comment. EPA agrees that the Chesapeake Bay TMDL is an important part of restoring the health of the Chesapeake Bay. EPA disagrees, however, with the commenter's reference to what EPA believes is Section 303(d)(1)(D) of the Clean Water Act; that section of the Clean Water Act is not applicable to the Chesapeake Bay TMDL. Regarding the Virginia Watershed Implementation Plan, please see Section 8 of the TMDL for EPA's evaluation of Virginia's final Phase I WIP.

Comment ID 0038.1.001.010

Author Name: Eisen Professor Joel

Organization: University of Richmond Environmental Law and Policy

I feel that, as a resident of an area which directly impacts the condition of the Bay, my familiarity with the ailing Chesapeake is unsettlingly limited. I strongly believe that more education and publicity is necessary in all states involved, no matter how far removed the area seems to be.

Response

Thank you for your comment. As described in Section 11 of the final Chesapeake Bay TMDL document, EPA has conducted extensive public outreach and has engaged the public and various stakeholders in many different ways over the past years, including but not limited to a dedicated website, public meetings, webinars, newspaper notices, and federal register notices. EPA plans to continue with the such efforts following the establishment of the the TMDL.

Comment ID 0038.1.001.017

Author Name: Eisen Professor Joel

Organization: University of Richmond Environmental Law and Policy

Virginia has been working to clean up the Chesapeake Bay and its watershed for over sixty years and over that time we have seen nothing but further degradation of water quality. According to Article XI Section 7 of the Constitution of Virginia, "it shall be the Commonwealth's policy to protect its atmosphere, lands, and waters from pollution, impairment, or destruction, for the benefit, enjoyment, and general welfare of the people of the Commonwealth." As a citizen of Virginia I do not feel like this has been accomplished when the Virginia Department of Health has to issue advisories warning people not to eat more than two meals a month from the James River and its tributaries, and for some fish below Richmond it's advised that they should never be eaten. This is clearly not protecting the waters from pollution, impairment, and destructions, and defiantly does not serve the general welfare of the people.

Response

EPA agrees that the Chesapeake Bay does not currently meet applicable water quality standards.

Comment ID 0038.1.001.020

Author Name: Eisen Professor Joel

Organization: University of Richmond Environmental Law and Policy

The Chesapeake Bay's condition is far from healthy. The Virginia Executive Director of the Chesapeake Bay Foundation, Anne Jennings explained our failing health rating (28/100) compared to our goal health rating (70/100), with a short-term goal of 40% healthy. The Bay's bad state not only affects our public health, but it also alters our economic prosperity. The 64,000 square miles of bay water are used for many land uses and practices; therefore the EPA is working on a solution to fix this unhealthy water body. The EPA has already drafted a TMDL, and a WIP with plans and goals for a healthier Chesapeake Bay.

Response

EPA agrees that it has drafted the Chesapeake Bay TMDL in order to restore the health of the Chesapeake Bay. EPA did not, however, draft the Virginia Watershed Implementation Plan or that of any other state.

Comment ID 0038.1.001.027

Author Name: Eisen Professor Joel

Organization: University of Richmond Environmental Law and Policy

The TMDL will finally regulate and make improvements at restoring the bay, as President Obama issued an Executive Order in 2009 to restore the Chesapeake Bay and he will be overlooking the process. These efforts are needed and will make a significant impact once enacted.

Response

EPA agrees that the Chesapeake Bay TMDL is needed and intends for the TMDL to have a significant impact on the health of the Chesapeake Bay.

Comment ID 0038.1.001.029

Author Name: Eisen Professor Joel

Organization: University of Richmond Environmental Law and Policy

Cleaning up the Chesapeake Bay will lead to greater public health and safety, more stable jobs, and even give a boost to the economy. By supporting the EPA fulfill their duty of upholding the Clean Water Act, we are improving the future for both our lifetimes and those to come.

Response

Thank you for your support. EPA agrees that the Chesapeake Bay TMDL is needed and intends for the TMDL to have a significant

impact on the health of the Chesapeake Bay.

Comment ID 0040-cp.001.001

Author Name: Emswiler Samantha

Organization:

Please continue to support as much action as possible on cleaning the Chesapeake Bay. The water health affects all of us and most importantly all of the animal life that suffers from the devastating effects of human pollution. Growing up on the James and seeing the effects of kepone (that still continue today) has made me a strong advocate on behalf of controlling all sources of pollution not just point source pollution.

Response

EPA intends for the Chesapeake Bay TMDL to have a significant impact on the health of the Chesapeake Bay.

Comment ID 0043-cp.001.002

Author Name: Cormons Grace

Organization: Eastern Shore Local Food Project

Speaking for members of our group, as well as the children and families I work with daily, I urge the EPA to enforce the strictest possible regulations to, finally, really clean up our precious Chesapeake Bay.

Response

EPA intends for the Chesapeake Bay TMDL to have a significant impact on the health of the Chesapeake Bay. EPA has been working within the scope of its authority and with the Bay jurisdictions to establish and implement the Chesapeake Bay TMDL.

Comment ID 0044.1.001.001

Author Name: Blackwood Lorene

Organization: Virginia Green Industry Council

We support the goal of cleaning up the Bay and its watersheds in a fiscally and environmentally sound fashion and we want to be part of the solutions.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0044.1.001.002

Author Name: Blackwood Lorene

Organization: Virginia Green Industry Council

We support and promote sound fiscal and environmental principles that will create sustainable partnerships for solutions to restore and protect the Chesapeake Bay and its watersheds.

Response

EPA has been working in partnership with the Bay jurisdictions to restore and protect the Chesapeake Bay and its watersheds.

Comment ID 0047-cp.001.001

Author Name: Renner Jessica

Organization:

I would just like to add, along with a lot of other people, a sinvere concern for the long term well being of our water systems. There is no time like the present to act. Please protect our water.

Response

EPA thanks you for your support of the Chesapeake Bay TMDL.

Comment ID 0053-cp.001.001

Author Name: Pakurar Tom

Organization: Hands Across the Lake

I volunteer with a Non- Profit in Chesterfield County dedicated to keeping the Swift Creek Reservior as a viable drinking water source, www.handsacrossthelake.com . One Reservior was already closed due to sediment from runnoff, the Falling Creek Reservior. Chesterfield does not have enough water to cover the expected growth passed 2032 without the Swift Creek Reservior. As a Virginian I am also concearned with the pollotuion of the Potomac, the James River, and the Chesapeake Bay and the loss of wildlife, crabs, fish and oysters.

We have tried to get the County to act on their watershed plan and pass stormwater laws. They have deffered to Virgina. Virginia has basically defered to the Federal Government for any action. if you do not pass laws to clean up the Bay then no one will and it will be lost as a natural place for future generations.

Response

Thank you for your comment. EPA has been working with all of the Bay jurisdictions, including Virginia, to improve the accountability process so that the waters of the Chesapeake Bay and its tributaries will attain and maintain applicable water quality standards. These water quality standards are a crucial element in protecting the beneficial uses of these waters, including for drinking water and ecological protection. EPA intends to continue to work in a cooperative and collaborative manner with Virginia and the other Bay jurisdictions. EPA notes, however, that the Chesapeake Bay TMDL is not a federal law or federal regulation.

Comment ID 0056-cp.001.001

Author Name: Shean Glenn

Organization:

Do what is necessary to clean up the bay before it is destroyed! Let the right wing howl and protect our future.

Response

EPA believes that the Chesapeake Bay TMDL is necessary to restore the health of the Chesapeake Bay.

Comment ID 0058-cp.001.003

Author Name: Smith J. S.

Organization:

I have a nephew who struggles to make a living as a clam farmer in bayside waters. I want to see him succeed so that my grandchildren and great grand-children, and other family members can continue to safely use and benefit from the unique cultural, historical, and economic aspects of living near the Chesapeake Bay. Also, I want our local creeks and rivers in the Shenandoah Valley to be clean for future generations' use. Please find a way to work with the State of Virginia government officials to clean up the Chesapeake Bay.

Response

EPA intends for the Chesapeake Bay TMDL to have a significant impact on the health of the Chesapeake Bay. EPA has been working with Virginia and with other Bay jurisdictions to establish and implement the TMDL.

Comment ID 0068-cp.001.001

Author Name: Wright M.

Organization:

My comment focuses on the claims by real estate developers that regulations like may cause potential economic harm. When it comes to any plan to help the environment, that might mean less potential for real estate "development," the industry could argue that plans could cause "economic harm" until no more farmland or waterfront property is available. So, when deciding on the final regulation, please consider this, which could apply to any EPA reg: At what point does the environment finally take priority over so-called "economic development"?

Response

EPA has considered this comment, noting that neither the CWA nor EPA's implementing regulations require states or EPA to consider economics when establishing the TMDL at a level necessary to attain applicable water quality standards. EPA also notes that the Chesapeake Bay TMDL is not a federal regulation.

Comment ID 0071-cp.001.001

Author Name: Darby Dr. D. And M.

Organization:

My wife and I totally support EPA's efforts to clean up the Susquehanna River and Chesapeake Bay. This mess has gone on for too long and only new regulations will move the river and the bay towards a cleaner future.

If not now then when? We have used the river and the bay as a sewer for too long. Let us leave a cleaner river and bay for our childrun.

Response

EPA thanks you for your support of the Chesapeake Bay TMDL. EPA notes, however, that the Chesapeake Bay TMDL is not a federal regulation.

Comment ID 0073-cp.001.003

Author Name: Comment Anonymous

Organization:

I do not disagree that we need to police this to clean it up.

Response

EPA interprets this comment as a statement of support for the Chesapeake Bay TMDL and appreciates the support.

Comment ID 0077-cp.001.001

Author Name: Comment Anonymous

Organization:

The Draft Total Maximum Daily Load (TMDL) for the Chesapeake Bay (Document ID EPAR03- OW-2010-0736-0001) is, overall, succinct and scientific and addresses the main issue for which it was written.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0078-cp.001.001

Author Name: Llewellyn Christine

Organization:

Please stand strong on these regulations. We can't allow the Bay to decline past the point of no return. Localities are already bellyaching about the cost and talk of voluntary and locality driven regulations. But it will take the strong arm of the EPA to make this happen. Our local paper, the Virginia Gazette, stated on 10/23/10 that the "EPA plan doesn't significantly improve water quality over the state plan while doubling the cost". This is just trying to misinform the public.

Please stand strong on these regulations.

Response

EPA appreciates your support for the Chesapeake Bay TMDL which, although not a federal regulation itself, is established to meet the water quality standards of the Chesapeake Bay. Although EPA does not have sufficient information to respond to the substance or intent of the statement in the Virginia Gazette, EPA fully intends for the TMDL to establish loadings that will meet the water quality standards of the Chesapeake Bay.

Comment ID 0079.1.001.001

Author Name: Dunning Rich

Organization: City of Hornell, New York

The Chief Operators of the twenty-eight New York Wastewater Treatment Plants in the Chesapeake Bay watershed all agree that the restoration of the Chesapeake Bay is a worthy goal.

Response

EPA appreciates the support for the Chesapeake Bay TMDL.

Comment ID 0087-cp.001.001

Author Name: Phillips D. H.

Organization:

I support the EPA's TMDL plan for the Chesapeake Bay.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0102-cp.001.001

Author Name: Goggin Brenna

Organization: Delaware Nature Society

The Delaware Nature Society is a private, non-profit, membership organization with more than 6,000 members statewide that works to foster understanding, appreciation, and enjoyment of the natural world through education, advocacy and preservation. The Society has been a long-time advocate for protection of the Chesapeake Bay and participates in the "Choose Clean Water" coalition's efforts to ensure a cleaner Bay for future generations. The State of Delaware has actively participated in the Chesapeake Bay Program since then-Governor Carper signed a Memorandum of Agreement in 2000 and we proudly take our place among the other Bay states and the District of Columbia. The Society strongly supports the efforts by the EPA to implement the Chesapeake Bay TMDL.

Cleaning up the Chesapeake Bay requires shared responsibility, resources, and support from all of the states in the watershed. This is a unique moment in time that may mean the difference between saving the Bay and causing irreparable harm. The EPA has provided financial support and guidance and offered sophisticated scientific data to help all states comply and accelerate on the ground progress. Additionally, the Bay receives overwhelming support from public and private efforts. However, we have yet to have the results we deserve: clean water, fishable streams and

rivers, and the economic and environmental benefits they bring.

For over 25 years, states have known the Chesapeake Bay requires significant reductions in nutrients and sediment in order to provide habitat and food to wildlife like oysters, blue crab, and fish. For decades, states and local governments have tried to implement only voluntary approaches to improve the Bay, to no avail. Communities, jobs, and recreational opportunities continue to rapidly disappear due to the negative health of the Bay.

Response

Thank you for your comment. Despite some reductions in pollutants and extensive efforts by federal state and local governments, non-governmental organizations and private stakeholders, EPA agrees that more needs to be done to meet the meet applicable water quality standards. EPA has worked closely with all of the Bay jurisdictions, including Delaware, to establish the Chesapeake Bay TMDL. EPA agrees that further progress in the cleanup of the Bay is a shared responsibility. EPA appreciates your support of the Chesapeake Bay TMDL.

Comment ID 0106-cp.001.001

Author Name: Mosko, Jr. Michael

Organization:

Farm Credit of VA/WV has solicited my comments on behalf of ffarmers and land owners in these states. My wife and I own a small tree farm 120 ac in Madison County VA. Although we can understand their concerns we also support EPA's efforts in restoring the Bay.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0106-cp.001.003

Author Name: Mosko, Jr. Michael

Organization:

In my case I would love to see the streams that flow through my property cleaned up to the point where they could support wildlife. Such an improvemet not only impoves the quality of life for the land owners and their families but increases the value of their property.

Response

EPA appreciates your support for the Chesapeake Bay TMDL

Comment ID 0109.001.001

Author Name: Bennhold C.

Organization:

I urge you to enforce Clean Water Act standard.

Response

The Chesapeake Bay TMDL will enable affected waters to attain and maintain applicable water quality standards.

Comment ID 0110.001.001

Author Name: Siewick C.

Organization:

The Chesapeake Bay is not in its best condition, and I believe the Clean Water Act standards should be enforced. The bay should be kept healthy, clean, and able to act as a stable ecosystem.

Response

The Chesapeake Bay TMDL will enable affected waters to attain and maintain applicable water quality standards. EPA intends for the TMDL to have a significant impact on the health of the Chesapeake Bay.

Comment ID 0111.001.001

Author Name: Haideri S.

Organization:

We desperately want to see the Chesapeake Bay cleaned up

Response

EPA intends for the Chesapeake Bay TMDL to have a significant impact on the health of the Chesapeake Bay.

Comment ID 0112.001.001

Author Name: Keats J.

Organization:

I urge you to Enforce Clean Water Act standards an hold Virginia accountable for cleaning up the Chesapeake Bay.

Response

The Chesapeake Bay TMDL will enable affected waters to attain and maintain applicable water quality standards. EPA has been working with Virginia and with other Bay jurisdictions to establish and implement the TMDL.

Comment ID 0113.001.001

Author Name: Morgan K.

Organization:

I urge you to enforce Clean Water Act standards and hold Virginia accountable for cleaning up the Chesapeake Bay.

Response

Please see the response to comment number 0112.001.001.

Comment ID 0116.001.001

Author Name: Houser T.

Organization:

I urge you to enforce the Clean Water Act standards and hold Virginia accountable for cleaning up the Chesapeake Bay.

Response

Please see the response to comment number 0112.001.001.

Comment ID 0117.001.001

Author Name: Erwin L.

Organization:

I urge you to enforce Clean Water Act standards and hold Virginia accountable for cleaning up the Chesapeake Bay.

Response

Please see the response to comment number 0112.001.001.

Comment ID 0120.001.001

Author Name: Murek L.

Organization:

My state of Virginia needs to do its part in cleaning up the Chesapeake Bay.

Response

EPA agrees that the health of the Chesapeake Bay is a shared responsibility. EPA has been working with Virginia and with other Bay jurisdictions to establish and implement the Chesapeake Bay TMDL.

Comment ID 0122.001.001

Author Name: Richey S.

Organization:

Proper clean up of the Chesapeake Bay has been extremely necessary and long overdue. A large amount of the pollution in the watershed is due to the failure of past generations to properly restrict the amount of pollution allowed to enter the bay.

Response

Thank you for your comment, which EPA construes as a statement of support of the Chesapeake Bay TMDL. Most of the Bay and its tidal waters are impaired because of excess nitrogen, phosphorus and sediment, which come from a variety of sources, including agricultural operations, urban and suburban runoff, wastewater facilities, air pollution, septic systems and other sources. EPA intends for the Chesapeake Bay TMDL to have a significant impact on the health of the Chesapeake Bay.

Comment ID 0122.001.003

Author Name: Richey S.

Organization:

We should set aside the tendency to want to pass on the burdens of the pollution to future generations, and instead set logical pollution restrictions to clean up the Chesapeake today!

Response

EPA agrees that present action must be taken to restore the health of the Chesapeake Bay. EPA intends for the Chesapeake Bay TMDL to have a significant impact on the health of the Chesapeake Bay.

Comment ID 0123.001.001

Author Name: K.M. Aughenbaugh M.A. Melin

Organization:

We strongly urge you to enforce the Clean Water Act standards and hold Virginia accountable for cleaning up the Chesapeake Bay.

Response

Please see the response to comment number 0112.001.001.

Comment ID 0124.001.001

Author Name: Logan B.

Organization:

I urge you to enforce Clean Water Act standards and hold Virginia accountable for cleaning up the Chesapeake Bay.

Response

Please see the response to comment number 0112.001.001.

Comment ID 0125.001.001

Author Name: Liese-Muentinga A.

Organization:

After many years of donations to clean up the Chesapeake Bay we really would like to see some progress .

Response

EPA intends for the Chesapeake Bay TMDL to have a significant impact on the health of the Chesapeake Bay.

Comment ID 0127-cp.001.001

Author Name: Ellerson H.

Organization:

I am responding pursuant to request from the Va. Agribusiness Council (VAC) via Farm Credit of Virginias, to which I am indebted as a mortgagor. I live on 50 acres in western Goochland County, Va. Farm Credit forwarded the VAC "Talking Points" which are rather vague in their assertions.

I fully support the cleanup of the Chesapeake Bay by any means necessary, as the Bay is now a toilet and has been used as such by agribusiness for the better part of two centuries.

Response

EPA intends for the Chesapeake Bay TMDL to have a significant impact on the health of the Chesapeake Bay.

Comment ID 0134-cp.001.002

Author Name: Moretti S.

Organization:

Thank you for aggressively addressing the growing problem of dead zones in the Chesapeake Bay and for preserving our natural resources for future generations.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0140-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0141-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0142-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0143-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0144-cp.001.001

Author Name: Perreault Mark

Organization: Citizens for a Fort Monroe National Park, (CFMNP)

Citizens for a Fort Monroe National Park's (CFMNP) primary interest is of course creating a grand public place with a significant national park unit on the 565 acres constituting Fort Monroe, at Old Point Comfort, VA, following the Army's departure in September 2011. Since, however, Fort Monroe enjoys three miles of Chesapeake Bay frontage we see the health and beauty of the Chesapeake Bay as inextricably linked with Fort Monroe's appeal and success.

CFMNP strongly supports efforts to restore the health of the Bay and likewise strongly supports the efforts to establish the Chesapeake Bay watershed Total Maximum Daily Load (TMDL) and effective Watershed Implementation Plans (WIPs) to achieve the TMDL limits. Fort Monroe lies at the southern end of the Bay and a healthy Bay there requires effective WIPs in all Bay states and DC, including the Commonwealth of Virginia.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0146.1.001.010

Author Name: Isenberg W.

Organization: Virginia Commonwealth University Center for Environmental Studies. Class: ENVS 601, Professor: P.L. deFur

Whatever the case, I am glad to see this document and TMDL allocations on the frontier.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0149-cp.001.001

Author Name: Comment Anonymous

Organization:

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0150-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0153.001.002

Author Name: Thesmar Hilary

Organization:

NTF represents over 100 percent of all turkey processors, as well as turkey growers, breeders, hatchery owners and allied companies. We are the only national trade association representing the turkey industry exclusively. There is significant turkey production in the Chesapeake Bay Watershed and are very interested in working with EPA on efforts to restore the bay

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0161-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

Please finalize a comprehensive, accountable final TMDL, and continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. EPA intends to continue to work with the Bay jurisdictions in a collaborative and cooperative manner to restore water quality in the Chesapeake Bay.

Comment ID 0162-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and

to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0163-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

I understand that the Chesapeake Bay needs your help. For more than 25 years, it seems, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) may be a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would hopefully ensure that the job gets done. It may allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and to provide support and guidance to states and localities to help them make on-the-ground progress.

I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results. Thank you very much for your attention.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0164-cp.001.001

Author Name: Nrdc Nrdc

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0167.001.001

Author Name: Smith Sheryl

Organization: Adroit Solutions, Inc. (ASI)

I am writing as a small business owner, asking the EPA for cleaner water and a cleaner environment. Our firm, Adroit Solutions Inc, based in Hanover County Virginia, specializes in factory automation. We work in many industries in Virginia, such as waste water treatment facilities. We would benefit from any actions that would require cleaner water, such as rewriting the TMDL to maximize reductions from point sources.

Response

Thank you for your comment. EPA intends for the Chesapeake Bay TMDL to have a significant impact on the health of the Bay. To restore the health of the Bay, pollutant reductions will be necessary from multiple source sectors, including point sources such as wastewater treatment facilities.

Comment ID 0170-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

I grew up in the Chesapeake Bay watershed near its beginning where the Susquehanna River comes by Havre de Grace. I ate blue crabs nearly every summer. My AP Biology class explored its upper marshes in canoes. I attended college at St. Mary's City and learned to sail on the St. Mary's River near where it flows into the bay. As a teacher, I taught my students about the history of Maryland and the essential role the Bay played in the growth of our state. Though I now live on the other coast, the Bay holds a special place in my heart, and now it needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers

money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results. I'd love to know that my children could plan on visiting the Bay, eating blue crabs, and sailing on its waters well into the future.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0171-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0171-cp.001.002

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

Today, as I write this, our country continues to pollute our atmosphere with toxic gases, contaminate our lakes,stream and oceans with plastics, garbage, chemical pollutants and various other debris and does it shamelessly.

Will our government ever wake up and see the damage that we as a country do to our environment before it is too late?

When will greed take a backseat to the welfare of our planet? It is well past time to come forth with one voice and speak it loudly and clearly that we, as citizens of one of the greatest nations on Earth, inform our political leaders that pollution of the planet has to stop, and stop now.

Response

Thank you for your comment. The TMDL is designed to ensure that all pollution control measures needed to fully restore the Bay and its tidal rivers are in place by 2025, with 60 percent of the actions completed by 2017. The TMDL is supported by rigorous accountability measures to ensure cleanup commitments are met, including short-and long-term benchmarks, a tracking and accounting system for jurisdiction activities, and federal contingency actions that can be employed if necessary to spur progress. EPA agrees that protection and restoration of the environment is important. EPA is establishing the Chesapeake Bay TMDL to address nitrogen, phosphorus, and sediment impairments in the Bay, in order to restore the health of the Bay and to attain and maintain applicable water quality standards that are designed to protect beneficial uses of these waters.

Comment ID 0172-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

For 7 years, I lived along the shores of the Chesapeake Bay. I know first hand the importance of cleaning up and protecting this valuable resource. Crabbing, Fishing and tourism are the lifebloold of the economy in many towns along the Bay. The health of thier economy's is dependant on the health of the Bay.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0172-cp.001.002

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers

money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0173-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0173-cp.001.002

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chowan River near my hometown was pollluted and algae-ridden in 1985. ;In 2005 everything had come back except the herring run. Let's do the same thing for the Chesapeake Bay.

Response

EPA intends for the Chesapeake Bay TMDL to have a significant impact on the health of the Chesapeake Bay.

Comment ID 0175-cp.001.001

Author Name: Williams G.

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

I have read this petition and agree with it all.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0176-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

Finally, a move to protect the Chesapeake Bay! Take it by adopting the draft Chesapeake Bay Total Maximum Daily Load (TMDL) which responds to the 25 years of scientifically documented damaging levels of damaging pollution that drain into Bay rivers and streams.

That pollution has been detrimental to water critters as well as humans and must be brought down to a more sustainable level.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0176-cp.001.002

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

TMDL will allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0177-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. EPA intends to continue to work with the Bay jurisdictions in a collaborative and cooperative manner to restore water quality in the Chesapeake Bay.

Comment ID 0180-cp.001.001

Author Name: Campaign Mass Comment

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0185.1.001.002

Author Name: Steinzor Rena

Organization: Center for Progressive Reform (CPR)

The Center for Progressive Reform (CPR) is a 501(c)(3) nonprofit research and educational organization with a network of Member Scholars working to protect human health and safety and the environment through analysis and commentary. We write to you today in response to the draft Phase I Watershed Implementation Plans (WIPs) that the District of Columbia, Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia (collectively, "Bay jurisdictions") submitted to the Environmental Protection Agency on September 24, 2010. While the Bay TMDL establishes a destination, the WIPs provide the key roadmap for arriving at that destination. Without strong WIPs, the momentum for restoring the Chesapeake Bay will be stymied and the Bay will continue to languish.

The establishment of the Bay TMDL marks a tremendous turning point in restoring the Chesapeake Bay by capping the total amount of discharged pollutants.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0186-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0186-cp.001.002

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay can't afford more excuses and delay. THE BAY NEEDS OUR HELP. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results. The longer you wait, the more damaged the Bay will be.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0188-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

I live in FL now, but my parents had a home overlooking the Chesapeake Bay for several years when I was growing up. That is why I feel so strongly that the draft Chesapeake Bay Total Maximum Daily Load (TMDL) is needed to set pollution levels and reduce the horrible effects of pollution in the Bay rivers and streams.

Please finalize a strong and accountable TMDL to give The Bay the help it needs. We can't afford to delay.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0189-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0190-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0195-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The draft Chesapeake Bay Total Maximum Daily Load that will be finalized at the end of December is a strong step in the right direction.

Some developers, state officials and agribusiness corporations are stepping up their opposition to the Chesapeake Bay Total Maximum Daily Load. They want to pass on the cost of dirty water in the form of degraded rivers and streams rather than taking common-sense measures to stop pollution at its source.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0204-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

I grew up on the Bay and I saw how the destruction of the Bay ruined the lives and families who made their living from the Bay as crabbers and oyster shuckers. The Bay is such an important body of water and it needs protections to keep it alive.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0208-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay must be restored.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0210.1.001.001

Author Name: Tolbert J.R.

Organization: Virginia Chapter-Sierra Club

The Chesapeake Bay TMDL represents a historic opportunity for the federal government, Washington DC and the states throughout the watershed to come together and finally reduce pollution entering the bay to levels that will restore plant and animal life, strengthen our economy and restore our natural environment.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0210.1.001.004

Author Name: Tolbert J.R.

Organization: Virginia Chapter-Sierra Club

For more than 25 years, the federal government and the states that are part of the Chesapeake Bay watershed have been working together to address the pollution entering the bay. They have largely relied on voluntary measures to reduce the pollution loads entering the bay, and time and time again this approach has led to missed deadlines and a lack of substantial progress in restoring this treasured waterway.

Response

Thank you for your comment. Despite some reductions in pollutants due to extensive efforts by federal, state and local government, non-governmental organizations and private stakeholders, EPA agrees that there has been insufficient progress toward meeting applicable water quality standards. The Chesapeake Bay TMDL includes pollutant limits designed to meet applicable water quality standards in these waters. As described further in Section 7 of the TMDL, the accountability framework, which is a key aspect of the reasonable assurance for the TMDL, is designed to ensure that these standards are met.

Comment ID 0210.1.001.008

Author Name: Tolbert J.R.

Organization: Virginia Chapter-Sierra Club

The solution to finally restoring the Chesapeake Bay is to enact enforceable pollution limits for all sources of pollution. For too long, corporate agribusiness, developers and municipalities have been allowed to not meet pollution reduction targets with no consequences. We need to reverse this course and ensure that the state enforces pollution reduction measures and that polluters and the state are held accountable if goals are not met.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0221-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

I have spent many summers visiting the Chesapeake Bay in McDaniel, Maryland. It is a beautiful area and critical habitat for marine life and waterfowl. The time has come to enforce a strict clean up plan for the Bay with deadlines to ensure compliance and strong consequences for failing to meet deadlines or clean up targets. The clean up must be enforced by government regulations with a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results to restore the health of the Chesapeake Bay.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0222.1.001.001

Author Name: Taylor K.

Organization:

I am impressed with the efforts of the EPA in establishing limits in their TMDL goals.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0227.1.001.001

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

We join the Choose Clean Water Coalition in stating that we have a moral and legal imperative to protect these local waters upon which 17 million people rely. We believe that the Bay is a marvelous testimony to a creation that is wonderfully complex, interdependent, and beautiful. As persons of faith, we believe that all of creation is a gift, given to us to hold in sacred trust. We use the term stewardship to describe our responsibility as humans to protect and preserve the environment for now and future generations-responsibility for environmental quality shared by all those whose actions affect the environment.

We are obviously not technical experts with regard to the proposed TMDL for the Chesapeake Bay, but as members of

the Choose Clean Water Coalition, we endorse and offer, by reference, the comments prepared by the Coalition on behalf of all its members.

We expect that a well implemented TMDL will provide what we have been lacking: strong science, implementation plans built on principles of adaptive management that can and will be enforced. We believe it will help us to succeed where we have failed for so many years.

Response

Thank you for your comment. EPA appreciates your support of the Chesapeake Bay TMDL.

Comment ID 0227.1.001.002

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

The Chesapeake Bay is an iconic national treasure and an over $1 trillion resource.[FN 1] Right now is our best opportunity in a generation to restore the Bay and all the waters that feed it. While we have made progress on a number of fronts in the past, we simply have not done enough thus far to stem pollution to our waterways. Now, as the U.S. Environmental Protection Agency (EPA) and the Bay states collaborate, we formally express our strong support to finalize and implement the Bay-wide TMDL.

We have a moral and legal imperative to protect these local waters upon which 17 million people rely. The Clean Water Act, three major Bay Agreements and scores of minor ones, three consent decrees, dozens of Memoranda of Agreement/Understanding and a Presidential Executive Order all require development of a Bay-wide TMDL. It is not only legally required, but perfectly logical, appropriate and fair for EPA to develop this TMDL. Moreover, EPA has used this authority wisely, engaging in a highly transparent public process developing the TMDL (and seeking comments on the draft), providing states ample opportunity to prepare and revise draft Watershed Implementation Plans, (WIPs), and seeking to implement allocations that are substantially equivalent to those the states have had since 2003.

[FN 1] 2004 Chesapeake Bay Watershed Blue Ribbon Finance Panel Report, "Saving a National Treasure: Financing the Cleanup of the Chesapeake Bay"."

Response

Thank you for your support of the Chesapeake Bay TMDL and the process that was used to develop it. EPA agrees, as described in Section 1 of the TMDL, that the Chesapeake Bay TMDL is legally required. The Chesapeake Bay TMDL provides new nitrogen, phosphorus and sediment allocations that will translate into the jurisdictions' WIPs which are the plans for how and when jurisdictions plan to meet the pollution reductions.

Comment ID 0227.1.001.003

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

The decline of this ecological national treasure stems from human activity that has altered the landscape throughout the Bay's 64,000 square mile watershed comprised of parts of Maryland, Virginia, Pennsylvania, Delaware, New York, West Virginia and all of the District of Columbia ("Bay states"). The population in the watershed has doubled since 1950 (now around 17 million), and much of this growth and development - leveling trees, forests and wetlands and replacing farms with subdivisions and malls -- has taken place close to the Bay or to its sensitive tributaries, harming natural filters that are critical to a healthy ecosystem.

The Chesapeake has historically been America's great protein factory - once producing 25 million bushels of oysters annually and, until recently, 50% of the nation's blue crabs. The Bay is the spawning and nursery grounds for nearly 85% of the Atlantic stocks of striped bass. But, the most recent harvest of oysters was down to 200,000 bushels - far below historic levels -- and only about a third of the nation's blue crabs now come from the Chesapeake. These populations are down because of overharvest, poor water quality and loss of critical habitat.

The most critical measure of the Bay's health is water quality. A healthy and productive Bay must be safe for people and support abundant aquatic life, such as oysters, fish and crabs. The water should be clear enough for underwater grasses, a critical habitat for these species, to thrive. The Bay's primary water quality problem is caused by excessive amounts of nutrients, specifically nitrogen and phosphorus, and sediment that flow from tributaries and lead to murky water and algae blooms. Excess algae cloud the water and block sunlight from reaching the Bay grasses on the bottom. Decaying algae create low oxygen levels for aquatic life throughout the Bay. The latest indicators of Bay health from EPA in 2009, showed the Bay to be meeting only 24% of its water quality goals.[FN 2]

In 1972, after Tropical Storm Agnes exacerbated the decline of the Bay, U.S. Senator Charles "Mac" Mathias (R-Md) set out on a lengthy tour of the Bay in the summer of 1973. This, and subsequent trips, led him to introduce legislation directing the EPA to embark on a major research project to determine the Bay's problems and make recommendations on how to solve them.

In 1976 Congress directed EPA to undertake a comprehensive study of the Bay focused on its water quality and living resources. Six years and $27 million later, the EPA finished the comprehensive study and, in September 1983, released a lengthy report, Chesapeake Bay: A Framework for Action. The report identified nutrient pollution as the greatest threat to the Bay, and recognized that the problem could not be solved without addressing the entire watershed - not just the Bay states of Maryland and Virginia. The report also provided an innovative blueprint for the intergovernmental, inter-jurisdictional "Chesapeake Bay Program" that was formed in December when the Chesapeake Bay Agreement of 1983 was signed by a group that would be known as the Chesapeake Executive Council - the governors of Maryland, Pennsylvania and Virginia, the Mayor of the District of Columbia, and the Administrator of the EPA. The organized and institutional voluntary effort to restore the Bay had begun.

In February, 1987 Congress overrode President Reagan's veto, and passed the reauthorization of the Water Quality Act of 1987 (Clean Water Act or "CWA"), which included a new section entitled "Chesapeake Bay". This provision, known

as Section 117, basically codified the Chesapeake Bay Program and authorized Congress to continue funding the restoration effort at $13 million annually.[FN 3]

In December 1987, the Chesapeake Executive Council signed the 1987 Chesapeake Bay Agreement, which for the first time included specific quantitative goals and commitments. The centerpiece of the Agreement was a goal to reduce nutrient pollution to the Bay by 40% by 2000. The 1992 Amendments to the Chesapeake Bay Agreement was signed by the Council and "capped" the 40% reduction goal after 2000. In addition, the 1992 Amendments recognized the need to reduce nutrients in the tributaries, and called for the states to develop "tributary-specific strategies" on how to meet the nutrient reduction goal. The states all drafted tributary strategies in the late 1990's which were not required to be reviewed or approved by anyone outside of state government. The Amendments also recognized the need for "intensified efforts to control nonpoint sources of pollution, including agriculture and developed areas…", as well as the need to engage Delaware, New York and West Virginia in the efforts to reduce nutrients in the tributaries.

Voluntary to Regulatory Shift Begins

In 1998, a lawsuit filed by the American Canoe and American Littoral Society against EPA, discussed in more detail below, alleged Virginia was not timely and complete in listing its Clean Water Act Section 303(d) impaired waters and preparing TMDLs for those waters, and that EPA failed in its non-discretionary duty under the Clean Water Act to take over when the state had failed to do so.

Virginia submitted an incomplete list of impaired waters in 1996. That list, which included Virginia's portion of the Chesapeake Bay, was partially approved by EPA in 1998. The lawsuit was settled with a consent agreement in the Federal Eastern District of Virginia court on June 11, 1999. Under the terms of the court agreement, EPA would ensure that Virginia completed its listing of impaired waters and developed TMDLs for all waters on the 1998 list by May 1, 2010. If Virginia did not do so, EPA would complete them no later than May 1, 2011. If waters met water quality standards any time up to May 1, 2011, they would be removed from the list and there would be no need for TMDLs for those waters.

The Chesapeake 2000 Agreement and Setting of 2010 Cleanup Goals

In 1998, the Chesapeake Executive Council adopted Directive 98-2, which directed the Bay Program to develop a new Chesapeake Bay agreement for 2000, and to present a draft set of options and recommendations to the Council in 1999.

At the 1999 annual meeting of the Chesapeake Executive Council, a new draft agreement was released for public review. The language in that draft, which was retained in the final agreement a year later, made the intent to meld the voluntary and regulatory approaches clear. In attempts to avoid the imposition of a TMDL regulatory approach, the Virginia delegation encouraged the following language that was adopted:

Recent actions taken under the Clean Water Act resulted in listing portions of the Chesapeake Bay and its tidal rivers as ‘impaired waters.' These actions have emphasized the regulatory framework of the Act along with the ongoing cooperative efforts of the Chesapeake Bay Program as the means to address the nutrient enrichment problems within the Bay and its rivers. In response, we have developed, and are implementing, a process for integrating the cooperative and statutory programs of the Chesapeake Bay and its tributaries. We have agreed to the goal of improving water

quality in the Bay and its tributaries so that these waters may be removed from the impaired waters list prior to the time when regulatory mechanisms under Section 303(d) of the Clean Water Act would be applied.

The Chesapeake Executive Council signed the Chesapeake 2000 agreement on June 28, 2000. Although the 40% nutrient reduction goal from 1987 was still not met, the Chesapeake Bay Program adopted new stronger goals, and set up a clear path of regulatory and voluntary actions to ensure that the 2010 clean up goals would be met. In 2000, both Delaware and New York signed an MOU with the other Chesapeake Bay Program partners and agreed to adopt the Water Quality goals of the Chesapeake 2000 agreement - West Virginia followed suit in 2002.

In accordance with the commitments in Chesapeake 2000, EPA and its Bay Program partners used their best scientific understanding of the Chesapeake Bay ecosystem, including an extensive body of research and monitoring to develop the water quality criteria. The criteria were published in Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll-a for the Chesapeake Bay and Its Tidal Tributaries in April 2003. The criteria recognized that not every cubic foot of water in the Bay required the same level of protection - some, such as upstream spawning and nursery areas or "habitat zones" needed high levels of protection, especially during spawning and nursery seasons, other areas, such as the Bay's deep trench, where few living resources ever resided, needed less. EPA also developed water clarity criteria in order to protect and restore critical underwater Bay grasses. These criteria were then coupled with site-specific Bay grass acreage, which were incorporated in the new water quality standards that were being developed.

EPA and its Bay Program partners also agreed to control excess algae by developing both narrative and numerical criteria for chlorophyll-a. The numerical criteria were necessary in state standards for areas where achievement of dissolved oxygen criteria would not solve algal water quality impairments. The new EPA criteria and "habitat zoning" required revising aquatic use designations. EPA, working with all of its state partners including the District of Columbia and the headwaters states, published its Technical Support Document for Identification of Chesapeake Bay Designated Uses and Attainability in August 2003. The Technical Support Document showed how changes in the aquatic use zones for dissolved oxygen were justified, and that the old standards, because of both natural and manmade reasons, were unattainable. The document provided extensive guidance on how states should determine the geographical extent of the aquatic habitat use zones and associated water quality criteria in revising their water quality standards. It also provided support for the states to conduct their use attainability analyses, following specific decision criteria in the federal water quality standards regulations.[FN 4]

To assess the potential attainability of the new designated uses and criteria, EPA and its state partners organized the technological and cost information into hypothetical tiers of nutrient and sediment controls, which were modeled to estimate dissolved oxygen criteria attainment in the newly-designated habitat zones. Stakeholder experts representing the wastewater treatment, agriculture, and urban stormwater sectors were involved in the work groups which established the tiers and assessed the results. "Screening-level" economic analyses assessed whether there were any areas where achieving the new standards might cause "'substantial and widespread economic and social impact' exceeding the decision criteria in the federal regulations[FN 5].

The states with tidal waters (Delaware, District of Columbia, Virginia and Maryland) completed the process of revising their Chesapeake Bay tidal water quality standards in 2004-2005. The EPA analyses noted above, along with state-specific information, allowed the states to show in their water quality standards adoption processes that the revised water quality criteria and use designations would satisfy the federal water quality standards regulations by protecting

"existing" tidal aquatic life uses, would be attainable, and would not lead to "substantial and widespread economic or social impact[s]." [See, for example, Maryland's Use Attainability Analyses supporting adoption and refinement of its water quality standards for various tidal waters.]

As each state completed its adoption process, EPA approved the revised state water quality standards, and the states updated their section 303(d) listings for Chesapeake Bay and tidal tributary waters according to the new standards. Since 2003 EPA has published several amendments to the criteria and supporting procedures, in partnership with the states. As EPA has outlined in its draft TMDL report, states have completed or proposed minor modifications of the state standards, including further measures to address use attainability issues in specific geographic areas. The states also updated their section 303(d) listings based on the revised Chesapeake Bay and tidal tributary standards. After the EPA water quality criteria guidance report was completed in April 2003, EPA used its Chesapeake Bay models and multi-state allocations workgroup to develop nutrient and sediment load allocations for all river basins and states in the Bay watershed. These allocations were to guide subsequent revision or development of state tributary strategies. On April 25, 2003, Virginia's Secretary of Natural Resources Tayloe Murphy, who was also chair of the Chesapeake Bay Program's Principals' Staff Committee,[FN 6] sent a memorandum to all of the Bay Program partners, including the states and the District. The Memorandum, Summary of Decisions Regarding Nutrient and Sediment Load Allocations and New Submerged Aquatic Vegetation (SAV) Restoration Goals, clearly laid out the allocations which were to guide the development of state specific tributary strategies by 2004. See Chesapeake Executive Council Directive 03-02.

These allocations were "TMDL-like", and are very similar to EPA's proposed TMDL nutrient allocations released earlier this year and again as part of this draft TMDL. [FN 7]

All of the Bay states developed updated tributary-specific strategies, most final in 2004. These tributary strategies used the allocations that were contained in the Tayloe Murphy Summary Decision Memorandum. For the past seven years all of the states have known what their load reduction allocations would be, and have developed strategies to meet them.

As part of this overall process, EPA, the U.S. Geological Survey, all of the Bay states and two river basin commissions signed a MOU, on Cooperative Efforts for Monitoring and Assessing Water Quality in the Streams and Rivers of the Chesapeake Bay Watershed in September 2004. This MOU was crafted to improve the reliability of water quality monitoring throughout the Bay watershed, and outlined a common monitoring strategy and expanded network.

Technical work on the TMDL actually began unofficially in 2005 with the convening of the Chesapeake Bay Reevaluation Steering Committee (now known as the Water Quality Goal Implementation Team) whose initial focus was on updating and revising the watershed and water quality models. And since 2005, there have been regular meetings of this committee, all public, all open to stakeholder participation, and whose actions, discussions, and decisions have been fully documented on the Chesapeake Bay Program's web page. [FN 8]

The Regulatory Approach Becomes Formal - The Chesapeake Bay TMDL

At the 2007 Chesapeake Executive Council meeting, Maryland's Governor Martin O'Malley, chair of the Chesapeake Executive Council, formally announced that the Chesapeake Bay Program would not meet its water quality goals by 2010 when he stated:

We are at a key crossroads in our Bay restoration efforts. With the alignment of political leadership, public will, and

good science, we have the moral imperative to turn back the decline in the Bay's health that has been decades in the making. We have made significant progress in many areas over the last 25 years; however, we must also acknowledge that based on the current pace we will not meet our 2010 nutrient and sediment reduction goals. But today we have pledged to accelerate our efforts and to have any and all programs and policies in place by the end of calendar year 2010 to meet our nutrient and sediment reduction goals. We also pledge our best efforts to continue to seek any necessary additional funding consistent with overall fiscal and economic conditions.

Removing the Bay from the Section 303(d) list would have avoided the need for development of a TMDL for the Bay. The failure to meet that deadline triggered the court ordered obligations found in the American Canoe and Kingman Park consent decrees and the MOU with Maryland to develop a Bay TMDL (discussed in further detail below).

This failure to meet the 2010 restoration goals was acknowledged again in 2008 at the annual Council meeting, when EPA revealed that the current restoration pace would not meet the nitrogen goals until 2034 and the phosphorus goals until 2050. In June 2008, the Principals' Staff Committee of the Chesapeake Bay Program formally requested that EPA accelerate the Bay TMDL so it takes effect no later than December 31, 2010 - not May 1, 2011.[FN 9] EPA agreed to the request from its partners and pledged to finalize the Bay TMDL by the end of 2010.

The Federal Commitment to Restoration of the Chesapeake Bay

Congress and the Administration have increased commitments of financial and agency support for restoration and protection of the Chesapeake Bay watershed since the 1980s. There has been a considerable amount of federal support to states, local governments, farmers and others to implement on-the-ground practices that will be needed to succeed. This funding support has been increasing over the years as the TMDL has gotten closer.

There have been incremental increases, such as EPA providing implementation funds to the three Headwater states of Delaware, New York and West Virginia after they signed the Water Quality MOU -- $100,000 annually beginning in Fiscal Year 2002. That has incrementally increased to $500,000 this year. In Fiscal Year 2005 EPA began a new annual grants program for implementation activities in the Chesapeake Bay watershed, primarily targeting nutrient and sediment reduction. The program was funded at $7.8 million the first year and the amount has fluctuated in the years since. EPA has also been providing additional funds to all of the states to hire or retain staff in regulatory programs in order to help develop and implement the TMDL and the state WIPs. New Chesapeake Bay watershed-specific grant programs have been developed over the past decade by the National Oceanic and Atmospheric Administration and USDA's Natural Resources Conservation Service (NRCS). In the 2008 Farm Bill, Congress allocated $188 million over six years in mandatory spending for agricultural conservation practices on farms in the Chesapeake Bay watershed portion of the six states. This is a critical source of substantial funding for farmers to implement practices to support efforts to meet the requirements of the TMDL and their state WIPs.

In May 2009, President Obama issued Executive Order 13508 on Chesapeake Bay, which aligned the Federal government with efforts necessary to restore the Bay's water quality and other restoration and protection goals. This historic effort will ensure unprecedented Federal support for efforts to restore the Bay and to meet the TMDL. In September 2009, USDA Secretary Vilsack announced that there would be $638 million over five years from various USDA programs devoted to Chesapeake Bay restoration activities - though this is not all directly for water quality. EPA's Chesapeake Bay Program budget increased from $31 million in FY 2009 to $50 million in FY 2010, and the President proposed $63 million for FY 2011 - all unprecedented amounts. EPA's Clean Water State Revolving Fund (SRF), a

national program with a set formula for dissemination of money to the states, went from $689 million in FY 2009 to $2.1 billion in FY 2010 and the President's FY 2011 budget request is $2.0 billion.

As part of the President's Executive Order, on September 30, 2010 the Obama administration recently announced that it is providing a substantial amount of funding support from more than a dozen Federal agencies - proposing over $490 million in funding support for Chesapeake Bay in Fiscal Year 2011, which has just begun. Some funding highlights from this effort to target water quality include EPA programs, such as the Clean Water SRF ($169.51 million); Section 319 non-point source grants to the states ($10.37 million); $5.89 million in Section 106 Water Pollution Control grants to the states; and $4.7 million to support state tidal monitoring programs. NRCS is targeting $72 million in financial and technical assistance to help farmers in high-priority watersheds. In addition, through the newly established Chesapeake Bay Regulatory and Accountability Program and State Implementation Grants, EPA will provide more than $20 million directly to the Bay states to help them develop and implement the Chesapeake Bay TMDL and the state Watershed Implementation Plans.

Conclusion

The EPA, along with the Chesapeake Bay states, has worked for decades in a cooperative manner through a transparent and public process to reduce pollution leading to the Chesapeake Bay. Unfortunately, water quality goals set in the 1980s and in 2000 have not been met, triggering the development of the TMDL. In addition there is a clear and lengthy record of EPA, and the states, going to considerable lengths to ensure that both technical and economic attainability were addressed during this process. The new Chesapeake Bay tidal water quality standards are both scientifically valid and protective under the Clean Water Act, and at the same time, are economically and technically attainable. It is important to note that since the 1999 court agreement with EPA over the listing of Virginia's Bay waters as impaired, there has been ongoing progress by EPA and the federal government to follow that agreement, the Chesapeake 2000 agreement and ultimately the development of the Chesapeake Bay TMDL. This progress, though sometimes delayed by technical issues, continued unabated through the administrations of Presidents Bill Clinton, George W. Bush, and Barack Obama.

[FN 2] Bay Barometer: A Health and Restoration Assessment of the Chesapeake Bay and Watershed in 2009, EPA 2010
[FN 3] In 2000, Congress passed a reauthorization of Section 117 of the Clean Water Act, which did not substantially alter the approach or make up of the Chesapeake Bay Program, but did increase the authorization level to $40 million annually.
[FN 4] 40 CFR § 131.10(g)).
[FN 5] 40 CFR § 131.10(g)6.
[FN 6] Representatives from all six Bay watershed states, DC, EPA and the Chesapeake Bay Commission http://www.chesapeakebay.net/committee_psc_info.aspx?menuitem=46326.
[FN 7] Using the Phase 5.3 Watershed Model, implementation of the Tributary Strategies is expected to result in annual loads of 189.7 million pounds of total nitrogen, 14.2.5 million pounds of total phosphorus and 6.4 billion pounds of sediment compared to the draft TMDL caps of 187.4 million pounds, 12.5 million pounds and 6.3 billion pounds, respectively.
[FN 8] http://www.chesapeakebay.net/wq_git_info.aspx?menuitem=47174
[FN 9] PSC Meeting minutes June 18-19, 2008

Response

Thank you for your support of the EPA and the Bay Jurisdictions' efforts to reduce pollution loadings to the Chesapeake Bay. EPA has outlined the history of restoration efforts in the Bay watershed in Section 1 of the TMDL report. EPA agrees that past water quality goals have not been met, requiring the development of this TMDL. EPA agrees that Jurisdictions have adopted Chesapeake Bay water quality standards consistent with EPA guidance and the CWA. EPA agrees that the Agency has made ongoing and considerable progress in meeting its Consent Decree obligations that ultimately led to the development of the Chesapeake Bay TMDL. EPA agrees, as described in Section 1 of the TMDL, that the Chesapeake Bay TMDL is legally required.

Comment ID 0227.1.001.024

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

As we have pointed out previously, the voluntary, cooperative efforts to restore the Bay, which began in earnest in 1983, did not succeed in meeting any significant water quality improvement goals with only 24% of the Bay's water quality goals met in 2009. The latest estimate for meeting the nutrient reductions necessary to restore the Bay, at the current pace of the voluntary programs, is in 2050. That would be 67 years from when the Bay Program was first formed.

Response

Thank you for your comment. Please see the response to comment number 0210.1.001.004.

Comment ID 0227.1.001.026

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

Given the very nature of the Chesapeake Bay Watershed, the Bay TMDL must be significantly more complex than virtually all of the over-40,000 TMDLs developed across the country to date. Given the size and complexity of the system and the failure of "voluntary" efforts to restore the Bay, the kind of TMDL proposed by EPA is consistent with the legislative recognition by the Bay states and absolutely essential. The regional commitment to restoring the Bay, and the efforts undertaken pursuant to the Executive Order, give us some hope that this suite of TMDLs will be more successful in restoring water quality than previous efforts.

Response

Thank you for your comment. Please see the response to comment number 0210.1.001.004.

Comment ID 0233-cp.001.001

Author Name: Tanger B.

Organization:

Virginia's rivers continue to show more and more polluted waters. Back in 1998, Virginia's WQA (Water Quality Assessment) showed 2,600 miles of polluted rivers in Virginia. Every WQA since then has added thousands more miles, until the latest report showing 12,100 miles of pollution. And if we survey more rivers we will likely find more polluted. Our rivers are getting worse and it is not because we are just monitoring more rivers.
In addition to our rivers being polluted, so is the Chesapeake Bay, which receives all that river pollution. The Bay Report Card has shown failing grades now for over 25 years! So the EPA's plan to clean up our rivers is greatly needed.

Response

EPA agrees that the Chesapeake Bay does not currently meet applicable water quality standards and appreciates your support for the TMDL, which establishes loadings that allow applicable water quality standards to be met.

Comment ID 0236-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

Runoff from agriculture and other nonpoint sources is a growing threat to our nation's lakes and waterways. Pollution in the Chesapeake Bay is a prime example of the need for action to implement an enforceable regional plan. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations. Voluntary efforts to reduce nutrient pollution have failed to solve the problem.

Response

Thank you for your comment. Please see the response to comment number 0210.1.001.004.

Comment ID 0236-cp.001.002

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done.

If done well, this TMDL may become an example for nutrient control in other regions in the United States, such as the Great Lakes. EPA should ensure the TMDL for the Chesapeake Bay leads the way to reduce nonpoint source pollution in other watersheds across the country.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. EPA intends to continue to work with the Bay jurisdictions in a collaborative and cooperative manner to restore water quality in the Chesapeake Bay.

Comment ID 0236-cp.001.003

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0237-cp.001.002

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0239-cp.001.001

Author Name: Comment Anonymous

Organization:

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

I would like to know why you even allow these messes to be made? So why would you even let coal mines dump coal ash into an unlined landfill? I know that is off the topic but it all has the same result.

It is like the FDA allowing GM salmon.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. EPA agrees that the TMDL allows for the appropriate flexibility needed in working with all of the Bay jurisdictions to address the well-documented excess levels of pollution in the Bay watershed. These excess pollutants come from a variety of sources, including agricultural operations, urban and suburban runoff, wastewater facilities, air pollution, septic systems and other sources. EPA intends to continue working with the Bay jurisdictions in a collaborative and cooperative manner to restore water quality in the Chesapeake Bay.

Comment ID 0242-cp.001.002

Author Name: Hebert C.

Organization:

Mattawoman provides community benefits like clean water, recreation and wildlife. It also is an important element of the local bass fishery, which sustainably pumps tens of millions of dollars into Maryland commerce annually!

If we can't protect one of Bay's most productive tributaries, especially now that it is showing signs of decline, how can

we expect to clean up the Bay at large? Please enforce mandatory TMDL limits so we can finally turn things around for the Bay.

Response

Thank you for your comment and your support of the Chesapeake Bay TMDL. EPA has been working with all of the Bay jurisdictions, including Maryland, to develop the Chesapeake Bay TMDL, so that the Bay and its tributaries will attain and maintain applicable water quality standards. These water quality standards are a crucial element in protecting the beneficial uses of these waters, including for drinking water and ecological protection. EPA intends to continue to work in a cooperative and collaborative manner with Maryland and the other Bay jurisdictions. EPA notes, however, that the Chesapeake Bay TMDL is not a federal law or regulation.

Comment ID 0243-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

DO YOU EXPECT THE CHESAPEAKE BAY TO CLEAN ITSELF WITH ALL THE POLLUTION THAT IS DRAINED INTO THE BAY BY OUR CHEMICALS, WASTE, AND TOXINS? WE NEED THE BAY CLEANED NOW...NOT IN A COUPLE OF YEARS WHEN WE KNOW LONGER HAVE ANY CLEAN WATER. OUR SEAFOOD WILL NOT SURVIVE AND NEITHER WILL WE WITHOUT A CLEAN CHESAPEAKE BAY.

Response

EPA interprets this comment as a statement of support for the Chesapeake Bay TMDL.

Comment ID 0243-cp.001.002

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment and your support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0247-cp.001.001

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

I have lived in many of the stream and river watersheds in Virginia and also Maryland and Pennsylvania that are part of the magnificent Chesapeake Bay watershed.

In my home town of Vienna, Virginia where I live now these resources were an important part of my youth and now as an adult I appreciate even more how important our local watersheds are to the health, sense of place, and economic foundations of our communities.

Unfortunately, pollution is killing the Chesapeake and hundreds of other rivers and creeks in the region. All this pollution gets collected into the bay, which is no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future.

I urge you to develop a strong pollution diet in my state that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected.

Response

Thank you for your comment and your support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0248-cp.001.001

Author Name: Comment Anonymous

Organization:

Damaging levels of pollution drain into Chesapeake Bay rivers and streams, leaving many waters unfit for swimming or

fishing and depleting shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a step in the right direction. It sets clear pollution limits, deadlines and consequences for failure. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress. Please finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results. Thanks.

Response

Thank you for your comment and your support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0252.1.001.003

Author Name: Bond Arthur

Organization: City of Frostburg, Maryland

We expect that our State and Federal partners will do all they can to ensure a fair outcome so that Frostburg citizens can be part of a positive effort for the region and our quality of life, countering the widespread view that this program is a special interest mandate that harms our region.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. EPA views the cleanup of the Chesapeake Bay as a collaborative and cooperative process with many benefits for the entire Bay region. Please see the response to comment number 0110.001.005.

Comment ID 0258.1.001.002

Author Name: Wells Wayne

Organization: Cameron Committee for a Safe Environment (CCSE)

Given the lack of responsibility by the Dickson Corp. and the unwillingness or ineffectual pressure from the NYDEC, local and State farm organizations to correct this assault on the environment, affecting not only local people but the Chesapeake Bay cleanup effort, we members of the CCSE welcome EPA directives to bring NY into compliance with the aim to reduce nitrogen, phosphorous and sediments as a way to help NY waterways as much as all others downstream.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. EPA has worked with all of the Bay jurisdictions, including New York, to develop a TMDL that will ensure the attainment and maintenance of applicable water quality standards in the Bay watershed. EPA intends to continue to work with the Bay jurisdictions in a collaborative and cooperative manner to restore water quality in the Chesapeake Bay. EPA notes, however, that the Chesapeake Bay TMDL is not a federal law, directive, or regulation.

Comment ID 0258.1.001.005

Author Name: Wells Wayne

Organization: Cameron Committee for a Safe Environment (CCSE)

In response to a view expressed at the Elmira NY meeting regarding New York state's participation in the WIP which stated that 'we (NY) get no benefit from the Chesapeake Bay' implying that New Yorkers should not have to comply with the EPA science based remedy for Bay pollution control. I would remind all that: In this world we are all downstream from somebody.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. Although EPA does not have sufficient information to respond to the substance or intent of any statements at an Elmira, New York meeting, EPA does intend for the TMDL to have a significant impact on the health of the entire Chesapeake Bay watershed, including its tributaries in New York.

Comment ID 0262-cp.001.001

Author Name: Goldsmith K.

Organization:

I strongly support EPA's current efforts to develop, implement and enforce a TDML for Chesapeake Bay. Our collective history of voluntary state actions has been a dismal failure. Now you have the opportunity and authority to make real, substantial progress toward achieving water quality goals for the bay.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0264-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

BETTER STILL, stop the polluters with heavy fines to finance the clean up and discourage the pollution in the first place,

Response

Thank you for your comment and your support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0268-cp.001.001

Author Name: Comment Anonymous

Organization:

The Chesapeake Bay is almost dead. This administration was supposed to clean up the environment. The Chesapeake Bay would be a great place to start, before it turns into a septic system. We can change it back to a thriving ecosystem, but the Federal Government needs to take the lead.

The Chesapeake Bay can't afford more excuses and delay! Do your job and finalize a strong, accountable final TMDL, and work with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0270-cp.001.001

Author Name: Wardrop Denice

Organization: Chesapeake Bay Program's Scientific and Technical Advisory Committee (STAC)

a. Flexibility allows States to Innovate. We support EPA's efforts to build flexibility into the proposed TMDL. In general, STAC recommends that this document be broader rather than more specific to help with the goal of developing workable and innovative state programs. Such an approach should allow states to develop programs that meet broad environmental goals in the manner they know best. Flexibility should enable states to pursue innovative program designs.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. The TMDL allows for the appropriate flexibility needed in working with all of the Bay jurisdictions to address the excess levels of nitrogen, phosphorus, and sediment tin the Bay watershed. EPA intends to continue to work with the Bay jurisdictions in a collaborative and cooperative manner to restore water quality in the Chesapeake Bay.

Comment ID 0270-cp.001.002

Author Name: Wardrop Denice

Organization: Chesapeake Bay Program's Scientific and Technical Advisory Committee (STAC)

b. Periodic Evaluation of ALL Program Approaches. STAC recommends that all approaches and tools, including water quality trading, designed to meet the TMDL's goals be periodically evaluated. "Water Quality Credit Trading: Issues in Uncertainty, Evaluation, and Verification," http://www.chesapeake.org/stac/Pubs/nutrient%20trading%20evaluation.pdf is a resource document developed by STAC for this purpose. STAC believes that based on such an evaluation, EPA can adapt its management according to the experiences of the jurisdictions.

Response

The TMDL contains specific timeframes in which progress toward its goals will be evaluated and further steps can be taken to address any new information. EPA agrees that all approaches and tools, including water quality trading, should be periodically evaluated.

Comment ID 0274-cp.001.001

Author Name: Goldsmith K.

Organization:

It is critical for our environment, our economy, and our quality of life that we restore the Chesapeake Bay to health. Years of voluntary restoration measures by the States have failed. It is time for strong action and bold leadership from the EPA. The Clean Water Act, three Bay Agreements, three court agreements, one memorandum of understanding, and one Presidential Executive Order all require development of a Bay wide TMDL. This current process is not only the right thing to do, it is legally required under the CWA.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. As described in Section 1 of the TMDL, EPA agrees that the TMDL is legally required under the CWA.

Comment ID 0274-cp.001.004

Author Name: Goldsmith K.

Organization:

I support a strong TMDL.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0285-cp.001.001

Author Name: Rebecca Sutton and Craig Cox

Organization: Environmental Working Group

The attached file contains feedback from Environmental Working Group concerning the draft Total Maximum Daily Load for the Chesapeake Bay. We thank EPA for this opportunity to comment on its ongoing efforts to restore the bay and look forward to working with the agency on this critical mission in the future.

Response

EPA notes comments submitted by the Environmental Working Group and has provided responses to each comment elsewhere in this document.

Comment ID 0292.1.001.001

Author Name: Bonomo Jacquelyn

Organization: Audubon Maryland-DC

Thank you for the opportunity to comment on Environmental Protection Agency's (EPA) proposed Total Maximum Daily Load (TMDL) for Chesapeake Bay. This letter indicates the strong support of Audubon Maryland-DC for the immediate promulgation of the TMDL. Audubon Maryland-DC is one of 21 state programs of the National Audubon Society, with over 7,000 individual members, and 4,800 chapter members state-wide. These comments are presented on their behalf.

Audubon Maryland-DC's mission is to conserve, restore, and sustain the natural ecosystems of Maryland and the District of Columbia, focusing on birds, other wildlife, and their habitats for the benefit of humanity and the Earth's biological diversity. The ongoing decline of water quality in Chesapeake Bay continues to exact adverse impacts on wildlife and human communities dependent on healthy ecosystems for survival and well-being.

The US Geological Survey's Findings of the Chesapeake Bay Program's Chesapeake Bay Program's Chesapeake 2000 Goal for Living Resources http://pubs.usgs.gov/circ/circ1316/html/circ1316chap1.html#tableliving is one of many documents that indicate the adverse impacts the Bay's water quality is exacting on birds and other wildlife. Of the 38 Important Bird Area's (IBA) that Audubon has designated for Maryland, 33 are in the Bay watershed. Land use compatible with wildlife habitat protection in these IBA's is the same land use that will accrue positive impacts to improving Bay water quality, assuming that good information, political will and accountability is in place to facilitate these decisions.

The proposed TMDL is an essential enhancement to accountability that has been absent in the past. It is imperative to promulgate the TMDL as a key tool necessary to effectively restore and protect the Bay, and an attempt to mitigate failed measures, tools and options from the past.

We compliment the work of the Environmental Protection Agency and note the ongoing technical support, financial guidance and scientific data being offered to all Bay states and the District of Columbia, to ensure compliance and on-the-ground progress to meet the goals of the TMDL. As a science-based biodiversity protection organization, Audubon further acknowledges the Chesapeake Bay Program's significant investments over the last 25 years to developing some of the most sophisticated and scientifically sound ecosystem models in the world.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0302.1.001.001

Author Name: Williams Nat

Organization: The Nature Conservancy

We are writing on behalf of The Nature Conservancy's six state programs that include portions of the Chesapeake Bay watershed to comment on EPA's proposed Chesapeake Bay TMDL and the accountability framework that EPA has developed to ensure that the pollution reductions called for in the TMDL are achieved. We believe that it is both possible and essential to achieve water quality standards in the Chesapeake Bay, and we support the approach that is reflected in the draft TMDL and accountability framework.

Response

Thank you for your comment and your support of the Chesapeake Bay TMDL. EPA agrees that the TMDL and accountability framework including the State WIPs will enable the attainment and maintenance of applicable water quality standards in the Bay watershed.

Comment ID 0302.1.001.002

Author Name: Williams Nat

Organization: The Nature Conservancy

Recognizing the significant ecological, economic, and cultural values of the Chesapeake Bay and its tributaries, as well as the many stresses that diminish those values, we established our Chesapeake Bay program in 2005. Our work to help conserve the Bay's most intact habitats and restore some of its degraded, but still essential, habitats and ecological processes is part of a national effort by the Conservancy to address threats and pursue lasting conservation results at the ecosystem or watershed scale.

Many of the large freshwater and estuarine systems where we work, the Chesapeake Bay included, suffer from eutrophication and excess sediment loads. As you are well aware, these are some of the most difficult water quality issues to address, and the Chesapeake Bay is an excellent, albeit unfortunate, example of this challenge. While Bay cleanup efforts over the years have yielded some success, especially when measured against a "no action" baseline, target deadlines for achieving significant pollution reductions in 2000 and 2010 were missed by a wide margin. In order to successfully move beyond the disappointments of the past, it is essential that all levels of government within the Bay watershed fully commit to a predictable structure for TNC TMDL Comment Letter to EPA Page 2 of 3 reducing pollution in the Bay.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0302.1.001.003

Author Name: Williams Nat

Organization: The Nature Conservancy

EPA is providing critical leadership in fully utilizing the tools provided by the Clean Water Act to establish a TMDL and ensure the necessary pollution reductions.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0302.1.001.011

Author Name: Williams Nat

Organization: The Nature Conservancy

The Chesapeake Bay is one of the most productive estuaries in the world, supports an abundance of biological diversity, and provides some of the Atlantic coast's most critical breeding, nursery, and stopover habitat for marine and avian species. The Bay is an economic engine that supports commercial and recreational fisheries as well as other industries. The Bay is also central to the cultural identity of the Mid-Atlantic region and a recognized national treasure. However, the Bay's current degraded status diminishes these values, and all of us, both directly and indirectly, bear the significant costs of an impaired Chesapeake.

Thus, it would be difficult to overstate the importance of EPA's renewed emphasis on restoring the Bay, specifically the creation and implementation of the TMDL. If EPA continues to provide firm but fair leadership and if all interested parties commit to working together towards shared goals, we believe the Chesapeake Bay TMDL will not only produce the desired results in the Bay and its tributaries but will also serve as a model for cleaning up waters across the country.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0310-cp.001.001

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

Clearly, our community depends on clean water for our health, livelihoods and economic security.

Unfortunately, pollution is killing the Chesapeake and hundreds of other rivers and creeks in the region. All this pollution

gets collected into the bay, which is no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future.

I urge you to develop a strong pollution diet in my state that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected.

Response

Thank you for your comment, which EPA construes as a statement in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0326-cp.001.003

Author Name: Strickler Matthew

Organization: Old Plantation Oyster Company

I fully support the adoption of the Bay TMDL.

Response

EPA appreciates your support for the establishment of the Chesapeake Bay TMDL.

Comment ID 0327.1.001.001

Author Name: Stewart Steve

Organization: Baltimore County

The draft Chesapeake Bay Total Maximum Daily Load, Appendices, and support model documentation, presents a comprehensive overview and analysis of the nutrient and sediment impacts to the Chesapeake Bay and the amount of reductions necessary to achieve water quality standards. The EPA Chesapeake Bay Program is congratulated on the progress made to date.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0328.1.001.001

Author Name: Kimpton Steven

Organization: INVISTA

While INVISTA appreciates the efforts by both EPA and the individual states to compile the necessary data and develop the respective WIPs and draft TMDL we nevertheless have some serious concerns.

Response

EPA notes comments submitted by INVISTA and has provided responses to each comment elsewhere in this document.

Comment ID 0333-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

With both parents hailing from Washington, D. C. I have a personal connection to the The Chesapeake Bay despite residing in Florida. I've also worked as a designer at a world renowned marine science laboratory, so I've come to appreciate the enormous importance of our bays and estuaries.

Please make the cleanup of the Chesapeake Bay a priority of national importance. Our fish stocks and other wildlife populations are depending on our efforts to clean up the well-documented and unacceptable levels of pollution in the Bay.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment and your support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0344.1.001.001

Author Name: Fitzpatrick Neal

Organization: Audubon Naturalist Society

I am writing on behalf of the membership of Audubon Naturalist Society, an organization founded in 1897 to steward the natural resources of the greater Washington, D.C. region. Over the decades, our organization has worked tirelessly on protecting and restoring our local streams and the Potomac River, which as you know ultimately affect the Chesapeake Bay.

In the greater Washington DC area, the contribution of nitrogen, phosphorous, and sediment are recognized as the major pollutants of the Bay system, and therefore, are primarily responsible for the decline of the Bay. We have nitrogen in our surface waters as a result of stormwater runoff and air deposition; phosphorous is also due to stormwater runoff, while sediment is carried in runoff and in-stream erosion caused by changes in hydrology as impervious surfaces have increased and stormwater is not adequately treated or contained on-site. The proposed Chesapeake Bay TMDL will set regulatory limits on these pollutants, which will greatly aid in the cleanup of our streams, rivers, and the Bay.

We recognize both the legal and economic reasons for the EPA to move forward at this time with a Chesapeake TMDL. Voluntary efforts have failed to restore the Bay; they have merely kept further degradation from occurring. Only 24% of the Bay's water quality goals, set by the Chesapeake Bay Agreements, were met in 2009. According to the Choose Clean Water Coalition: The latest estimate for meeting the nutrient reductions necessary to restore the Bay, at the current pace of the voluntary programs, is in 2050. That would be 67 years from when the Bay Program began in 1983. Obviously, this is inadequate. Agriculture and urban runoff must be addressed Chesapeake Bay Watershed. Therefore, we support the implementation of the Chesapeake Bay TMDL.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005. Despite some reductions in pollutants due to extensive efforts by federal, state and local government, non-governmental organizations and private stakeholders, EPA agrees that there has been insufficient progress toward meeting applicable water quality standards. EPA also agrees that nitrogen, phosphorus, and sediment loadings in the Bay watershed come from a variety of sources and that pollutant reductions must be made from a variety of sources in order to achieve applicable water quality standards.

Comment ID 0346-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of

pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

OVERPOPULATION AND URBAN SPRAWL IS KILLING THE PLANET. SUPPORT PLANNED PARENTHOOD AND EDUCATION FOR WOMEN AROUND THE WORLD. THANK YOU.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005. EPA expresses no opinion on Planned Parenthood.

Comment ID 0363-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

THIS IS SO IMPORTANT TO OUR LOCAL WATERSHED, THE LYNNHAVEN RIVER, WHERE WE HAVE MADE GREAT STRIDES IN BEING ABLE TO HARVEST LOCAL OYSTERS. WE MUST CONTINUE FORWARD.

Response

Thank you for your comment and your support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0367-cp.001.001

Author Name: Forget Karen

Organization: Lynnhaven River NOW

I am Karen W. Forget, the Executive Director of Lynnhaven River NOW in Virginia Beach. I am here on behalf of Lynnhaven River NOW and our 4,000 members in Virginia Beach. We believe that clean water is critical for our health, our economy and our quality of life and that it is our responsibility as citizens and the responsibility of those who have been elected to serve the citizens of Virginia in our state government to do everything possible to restore and protect our waterways including the Chesapeake Bay.

Response

Thank you for your comment, which EPA interprets as a statement of support for the Chesapeake Bay TMDL.

Comment ID 0377-cp.001.001

Author Name: Martin Larry

Organization: Sustainable Community Initiatives

The objective for the TMDL is appropriate: "Allocated loads should protect living resources of the Bay and its tidal tributaries and result in all segments of the Bay mainstem, tidal tributaries and embayments meeting 5 water quality standards for dissolved oxygen, chlorophyll a, water clarity and underwater grasses."

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0381-cp.001.002

Author Name: Thompson Jeff

Organization: Historic East Baltimore Community Action Coalition, Inc. (HEBCAC)

• Years of voluntary restoration measures by the States have failed. It is time for strong action and bold leadership from the EPA.

Response

EPA appreciates your support for the establishment of the Chesapeake Bay TMDL.

Comment ID 0381-cp.001.005

Author Name: Thompson Jeff

Organization: Historic East Baltimore Community Action Coalition, Inc. (HEBCAC)

• I support a strong TMDL.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0388.1.001.004

Author Name: Legg Peter

Organization: Advocates for Herring Bay (AHB)

According to press reports, some jurisdictions and business interests want EPA and the state to weaken and delay implementation of the Bay TMDL. We strongly oppose these sentiments, and encourage the EPA and the state to resist those pressures. As Marylanders, we are proud that our state is taking a leading role in the effort to restore this national treasure to its former glory and protect it for future generations. The time to secure the fortunes of the Chesapeake is now.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0394.001.001

Author Name: Heavner Brad

Organization: Environment America et al.

Environment America is a federation of 29 state based organizations with more than 100 staff and 1 million members, activists, and allies working together for a cleaner, greener, healthier future. We work on a variety of issues related to

clean air, clean water and preservation of open spaces. Restoring the Chesapeake Bay has long been a priority for our staff and more than 30,000 members in the bay region. For instance, Environment Virginia has advocated for and won funding for best management practices designed to limit runoff from agriculture. In 2007 Environment Maryland was instrumental in passing Maryland's Stormwater Management Act which set a standard of no net change in the hydrology of new construction sites.

Thanks to the leadership of President Obama and U.S. Environmental Protection Agency Administrator Lisa Jackson, this Chesapeake Bay TMDL is the best chance in a generation to improve the quality of our waterways throughout the Chesapeake Bay region.

Response

Thank you for your comment. EPA appreciates your support of the Chesapeake Bay TMDL. EPA intends to continue to work collaboratively and cooperatively with each of the Bay jurisdictions to attain and maintain applicable water quality standards in the Bay watershed.

Comment ID 0406.1.001.001

Author Name: Preyer John

Organization: Restoration Systems (RS)

RS applauds the long and difficult work by EPA to develop this TMDL, the largest ever developed, in order to restore the Chesapeake Bay and its multitude of streams, creeks, rivers, and wetlands.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0414.1.001.001

Author Name: Myers George

Organization: Milton Regional Sewer Authority

The Milton Regional Authority supports the clean up of the Chesapeake Bay and all impaired waters. We appreciate the opportunity to provide comments on the draft TMDL dated September 24, 2010.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0417-cp.001.001

Author Name: Comment Anonymous

Organization:

It is critical for our environment, our economy, and our quality of life that we restore the Chesapeake Bay to health.

Years of voluntary restoration measures by the States have failed. It is time for strong action and bold leadership from the EPA.

The Clean Water Act, three Bay Agreements, three court agreements, one memorandum of understanding, and one Presidential Executive Order all require development of a Bay wide TMDL. This current process is not only the right thing to do, it is legally required.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. As described in Section 1 of the TMDL, EPA agrees that the TMDL is legally required.

Comment ID 0418.1.001.001

Author Name: Devine Jon

Organization: Natural Resources Defense Council (NRDC)

NRDC salutes EPA and the staff of the Chesapeake Bay watershed states for their dedication and commitment to developing this ambitious tool for restoring the vibrancy of the Bay. We look forward to working with the various state and federal agencies in our collaborative efforts to move forward toward a healthy Bay after decades of ground-laying work and missed opportunities.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL.

Comment ID 0423-cp.001.001

Author Name: Comment Anonymous

Organization:

I SUPPORT THE "CHESAPEAKE CLEAN WATER AND ECOSYSTEM RESTORATION ACT" AND WISH TO SEE THE ACT BECOME LAW.

Response

EPA does not understand this comment or its basis, and cannot therefore provide a response.

Comment ID 0425-cp.001.001

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

One day I was traveling from NYC to NC and suddenly I was breathless with the appearance of a magnificent body of water! I just had to look it up immediately on my map to see exactly where we were on that gorgeous crystal day! Sure enough it was Chesapeake Bay and it was one of the most inspirational body of waters I had ever experienced. I vowed to myself that I would return to explore this natural wonder. Clearly, our community depends on clean water for our health, livelihoods and economic security.

Unfortunately, pollution is killing the Chesapeake and hundreds of other rivers and creeks in the region. All this pollution gets collected into the bay, which is no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future.

I urge you to develop a strong pollution diet in my state that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected.

Response

Thank you for your comment, which EPA construes to be a statement of support for the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0426-cp.001.001

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

It is obvious that our community, like every community, depends on clean water for our health, livelihoods and economic security.

It is upsetting then that pollution is killing the Chesapeake and hundreds of other rivers and creeks in our region. All this pollution makes its way to be collected into the bay, which disturbingly is in no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future.

I urge you to develop a strong pollution diet in my state that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected.

Response

Thank you for your comment, which EPA construes to be a statement of support for the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0429-cp.001.001

Author Name: Reeves J.

Organization:

US EPA & its senior staff on this initiative:

1- are doing critical, good work, with objective verbage.
2- are using due-process with tools/ laws at hand, esp. the TMDL portions of PL-92-500- as amended/updated. Many innitiatives & reg. guidance will/should apply nation-wide.
3- should keep focused here yet ever mindful of collaborative and innovative ways to the key goals/ W.Q. Stds.

Response

Thank you for your comment, which EPA construes to be a statement in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005. The Clean Water Act, and much of EPA's guidance, does apply nationwide. EPA notes, however, that the Chesapeake Bay TMDL is not a federal statute, law, regulation, or guidance.

Comment ID 0433-cp.001.001

Author Name: Bick Bonnie

Organization: Chapman Forest Foundation

The Chapman Forest Foundation is a 501c(3) origination with the mission The mission of to work to protect the natural and cultural resources of Chapman Forest, to protect its forests from fragmentation, to maintain its value for historical and archaeological research and interpretation, to protect its authentic setting, and to provide public access, education, and research opportunities consistent with that protection. We have been working to protect water quality in the Mattawoman Creek for over twenty years and are pleased that the effort to clean up the bay with voluntary efforts has now taken the move toward the mandatory approach of to enforcing pollution limits that levels the playing field across states. Mattawoman has had an approved TMDL since 2005, and the TMDL clearly isn't working with present voluntary policies. Strong enforcement policies are justified. We would like to incorporate the Mattawoman Watershed Society's comments by reference.

We would like to draw attention to the Mattawoman Creek, which mirrors the plight of the Bay and is a case study of why a new approach is needed.) Warnings of Mattawoman's sensitivity to development have been raised by biologists for at least twenty years, but these warning have never been acted upon. Now unfortunately, the Maryland Department of Natural Resources reports that the fish populations are showing signs of decline-clearly, the old voluntary approach isn't working.

We ask the EPA to use the value, venerability and the opportunity for protection and restoration of Mattawonan Creek as a poster child for the opportunity for the protection and restoration of the entire Chesapeake Bay.

Response

Please see the response to comment number 0110.001.005. In 2005, Maryland established and EPA approved the Mattawoman Creek TMDL for phosphorus and nitrogen to address its local aquatic life use impairment. The Chesapeake Bay TMDL provides new allocations for the Mattawoman Creek to address the aquatic life use impairment of the Chesapeake Bay. Of the two TMDLs, the more stringent TMDL will apply in Mattawoman Creek. Maryland's WIPs provide plans for how and when the State will meet the pollution reductions in each its watersheds. The WIPs submitted by the State are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Chesapeake Bay TMDL but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on the WIP should be directed to Maryland Department of the Environment.

Comment ID 0447-cp.001.001

Author Name: Gaag Halle

Organization: Baltimore Water Alliance

We are pleased to support the advent and creation of the Bay wide TMDL and its related Watershed Implementation

Plans. It is clear that voluntary measures have not allowed the Bay to make a comeback nor have they significantly slowed the growth of pollution from sources such as urban/suburban stormwater. The Bay is more than an environmental treasure; it is an essential economic engine for the entire region which needs a healthy eco system to thrive and be productive.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0210.1.001.004.

Comment ID 0448-cp.001.001

Author Name: Repman L.

Organization:

I am a communications and engineering geology major at Lock Haven University in Pennsylvania. I greatly appreciate this chance for public comment and a renewed commitment to providing a healthy habitat for our children and grandchildren. Thank you :)

Response

Thank you for your comment, which EPA interprets as a statement of support for the Chesapeake Bay TMDL.

Comment ID 0453-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

I grew up in Baltimore, born 1942. One of my favorite foods there was Chesapeake crab cakes. I also remember going downtown weekly with my mother in Baltimore to the big indoor market where fish stalls teamed with marvelous fish and seafood. I no longer live in Baltimore, but I hate to hear that the Bay is so polluted that fish and seafood supplies are down and also that one might need to be cautious whether to eat these products of the Bay which we used to take for granted as our Maryland bounty.

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states

the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0460-cp.001.001

Author Name: Comment Anonymous

Organization:

• It is critical for our environment, our economy, and our quality of life that we restore the Chesapeake Bay to health.
• Years of voluntary restoration measures by the States have failed. It is time for strong action and bold leadership from the EPA.

Response

Thank you for your comment, which EPA construes as a statement in support of the Chesapeake Bay TMDL. Please see the response to comment number 0210.1.001.004.

Comment ID 0460-cp.001.004

Author Name: Comment Anonymous

Organization:

• I support a strong TMDL.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0461-cp.001.001

Author Name: Shrack C.

Organization:

We fully support the TMDL plan. Please implement these critically essential guidelines for protecting our majestic Chesapeake Bay. If not now, when? If not this plan, which one?

Go for it!

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0466.1.001.002

Author Name: Suarez Julie

Organization: New York Farm Bureau (NYFB)

We are further disappointed about EPA's overall tenor in feedback to the NYS Department of Environmental Conservation's (DEC) draft Watershed Implementation Plan (WIP) and TMDL discussions regarding New York agriculture, particularly animal agriculture, in New York's portion of the Chesapeake Bay Watershed. While agriculture does indeed have a role in further improving water quality, New York's family farms have already undertaken significant efforts to achieve quantifiable results in water quality improvement. The draft TMDL ignores these efforts and the existing mechanisms that have achieved this reduction, and instead focuses on a draconian regulatory approach that demonstrates a lack of understanding about achieving agricultural stewardship.

Response

Thank you for your comment. EPA recognizes the efforts that have been made to date, and agrees that agriculture has a role in further improving water quality. Since submittal of the draft WIPs, EPA has worked closely with each jurisdiction to revise and strengthen its plan. Because of this cooperative work and state leadership, the final WIPs submitted in December were significantly improved including New York's WIP. Please see Section 8 of the final TMDL for EPA's evaluation of New York's final Phase I Watershed Implementation Plan.

Comment ID 0469-cp.001.001

Author Name: Richardson Bruce

Organization: Association of Virginia Potato and Vegetable Growers

The farmer members of our Association are committed to do their part to clean up the Chesapeake Bay. Virginia farmers have a proud history of implementing conservation tillage and BMPs to mitigate the effect of runoff into Bay.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. EPA agrees that agriculture has a role to play in helping to reduce the pollutant levels in the Bay.

Comment ID 0471.1.001.001

Author Name: Greenfield Elizabeth

Organization: Richmond Association of Realtors (RAR)

On behalf of the 4,700 members of the Richmond Association of REALTORS (RAR), I am submitting comments regarding the proposed rule issued by the Environmental Protection Agency (EPA) on establishing a Total Maximum Daily Load (TMDL) for states in the Chesapeake Bay Watershed.

RAR is strongly supportive of the efforts to restore and protect the Chesapeake Bay and its tributaries.

Response

EPA appreciates your support for the Chesapeake Bay TMDL, though notes that it is not a federal rulemaking.

Comment ID 0477.1.001.001

Author Name: Friedrich Tony

Organization: Coastal Conservation Association Maryland

CCA Maryland is a non-profit, grassroots organization that prides itself on its efforts to influence laws and policies to promote sustainable fisheries for recreational anglers. We are an active and long-time participant in fisheries management in the state, Chesapeake Bay and Atlantic coastal waters; working closely and cooperatively with governmental entities and other stakeholder groups to support science-based conservation and management efforts. CCA Maryland is also a proud member of the Choose Clean Water Coalition. Our state organization is part of Coastal Conservation Association ("CCA"), the leading marine recreational fishing advocacy group in the United States. Originally formed in 1977, CCA has grown to represent more than 100,000 members in seventeen state chapters, including Maryland, Virginia and New York. The Board of Directors of CCA has separately voted to join the Choose Clean Water Coalition and its application to the organization is currently pending.

CCA Maryland supports the purpose and intent of the TMDL and commends the Obama Administration for placing such ml emphasis on addressing the critical needs of the Chesapeake Bay. We appreciate and understand that a healthy Bay is necessary to support a strong recreational fishery and that many of the actions required to achieve this goal will occur far from the waters of the Chesapeake itself.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL.

Comment ID 0479.1.001.001

Author Name: Gansler Douglas

Organization: Maryland Office of the Attorney General

I am writing to express my strong support for the Draft Chesapeake Bay TMDL and EPA's evaluation of the state Watershed Implementation Plans (WIPs).

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0480.1.001.001

Author Name: Falk Hilary

Organization: Choose Clean Water Coalition

The Chesapeake Bay is an iconic national treasure and an over $1 trillion resource. [FN1] Right now is our best opportunity in a generation to restore the Bay and all the waters that feed it. While we have made progress on a number of fronts, we simply have not done enough thus far to stem pollution to our waterways. Now, as the U.S. Environmental Protection Agency (EPA) and the Bay states collaborate, we formally express our strong support to finalize and implement the Bay-wide TMDL.

We have a moral and legal imperative to protect these local waters upon which 17 million people rely.

[FN1] 2004 Chesapeake Bay Watershed Blue Ribbon Finance Panel Report, "Saving a National Treasure: Financing the Cleanup of the Chesapeake Bay"."

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0480.1.001.005

Author Name: Falk Hilary

Organization: Choose Clean Water Coalition

The EPA, along with the Bay states, has worked for decades in a cooperative manner through a transparent and public process to reduce pollution leading to the Chesapeake Bay. Unfortunately, water quality goals set in the 1980s and in 2000 have not been met, triggering the development of the TMDL. In addition there is a clear and lengthy record of EPA, and the Bay states, going to considerable lengths to ensure that both technical and economic attainability were addressed during this process. The new Chesapeake Bay tidal water quality standards are both scientifically valid and protective under the Clean Water Act, and at the same time, are economically and technically attainable. It is important to note that since the 1999 court agreement with EPA over the listing of Virginia's Bay waters as impaired, there has been ongoing progress by EPA and the federal government to follow that agreement, the Chesapeake 2000 agreement and ultimately the development of the Chesapeake Bay TMDL. This progress, though sometimes delayed by technical issues, continued unabated through the administrations of Presidents Bill Clinton, George W. Bush, and Barack Obama.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL.

Comment ID 0480.1.001.019

Author Name: Falk Hilary

Organization: Choose Clean Water Coalition

The 1987 Chesapeake Bay Agreement was very specific, laying out the purpose of this first historic water quality goal for the Chesapeake, "To ensure the productivity of the living resources of the Bay, we must clearly establish the water quality conditions they require and must then attain and maintain those conditions. Foremost, we must improve or maintain dissolved oxygen concentration in the Bay and its tributaries through a continued and expanded commitment to the reduction of nutrients from both point and nonpoint sources." For the first time in 23 years this water quality goal has a chance of being met because the Chesapeake Bay TMDL will address everything that was laid out in 1987; the establishment of new dissolved oxygen water quality standards for the Bay and its tidal tributaries, and nutrient and sediment reduction allocations to the states, which will have to address both point and nonpoint sources of pollution.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL and the process used to develop it.

Comment ID 0480.1.001.021

Author Name: Falk Hilary

Organization: Choose Clean Water Coalition

Given the very nature of the Chesapeake Bay Watershed, the Bay TMDL must be significantly more complex than virtually all of the over-40,000 TMDLs developed across the country to date. Given the size and complexity of the system and the failure of "voluntary" efforts to restore the Bay, the kind of TMDL proposed by EPA is consistent with the legislative recognition by the Bay states and absolutely essential. The regional commitment to restoring the Bay, and the efforts undertaken pursuant to the Executive Order, give us some hope that this suite of TMDLs will be more successful in restoring water quality than previous efforts. There were a variety of reasons for prior failures, including inadequate data, failure to update plans when progress lagged, and most especially, the failure to connect to a real and enforceable, approved implementation plan. We expect that a well implemented TMDL will provide what we have been lacking: strong science and implementation plans built on principles of adaptive management that can and will be enforced.

Response

Thank you for your comment. EPA agrees that the Chesapeake Bay TMDL is essential to restoring the health of the Chesapeake Bay. Please see the response to comment number 0110.001.005. .

Comment ID 0495.1.001.001

Author Name: Long Jim

Organization: Mattawoman Watershed Society

The Mattawoman Watershed Society (MWS) would like to thank you for this opportunity to comment on the Draft Chesapeake Bay Total Maximum Daily Load (Bay TMDL).

The MWS is an all-volunteer 501(c)3 nonprofit organization dedicated to protecting and preserving Mattawoman Creek through research, education, and advocacy. We regularly communicate with about one thousand supporters, including many who directly use or otherwise enjoy Mattawoman Creek or the natural aspects of its watershed.

Mattawoman Creek is an eight-digit watershed covering approximately 94 square miles in Maryland's inner coastal plain. It comprises about twenty miles of fluvial river feeding a sinuous seven-mile long tidal-freshwater estuary opening onto the Potomac River at Indian Head.

The MWS has a particular interest in the Bay TMDL because Mattawoman Creek has had an approved TMDL since 2005, with little evidence that the presently constituted "reasonable assurance" for meeting the TMDL will ever realize the required 40% reduction in nutrient loads from the 2000 baseline levels. For example, the Mattawoman Creek Watershed Management Plan, authored by the Army Corps of Engineers, foresees a 50% increase in nutrients in the

future [ACOE, 2003]. Even Charles County's draft Water Resources Element [WRE, 2010], which we believe employs unrealistically optimistic assumptions, fails to achieve the required reduction by 2030, five years beyond the goal for full compliance with the Bay TMDL.

Because the current and historical approaches to cleaning up the Bay have failed to achieve pollution reduction goals we strongly support the establishment of the Bay TMDL. Furthermore, because enforcement of TMDLs already in place is demonstrably weak, we also strongly endorse the new regulatory approach to enforcing TMDLs as an important means to reduce nutrient and sediment pollution to the Chesapeake Bay and its tributaries.

Response

Thank you for your comment. EPA agrees that, despite some reductions in pollutants and extensive efforts by federal, state and local government, non-governmental organizations and private stakeholders, there has been insufficient progress toward meeting applicable water quality standards in the Chesapeake Bay. Please see the response to comment number 0110.001.005.

Comment ID 0498-cp.001.002

Author Name: Walls Brent

Organization: Potomac Riverkeeper

The establishment of the Bay TMDL [Total Maximum Daily Load] marks a tremendous turning point in restoring the Chesapeake Bay by capping the total amount of discharged pollutants.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0502.1.001.001

Author Name: Frank Stephen

Organization: RRI Energy

Based on our understanding and review of Pennsylvania's Draft Chesapeake Bay Watershed Implementation Plan (draft WIP) and the draft Chesapeake Bay Total Maximum Daily Load (Bay TMDL), RRI Energy is providing comments. The draft WIP was prepared to address the U.S. Environmental Protection Agency's (EPA's) expectations for the Bay TMDL, scheduled for publication in December 2010. The purpose of the draft Phase I WIP is to divide nutrient and sediment loads by source sector (e.g. agriculture, storm water, wastewater treatment plants, etc.), NPDES permit loads, and major drainage basin.

RRI Energy supports the TMDL process as a comprehensive means of evaluating water quality conditions, identifying

sources contributing to those conditions, and then developing solutions that achieve water quality standards in an equitable and cost-effective manner. Equity and cost-effectiveness are especially important in a TMDL for an area as expansive as the Bay watershed, which covers 64,000 square miles of the East Coast.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. EPA believes that the TMDL allows for the appropriate level of flexibility needed in working with all of the Bay jurisdictions to address the excess levels of nitrogen, phosphorus, and sediment in the Bay watershed.

Comment ID 0504.1.001.001

Author Name: Elliott James

Organization: Citizens Advisory Committee to the Chesapeake Executive Council

The Citizens Advisory Committee is a broad based citizens' organization comprised of volunteer representatives from agriculture, business, conservation, industry, non-profit, faith-based, and civic groups across the watershed. Since it was first established in 1984, CAC has provided advice and assistance to the region's Governors, EPA and EC of the CBP in implementing Chesapeake Bay restoration. CAC provides a non-governmental perspective on the Bay Program restoration efforts and on how Bay Program policies affect citizens who live, work and play in the Chesapeake region.

CAC has been actively participating in Bay watershed restoration for 26 years. We have been an active contributor in the development of this historic voluntary program which produced or helped facilitate three Executive Council Chesapeake Bay Agreements; over 45 EC Directives, Agreements, and Strategies; revisions of water quality standards for the Bay; Bay Tributary Strategies; 2003 Bay waste load and load allocations; and two-year milestones. We acknowledge the progress made, but are eager to begin this new era of accelerated progress and accountability. We are eager to experience clean water and healthy environments in our communities.

First, we strongly support the Bay TMDL, the 2025 deadline and the Watershed Implementation Plans (WIPs). Sadly, too many Bay Agreements have not been honored and "deadlines" have come and gone without significant improvement to the Bay. The time to act is upon us and we applaud EPA's efforts to accelerate Bay Restoration through the TMDL. We recognize the Chesapeake Bay Program is in flux with the TMDL process and President Obama's Executive Order, so we appreciate that EPA is holding the CBP partnership accountable to the past Principals' Staff Committee decision to accelerate the TMDL. While we acknowledge the difficult economic times, every year that we continue to delay the hard political choices necessary to clean up the Bay we, in effect, ensure that the next generation will inherit the ever rising costs of clean-up and effectively lessen our ability to restore the Bay. This is why we think it is important to get the TMDLs and the WIPs in place now.

Response

Thank you for your expression of support of the Chesapeake Bay TMDL.

Comment ID 0504.1.001.009

Author Name: Elliott James

Organization: Citizens Advisory Committee to the Chesapeake Executive Council

The Citizens Advisory Committee is hopeful this new stage in Chesapeake Bay clean-up will move all our efforts beyond merely managing the loss of our national treasure to a model example of restoration that showcases how an innovative and accountable TMDL contributed to the next generation of a successful state-federal restoration partnership.

Response

Thank you for your comment expressing support for the Chesapeake Bay TMDL. EPA intends for the Chesapeake Bay TMDL to have a significant impact on the health of the Chesapeake Bay. Please see the response to comment number 0110.001.005.

Comment ID 0505.1.001.001

Author Name: Potter James

Organization: Maryland Chapter, American Planning Association

The Chesapeake Bay is important to the State of Maryland for a variety of reasons. Approximately 95% of Maryland and its population lies within the Chesapeake Bay watershed. It is an incubator of marine life. It is a transportation medium. It is a recreational amenity. The Bay is an economic machine of unparalleled value. It is our culture and identity to Marylanders. Unfortunately, the last 200 years has seen it used as a sewer and dump as well. Reconciling use with the damage that it causes is not easy. We as Planners want to and can be part of the solution.

It is with that goal that the Maryland Chapter assembled a forum of our members and other interested parties on 27 October 2010 to discuss the Total Maximum Daily Load (TMDL) "diet" the Environmental Protection Agency has proposed for the Bay. From the onset, those participating in our public meeting expressed general support for TMDL as a means to a healthier Chesapeake Bay. This is the strong and difficult leadership that previous voluntary efforts were unable to create.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. EPA intends to continue to work cooperatively and collaboratively with Maryland and the other Bay jurisdictions to ensure that continued progress is made in improving the health of the Chesapeake Bay watershed.

Comment ID 0510.1.001.001

Author Name: Haterius Stephen

Organization: National Association of State Departments of Agriculture (NASDA)

The National Association of State Departments of Agriculture (NASDA) respectfully submits the following comments related to EPA's Draft Chesapeake Bay Total Maximum Daily Load (Docket Number EPA-R03-OW-2010-0736), released for public comment on September 24, 2010.

NASDA represents the commissioners, secretaries, and directors of the state departments of agriculture in all fifty states and four U.S. territories. State departments of agriculture are responsible for a wide range of programs including food safety, combating the introduction and spread of plant and animal diseases, and fostering the economic vitality of our rural communities. Conservation and environmental protection are also among our chief responsibilities.

State agriculture departments are at the forefront of efforts in the region to address water quality in the Chesapeake Bay. Our members in the Chesapeake region-and nationwide-are committed to addressing water quality, and other environmental challenges, in an effective and responsible manner. Even though nonpoint issues are not easy to resolve, substantial progress has been made. The remaining challenges associated with improving water quality in the Bay are complicated and require innovative solutions. NASDA and our members in the region are committed to working with stakeholders to do just that.

Response

Thank you for your comment, which EPA construes as a statement in support of the Chesapeake Bay TMDL. EPA agrees that the agricultural sector has a role to play in continuing the progress toward meeting applicable water quality standards in the Bay. The TMDL allows for the appropriate flexibility needed in working with the Bay jurisdictions in a collaborative and cooperative manner to meet these standards.

Comment ID 0511-cp.001.001

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

Clearly, our community depends on clean water for our health, livelihoods and economic security.

Unfortunately, pollution is killing the Chesapeake and hundreds of other rivers and creeks in the region. All this pollution gets collected into the bay, which is no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future.

I urge you to develop a strong pollution diet in my state that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected.

Hurry up and do all you can now before the Republicans take charge again and everything goes backwards. Fish aren't the only ones desperate for oxygen!

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0516-cp.001.002

Author Name: Winegrad Gerald

Organization: Senior Bay Scientists and Policy Makers for the Bay

This remarkable group of 57 Bay leaders from Maryland, Virginia, and Pennsylvania unanimously agreed on the bold steps that must be taken to stop the continued degradation of the Bay. New budgetary, legislative, and regulatory actions by the EPA and the states are called for especially for nonpoint sources of Bay-choking nutrients and sediment from the major source of Bay pollution, agriculture, and from abusive land development. Without such aggressive actions in nutrient and sediment loading from agriculture and development the Bay is doomed.

We are concerned over the failure of the 26 year old voluntary, collaborative approach under the EPA Bay Program and the repeated failure of the states, the Bay Program, and the EPA to meet deadlines for pollution reduction goals.

Response

Thank you for your comment. Despite some reductions in pollutants and extensive efforts by federal state and local governments, non-governmental organizations and private stakeholders, EPA agrees that more needs to be done to meet the meet applicable water quality standards and that further progress in the cleanup of the Bay is a shared responsibility. Please see the response to comment number 0110.001.005.

Comment ID 0516.1.001.001

Author Name: Winegrad Gerald

Organization: Senior Bay Scientists and Policy Makers for the Bay

In December of 2008, more than 20 senior Bay scientists and policy makers met in Annapolis to discuss the plight of the Chesapeake Bay and the pending failure to meet another agreed upon deadline for pollution reduction goals necessary to restore the Bay. A statement was unanimously adopted which concluded that after 25 years of effort, the formal Bay Program and the restoration efforts under the voluntary, collaborative approach currently in place have not worked and current efforts have been insufficient and are failing. Water quality is declining or not improving in much of the Bay and its rivers, and living resources continue to decline. An EPA Bay program analysis concluded that the Bay was severely degraded and that under current programs, it would be 2034 before the agreed upon nitrogen reduction goal was achieved and 2050 for the phosphorus goal.

The group has expanded to 57 Bay leaders from Virginia, Maryland, and Pennsylvania and has since urged the EPA and the Bay states to transition from the voluntary collaborative approach in place for 27 years to a more comprehensive regulatory program that would establish mandatory, enforceable measures for meeting the nutrient, sediment, and toxic chemical reductions needed to remove all Bay waters from the Clean Water Act impaired waters list. We suggested that these mandatory measures must be fully implemented and enforced. These measures should be under existing laws and regulations, as well as under new regulations or legislation that may be necessary.

We have had several plenary meetings and have discussed the Presidential Executive Order for Chesapeake Bay Protection and Restoration and the strategy for restoration and protection of the Chesapeake Bay under Section 203 and the establishment of the Bay TMDL. After thorough discussion, we reached the unanimous conclusion that bold, new, and aggressive actions beyond the strategy were required by the EPA and other federal agencies to make certain that the nutrients, sediment, and toxic chemicals severely degrading the Bay would be reduced as called for by the caps or under the new draft TMDL. These actions must be undertaken in a definitive, regulatory manner with enforceable deadlines with the certainty of penalties.

Response

Thank you for your comment, which EPA construes as a statement in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005. EPA notes, however, that the Chesapeake Bay TMDL addresses nitrogen, phosphorus, and sediment in the Bay watershed, but does not address toxics.

Comment ID 0516.1.001.006

Author Name: Winegrad Gerald

Organization: Senior Bay Scientists and Policy Makers for the Bay

The EPA's Inspector General issued a report in September 2007 noting that impervious surfaces added over the previous five years resulted in an annual increase of one million pounds of nitrogen flowing to the Bay, impeding Bay restoration. Again in July 2008, researchers with the EPA's Inspector General Office cited several serious problems hindering the Bay's cleanup, including uncontrolled land development and the limited implementation of agricultural conservation practices. The Inspector General's Office noted that in some cases, there are no clear regulatory programs to control these major nonpoint sources of pollution. We urge the EPA and the other federal agencies not to back down on regulatory efforts and to take the bold, necessary actions to restore the Bay free from political machinations that continue to impede these efforts.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0536.1.001.001

Author Name: Belin Hedrick

Organization: Potomac Conservancy

Thank you for the opportunity to provide our comments on the draft Chesapeake Bay Total Maximum Daily Load (TMDL), released on September 24, 2010. Potomac Conservancy, an organization dedicated to protecting the health,

beauty and enjoyment of the Potomac River and its tributaries, exhorts the Environmental Protection Agency to press firmly forward to establish a scientifically-valid, enforceable TMDL for the Chesapeake Bay watershed.

The Clean Water Act, three Bay Agreements, three court agreements, one memorandum of understanding, and one Presidential Executive Order all require development of a Bay-wide TMDL. This current process is not only the right thing to do, it is legally required.

Years of voluntary restoration measures by the States have failed to bring the Bay back to health. Bay fisheries are still in decline (or have collapsed), and immense ‘dead zones' form during the summer months, in which even submerged aquatic grasses do not grow. Because past efforts to clean up the Bay have not succeeded, new approaches must be pursued.

Response

Thank you for your support of the Chesapeake Bay TMDL. As discussed in Section 1 of the Chesapeake Bay TMDL, EPA agrees that the TMDL is legally required. In response to the portion of the comment regarding voluntary measures, please see the response to comment number 0210.1.001.004.

Comment ID 0536.1.001.005

Author Name: Belin Hedrick

Organization: Potomac Conservancy

It is critical for our environment, our economy, and our quality of life that we restore the Chesapeake Bay to health. It is time for strong action and bold leadership from the EPA. We call upon you to stand by your commitment to do everything in EPA's power to reduce the pollution that is destroying the Chesapeake Bay and its tributaries such as the Potomac River.

As you articulated on your first day as Administrator, restoring the Bay will require vigorous application of the EPA's authority. Achieving success in the Bay cleanup effort will unquestionably require regulatory action and firm enforcement by the EPA over the Bay jurisdictions as they finalize their WIPs and implement the TMDL.

Potomac Conservancy strongly supports the EPA establishing a decisive TMDL that finally secures a clean, restored Chesapeake Bay.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0537-cp.001.001

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

I do not accept that the environment needs to suffer if we want to work on the economy. We should an can work on both, the two are not mutually exclusive. Clearly, our community depends on clean water for our health, livelihoods and economic security.

Unfortunately, pollution is killing the Chesapeake and hundreds of other rivers and creeks in the region. All this pollution gets collected into the bay, which is no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future. Please don't pass this chance up!

I urge you to develop a strong pollution diet in my state that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected. Please stand strong in enforcing your mission. We are counting on you!

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0539-cp.001.001

Author Name: Fletcher C.

Organization:

Please move forward with the Total Maximum Daily Load plan. The Chesapeake Bay needs an ongoing and effective clean up.

Response

EPA appreciates your support for the establishment of the Chesapeake Bay TMDL.

Comment ID 0544-cp.001.001

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

I am a trained naturalist who realizes the extreme importance of having the Chesapeake Bay be healthy. Please act in a way that is based on sound, solid science.

Clearly, our community depends on clean water for our health, livelihoods and economic security.

Unfortunately, pollution is killing the Chesapeake and hundreds of other rivers and creeks in the region. All this pollution gets collected into the bay, which is no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future.

I urge you to develop a strong pollution diet in my state that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected.

Response

Thank you for your support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0545.1.001.001

Author Name: Friedman Suzy

Organization: Environmental Defense Fund (EDF)

On behalf of our more than 700,000 members, the Environmental Defense Fund (EDF) appreciates the opportunity to comment and respectfully submits the following in support of the Draft Chesapeake Bay Total Maximum Daily Load (TMDL).

Once called an "immense protein factory" by H.L. Menken, the Chesapeake Bay is a $1 trillion national treasure upon which millions of people rely. Unfortunately, the Bay also is a resource in serious decline. Commercial oyster and blue crab catches from the Chesapeake have dropped precipitously. The Bay is plagued by algae blooms and, in some areas, low levels of dissolved oxygen that threaten aquatic life. Conditions are so dire that in 2009, EPA found that the Bay met only 24% of its water quality goals.

Part of the challenge in addressing the Bay's water quality problems is the sheer size of this 64,000 square mile, multi-state watershed. The Bay's watershed extends through the District of Columbia and parts of Maryland, Virginia, Pennsylvania, Delaware, West Virginia and New York ("the Bay States"). Taking a Bay-wide approach to the TMDL process is the only practical way to address sediment and nutrient pollution from such a wide array of sources spread

over such a large and diverse watershed. Significant research, data collection, and monitoring have provided abundant information on the dynamics of pollutant transfer within the Bay watershed and made clear that a coordinated approach across the entire watershed is the only strategy that holds any real promise of success. Given the economic, social, cultural, and historic importance of the Bay, making restoration a reality is critical.

Response

Thank you for your comment, which EPA construes as a statement in support of the Chesapeake Bay TMDL. EPA agrees that a Bay-wide approach is needed to address the problems of water quality in the Bay. EPA intends to continue to work collaboratively and cooperatively with all of the Bay jurisdictions to make sure that applicable water quality standards are met throughout the watershed.

Comment ID 0545.1.001.002

Author Name: Friedman Suzy

Organization: Environmental Defense Fund (EDF)

Congress has long been concerned by the decline of the Bay, directing EPA in 1976 to complete a comprehensive study, which led to establishment of the Chesapeake Bay Program under the Chesapeake Bay Agreement of 1983. [FN1] In 1987, Congress amended the Clean Water Act [FN2] to include Section 117, continuing and expanding the Chesapeake Bay Program.

In 2003, EPA and its Bay Program partners developed ambient water quality criteria for the Bay and its tidal tributaries based on an extensive body of scientific data, research and analysis. The tidal water states (Delaware, Maryland and Virginia) and the District of Columbia revised their Chesapeake Bay tidal water quality standards in 2004-2005. EPA approved these water quality standards, and the states revised their 303(d) listings for Chesapeake Bay and tidal tributary waters to identify those failing to meet the new water quality standards. EPA also used the well-established Chesapeake Bay Model, and worked with a multi-state workgroup, to develop nutrient and sediment load allocations for all river basins and states in the Bay watershed.[FN3] All of the Bay States developed updated tributary-specific strategies to meet these allocations. For the past seven years, the states have known their load allocations and have developed strategies to attain them, consistent with the states' commitments under the Chesapeake 2000 agreement and related MOUs to take voluntary and regulatory actions to meet water quality goals by 2010.

[FN1] Maryland, Pennsylvania, Virginia, the District of Columbia, EPA and the Chair of the Chesapeake Bay Commission were signatories to the Agreement.
[FN2] The Clean Water Act of 1987 amending the Federal Water Pollution Control Act of 1972, 33 U.S.C. 1251 et seq.
[FN3] The Chesapeake Bay Model, which is really a suite of computer models, is among the most sophisticated, studied and respected in the world. This set of models provides a comprehensive view of the Chesapeake ecosystem, stretching from the bottom of the Bay to the upper reaches of the watershed and including both land and air. The Model is a core element of the serious effort to use the best peer-reviewed science and water quality monitoring data to understand how the
whole system is working now and what changes need to be made in order to achieve water quality goals.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL.

Comment ID 0545.1.001.006

Author Name: Friedman Suzy

Organization: Environmental Defense Fund (EDF)

We believe for the foregoing reasons that EPA's issuance of the TMDL is legal, appropriate, and much needed to restore the health of the magnificent Chesapeake Bay. In advancing the TMDL, EPA must continue to place equal priority on working with states to devise Watershed Implementation Plans.

Response

Thank you for your statement in support of the Chesapeake Bay TMDL. EPA intends to continue to work in a cooperative and collaborative manner with each of the Bay jurisdictions to implement the Bay TMDL to achieve and maintain water quality standards throughout the Bay watershed. As discussed in Section 1 of the Chesapeake Bay TMDL, EPA agrees that the Chesapeake Bay TMDL is legally required.

Comment ID 0554.1.001.001

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

National Wildlife Federation (NWF) applauds the efforts of the United States Environmental Protection Agency to formulate a total maximum daily load (TMDL) under the Clean Water Act (CWA or the Act) for the Chesapeake Bay (the Bay).

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0556-cp.001.001

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

Clearly, our community depends on clean water for our health, livelihoods and economic security.

Unfortunately, pollution is killing the Chesapeake and hundreds of other rivers and creeks in the region. All this pollution gets collected into the bay, which is no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future.

I urge you to develop a strong pollution diet in my state that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0569.1.001.003

Author Name: Blackwood Wade

Organization: American Canoe Association

1. The Coalition's comments contain a detailed chronology of previous Bay restoration efforts. The long and tortured history of the Bay restoration process, and the decidedly mixed results it has produced, clearly demonstrate that more directive strategies are needed if the Bay is to be fully restored. Contrary to the assertions of some commenters, the process of restoring the Bay is moving TOO SLOWLY, not too quickly. We need strong action now to get this process back on track.

Response

Thank you for your comment, which EPA interprets as a statement of support for EPA's establishment of the Chesapeake Bay TMDL.

Comment ID 0569.1.001.007

Author Name: Blackwood Wade

Organization: American Canoe Association

ACA thanks EPA for its efforts to adopt and implement a Bay-wide TMDL. Whatever resistance you face, we urge you to stay the course and do the right thing for the Chesapeake Bay and the citizens of the Bay region.

Response

EPA appreciates your support for the establishment of the Chesapeake Bay TMDL.

Comment ID 0590.1.001.001

Author Name: Chavez Jennifer

Organization: Earthjustice et al.

The following comments are submitted on behalf of Earthjustice, D.C. Environmental Network, Potomac Riverkeeper, Shenandoah Riverkeeper, and Waterkeeper Alliance.

We strongly support establishment of TMDLs for Chesapeake Bay. TMDLs are mandated by the Clean Water Act ("CWA" or "the Act"), and are long overdue. We have the following comments on the above-referenced proposal.

Response

Thank you for your statement of support for the establishment of the Chesapeake Bay TMDL.

Comment ID 0606.1.001.001

Author Name: Schmidt-Perkins Dru

Organization: 1000 Friends of Maryland

It is critical for our environment, our economy, and our quality of life that we restore the Chesapeake Bay to health. Without strong leadership from the Environmental Protection Agency, in the form of this TMDL and aggressive backstop provisions, the Bay will continue to decline.

1000 Friends of Maryland works to protect Maryland's natural areas and open spaces, enhance the quality of life in our communities, create strong cities and towns, and improve public transportation through strategic public participation, education, research and advocacy. We are committed to realizing the goals of smart growth through supporting development that revitalizes our communities, protects our environment, and promotes a better quality of life while opposing policies that allow continued degradation through poorly-planned growth.

1000 Friends respectfully submits these comments in support of the TMDL.

Response

Thank you for your comment in support of the Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0614.1.001.002

Author Name: Street William

Organization: James River Association (JRA)

Furthermore, JRA supports the U.S. Environmental Protection Agency in its development of a Chesapeake Bay Total Maximum Daily Load (TMDL) as required by the Clean Water Act. This action is critical to achieving water quality standards for the James River and Virginia's other tidal waters of the Chesapeake Bay. Additionally, the Chesapeake Bay TMDL and Virginia Watershed Implementation Plan will also greatly help address pollution and impairment of local streams, rivers and other waters, which have the same legal protections as the entire Chesapeake Bay.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. EPA agrees that the TMDL is an important step in the process of attaining and maintaining applicable water quality standards throughout the Bay watershed.

Comment ID 0623-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. EPA agrees that the TMDL allows for the appropriate flexibility needed in working with all of the Bay jurisdictions to address the excess levels of nitrogen, phosphorus, and sediment tin the Bay watershed. EPA intends to continue to work with the Bay jurisdictions in a collaborative and cooperative manner to restore water quality in the Chesapeake Bay.

Comment ID 0625-cp.001.002

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

Clearly, our community depends on clean water for our health, livelihoods and economic security.

Unfortunately, pollution is killing the Chesapeake and hundreds of other rivers and creeks in the region. All this pollution gets collected into the bay, which is no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future.

I urge you to develop a strong pollution diet in my state that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0635-cp.001.001

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

Clearly, our community depends on clean water for our health, livelihoods and economic security.

Unfortunately, pollution is killing the Chesapeake and hundreds of other rivers and creeks in the region. All this pollution gets collected into the bay, which is no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future.

I regret that I cannot hold out much hope of any positive environmental action, as the Republican Party in Virginia has never shown much appetite for saving or conserving anything, which is why I wonder how they can call themselves "conservatives" and get away with it.

I urge you to develop a strong pollution diet in my state that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0636-cp.001.001

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

Our community depends on clean water for our health, livelihoods and economic security.

Unfortunately, pollution is killing the Chesapeake and hundreds of other rivers and creeks in the region. This pollution collects in the bay, which is no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future.

I urge you to develop a strong pollution diet in the entire Chesapeake watershed that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected.

Educating the stakeholders about the economic benefits of a clean and healthy environment is a great way to rally support for doing the right thing for all inhabitants of the region. I appreciate, and rely on, your leadship and informed decision-making.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL and in recognition of EPA's role in providing environmental leadership. Please see the response to comment number 0110.001.005.

Comment ID 0637-cp.001.001

Author Name: Comment Anonymous

Organization:

The Chesapeake Bay is in dire need of continued protections. Pollution continues to kill the Chesapeake and hundreds of other rivers and creeks in the region. Please put into place strong, enforceable water safety standards, that address all sources of pollution and demonstrate how reductions will be gained. Thank you.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0638-cp.001.001

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

Clearly, our community depends on clean water for our health, livelihoods and economic security.

Unfortunately, pollution is killing the Chesapeake and hundreds of other rivers and creeks in the region. All this pollution gets collected into the bay, which is no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future.

I urge you to develop a strong pollution diet in my state that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0639-cp.001.001

Author Name: Comment Anonymous

Organization:

We need to take the strong steps included in the TMDL to clean the Bay. Efforts in the past from the Commonwelath have been inadequate and irresponsible. The fact that the cost is high now is a reflection of delaying necessary

implementation for so many years. Learn the lesson that delaying action results in increased costs; do not make the same mistake yet again. A vibrant, healthy Bay will ultimately result in an improved economy.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. EPA intends that the TMDL will have a significant impact on the health of the Chesapeake Bay.

Comment ID 0640-cp.001.001

Author Name: Comment Anonymous

Organization:

Traditionally, our methods of managing our soil, air, and water resources have not considered practices that are sustainable over the long term. Instead, we have relied upon and taught practices that create enormous unintended consequences.

Many of these consequences show up in our waterways, and the Chesapeake Bay is a shining example of numerous short-sighted practices.

Shifting people's thinking away from beliefs such as "It's the economy or it's the environment, but it's not both," is enormously important.

People also remember the command and control regulatory approaches that brought results for point-source pollution, but were often not the best long-term strategies - and were frequently so exorbitantly expensive that businesses were bankrupted. At the same time, the importance of clean air, water, and land was not a consistent message that entered our social consciousness.

Especially during difficult economic times, those who are profiting from creating untreated or marginally treated point or non-source pollution will fight very hard to make the case that jobs or taxes will be lost if any manner of "environmental" regulations are implemented. Being in the midst of the worst economic downturn since the 1930s, and following on the heels of the recent election, it is safe to say that there will be significant push-back to implementing regulations that would protect the Bay, the Gulf of Mexico, and every other waterbody in the nation.

However, if we as a society can be convinced that Hot Pockets or light beer are things we should buy in quantity, or that people like Glenn Beck are in command of any accurate facts, then surely a clever advertising campaign can be developed to persuade Americans that protecting the quality of what we breathe, eat, and drink is a very good idea. Surely the advantages of low-impact development practices and sustainable agricultural practices can be highlighted to the point they become the normal technical and performance standards.

There is no question that keeping our air, our water supplies, and our food supplies free from pollutants is vital to our health and well-being and our national security. There is no question that when people believe their greatest interest

lies in sustainable resources, then they will expect adequate protections. And there is equally no question that when people believe their greatest interest lies in exploiting and squandering resources, then they will do exactly that or they will support those who do.

Please address these problems at their sources - the way we think.

Response

Thank you for your comment, which EPA construes as a statement in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0641-cp.001.001

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

Clearly, our community depends on clean water for our health, livelihoods and economic security.

Unfortunately, pollution is killing the Chesapeake and hundreds of other rivers and creeks in the region. All this pollution gets collected into the bay, which is no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future.

I urge you to develop a strong pollution diet in my state that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0641-cp.001.002

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

Please started using the education and knowledge that we have as a society to stop pollution now.This should not even

be an issue anymore we should have learned our lesson years ago.I urge you to start taking care of this problem and save our wildlife so generations to come can enjoy this special gift.Let us be the generation who cares and puts an end to pollution of all kinds.Let this be our legacy

Response

Thank you for your comment. EPA intends for the Chesapeake Bay TMDL to have a significant impact on the health of the Chesapeake Bay.

Comment ID 0642-cp.001.001

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

Clearly, our communities depends on clean water for our health, livelihoods and economic security.

Unfortunately, pollution is killing the Chesapeake and hundreds of other rivers and creeks in the region. All this pollution gets collected into the bay, which is no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect the homes, support the local economy and ensure that the streams and rivers are healthy today and for our children's future.

IT IS IMPORTANT TO NOTE THAT THERE ARE ECONOMIC, TOURING, AS WELL AS FOOD/NUTRITION INTERESTS THAT EXXTEND FAR BEYOND THIS IMMEDIATE AREA.

I urge you to develop a strong pollution diet in the bordering states that holds us all accountable for the pollution that is harming our wildlife and damaging r local economies. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this immediate and more far flung region need your help to keep our water clean and protected.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0643-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations. It is Clearly Seen, Analyzed, Documented about the Unenforced Laws and Regulations that needs to STOP NOW!!

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0644-cp.001.001

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

Pollution is killing the Chesapeake and hundreds of other rivers and creeks in the region. All this pollution gets collected into the bay, which is no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place.

I urge you to develop a strong pollution diet in my state that holds us all accountable for the pollution that is harming wildlife and their habitat. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0647-cp.001.001

Author Name: Gammon R.

Organization:

*It is critical for our environment, our economy, and our quality of life that we restore the Chesapeake Bay to health.

*Years of voluntary restoration measures by the States have failed. It is time for strong action and bold leadership from the EPA.

Response

Thank you for your comment, which EPA construes to be a statement in support of the Chesapeake Bay TMDL. Please see the response to comment number 0120.1.001.004.

Comment ID 0654.001.009

Author Name: Igli Kevin

Organization: Tyson Foods, Inc.

Tyson fully supports and incorporates herein by reference the Draft TMDL comments submitted by the Virginia Poultry Federation dated November 8,2010.

Response

EPA notes the commenter's support for comments submitted by the Virginia Poultry Federation and has provided responses to comments by the Virginia Poultry Federation elsewhere in this document.

Comment ID 0656.001.003

Author Name: Dietrich Fredric

Organization: Town of Danby and Tompkins County, New York

The town of Danby supports EPA's goal of restoring the Chesapeake Bay and its network. Indeed, Danby has been working aggressively at the local level to decrease nitrogen, phosphorous, and sediment loading from both point and nonpoint sources feeding the watershed. Danby desires to continue work to reduce these levels.

Response

Thank you for your comment, which EPA construes as a statement in support of the Chesapeake Bay TMDL. EPA agrees that the health of the watershed is a shared commitment.

Comment ID 0658-cp.001.001

Author Name: Comment Anonymous

Organization:

I am writing to urge you to issue a strong final Chesapeake Bay cleanup plan with deadlines to ensure compliance and strict consequences for failing to meet deadlines or cleanup targets.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

For decades, the Chesapeake Bay has suffered the devastating effects of pollutans. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Response

Thank you for your comment in support o f the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0661.001.001

Author Name: Schneider H.

Organization:

Keep to your plan to clean up Chesapeake Bay, don't let a group from Chenango County change your plan. This local group is making a lot of "noise", they are chronic complainers. If you back down the "Bay" will never be cleaned up.

Our lands and waterways have been fouled and poluted for over 50 years.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. While EPA is not aware of the group to which this comment refers, it notes that it intends for the Chesapeake Bay TMDL to have a significant impact on the health of the Bay.

Comment ID 0662-cp.001.001

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

Clearly, our community depends on clean water for our health, livelihoods and economic security.

Unfortunately, pollution is killing the Chesapeake and hundreds of other rivers and creeks in the region. All this pollution gets collected into the bay, which is no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future.

I urge you to develop a strong pollution diet in my state that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0663-cp.001.001

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

Clearly, our community depends on clean water for our health, livelihoods and economic security.

Unfortunately, pollution is killing the Chesapeake and hundreds of other rivers and creeks in the region. All this pollution gets collected into the bay, which is no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future.

I urge you to develop a strong pollution diet in my state that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0664-cp.001.002

Author Name: Comment Anonymous

Organization:

Our Mattawoman Creek here in Charles County is under attack and needs to be saved from overdevelopment. There has been an area here designated as a development district larger than Washington D.C, most of which is in the Mattawoman watershed.

When watersheds, like the Mattawoman fail so will the Chesapeake Bay.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future

I urge you to develop a strong pollution diet in Maryland that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy, the bay and watersheds like the Mattawoman. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0665-cp.001.001

Author Name: Comment Anonymous

Organization:

As a trained environmental scientist, I firmly believe our community depends on clean water for our health, livelihoods and economic security.

Unfortunately, pollution is killing the Chesapeake and hundreds of other rivers and creeks in the region. All this pollution gets collected into the bay, which is no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future.

I urge you to develop a strong pollution diet in my state that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0672-cp.001.001

Author Name: Comment Anonymous

Organization:

Our community depends on clean water for our health, livelihoods and economic security.

Pollution is unfortunately, killing the Chesapeake and hundreds of other rivers and creeks in the region. All this pollution gets collected into the bay, which is no better shape today than it was 25 years ago.

You have the unique opportunity to do something about it, and now the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future.

I strongly urge you to develop a strong pollution diet in my state that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0679-cp.001.001

Author Name: Comment Anonymous

Organization:

THESE WATERWAYS OUR CRUCIAL TO OUR HABITAT -- AS WELL AS TO THE NATURAL HABITATS OF MUCH WILDLIFE.

Clearly, our community depends on clean water for our health, livelihoods and economic security.

Unfortunately, pollution is killing the Chesapeake and hundreds of other rivers and creeks in the region. All this pollution gets collected into the bay, which is no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future.

I urge you to develop a strong pollution diet in my state that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0682-cp.001.001

Author Name: Comment Anonymous

Organization:

Clearly, our community depends on clean water for our health, livelihoods and economic security.

Unfortunately, pollution is killing the Chesapeake and hundreds of other rivers and creeks in the region. All this pollution gets collected into the bay, which is no better shape today than it was 25 years ago.

You now have the unique opportunity to do something about it, and the time has come to put strong, enforceable water safety standards in place to protect our homes, support our economy and ensure that our streams and rivers are healthy today and for our children's future.

I urge you to develop a strong pollution diet in my state that holds us all accountable for the pollution that is harming our wildlife and damaging our local economy. It is imperative that these plans address all sources of pollution and demonstrates how reductions will be gained. Citizens across this state and the region need your help to keep our water clean and protected.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0685.1.001.001

Author Name: Curley Keith

Organization: Trout Unlimited

I am writing on behalf of Trout Unlimited to express our support for finalizing and implementing the Chesapeake Bay Total Maximum Daily Load (TMDL). The TMDL would require reductions in nitrogen, phosphorous and sediment pollution flowing to the Chesapeake Bay. The health of the Chesapeake Bay is dependent upon a steady source of clean, cold water from its headwater streams. The TMDL will help reduce pollution throughout the Chesapeake Bay watershed, including headwater areas where water quality improvements will benefit native brook trout and other wild trout. Trout Unlimited's mission is to conserve, protect and restore North America's trout and salmon fisheries and their watersheds.

Trout Unlimited has more than 10,000 members living in the Chesapeake Bay watershed and a long history of grassroots habitat restoration work in the Bay's headwater streams. On average, each Trout Unlimited chapter contributes more than 1,000 volunteer hours working with government agencies, private landowners, local schools, and others in their communities to improve rivers and streams though clean-up days, tree plantings and other activities.

Throughout the 64,000 square mile Chesapeake Bay watershed, hundreds of mountain streams and valley spring creeks provide habitat for native brook trout and contribute clean, cold water to the Chesapeake Bay. However, the same pollutants that plague the Chesapeake Bay impair trout habitat in the headwaters. Nutrient pollution fuels algal blooms, which deprives the water of dissolved oxygen. Reductions in dissolved oxygen negatively affects trout, a species that requires relatively high amounts of dissolved oxygen to survive.

Sedimentation also has serious impacts on trout habitat. Brook trout are highly reliant on clean substrate for spawning and rearing, and a great deal of their decline is due to increased sedimentation and water temperatures.[FN 1] Increased sediment loads can cause fish mortality by "clogging gills and opercular cavities" and also create distributional changes such as "avoidance behavior, reduced feeding and growth, respiratory impairment, and general physiological stress that can lead to a reduced tolerance to diseases and toxicants."[FN 2] The negative effects of increased sedimentation on brook trout populations in particular are well documented in the scientific literature.[FN 3] Controlling sediment is critical to maintaining habitat for brook trout and other coldwater species.

Trout Unlimited is working extensively throughout the Bay watershed to restore trout habitat and reduce pollution. In addition to numerous grassroots-level projects, TU currently operates three watershed-scale conservation efforts in the Chesapeake Bay watershed: instream and riparian habitat restoration in cooperation with agricultural landowners in the Potomac and Shenandoah River headwaters, and restoration of streams impaired by acid mine drainage in Pennsylvania's West Branch Susquehanna watershed. For example, in West Virginia's Potomac River headwaters Trout Unlimited has worked with the Fish and Wildlife Service and private landowners to install between 100,000 and 120,000 feet of livestock exclusion fencing annually over the past several years, helping to stabilize streambanks and filter pollutants.

These restoration efforts have resulted in real, on-the-ground improvements to habitat and water quality. Such restoration work is an essential component to bringing back healthy trout populations in headwater streams and to meeting pollution reduction goals under the TMDL. The TMDL will help concentrate attention and funding on successful partnerships so that Trout Unlimited and others can dramatically increase the amount of restoration work we accomplish in the coming years.

Given the scale of the challenge, however, restoration alone will not succeed. Robust restoration efforts must be accompanied by effective regulations that reduce pollution levels and prevent new sources from undermining hard-earned water quality gains. The TMDL will result in an increased level of focus and accountability that helps spur water quality and habitat improvements throughout the Bay watershed. Trout Unlimited supports the TMDL and looks forward to working with state, federal and private partners in the Chesapeake Bay headwater areas to achieve pollution reduction goals.

[FN 1] Eastern Brook Trout Joint Venture, Status and Threats. Available at http://www.easternbrooktrout.org/docs/brookiereportfinal.pdf.

[FN 2] Jeffrey W. Lilly, Regulatory Violations in the Mining Industry: Mountaintop Removal Mine Valley Fills Violate the Federal Clean Water Act. 100 W. VA. L. REV. 691, 728-29. (1998) (summarizing a telephone interview with Dan Ramsey, Environmental Contaminants Specialist, U.S. Fish and Wildlife Service).

[FN 3] See, e.g., S.M. Reid, S. Stoklosar, S. Metikosh, & J. Evans, Effectiveness of isolated pipeline crossing techniques to mitigate sediment impacts on brook trout streams, WATER QUALITY RESEARCH JOURNAL OF CANADA. Vol. 37, No. 2, pp. 473-88 (2002) (noting that stream populations of brook trout are sensitive to sediment-caused changes to habitat, including increased embeddedness of bed material); J.P. Hakala & K.J. Hartman, Drought effect on stream morphology and brook trout populations in forested headwater streams, HYDROBIOLOGIA. Vol. 515, pp. 203-13

Response

Thank you for your comment. Please see the response to comment number 0110.001.005. EPA agrees that there is a direct connection between nutrient pollution and algal blooms, and that sedimentation can have serious impacts on fish habitat.

Comment ID 0703.001.003

Author Name: Merica P.

Organization:

Our environment, and keeping it healthy, is too important to take a wait-and-see approach. Our government - local, state, & federal - needs to take a proactive approach to lead the efforts to clean up and restore all aspects of our surroundings.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. EPA intends for the TMDL to have a significant impact on the health of the Bay.

Comment ID 0707.001.003

Author Name: Larkin R.

Organization:

At the foot of River Rd., Poquoson VA I have been advised not to swim (due to pollution) where I moor my sailboat. Please enact laws to clean up the Bay.

Response

Thank you for your comment, which EPA interprets as a statement of support for the Chesapeake Bay TMDL. EPA notes, however, that the TMDL is not a federal law.

Comment ID 0711.001.001

Author Name: Schwartz Laurie

Organization: Waterfront Partnership of Baltimore, Inc.

Waterfront Partnership of Baltimore Inc., an organization comprised of businesses and attractions lining Baltimore's Harbor, Harbor East and portion of Fells Point areas, is writing to voice its strong support for the Bay wide TMDLs that are proposed as part of the WIPs for Bay states.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005. EPA notes, however, that the Bay jurisdictions, not EPA, drafted and will implement the Watershed Implementation Plans (WIPs). The WIPs inform the Chesapeake Bay TMDL and how the Bay watershed jurisdictions plan to implement the TMDL. As described in Section 7 of the TMDL, although the WIPs are part of the accountability framework, they are not part of the TMDL itself. As the WIPs were drafted by the jurisdictions and describe actions to be taken by the jurisdictions, comments and responses thereto are more appropriately addressed to the jurisdictions. Comments regarding the manner in which EPA evaluated the WIPs and how the WIPs factor into the TMDL and the accountability framework are properly addressed to EPA; the Agency is responding to these comments and is incorporating them into the final TMDL as appropriate.

Comment ID 0711.001.003

Author Name: Schwartz Laurie

Organization: Waterfront Partnership of Baltimore, Inc.

While we are fortunate that Baltimore's Inner Harbor transformation in the mid-seventies created a major new tourism industry for Baltimore and the region, we are proposing another major transformation for the Harbor - to make it swimmable and fishable by 2020. To help ensure we get there, the Partnership recently commissioned the creation of a comprehensive plan to make the Harbor healthy again - with milestones and measurements to make sure progress is being made each year. Along with the consultants, we have hired University of Maryland Center for Environmental Science to help us prepare a baseline report and annual State of the Harbor Report Card. Also, a respected marketing expert from the area has been hired to prepare a major public education campaign that we will launch in cooperation with area watershed organizations and the City.

Response

Thank you for your comment. EPA agrees that the cleanup of the Chesapeake Bay is a shared responsibility.

Comment ID 0711.001.005

Author Name: Schwartz Laurie

Organization: Waterfront Partnership of Baltimore, Inc.

We will be greatly assisted by the preparation of acceptable WIPs by Bay States and by cities within the Bay States; and by assertive enforcement by the EPA. We are very heartened by the seriousness with which EPA is attacking this problem and pledge our support to helping.

Response

Thank you for this comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0714-cp.001.001

Author Name: Ward A.

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay needs your help. For more than 25 years, scientists have documented the damaging levels of pollution that drain into Bay rivers and streams, leaving many waters unfit for swimming or fishing and depleting once abundant shellfish populations.

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) is a strong step in the right direction. It sets clear pollution limits, deadlines and consequences for failure that would ensure that the job gets done. It would allow states the flexibility to determine how best to achieve results, tap market efficiencies to save businesses and taxpayers money, and provide support and guidance to states and localities to help them make on-the-ground progress.

The Chesapeake Bay can't afford more excuses and delay. I urge you to finalize a strong, accountable final TMDL, and to continue working with the states to ensure that their plans will deliver much-needed results.

Allison Ward
144 Main st. LGE
Narrowsburg, NY 12764

Mother of 4 year old Alec Ward whose generation will inherit all of our pollution and mistakes. Let us start now to make it a little easier for them. Thank you.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. The TMDL is designed to ensure that all pollution control measures needed to fully restore the Bay and its tidal rivers are in place by 2025, with 60 percent of the actions completed by 2017. The TMDL is supported by rigorous accountability measures to ensure cleanup commitments are met, including short-and long-term benchmarks, a tracking and accounting system for jurisdiction activities, and federal contingency actions that can be employed if necessary to spur progress. Please also see the response to comment number 0110.001.005.

Comment ID 0724.001.001

Author Name: Bernardo John

Organization: Town of Union, Endwell, New York

The Town of Union recognizes the importance of a healthy and thriving Chesapeake Bay and commends efforts to restore the Bay ecosystem .

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0732.001.001

Author Name: Hoagland Roy

Organization: Chesapeake Bay Foundation (CBF)

First of all, we want to acknowledge and thank the many dedicated Environmental Protection Agency (EPA) staff who have been working, since 2005, on the development of this TMDL. CBF has been an active participant in this process and can attest, firsthand, to the scientific integrity, transparency, and fairness of this process. In particular, we want to acknowledge Bob Koroncai and Rich Batiuk for their extraordinary efforts in guiding this work. They have displayed, through their leadership of the Water Quality Goal Implementation Team during the last five years of meetings and conference calls, the best of what government can be by ensuring openness and responsiveness throughout the process. We also thank them for the innumerable hours, starting in fall of 2009, spent traveling across the Chesapeake's watershed to conduct public meetings on the proposed TMDL, educating the public and obtaining feedback from interested parties.

Response

EPA appreciates your support and commendation of our effort and the resulting establishment of the Chesapeake Bay TMDL.

Comment ID 0732.001.009

Author Name: Hoagland Roy

Organization: Chesapeake Bay Foundation (CBF)

Conclusion

We have before us, the opportunity of a lifetime - to not repeat the failings and broken promises of the past, but rather chart a new course for Chesapeake Bay restoration. We encourage EPA to hold firm in the face of the opposition - those who would prefer to see the status quo, rather than real progress. Those that would prefer to criticize, rather than work for solutions. Those that would prefer to leave a legacy of polluted waters for our children rather than have the courage to take action.

Administrator Jackson, you and your agency have received literally thousands of letters from citizens across the Chesapeake Bay watershed, urging EPA to stand firm on the Bay TMDL. You have our sincere thanks for your strong leadership on the restoration of the Chesapeake Bay and its waters and, in particular, on the precedent-setting, and necessary, TMDL.

We look forward to continuing to work with EPA on the implementation of a strong, enforceable, accountable Bay TMDL.

Response

EPA appreciates your support for the Chesapeake Bay TMDL.

Comment ID 0740.001.001

Author Name: Hanmer R.

Organization:

I have reviewed carefully the draft Chesapeake Bay Total Maximum Daily Load (TMDL), published by the Agency on September 24, 2010, and I support the Agency's action to establish the series of allocations known collectively as the Chesapeake Bay TMDL.

Response

EPA appreciates your support for the establishment of the Chesapeake Bay TMDL.

Comment ID 0740.001.003

Author Name: Hanmer R.

Organization:

To supplement the information which EPA has provided in its draft TMDL report about predecessor actions, I have enclosed a statement based on my experience as EPA Region III Water Protection Division Director and, subsequently, Director of the Chesapeake Bay Program Office from 2000-2007. In particular, I have highlighted the efforts made by EPA and its Chesapeake Bay partner states to consider not only the best estuarine and watershed science, but also technological and economic achievability and stakeholder views in all their decisions about water quality criteria, standards, procedures for determining attainment, allocations policy and tributary strategies

Response

Thank you for your comment in support of the Chesapeake Bay TMDL and the process used to develop it.

Comment ID 0740.001.009

Author Name: Hanmer R.

Organization:

Steps Leading to EPA's Draft TMDL

For years, as EPA describes in its draft TMDL report, monitoring mid scientific studies documented the serious decline of water quality in the Bay and tidal tributaries; coupled with a decline in fisheries that has, for some species, been disastrous. The extensive Chesapeake Bay research program, funded by Congress during the 1970s, concluded that

excess nutrients (nitrogen and phosphorus) were the chief causes of the Bay's decline. Monitoring and scientific studies carried out by a broad array of investigators including the National Oceanic and Atmospheric Administration, the U.S. Geological Survey, states with Chesapeake Bay and tidal tributary waters, university scientists and citizen groups such as the Chesapeake Bay Foundation have continued to confirm that controlling excess nutrients is essential to reverse the Bay's decline, and, more recently, that controlling sediment to protect the Bay's vital underwater grass habitat is also vital.

The Chesapeake Bay Agreement of 1983 established a cooperative federal-state program to restore the Bay, seeking voluntarily to unite efforts by the partners Maryfand, Virginia, Pennsylvania, the District of Columbia, the Chesapeake Bay Commission and the Environmental Protection Agency. Subsequently, the Chesapeake Bay Program set a goal of reducing controllable nutrient loads by 40%, and, in the early 1990s, stressed the necessity of reducing sources of nitrogen and phosphorus in the tributary river basins through "tributary strategies" developed by the partner states . The tributary strategies are precursors Of the Watershed Implementation Plans now envisioned in EPA's draft TMDL report as the mechanism for providing reasonable assurance that nutrient and sediment, loads will be reduced sufficiently to, meet the established tidal water quality standards for protecting aquatic life in the Bay and tidal tributaries.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. Please see the response to comment number 0110.001.005.

Comment ID 0740.001.011

Author Name: Hanmer R.

Organization:

Water quality standards

Building upon a body of Chesapeake Bay science going back to the 1980s (as described in EPA's draft TMDL report) EPA, in cooperation with the states, scientific community and stakeholders, undertook a comprehensive program to modify the water quality standards for the Bay's tidal waters in Maryland, Virginia, the District of Columbia and Delaware so that they would provide the most credible and effective basis for focusing the pollutant cleanup effort. The revised water quality standards would also support establishment of any necessary TMDL allocations, should the efforts at restoration fail to meet the 2010 deadline.

There were several problems with the water quality standards then on the books for Chesapeake Bay and tidal waters. In particular, the dissolved oxygen (DO) criteria in the Chesapeake Bay standards were based on freshwater science and applied all the way from the surface to the bottom of the Bay. Such an approach was not representative of estuary conditions where stratification occurs, and did not represent natural wetland conditions. There were unexplainable differences between different state standards. There were no criteria that adequately addressed water clarity for underwater grass beds, or excess algae (chlorophyll-a).

The first stage in this process was to develop new Chesapeake Bay-specific water quality criteria which would incorporate the best scientific understanding of estuaries, and make use of the extensive body of research and monitoring in the Chesapeake Bay. Unlike most EPA criteria developed by EPA scientists, this criteria development effort was carried out regionally by EPA, at its Chesapeake Bay Program Office (2000-2003). The Bay Office used a highly public process for developing the criteria, with continuous participation of all states in the basin, Bay area scientists and stakeholders. All meetings were open to the public, and there were three public comment periods.

EPA published the criteria, entitled Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll-a for the Chesapeake Bay and Its Tidal Tributaries, in 2003. They moved beyond the "one number applies everywhere" approach to dissolved oxygen by establishing the scientific basis for site- and species-specific DO levels which could be applied both spatially and temporarily to protect aquatic species. The highest DO requirements were recommended for spawning and nursery areas; the lowest, at the very bottom of natural and manmade trenches in the Bay and tributaries, were for seasonal refuges for bottom dwellers during the summer months. Making these refinements in the state DO standards not only enabled protection of Bay aquatic life (enhancing it in spawning and nursery areas over the older standards), it increased dramatically the technical and economic achievability of the Bay standards.

The water clarity criteria were developed to protect Bay underwater grasses (submerged aquatic vegetation or SAV). An innovation was to take advantage of the Bay Program's long-standing research on mapping and restoring underwater grass habitat. EPA and the states worked together to establish site-specific acreage goals for SAV protection. These site-specific SAV goals were subsequently incorporated in the tidal states' water quality standards, allowing attainment to be measured either by acreage or by compliance with the clarity criteria. This approach, again, enhanced both the scientific basis and the technical and economic achievability of the standards.

Narrative and numerical approaches for controlling excess algae through chlorophyll-a criteria were developed. As the Bay Program partners agreed that most algal problems could be solved by attaining the DO criteria, the policy was that numerical criteria would only be necessary in state standards for areas where achievement of the DO criteria would not eliminate algal water quality impairments. This was another decision, prompted in part by stakeholder involvement in the criteria-development process, which probably decreased the cost of applying the standards.

Accompanying the 2003 Chesapeake Bay criteria guidance was methodological guidance for all tidal water states to use in determining when and where the standards are being met. To assure interstate consistency, the methods were officially adopted by the states when they revised their state standards. EPA was able to use the scientific research and data in the Bay and tidal tributaries to apply methods to most areas which are much more refined than EPA's traditional default approach for distinguishing exceedances of water quality criteria from violations. Even though using the new methods requires a lot of data, this is another refinement which has the potential to make the standards more feasible to achieve.

Applying the new EPA criteria and "habitat zoning" entailed revising aquatic use designations, some of which were less restrictive than the old water quality standards. Thus, states had to comply with provisions of the federal water quality standards regulations (40 CFR Part 131.10) governing changes in water uses when they proposed their revised Chesapeake Bay tidal water standards. While the EPA Chesapeake Bay Program Office was developing the new water quality criteria, it prepared technical and economic analyses which the states could use to make their aquatic use designations and satisfy the federal regulations. Again, state partners and stakeholders were involved in all of this work, providing guidance on the approaches to be used and reviewing the results. EPA published the results in 2003, in its

Technical Support Document for Identification of Chesapeake Bay Designated Uses and Attainability.

First, EPA presented an analysis in the Technical Support Document to justify the spatial and temporal changes proposed in the aquatic use zones for applying the new dissolved oxygen criteria. It demonstrated that the older standards were unattainable both because of natural characteristics (such as stratification) and manmade alterations (such as navigation channels, location of cities and associated infrastructure) which could not be remedied. Technical attainability analyses were conducted based on hypothetical tiers of nutrient/sediment control from wastewater technology, agricultural best management practices and other actions. Although hypothetical, these tiers were developed by expert workgroups in the Bay Program who knew the technologies which were being or could be employed to control nutrient loads, and their estimated costs. (Sediment load estimations were based on associated nutrient controls.) All partners agreed that the E3 scenario - everyone doing everything everywhere - was beyond what could be achieved, and yet, even at this level, there were zones in the Bay and tidal tributaries where the older standards could not be met. These general findings about use attainability (along with site-specific, information) assisted the states to satisfy the decision criteria in the EPA regulations when they proposed their revised water quality standards.

The Bay partners decided to go further in examining use attainability, using the same kind of technical analysis, based on modeling the DO criteria response to hypothetical tiers of control actions, to determine whether the revised water quality criteria and use designations could be achieved, In addition, "screening-level" economic analyses sought to rule out areas where achieving the water quality standards might cause "substantial arid widespread economic and social impacts" (40 CFR131.10(g)(6). The results of the technical analyses were presented in the Technical Support Document, and the Bay partners concluded that the revised water quality standards would, in principle, be technically and economically attainable. This was a general finding subject to further analysis of particular areas by the states in their water quality standards adoption processes. The economic analyses were published in EPA's report, Economic Analyses Associated with the Identification of Chesapeake Bay Designated Uses and Attainability (2003).

The states completed the process of adopting their revised Chesapeake Bay tidal water quality standards in 2004-2005. All of the revisions were approved by EPA. Since publication of the criteria document in 2003, EPA, with its state partners, has continued to refine the criteria and methods. These refinements build upon the scientific research and reasoning of the 2003 criteria, habitat zoning and methods for determining whether the standards are being met. EPA has published several amendments to the criteria and supporting documents. Conforming modifications of the state standards have been, completed or are pending as described in EPA's draft TMDL report.

I have stressed how technical and economic attainability were addressed during the standards development process because some parties commenting on the Chesapeake Bay TMDL have raised economic issues. EPA and the states conducted multiple analyses to make the Chesapeake Bay tidal water quality standards both scientifically valid and protective of aquatic uses, and at the same time, attainable using technologies and best management practices without unreasonable financial costs.

To improve the reliability of water quality monitoring, EPA and all basin states, two river basin commissions and the U.S. Geological Survey, agreed to a common monitoring strategy and expanded network in 2004.

2003 nutrient and sediment load allocations

As the EPA water quality criteria were being completed, it became urgent to focus and accelerate the cleanup efforts through new or revised state tributary strategies. To do this, tributary-specific nutrient and sediment load allocations were essential. EPA employed its Chesapeake Bay models and an allocations work group to develop allocations for all river basins in the Chesapeake Bay watershed. As in developing the water quality criteria, there was active participation by all Bay watershed states and stakeholder representation throughout this process. Final negotiations to establish the nutrient and sediment load allocations were led by former Virginia Natural Resources Secretary Tayloe Murphy, then PSC chair.

After consensus was reached by the, PSC,representing Chesapeake Bay Program policy makers, and including participation by the headwater states, the allocations were issued in April 2003. Even then, the 2003 load allocations were described as "TMDL-like" and the nutrient allocations are remarkably similar to EPA's 2010 proposed TMDL nutrient allocations. Thus, for seven years, states and stakeholders have known about the nutrient and sediment limitations necessary to restore Bay water quality. Furthermore, to assure understanding of the allocations development process, EPA published an explanatory report, Setting and Allocating the Chesapeake Basin Nutrient and Sediment Loads. The Collaborative Process, Technical Tools and Innovative Approaches.

Using the specific allocations for the river basins which contribute nutrient and sediment loads to the Bay, States developed or revised their tributary strategies. These strategies divided responsibility for controlling nutrients and, sediment among, source categories (such as wastewater treatment and, agriculture), and described the specific types of practices which were needed. During preparation of the tributary strategies, states convened stakeholder groups. There was extensive communication with source sectors both to understand the allocations and to discuss and seek input on the efforts that would be required to meet them. Tributary strategy documentation has thus been available to stakeholders for at least five years.

In 2004, EPA and the states agreed on an interstate Clean Water Act permitting strategy, implementing load reductions for this sector included in the tributary strategies. An innovative aspect of the strategy was to use Chesapeake Bay science to justify annual nutrient limits (rather than daily or monthly limits), a significant cost-saving for wastewater treatment plants. This strategy informed use of pollution, control loans in the CWA State Revolving Loan Fund, and two states - Maryland and Virginia,- provided significant grant assistance.

EPA and the states began working more closely with the US Department of Agriculture to target conservation funding to farmers in the Chesapeake Bay watershed, which has resulted in the availability of increased funding as well as improvements in agricultural research in the watershed.

The Chesapeake Bay Program undertook a program to update and improve the Chesapeake Bay models, which led to the Phase 5 Watershed Model used to develop the 2010 draft TMDL.

Following adoption of the revised water quality standards; all of the states with Chesapeake Bay and tributary tidal waters updated their lists of impaired waters under sec. 303(d) according to the revised water quality standards. The Chesapeake Bay TMDL thus responds to these revised lists (2008), as explained in EPA's draft TMDL report.

Response

Thank you for your support of the EPA's efforts to reduce pollution loadings to the Chesapeake Bay. EPA appreciates the detailed and concise history of the development and adoption of the Bay water quality criteria, the 2003 allocations and Tributary Strategies, and the commenter's keen observations regarding the practical effect of these standards on the level of effort need to meet those criteria. EPA also agrees with the comment that the present Bay criteria, while more stringent for some areas and uses that the formerly applicable criteria, are more technically and economically attainable than the historic criteria of 5 mg/l DO from top of the Bay to the deep channel. EPA agrees that past water quality goals have not been met, requiring the development of this TMDL. EPA also agrees that Jurisdictions have adopted Chesapeake Bay water quality standards consistent with EPA guidance and the CWA. EPA agrees, as described in Section 1 of the TMDL, that the Chesapeake Bay TMDL is legally required and appropriately addresses the impairments listed on the Section 303(d) lists of each jurisdiction.

Comment ID 0759.001.001

Author Name: Baumert K.

Organization:

As a Pa citizen, I would urge you to take action on pollutants that enter our rivers, namely the Susquehanna River. This river is suffering from runoff which not only has plant nutrients (fertilizer) but also organic chemicals from herbicides and insecticides. These are causing damage to the wild life in the river; they are also causing dead zones in the Chesapeake Bay. This later issue affects other states as well and should be addressed by the EPA .

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. The TMDL will enable the attainment and maintenance of applicable water quality standards in the Bay and its tributaries, including the Susquehanna River.

Comment ID 0761.001.001

Author Name: Sarbanes John

Organization: Congress of the United States, House of Representatives

Thank you for your hard work and that of your staff in developing the Chesapeake Bay Total Maximum Daily Load (TMDL) requirements. I strongly support the ambitious nutrient reduction goals and timeline you have set for implementation of this important Bay clean up initiative.

Response

Thank you for your statement in support of the Chesapeake Bay TMDL.

Response to Public Comments: Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

Issue Category:
3. History of the TMDL & Background

Pages 174 – 184

December 29, 2010

Docket #: EPA-R3-OW-2010-0736

3 - HISTORY OF THE TMDL & BACKGROUND

Comment ID 0230.1.001.001

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

The Hampton Roads Sanitation District (HRSD) respectfully submits the attached detailed comments on the draft Chesapeake Bay TMDL and Virginia's WIP. We also request that EPA fully consider and address all of the Virginia Association of Wastewater Agencies, Inc. (VAMWA) comments, which we support and hereby incorporate by reference as if fully set forth herein. Also please note that the attachments to HRSD comments may be found in the VAMWA comment package.

HRSD has been focused on reducing human impact on the environment for nearly 70 years. HRSD has a proud history of compliance with all environmental regulations at its 13 treatment plants. An industry leader, HRSD began focusing on nutrient removal in the 1980's, implementing voluntary nutrient removal at two plants with an innovative biological process developed and patented by HRSD.

Response

EPA has welcomed the involvement of individuals, groups, organizations and others in the development of the Chesapeake Bay TMDL. Through the public comment process, public meetings, webinars and other extensive outreach opportunities, EPA has sought feedback and perspective on the TMDL from all Bay stakeholders. There will be additional opportunities for public input as the process continues in 2011 and beyond. See Section 11 of the Bay TMDL for a more detailed description of the Public Participation. More information on the Virginia Bay TMDL efforts, including its Stakeholder Advisory Group, can be found at http://www.deq.state.va.us/tmdl/chesapeakebay.html.

Comment ID 0267.1.001.010

Author Name: Bowman Cynthia

Organization: Cornell Law School Water Law Clinic

- In accord with the Chesapeake 2000 Agreement, EPA should seek to strengthen its partnership with New York State "by promoting communication and by seeking agreement on issues of mutual concern." To achieve the Chesapeake Bay water quality objectives outlined in CWA § 117(g)(1), that agreement should be based on a cooperative management plan and mutually agreed upon water quality standards for New York.

Response

By regulation, the TMDLs are to be established at levels necessary to attain and maintain the applicable water quality standards

(WQS). And, these applicable WQS apply to the waters (the Chesapeake Bay and its tidal tributaries and embayments) within the jurisdictions (Maryland, Virginia, Delaware, and the District of Columbia). EPA does not need to first establish New York-specific WQS for the TMDL to apply to New York State. New York has signed on as partners in implementing the cap loads and is a full partner on issues related to water quality. That is the scope of Chesapeake Bay TMDL includes nutrient and sediment loads delivered to the Chesapeake Bay from all sources (including New York) within and outside the watershed.

Throughout the Bay TMDL development, EPA has worked in close and open partnership with all seven watershed jurisdictions, sharing decision making with the jurisdictions via the CBP structure, principally the Water Quality Goal Implementation Committee. While EPA was developing the Bay TMDL, the seven watershed jurisdictions have been essential partners in the initiative participating in deliberations and key decisions affecting the development process. All of the jurisdictions were treated as equal partners. Unfortunately a consensus could not be reached on all decisions and some partners disagreed with some of EPA's decisions while the majority concurred.

Comment ID 0354.1.001.005

Author Name: Fickbohm Scott

Organization: Otsego County Soil and Water Conservation District

The conclusion of the scientific community, natural resource professionals, municipal officials and elected representatives from across the southern tier is that reductions of this nature are impossible for New York - a sound rejection. That deep reductions were decided on for New York demonstrates a misunderstanding of the relevant circumstances in New York; good water quality locally, trends and practices in local agriculture and point sources, climate, demographics, declining economy, etc.

Given the general level of understanding of watershed systems, the amount of time put into preparing for this TMDL by New York's natural resource professionals, 5 years myself, all the data provided to the Chesapeake Bay program and all the meetings on this topic, the New York policy can only be seen as a result of a lack of effective communication.

Response

EPA commends the efforts of New York State and the stakeholders in the Upper Susquehanna River Basin for their efforts to reduce the nitrogen, phosphorous and sediment load in the Upper Susquehanna Basin. However, EPA analysis shows that there are sectors, such as municipal waste water, in watershed that are discharging elevated levels of nitrogen and phosphorous. While the waters of New York may not be presently listed on the Section 303(d) list as impaired for nutrients and sediment, EPA has determined that the nutrient and sediment loadings from these and other sources in the Upper Susquehanna Watershed need to be reduced in order for the Bay to attain water quality standards. This determination is consistent with EPA's determination that sources of these pollutants from all parts of the watershed will need to achieve such reductions

3.1 - EXECUTIVE ORDER 13508

Comment ID 0148.001.002

Author Name: Donnelly R.S.

Organization:

Comments on Draft Reports (A - G) for the Presidential Executive Order Chesapeake Bay Cleanup Strategy

Upon review, the Executive Order (EO) Draft Reports have excellent overall potential. EO Drafts F and G show a more solid and comprehensive realistic approach than the others (A - E). However, there are several observations which need to be addressed to yield a fully functional and successful Final Strategy.

First, and foremost, the greatest overall focus of these EO Drafts is centered, almost exclusively, on nutrients and sediments as the prime directive for allocated funding and actions to be taken for this Chesapeake Bay (CB) Cleanup Strategy. While impressive, this proposed strategy is flawed and will not yield the desired results for successfully restoring the Chesapeake Bay.

Most environmental agencies (NOAA, DOl, EPA, USDA, etc.) tend to usually undertake such projects by adhering to and utilizing the comprehensive triad approach which has proven to be highly successful for actions taken. At present, the EO Drafts leave two major critical issues virtually absent from these Reports. Biological Factors and Toxic Pollution must be listed, highlighted, and fully incorporated in this EO Strategy package with the same level of intensity, focus, and importance as is being given to Nutrients and Sediments. Consider that for approximately every 1 % of nutrient pollution there is at least a minimal 10 % influx of toxic pollution entering the Chesapeake Bay Watershed from broad based Point and Non-Point Sources across 64,0000 square miles of air, land, and water. Without seriously addressing Biological Factors and Toxic Pollution, you may be successful in improving water clarity and even realize an increase in aquatic life productivity; yet, unfortunately you may very well have increased aquatic mortality, inability for aquatic reproduction, mutations, widespread disease, aberrational behavior, disruption of the aquatic genetic pool, developmental defects, and also detectable alterations in aquatic life and the chemistry of the Bay itself (already notably recorded). Nutrients and sediment, in a worse case scenario, can cause mass overgrowth and eutrophication. On the other hand, toxins can cause acute, chronic, and cumulative effects which can permanently change life itself down to the biochemical level.

Once again, biological factors and toxic pollution are extremely critical matters which must be equally addressed in this planned Strategy to insure a successful positive outcome for our efforts.

Next, we have spent in excess of thirty years testing, studying, and laboring on the restoration of the Chesapeake Bay Ecosystem. The accumulated Data Base is massive, yet not cohesive and fully integrated. We must strongly consider using our new found tools of Environmental Evaluation to review the CB data base (from all sources) and generate our renewed Strategy Plan from our historical records of successes and failures. If properly researched and evaluated, the resultant product would concisely and decisively reveal a most logical and reliable course of action for this renewed Strategy. Now is not the time to reinvent the wheel; rather we must reproduce a streamlined, successful, cost efficient Strategy that works.

This Chesapeake Bay Cleanup Strategy may well be legislated as Law. Therefore we must think and act carefully and

get this Strategy package right. This is the first time in my limited 52 year existence that I have witnessed direct Presidential action of this magnitude for our Chesapeake Bay. We may never have another opportunity such as this again in our lifetime.

We, all of us collectively, have this one opportunity to construct the working cornerstone and foundation for the continued existence and restored proliferation of this National Treasure, our Chesapeake Bay . We must not falter or fail in our duty to deliver a living, functioning, and productive Legacy to our future generations. When I was young it was an unwritten law to leave anything we touch or use in as good as or better condition than we found it; besides who amongst us will face the bright young faces of our heirs and explain why the Chesapeake Bay died.

Please note: For the Record. I am one of the 125 signers of the original Chesapeake Bay Program (1983)

As ever in service, I am,

Russell S. Donnelly
Environmental Analyst
2114 Oak Road
Sparrows Point, Maryland 21219
Phone: 410-388-0898 direct
410-477-3808 alternate
Fax: 410-388-0002
Email: irsd7@verizon.net

Response

The Executive Order 13508 Strategy does indeed aim to address toxic contaminants to meet Bay water quality goals. The EPA, DOI, and NOAA will work with state and local governments and stakeholders to expand the understanding of the extent and seriousness of the toxic contaminant problem in the Bay and its watershed and to develop contaminant reduction outcomes by 2013 and strategies by 2015. Specifically, during 2011 and 2012, the USGS, FWS, NOAA and EPA will examine existing monitoring information from regional and national programs and compare existing toxicity benchmarks to the monitoring results. In November 2012, after coordinating with the Chesapeake Executive Council and federal partners, EPA will issue a report summarizing this information. The report will also include an assessment of the progress of management actions taken to date pursuant to the Chesapeake Bay Basin-wide Toxins Reduction and Prevention Strategy.

The Strategy also addresses biological factors. Specifically, NOAA will, beginning in 2011, perform habitat assessments in Bay tributaries identified as candidates for protection and/or restoration, using acoustic seafloor mapping technologies such as multibeam and side scan sonar to determine the type, quality and distribution of benthic (bottom) habitats; and biological assessments, including the identification of living resources distribution and preferred habitats. These assessments will specifically help to determine priority tributaries for protection and restoration and to provide information critical for evaluating the success of management actions taken in these systems.

Comment ID 0410.1.001.008

Author Name: Pujara Karuna

Organization: Maryland State Highway Administration (SHA)

The executive order strategy lists protection of agricultural lands as a goal, but converting agricultural lands to forest may be one of the more efficient and effective means to achieve the bay restoration. SHA has been forced to acquire farmland in the past to manage stormwater from our highways. Will this practice no longer be possible? How will this conflict be mitigated? Which is more important?

Response

Properly maintained, agricultural lands are less detrimental to the Bay than many other land use types. Well maintained agricultural land provides a pervious surface for storm water to infiltrate and leach out a reduced amount of nutrients then developed or poorly maintained agricultural lands. Forested land provides even better infiltration and groundwater recharge for the basin and releases lower levels of nitrogen, phosphorous and sediment to the Bay than well maintained agricultural lands.

The conversion of agricultural lands, especially poorly maintained agricultural lands, to forested lands (Tree Planting) is an approved and creditable best management practice that will reduce nutrient loads to the Bay. Tree planting is reported in acres and on all land uses. The planted area is converted to forest and the acreage assumes a forest load equal to the forest in that land segment. More information about tree planting is available in the Scenario Builder documentation located here: http://archive.chesapeakebay.net/pubs/SB_Documentation_Final_V22_9_16_2010.pdf

3.2 - STATE PARTNERSHIP

Comment ID 0432.1.001.019

Author Name: William Neilson John Bell and

Organization: Pennsylvania Farm Bureau

EPA has publicly stated that it wants to "partner" with Bay states in developing and implementing effective implementation plans and milestones for pollution reduction. To this point, we have seen little effort by EPA to work "in partnership" with states and affected stakeholders in this effort.

Response

EPA disagrees with the comment that EPA has not worked in partnership with states and stakeholders. EPA has been working with the Bay states since 1983 on pollution reduction and specifically with the States on development of the TMDL since 2007. Through the Chesapeake Bay Executive Council and all its committees and subcommittees, EPA and the States (along with numerous

stakeholders) have collaborated on both the process and outcomes. Since 2008, EPA has had over 350 stakeholder meetings within the Bay watershed and has had countless calls and meetings with our Bay jurisdiction partners. EPA heard the concerns of the jurisdictions and stakeholders as articulated through those meetings and these comments, and has made modifications to the proposed the TMDL to address a number of these concerns. The TMDL process has been open and EPA has sought comment and input from others along the way, not only at public and stakeholder meetings but through the various committees that make up the Chesapeake Bay Program which include representatives from the states, academic communities, stakeholders and other federal partners.

While EPA has made clear its expectations on the Watershed Implementation Plans (WIPs), those WIPS were the product of the the states. EPA has asked the jurisdictions to develop WIPs to meet the allocations provided to them.

Comment ID 0634.001.002

Author Name: Bassler Richard

Organization: Town of Fenton, New York

The communities of New York State that comprise the headwaters of the Susquehanna and Chemung River watersheds have long recognized their role as partners in the restoration of the Chesapeake Bay. In acknowledgment of that role, New York State has made great strides to improve water quality through stringent regulations and programs in the areas of stormwater pollution prevention and agricultural environmental management, exceeding those mandated by the federal government. As a result, New York State water quality far exceeds that of other jurisdictions in the Chesapeake Bay watershed.

Response

EPA commends the efforts of New York State and the stakeholders in the Upper Susquehanna River Basin for their efforts to reduce the nitrogen, phosphorous and sediment load in the Upper Susquehanna Basin. The water quality in the basin is very good and that is the message EPA heard throughout its outreach efforts in New York. Restoring the Chesapeake Bay is a large undertaking which requires the efforts of all stakeholders.

Comment ID 0656.001.007

Author Name: Dietrich Fredric

Organization: Town of Danby and Tompkins County, New York

New York's current water quality is the highest of any of the Watershed Partners, after years of implementing programs at the local level to reduce nitrogen, phosphorus, and sediment loading. [FN3] Of particular relevance to Danby is the progress made in addressing loading from agricultural nonpoint sources. [FN4] New York's significant reductions and high water quality reflect a good-faith effort on the part of small towns like Danby, which exhibits the geography and demography of much of New York's portion of the Bay watershed. We are concerned that the draft TMDL does not

actually "represent[ ] the product of decades of monitoring and model development, and years of focused dialogue and analysis among EPA, our state partners, and numerous stakeholders." [FN5]

[FN3] See NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK DRAFT PHASE I WATERSHED IMPLEMENTATION PLAN 6 (Sept. 1,2010) [hereinafter WIP I].
[FN4] See UPPER SUSQUEHANNA COALITION, http://www.u-s-c.org/htmI/index.htm (last visited Oct. 20, 2010).
[FN5] See id. at 10-1.

Response

Please see the response to comment 0080-cp.001.002.

Comment ID 0729.001.002

Author Name: Hannon Dennis

Organization: Village of Johnson City, Johnson City, New York

The communities of New York State that comprise the headwaters of the Susquehanna and Chemung River watersheds have long recognized their role as partners in the restoration of the Chesapeake Bay. In acknowledgment of that role, New York State has made great strides to improve water quality through stringent regulations and programs in the areas of stormwater pollution prevention and agricultural environmental management, exceeding those mandated by the federal government . As a result, New York State water quality far exceeds that of other jurisdictions in the Chesapeake Bay watershed .

Response

EPA commends the efforts of New York State and the stakeholders in the Upper Susquehanna River Basin for their efforts to reduce the nitrogen, phosphorous and sediment load in the Upper Susquehanna Basin. Restoring the Chesapeake Bay is a large undertaking which requires the efforts of all stakeholders.

Comment ID 0771.001.002

Author Name: Bertoni John

Organization: Village of Endicott, New York

The communities of New York State that comprise the headwaters of the Susquehanna and Chemung River watersheds have long recognized their role as partners in the restoration of the Chesapeake Bay. In acknowledgment of that role, New York State has made great strides to improve water quality through stringent regulations and programs in the areas of storm water pollution prevention and agricultural environmental management, exceeding those

mandated by the federal government. As a result, New York State water quality far exceeds that of other jurisdictions in the Chesapeake Bay watershed.

Response

See response to Comment No. 0080-cp.001.002.

3.3 - GENERAL/MISCELLANEOUS

Comment ID 0162-cp.001.002

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

My roommate at Yale was a Biology Major. She was going to work to clean up the Chesapeake Bay. I am so surprised that this project has not been completed, and then protected !!!!!

Response

EPA and the Bay jurisdictions have been working to address the water quality impairments of the Chesapeake Bay since the 1980s. Since that time, many practices have been implemented to alleviate the nitrogen, phosphorous and sediment loading to the Bay. While several of these programs have worked at lowering the nitrogen, phosphorous and sediment loading to the Bay, none have allowed the Bay to attain water quality standards. The TMDL is a holistic approach to assessing the Bay's nutrient impairment. We are hopeful that the successful implementation of the watershed implementation plans will allow for the attainment of water quality standards in the Bay.

Comment ID 0275.1.001.003

Author Name: LaClair André

Organization: Broome County Environmental Management Council (BCEMC), Binghamton, New York

Communities in the Upper Susquehanna River Basin have long recognized their role as partners in the restoration of the Chesapeake Bay. The State made great strides to improve water quality through stringent state regulations and programs in stormwater pollution prevention and agricultural environmental management. Specifically in 2006, New York developed and implemented approaches to nutrient and sediment reductions by means of voluntary Tributary Strategy for Bay Restoration. Since implementation of this Strategy, New York's water quality exceeds that of any other state in the Chesapeake Bay watershed.

Response

Without numeric nutrient criteria it is more difficult to assess the condition of the Upper Susquehanna River Watershed in regards to nitrogen and phosphorous. However, the watershed has very few impairments and this was noted during all meetings in the watershed. EPA recognizes and commends the work of its New York Stakeholders in maintaining the water quality of the Upper Susquehanna River Basin.

The Chesapeake Bay TMDL is based on a total loading of nitrogen, phosphorous and sediments to the Bay. The Upper Susquehanna River drains and provides a nitrogen, phosphorous and sediment load to the Chesapeake Bay and is therefore part of and contributing to the impairment. The TMDL needed to apply load reductions to many sources contributing to the impairment of the Bay across the watershed.

Comment ID 0292.1.001.004

Author Name: Bonomo Jacquelyn

Organization: Audubon Maryland-DC

In closing, Audubon further incorporates the extensive comments of the Choose Clean Water coalition [see comment EPA-R03-OW-0736-0480.1], of which we are a member.

Response

We will review and respond to the comments submitted from the Choose Clean Water Coalition. Please see the responses to comment EPA-R03-OW-0736-0480.1.

Comment ID 0508-cp.001.001

Author Name: Comment Anonymous

Organization:

I am deeply concerned by the sloppy and mean-spirited approach taken by EPA to develop this TMDL. I am particularly concerned by the way EPA has blamed the poor condition of the Bay on the States without mentioning the EPA's significant role in the problem (see section of Washington Post article below). EPA should acknowledge in the TMDL that they provided the states with poor data for years to protect the EPA's budget.

Here is the excerpt from the Washington Post article mentioned above:
Broken Promises on the Bay
Chesapeake Progress Reports Painted 'Too Rosy a Picture' As Pollution Reduction Deadlines Passed Unmet
By David A. Fahrenthold
Washington Post Staff Writer

Saturday, December 27, 2008; A01

But the agencies charged with the cleanup have never mustered enough legal muscle or political will to overcome opposition from the agricultural and fishing industries and other interests. Instead of strengthening their tactics, though, they tried to make the cleanup effort look less hopeless than it was.

That picture emerges from internal documents and from interviews with current and former officials involved in the cleanup, including two who served as director of the EPA's Chesapeake Bay Program Office, the closest thing to a "bay czar" that the decentralized effort has. William Matuszeski, who headed the program from 1991 to 2001, described how the program repeatedly released data that exaggerated its success, hoping to influence Congress. His successor, Rebecca W. Hanmer, said she was instructed by regional leaders in 2002 not to acknowledge that the effort would fall short of its 2010 goals. "To protect appropriations you were getting, you had to show progress," Matuszeski said. "So I think we had to overstate our progress." Several state governors said they were unaware of inflated data, and another EPA official disputed Matuszeski's account.

Response

EPA has been working in a collaborative manner with the Bay community since the inception of the Chesapeake Bay Program. For over 25 years, we have been working with the Bay jurisdictions, our partners, in cleaning the Bay. As a partnership we have shared and reviewed our data with the states and stakeholders and developed a water quality model on the Bay with their assistance. This partnership has been discussed in the TMDL and EPA's outreach efforts. While our partnership has provided some successes in the reduction of nitrogen, phosphorous and sediment to the Bay we have not been able to attain water quality standards for the Bay.

The TMDL is a pollution budget or loading equation which was developed with our Bay Partners to attain water quality standards for the Bay. The TMDL was developed in a clear and transparent manner. Since 2008 alone, EPA has had over 350 stakeholder meetings within the Bay watershed and has had countless calls and meetings with our Bay jurisdiction partners to discuss the TMDL and TMDL process.

Comment ID 0732.001.003

Author Name: Hoagland Roy

Organization: Chesapeake Bay Foundation (CBF)

As you know, the process of developing the Bay-wide TMDL actually began over a decade ago with a series of federal judicial consent decrees and settlement agreements over impaired water listings for many watershed states . See, e.g., American Canoe v. EPA, 54 F. Supp. 2d 621 (E.D. Va. 1999). On June 28, 2000, the governors of Virginia, Maryland, and Pennsylvania, the chair of the Chesapeake Bay Commission, and the Mayor of the District of Columbia responded to the various decrees and agreements by signing, along with one of your predecessors, former EPA Administrator Carol Browner, the Chesapeake 2000 agreement which, among other things, committed to reduce nitrogen, phosphorus, and sediment sufficiently to remove the Bay and its tidal tributaries from the impaired waters lists by 2010 .

In the fall of that same year, the governors of New York and Delaware signed a formal agreement to work with the other jurisdictions to "achieve the nutrient and sediment reduction targets . . .to achieve the goals of a clean Chesapeake Bay by 2010," with West Virginia following suit in 2002 . In addition, as further described below, Congress amended and recodified the CWA to require the development of plans that would ensure attainment of the water quality goals, among others, memorialized in the Chesapeake 2000 agreement. 33 U.S .C. § 1267(g).

In December 2003, the EPA, and other Bay jurisdictions agreed to nitrogen, phosphorus and sediment allocations that became the basis for "tributary strategies," plans designed to remove the Bay and its tidal tributaries from the impaired waters lists by 2010. This resulted in the release of the jurisdiction-specific "tributary strategies" between 2004 and 2006 . However, by 2007 it became clear that by the 2010 timeframe, water quality of the Bay would not be restored, the impaired waters would not be de-listed, and-as a result of the failure to achieve that goal-the need to develop the Bay TMDL would arise. Since that time, all Bay jurisdictions have fully participated in the process of developing the Bay TMDL.

Since the signing of the first Chesapeake Bay Agreement in 1983, some progress has been made in implementing the practice needed to reduce nitrogen, phosphorus and sediment pollution. However, two recent studies indicate much remains to be done. A report by the U.S . Department of Agriculture highlights that although progress has been made on reducing pollution from farm fields through conservation practice implementation in the Chesapeake Bay region, a significant amount of conservation management remains to be done to reduce nonpoint agricultural sources of pollution. [FN1] This report also provides independent confirmation of the conclusions of the Chesapeake Bay watershed model with respect to estimates of pollution loads associated with the agricultural sector . A recent report by the U.S . Geological Survey similarly concludes that progress in reducing actual pollution loads in the Chesapeake watershed, particularly in those systems dominated by nonpoint sources, is lagging. [FN2] The evidence is clear: our" mostly voluntary efforts to date are woefully inadequate . We now have both a legal and moral imperative to move beyond 30 years of insufficient progress and unmet obligations and establish a new, enforceable blueprint for restoration. The key to success is the proposed Chesapeake Bay TMDL as described in EPA's "Accountability Framework."

[FN1] USDA October 2010. Assessment of the Effects of Conservation Practices on Cultivated Cropland in the Chesapeake Bay Region
[FN2] Hirsch, R.L ., D.L . Moyer, and S.A. Archfield. 2010. Weighted regressions on time, discharge and season (WRTDS), with an application to Chesapeake Bay River inputs . Journal of the American Water Resources Association.

Response

EPA agrees with the commenter that progress has been made in nutrient and sediment reductions in the Bay watershed but that substantial further reductions are necessary before water quality is restored. EPA concurs with your assessment that the TMDL is a key to providing part of the Aaccountability Framework in achieving the necessary nutrient and sediment reductions. The state watershed implementation plans and two year milestones provide the other primary vehicles that will allow us to insure and monitor the achievement of the TMDL.

Response to Public Comments: Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

Issue Category: 4. Legal Comments

Pages 185 – 369

December 29, 2010

Docket #: EPA-R3-OW-2010-0736

4 - LEGAL COMMENTS

Comment ID 0060.1.001.005

Author Name: Bredwell III Paul

Organization: U.S. Poultry & Egg Association, National Turkey Federation (NTF), and National Chicken Council (NCC)

Under basic principles of due process and administrative law, EPA has an obligation to provide the public with a reasonable opportunity to comment on proposed agency actions. Specifically, Congress required EPA to give the public "a reasonable period…of at least 30 days" in which to comment on any regulation promulgated under key federal environmental statutes. Congress has indicated that 30 days is the minimum time necessary to give the public a reasonable opportunity to evaluate a proposed rule and provide adequate feedback to the agency. A comment period meeting the 30-day statutory minimum would be reasonable for a single, ordinary proposed rule.

However, EPA has allowed only 45 days for one of the most significant, precedent setting and complex TMDLs in the agency's history. Forty-five days - only 15 days longer than the statutory minimum - is an unreasonably short period of time for comment on EPA's proposed Chesapeake Bay TMDL. For example, merely evaluating the Scenario Builder input assumptions to the Bay model, among other elements of appropriate analytical review, is a significant exercise in itself for the industry. A comment period of only 45 days deprives affected parties a means to adequately assess the proposal's potential impacts and to protect their interests in the administrative process.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. With regard to additional time to review and comment on the draft Chesapeake Bay TMDL, please see the response to comment number 0060.1.001.001 and comment number 0153.001.003.

Comment ID 0061.1.001.008

Author Name: Haterius Stephen

Organization: National Association of State Departments of Agriculture (NASDA)

We are aware that EPA signed a settlement agreement with the Chesapeake Bay Foundation (CBF) agreeing to finalize a TMDL for nutrients and sediment for the Chesapeake Bay watershed by December 31, 2010. Further, this date is embodied in a settlement agreement, not a judicial consent decree, so EPA need only seek an extension from CBF. Even if the CBF is unwilling to agree to a modification of the settlement agreement, the only remedy CBF has under that agreement is to reinstate its lawsuit against EPA, which we believe is without merit. Further, if EPA makes the information relating to Scenario Builder available to the public quickly, the Agency will still be able to issue the 23 TMDLs in Virginia and the 2 TMDLs in the District of Columbia by May 2011, avoiding the need to amend the consent decrees requiring issuance of those TMDLs by May 1, 2011 and May 31, 2011, respectively.

Response

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0062.1.001.009

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

EPA's failure to make adequate information about this important model available for public review is a violation of 40 C.F.R. 130.7(c)(l)(ii), which requires that calculations used to establish TMDLs be subject to public review, as well as a violation of the Administrative Procedure Act.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. By making the draft TMDL available for public comment pursuant to the procedures required by federal law, considering and responding to those comments in reaching its final decision, EPA fulfilled the requirements of 40 C.F.R. 130.7(c)(1)(ii) and the Administrative Procedure Act.

Comment ID 0063.1.001.006

Author Name: Jones Martin

Organization: Fertilizer Institute (TFI)

Furthermore, EPA's water quality planning, management and implementation regulations mandate that public access and review of this information is provided. Specifically, the regulations for establishing TMDLs require that the "[c]alculations to establish TMDLs shall be subject to public review as defined in the State [Continuing Planning Processes]." 40 C.F.R. § 130.7(c)(l)(ii).

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. Although EPA is uncertain to which regulations the commenter refers in the first sentence of this comment and therefore cannot respond specifically to that statement, EPA did follow the notice and comment procedures under federal law, as described in detail in response to comment number 0062.1.001.009.

Comment ID 0077-cp.001.003

Author Name: Comment Anonymous

Organization:

Furthermore, the draft seems to hint at no ambiguity between point and nonpoint sources of pollution. In reality, there often is a gray area where point and nonpoint sources of pollution overlap, rendering the EPA's authority to regulate these sources seemingly less legally sound. If the EPA's backdrop authority is to remain an effective measure in tightening controls on federally permitted point sources of pollution, a less ambiguous definition should be given to point sources of pollution and, consequently, how they differ from nonpoint sources of pollution.

Response

The definition of "point source" is given in Section 502(14) of the CWA. As described in Section 4 of the TMDL, a nonpoint source is simply any source that is not a point source. Section 4 of the TMDL provides greater detail on how point and nonpoint sources are treated in the Bay TMDL.

Comment ID 0193.1.001.007

Author Name: Newsome Michael

Organization: Home Builders Association of Virginia (HBAV)

The 4,300 business members of HBAV are also very disturbed by the short 45 days for the public to provide comments on the TMDL. Given the complex nature of the TMDL, and the quantified significant costs to all involved, such a limited public comment period is inadequate and should be immediately extended. For the EPA to impose this level of impact on the well being of the Commonwealth, its citizens and its businesses, while ignoring a notice requirement and cost analysis requirements of federal law (the Administrative Procedures Act and the Small business Regulatory Act), is wrong and will not stand.

Response

With regard to the request to extend the public comment period, please see the response to comment number 0060.1.001.001 and comment number 0153.001.003.

Comment ID 0214.1.001.003

Author Name: Cuffee-Glenn Selena

Organization: City of Suffolk, Virginia

With those concerns in mind, the City of Suffolk agrees with the comments provided by the Hampton Roads Planning District Commission, of which Suffolk is a member, and reiterates the points raised by the commission:

• The EPA does not have the legal authority to establish a deadline in the TMDL.

Response

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0251.1.001.005

Author Name: Duckett Robert

Organization: Peninsula Housing & Builders Association (PHBA)

Our membership also strongly objects to the very limited public comment period. Given the complex nature of the TMDL and its significant costs, the 45-day limited public comment period is inadequate and should be immediately extended. The EPA should not impose this level of impact on the Commonwealth, its citizens and its businesses, while ignoring notice requirements and cost analysis requirements of federal law (the Administrative Procedures Act and the Small Business Regulatory Act).

Response

With regard to the length of the public comment period, please see the response to comment number 0060.1.001.001 and comment number 0153.001.003. EPA followed all applicable laws in making the draft Chesapeake Bay TMDL available for public comment. The TMDL is not a rule and the Small Business Regulatory Act is not applicable. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0253.1.001.016

Author Name: Hazelett Virgil

Organization: County of Henrico, Virginia

The Clean Water Act and EPA's regulations do not give it the authority to establish a 2025 compliance deadline in the TMDLs.

Of all the source sectors covered by the TMDLs, none is affected more by the 2025 deadline that the urban runoff

sector because much of the difficulty and cost of achieving the urban runoff load reductions is associated with retrofits independent of redevelopment. Historic re-development rates in the Henrico County region fall far short of those that would be needed to achieve the load reductions without forcing the county to acquire the easements needed for the retrofits and assuming responsibility for retrofit installation and maintenance.

Response

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0298.2.001.025

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC)

EPA DOES NOT HAVE THE AUTHORITY TO ESTABLISH A DEADLINE IN THE TMDL FOR ACHIEVING THE LOAD REDUCTIONS

The Clean Water Act and EPA‘s regulations do not give it the authority to establish a 2025 compliance deadline in the TMDLs.

Of all the source sectors covered by the TMDLs, none is affected more by the 2025 deadline that the urban runoff sector because much of the difficulty and cost of achieving the urban runoff load reductions is associated with retrofits independent of redevelopment. Historic re-development rates in the Newport News area fall far short of those that would be needed to achieve the load reductions without forcing the Localities to purchase or condemn land and easements needed for the retrofits and assuming responsibility for retrofit installation and maintenance.

Response

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0376.1.001.008

Author Name: Smith Brooks

Organization: Virginia Manufacturers Association VMA

C. EPA Does Not Have the Legal Authority to Impose a Schedule for Implementation.

EPA has unilaterally established a schedule for achieving 60% of the reductions set forth in the Bay TMDL by 2017, and

100% of the reductions by 2025. See Bay TMDL Executive Summary at page 1. To meet this schedule, EPA has mandated that the states meet recurring two-year milestones to demonstrate their restoration progress or suffer certain EPA-prescribed consequences. Bay TMDL at page 1-12 ("The Bay TMDL will be implemented using an accountability framework that includes WIPs, 2-year milestones, EPA's tracking and assessment of restoration progress and, as necessary, specific federal actions if the Bay jurisdictions do not meet their commitments.").

The problem with EPA's schedule and mandate is that EPA has no authority to compel them. Nothing in the Clean Water Act or EPA's implementing regulations provides a deadline for TMDL implementation. To the contrary, TMDLs are simply planning tools to help inform state water quality management decisions. EPA has conceded as much in prior TMDL litigation. See, e.g., Pronsolino v. Nastri, 291 F.3d 1123, 1120 (9th Cir. 2002).

Response

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0403.001.001

Author Name: Miller Craig

Organization: Miller Farm

I strongly oppose more regulation concerning the Chesapeake Bay Watershed. I have raised turkeys in Rockingham County for 24 years and have received several environmental awards. I operate on thin margins and cannot withstand the financial burden of your purposed regulatory mandates. These mandates are starting to drive hard working farmers, like myself, out of the farming business.

Response

EPA appreciates all efforts made to keep nitrogen, phosphorus and sediment pollution out of the Bay. It is not EPA’s intention to put any farms or other businesses out of business. For information on agricultural funding sources, please see the response to comment 0139.1.001.006.

Comment ID 0435.1.001.005

Author Name: Lentz Kristen

Organization: Department of Public Works, City of Norfolk, Virginia

Implementation Period Time Frame Comment:

Furthermore, the City is concerned about the limited time line the EPA is proposing for implementation, in particular the

60% requirements by 2017 (6 years). Since Virginia is a Dillon Rule state, the City, and all Virginia localities, can only undertake those actions as expressly authorized by the Virginia General Assembly. Even if the General Assembly passed all of the enabling legislation for the localities to have unlimited authorities and tools available to meet the aggressive pollutant loading reductions, local governments would then need to enact ordinance changes once those laws were ratified by the Governor in April 2011. Meaning the best starting point for the Virginia localities is July 2011.

Following General Assembly action, the City would still need to review and revise local ordinances that would be subject to the Virginia Administrative Process Act requirements. These requirements, including public notices, public involvement meetings and public hearings before City Council prior to any ordinance changes being implemented, could take nine months to one year from the time authority is granted by the General Assembly. Assuming no legal challenges, local ordinance changes may not take effect realistically until mid-2012.

To design and build best management practices (BMPs) that would have meaningful impacts on reducing pollutants in storm water will take another nine to fifteen months,meaning these improvements may not begin to come on line until late-2012 to mid-2013. Measuring the results from these structural BMPs would take another twelve to fifteen months in order to capture a complete season of pollutant removal efficiencies. Based on the legal processes outlined above, it is very unrealistic for the EPA to expect any local government to meet the 60% of the Bay Waste Load Allocation (WLA) by 2017.

Response

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0435.1.001.007

Author Name: Lentz Kristen

Organization: Department of Public Works, City of Norfolk, Virginia

The time required for authorization and implementation of local ordinance changes and engineering logistics of BMP installation are described above. The City recommends extending the deadline for TMDL implementation to 2030 and requiring 60% implementation by 2022. This additional time encourages proper consideration of local impacts and engineering principles, respectively.

Response

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0457.1.001.002

Author Name: Zaepfel Patrick

Organization:

2. EPA has failed to provide a long enough review period. The Draft TMDL is 365 pages in length with 23 appendices totaling 262 pages, which include seven tables with a total of approximately 22,000 rows of data and information in those tables. Three of these tables list cap loads for all point sources, significant and insignificant. Providing only 45 calendar days to digest the proposed regulation and articulate comments is insufficient under the APA and violates procedural and substantive Due Process rights.

We understand that EPA is pointing to the multiyear development process and the interaction with the States as justification for denying requests to extend the comment period. This justification is self-serving and fails to appreciate the difficulties that the public has in even understanding the Draft TMDL, much less the methodology employed in the development of the individual source load caps. There are 4,390 insignificant point sources listed in Draft TMDL's tables, many of which are unaware of the existence of the Draft TMDL, much less the impact the Draft TMDL will have on their lives and businesses. EPA's failure to accommodate the public's learning curve on this important action is contrary to principles of good governance.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. With regard to additional time to review and comment on the draft Chesapeake Bay TMDL, please see the response to comment number 0060.1.001.001 and comment number 0153.001.003.

Comment ID 0483.1.001.002

Author Name: Wood Heather

Organization: Virginia Port Authority (VPA), Norfolk, Virginia

Arbitrary nature of 2025 deadline:
USEPA's stated goal of 2025 (for all water quality controls to be in place) has no basis in law or regulation. With the multi-billion dollar implementation effort starting in the worst economy in decades, the 2025 deadline is both arbitrary and unrealistic. USEPA should allow the individual states to schedule implementation in manners that are compatible with available resources.

Response

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0496.1.001.014

Author Name: Allsbrook Lynn

Organization: City of Hampton, Virginia, Department of Public Works

Aside from the question of EPA's legal authority to establish a deadline in the TMDL, the 2025 deadline would have significant consequences for the Localities because it would directly impact their MS4 programs and their ability to comply with their future permits should the permits contain, as expected, Bay TMDL-derived conditions based on the deadline. The other source sectors would be largely unaffected by the 2025 deadline. Municipal and industrial wastewater treatment plant upgrades are generally completed within the five-year terms of their permits, and while the widespread implementation of agricultural BMPs and onsite septic system retrofits may be a long-term undertaking, the deadline would not expose these largely unregulated sources to either the added costs of attempting to attain the allocations by an enforceable deadline or the risk of enforcement for permit non-compliance. The 2025 deadline would expose the Localities, on the other hand, to future NPDES permits containing retrofit implementation schedules that, as explained above, would, at a minimum, dramatically increase their compliance costs, or more likely, would be unattainable despite their best efforts to achieve compliance by the deadline.

Response

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0507.1.001.007

Author Name: Sullivan Sean

Organization: Liberty University and Thomas Road Baptist Church

In the Draft TMDL and in EPA's October 25,2010 statement regarding its denial of an extension of the comment period for the Draft TMDL,[FN44] the agency argued that it could not extend the comment deadline for the following reasons:

--An agreement between the states and EPA requires that the Draft TMDL be finalized by December 31, 2010;
--Executive Order 13508 requires EPA to finalize the Draft TMDL by December 31,2010;
--EPA's settlement agreement in Fowler v. United States requires EPA to finalize the Draft TMDL by December 31, 2010; and
--The fact that EPA and the states have been working on resolving water quality impairment in the Chesapeake Bay for a number of years.

None of these reasons are sufficient to invalidate EPA's statutory, and ultimately constitutional, duty to afford the public a meaningful opportunity to comment on the Draft TMDL. In Cronin v. Browner, Judge Schwartz of the Southern District of New York ruled on a request by EPA to extend the deadlines for EPA to promulgate rules implementing Section 316(b) of the Clean Water Act. Even though EPA had not demonstrated good cause for relief from the deadlines in the

court's consent decree, he explained:

It is important that the regulations have a sound, scientific basis, comport with the requirements of the [Clean Water Act], are compatible with other regulatory programs, and further EPA's broad policy goals of protecting human health and the environment.[FN45]

Thus, the Court granted EPA's request to extend the deadline. The Court went on to say:

Because of the significant amount of work remaining to be completed, the Court concludes that EPA cannot promulgate a scientifically and legally defensible rule [by the deadline]. The public interest in the prompt issuance of a Regulation, while important in consideration of the modification deadlines, is out-weighed... by the need to prepare a regulation that minimizes adverse environmental impact ... and enables attainment of water quality....[FN46]

To be sure, EPA's obligation to develop a prudent and effective regulation in compliance with the Clean Water Act and the Administrative Procedure Act takes precedence over any deadline imposed by a settlement agreement with a private party or an executive order. As part of that effort, EPA must provide the public with the agency's factual and legal basis for the Draft TMDL and it must afford the public sufficient time to review, digest and critique EPA's analysis.

[FN44] See U.S. EPA, Statement on EPA Decision Not to Extend the Bay TMDL Public Comment Period (Oct. 25, 2010).

[FN45] 90 F. Supp. 2d 364, 373 (S.D.N.Y. 2000).

[FN46] Id. (emphasis added).

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. EPA also notes that the Chesapeake Bay TMDL is not a federal rule or regulation. With regard to the length of the public comment period, please see the response to comment number 0060.1.001.001 and comment number 0153.001.003. EPA followed all applicable laws in making the draft Chesapeake Bay TMDL available for public comment. EPA believes it has made sufficient information available for the public to reasonably and intelligently comment on the Bay TMDL.

EPA declined to extend the TMDL's 45-day comment period. To do so would have made it impossible for EPA to establish the Bay TMDL by December 31, 2010. EPA places a very high value on meeting its public commitment to establish the TMDL by that date. EPA does not want to break faith with the States who requested it or the public who expects it. Moreover, EPA is acting pursuant to Executive Order 13508 to "make full use of its authorities" to protect the Bay, as well as a promise EPA made in a May 2010 settlement agreement resolving Fowler v. EPA. While it might be theoretically possible to negotiate an extension of the Fowler agreement date, EPA believes that - under all the circumstances of this TMDL, including the considerable transparency of the process to date and EPA's considerable efforts to engage in public outreach – its efforts were better spent finishing work on the

TMDL in order to avoid any further delays in implementing EPA's and States' 27-plus year old commitment to restore the Bay's water quality.

Comment ID 0515.1.001.014

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

E. The EPA's TMDL Watershed Implementation Plan Approach Puts "the Cart" before "the Horse"

The usage of Watershed Implementation Plans ("WIPs") to carry-out the TMDL is an established practice. However, in most cases - as pointed-out in Section I of our October 29, 2010 letter (on-line Comment Docket Comment Attachment #145.1) - WIPs are developed after a TMDL is finalized. In this case, not only did the EPA require Bay watershed jurisdictions to develop their draft WIP-Is before the draft TMDL was released, but the EPA has announced further requirements for jurisdictions to develop WIP-IIs in 2011 after the CBWM is revised and, in all likelihood, the TMDL (if finalized under the proposed schedule) is amended. The EPA's approach in this matter, which the EPA claims to be the result of litigation against the agency, may have the unintended consequence of INVITING further litigation that may only serve to divert time, energy, and human/economic resources AWAY from the ultimate objective of restoring the Bay. Multiple years of uncertainty and delay may result from legal challenges to the TMDL if adopted as presently proposed (clearly, based upon review of the on-line comments posted to date, it appears many grounds exist on which such challenges might be pursued). Wouldn't it be better in the long run to take the time now to properly design and plan implementation of the TMDL rather than "regulate by litigation"? Is the EPA pursuing a strategy of using the courts in the case of this TMDL as a means to avoid changes in political leadership or the perceived "whims" and "shifting priorities" of the respective Executive and Legislative branches of the federal government and Bay watershed jurisdictions? If the Bay watershed jurisdictions were not made "necessary parties" in the litigation resulting in the consent orders calling for a Bay TMDL to be developed by May 1, 2011 as well as the settlement agreement calling for a Bay TMDL to be developed by December 31, 2010, did the EPA exceed its authority by purporting to bind non-party Bay jurisdictions via such litigation to what it now seeks to require via the WIPs?

Response

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0571.1.001.001

Author Name: Rountree Glynn

Organization: National Association of Home Builders (NAHB)

This document contains the comments of the National Association of Home Builders (NAHB) on the U.S. Environmental

Protection Agency's (EPA) proposed Total Maximum Daily Load (TMDL) for the Chesapeake Bay, the availability of which was announced in the Federal Register on Sept. 22, 2010. Our comments are supplied in the spirit of addressing the challenges in this proposed regulatory program.

NAHB is a trade association representing more than 175,000 members involved in home building, remodeling, multifamily construction, property management, subcontracting, design, housing finance, building product manufacturing and other aspects of residential and light commercial construction. Known as "the voice of the housing industry," NAHB is affiliated with over 800 state and local home builders associations around the country. NAHB's builder members will construct about 80 percent of the new housing projected for 2010. Because of the nature of their work, most of our builder members must obtain and operate pursuant to National Pollutant Discharge Elimination System (NPDES) permits for controlling the stormwater discharges from their construction sites. The Chesapeake Bay TMDL's requirements will become a part of the stormwater permits issued for homebuilding projects in the Bay watershed.

Throughout the development of the TMDL, NAHB and its affiliated home building associations and members operating within the watershed have consistently voiced interest in restoring the Bay using cost-effective, balanced, and sustainable solutions that facilitate economic growth and preserve the ability of a growing population to live, work, and play in the watershed. To reach this reasonable, responsible, and realistic restoration plan, we believe the agencies must develop and adopt TMDL and implementation plans that allow for and invite broad public participation; is based on defensible modeling and data; is cost-effective and affordable; is understandable; is fair and equitable; and is flexible and invites innovation. The proposed TMDL, however, fails to meet these objectives.

Before EPA establishes any regulatory requirements that may significantly impact state and local governments, federal law requires a number of prescribed steps. EPA, however, has failed to fully adhere to this mandate, as it has proposed an overly-burdensome rule, failed to engage affected jurisdictions, and underestimated the burdens on state and local governments. EPA must correct these deficiencies prior to adopting a final rule.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. EPA disagrees that has not established this TMDL in accordance with the CWA and other applicable law.

Comment ID 0689.1.001.016

Author Name: Hann Steven

Organization: Capital Region Council of Governments TMDL Work Group

26. The draft TMDL refers to the "commitments and actions described in the Federal Strategy" as being "a unique and powerful tool to achieve the Bay's water quality goals and provide additional support for reasonable assurance in this TMDL. What legal effect is given the Federal Strategy? How can a "strategy" provide support for the reasonable assurance determination in the draft TMDL?

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. On May 12, 2009, President Barack Obama signed Executive Order 13508—Chesapeake Bay Protection and Restoration. The Executive Order's overarching goal is to protect and restore the health, heritage, natural resources, and social and economic value of the Nation's largest estuarine ecosystem and the natural sustainability of its watershed. The Executive Order says the federal government should lead this effort and acknowledges that progress in restoring the Bay will depend on the support of state and local governments. To that end, the Executive Order directs the lead federal agencies, including EPA, to work in close collaboration with their state partners. To protect and restore the Chesapeake Bay and its tidal tributaries, the President directed EPA to "make full use of its authorities under the [CWA]." In establishing the Bay TMDL, EPA is doing no more—or less—than making full use of its CWA authorities to lead a collaborative and effective federal and state effort to meet the Bay's nutrient and sediment goals. Pursuant to that Order, the federal agencies, published the Federal Strategy im May 2010. The commitment and coordinated attention of those federal agencies along with the states adds to the reasonable assurances provided by the states in their WIPs as well as the EPA's own authority under the CWA.

4.1 - LISTING

Comment ID 0689.1.001.004

Author Name: Hann Steven

Organization: Capital Region Council of Governments TMDL Work Group

6. None of the ninety-two (92) impaired streams in the Chesapeake Bay Watershed are in Pennsylvania. What legal authority gives EPA the ability to develop a TMDL that places stringent loading reductions on Pennsylvania sources, when Pennsylvania has no impaired waters subject to the Bay TMDL? What is EPA's authority to impose restrictions on point sources in Pennsylvania as part of the Bay TMDL?

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. EPA disagrees with the comment and its underlying assumption that any Bay-related TMDL allocations affecting nutrient and sediment pollutant loadings originating in Pennsylvania (or the other headwater States) must be established by those headwaters States and based solely on their own State water quality standards. In the 38 years since passage of the CWA, none of the Bay headwaters States (New York, Pennsylvania, and West Virginia) has established or submitted a TMDL to EPA that allocates nutrient or sediment loadings in their jurisdictions at a level necessary to implement water quality standards in the Bay or its tidal tributaries. Moreover, the headwaters States requested and collaborated with EPA in the establishment of this Bay TMDL and its allocations. Accordingly, EPA has acted within its authority under CWA 303(d) to establish allocations to the headwater States in the Bay TMDL consistent with the need to implement tidal Bay water quality

standards.

Nor was it necessary for EPA to first require that the headwaters States revise their own water quality standards to "take into consideration" the applicable tidal Bay water quality standards and "ensure" that their "upstream" standards provide for "downstream" standards attainment. EPA is establishing the Bay TMDL to implement the tidal Bay standards, not the headwater States' own "upstream" standards. (The Bay TMDL does, however, ensure that applicable, local standards are met.) The fact that a headwater State's standards may not already be stringent enough per 131.10(b) to ensure implementation of the tidal Bay standards does not constrain EPA's ability and authority under 303(d) to establish Bay TMDL allocations that are fully protective of the applicable downstream tidal Bay standards. To interpret CWA 303(c) and (d) otherwise would turn the Act on its head by subjecting a TMDL's ability to protect its targeted waters (and their "applicable" water quality standards) to limitations contained in upstream water quality standards. Likewise, under the framework of the Bay TMDL, EPA need not establish TMDLs or allocations for specific waters on New York's 303(d) list because they are not meeting local water quality standards. The purpose of this TMDL is to achieve the applicable standards for the 92 impaired Bay segments. New York is free to develop TMDLs for waters with local impairments outside the context of this TMDL on an appropriate schedule.

4.2 - EPA AUTHORITY TO ESTABLISH THE BAY TMDL

Comment ID 0227.1.001.005

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

While the history of the Chesapeake Bay restoration effort illustrates decades of work to address water quality issues, the legal history demonstrates EPA's obligation to develop the TMDL in the absence of the Bay states' ability to meet water quality goals. EPA has accurately set forth the statutory and regulatory basis for its proposed TMDL in Section 1.4 of the draft TMDL entitled "Legal Framework for the Chesapeake Bay TMDL" as well as relevant consent decrees issued by federal courts in Virginia, the District of Columbia and Delaware, an MOU with respect to the TMDL for Maryland's portion of the Chesapeake Bay and its tidal tributaries and a Settlement Agreement resolving litigation with the Chesapeake Bay Foundation seeking issuance of a Bay-wide TMDL. The Clean Water Act, three Bay Agreements, three court agreements, one MOU, and one Presidential Executive Order all require development of a Bay wide TMDL.

Section 303(d) of the Clean Water Act

EPA's statutory authority to develop the Bay-wide TMDL is derived from Section 303(d) of the Clean Water Act.

The CWA required each state, …, to submit by June 28, 1979 (no more than 180 days after the EPA identified certain pollutants, pursuant to § 1314(a)(2)(D)) the first of its TMDL calculations to the Administrator of the EPA. Within thirty days after this submission, the Administrator must take one of two actions. She may approve the TMDL, in which case it becomes binding on the states. If, however, she disapproves it, the Administrator must devise her own binding TMDL for the state within thirty days of disapproval. CWA § 303(d)(2), 33 U.S.C. § 1313(d)(2).

Kingman Park Civic Ass'n v EPA, 84 F.Supp. 2d 1, 2 (D.D.C. 1999).

Thus, Section 303(d) of the Clean Water Act requires states, in the first instance, to identify impaired waters and develop "TMDLs".." 40 C.F.R. § 130.7(d). If a state clearly indicates through inaction or otherwise that it will not be able to develop the TMDL, then the duty to prepare the TMDL shifts to EPA. See, e.g., Scott v. Hammond, 741 F. 2d 992 (7th, Cir. 1984) (holding that lengthy inaction on the part of a state can constitute a "constructive submittal" of an inadequate TMDL, thereby transferring the duty to prepare to EPA); Kingman Park, 84 F.Supp. 2d 1, 2; American Canoe Ass'n, Inc. v. United States Envtl. Protection Agency, 30 F. Supp. 2d 908, 919--22 (E.D. Va. 1998) ("American Canoe I") (holding that EPA must take action to develop TMDLs for states that fail to do so); Alaska Ctr. for the Env't v. Reilly, 762 F. Supp. 1422, 1426--29 (W.D. Wa. 1991) ("Congress intended that EPA's affirmative duties be triggered upon a state's failure to submit a list or any TMDL at all."); cf Miccosukee Tribe of Indians v. United States Envtl. Protection Agency, 105 F.3d 599, 602--03 (11th Cir. 1997) (holding that, despite the lack of an actual submission from Florida indicating that it had changed the water-quality standards, EPA's nondiscretionary duty under 33 U.S.C. § 1313(d)(4)(B) would be triggered if Florida had actually altered its water-quality standards).

The line of decisions stemming from Scott v. Hammond, 741 F. 2d 992 (7th Cir. 1984), clearly established that the duty to develop TMDLs for impaired waters transfers to EPA through the mechanism of a "constructive submittal" when a state fails to timely submit a TMDL. See, e.g. Kingman Park, 84 F.Supp. 2d 1-2; American Canoe I, 30 F. Supp. 2d at 919-22; Alaska Ctr. for the Env't, 762 F. Supp. at 1426-29. Otherwise, a state could ignore its duty to prepare restoration plans for impaired waters forever, so long as it did not actively submit inadequate plans to EPA for review and approval, clearly not what Congress intended in enacting the Clean Water Act. As the court in Kingman Park recognized, Congress could not have meant for EPA to sit idly by for more than a decade while states fail to carry out their statutory mandates. Kingman Park, 84 F.Supp. 2d at 7.

Here, not only have none of the Bay jurisdictions developed TMDLs for either their portions of the Bay (Maryland and Virginia) or their tributaries to the Bay, but they have affirmatively asserted that they were not able to develop the TMDL on their own, and invited EPA to assume the lead and take over developing the Bay TMDL.[FN 10] Further, states agreed that a "state by state" approach to develop the TMDLs was scientifically and administratively less desirable than continuing to use a regional approach as they did with the water quality criteria. The well established doctrine of "constructive submission" of an inadequate TMDL by a state, which triggers EPA's duty to take over, coupled with the states' express request in this case that EPA take the lead in developing the Bay wide TMDL, provide ample authority for EPA's action in doing so.

In addition to the request of the states and EPA's legal obligation under the constructive submission doctrine, there is a compelling and logical reason for EPA to manage or coordinate the development of the Bay TMDL. The Bay watershed includes portions of six states, and the District of Columbia, and it would be impossible for one state to develop a TMDL to address more than a small part of the problem. No matter how firm Maryland and Virginia are with polluters or dischargers in their states, they could not fix the problems alone and could not order polluters or dischargers in upstream states, Pennsylvania or New York, for example, to cut back on their discharges.

Further, EPA often takes the lead role in developing TMDLs for interstate waters. See Dioxin/Organochlorine Center v. Clarke, 57 F.3d 1517 (9th Cir. 1995) (OR, WA and ID listed the Columbia River as impaired by a toxic compound, dioxin, but decided against developing TMDLs on their own. "Instead, after consultation and involvement in the development of the draft TMDL, the states requested the EPA to issue the proposed and final TMDL as a federal action

under the authority of sec. 1313(d)(2)." The Columbia River TMDL for dioxin was upheld in the face of challenges filed by both environmentalists and industries.). Rivers that form borders between states, such as the Savannah River, or that flow from one state to another, such as the Arkansas, or bays that receive pollutants from numerous states, such as the Chesapeake, are good candidates for EPA-developed TMDLs.

Prior TMDL Litigation and Agreements

As discussed above, Section 303(d) of the Clean Water Act requires states to identify water quality limited segments of water bodies within their borders and to establish the TMDL of pollutants that each water quality limited segment can assimilate,, 33 U.S.C. § 1313(d)(1)(C)); this duty transfers to EPA, however, when the states fail to act.. In 1997, EPA was sued because it did not act when Virginia failed to develop TMDLs for impaired water bodies. American Canoe I. That matter was settled via a consent decree approved by the federal court. American Canoe v. EPA, 54 F. Supp. 2d 621 (E.D. Va. 1999) ("American Canoe II").

EPA was also sued for failing to ensure that the District of Columbia identify impaired bodies of water within its jurisdiction and developed TMDLs for those waters. Kingman Park Civic Association v EPA, 84 F. Supp. 2d 1 (D. DC 1999). Like American Canoe, that matter was settled via consent decree which set deadlines for listing impaired water bodies and developing TMDLs for them. Those bodies of water are all tributaries to the Chesapeake Bay.

In addition, in 1996 the American Littoral Society and the Sierra Club sued EPA to ensure that TMDLs were developed for impaired waters on Delaware's Section 303(d) list which included a tidal Bay segment, the Upper Nanticoke River. American Littoral Society, et al. v. EPA, et al., No. 96-330 (D. Del.).The parties entered a consent decree in 1997 which required EPA to develop TMDLs if Delaware failed to do so. While Delaware adopted some TMDLs, it does not have in place a TMDL to meet the current water quality standards for the tidal Bay segment, effectively leaving that task to EPA.

EPA was also sued for failing to require Pennsylvania to identify impaired bodies of water and establishing TMDLs for those waters. American Littoral Society, et al. v. EPA, No. 96-489 (E.D. Pa.). That matter was resolved via consent decree on April 9, 1997. Under the terms of the consent decree, EPA was to develop TMDLs for over 570 listed waters if Pennsylvania did not.

Another TMDL suit was filed against EPA in West Virginia. Ohio Valley Environmental Coalition, Inc., et al. v. Carol Browner, et al., No. 2:95-0529 (S.D.W.VA.). Like the other matters, this case was resolved by consent decree in 1997. In that decree, EPA agreed to develop TMDLs for over 500 listed waters if West Virginia did not.

A similar claim was brought concerning Maryland's portion of the Bay. That claim was resolved via a MOU between Maryland and EPA in 1998. Like the American Canoe and Kingman Park consent decrees, this MOU required EPA to develop a TMDL for Maryland's portion of the Chesapeake Bay if Maryland failed to do so by 2010. Maryland did not develop such a TMDL.

Thus, EPA's Bay wide TMDL complies with its legal authority and commitment to prepare TMDLs for all of the Bay segments covered by these various consent decrees and MOUs. See Draft TMDL § 2.2.4.

Section 117(g) of the Clean Water Act

EPA's authority to issue the Bay wide TMDL is also supported by Section 117 of the Clean Water Act, which provides:

(g) Chesapeake Bay Program

(1) Management strategies The Administrator, in coordination with other members of the Chesapeake Executive Council, shall ensure that management plans are developed and implementation is begun by signatories to the Chesapeake Bay Agreement to achieve and maintain -

(A) the nutrient goals of the Chesapeake Bay Agreement for the quantity of nitrogen and phosphorus entering the Chesapeake Bay and its watershed.

(B) the water quality requirements necessary to restore living resources in the Chesapeake Bay ecosystem; …[FN 11]

33 U.S.C. § 1267(g)(1)(A)-(g)(1)(B).[FN 12] Use of the word "shall" makes the Administrator's obligation mandatory. Lexecon Inc. v. Milberg Weiss Bershad Hynes & Lerach, 523 U.S. 26, 35 (1998) ("The mandatory 'shall,' ... normally creates an obligation impervious to judicial discretion"). Thus, EPA was required to develop a management plan to comply with the nutrient reduction goals of the Chesapeake 2000 agreement - 40% nutrient reduction and removal of the Bay from the Section 303(d) list The proposed Chesapeake Bay TMDL is the most appropriate such '"plan" to "achieve and maintain …the nutrient goals…and water quality requirements" referred to in Section 117(g) because it is tailored to achieving compliance with the water quality standards for nutrients and sediment. It is the principal tool provided in the Clean Water Act for this purpose, and therefore is precisely what Congress intended that EPA should do in implementing Sections 303(d) and 117(g).

[FN 10] This decision was formalized at the meeting of the Principals' Staff Committee (PSC) on October 1, 2007. It was agreed that the Bay watershed TMDLs would be developed jointly between the six Bay watershed states, the District of Columbia and EPA, and then established by EPA. It was further agreed that the Water Quality Steering Committee would draft nutrient and sediment cap load allocations by tributary basin and jurisdiction, and the Principals' Staff Committee would formally adopt these allocations.

[FN 11] There are three other goals identified by the CWA: toxics reduction; habitat restoration and wetlands protection, and; restoration for living resources, e.g., oysters and grasses. The majority of these goals have not been met.

[FN 12] This section was re-codified as part of the Estuaries and Clean Water Act of 2000, Title II Chesapeake Bay Restoration. One of the explicit purposes of the Restoration title was "to achieve the goals established in the Chesapeake Bay Agreement." Pub.L. 106-457, Title II, Sec. 202(b)(2), Nov. 7, 2000, 114 Stat. 1967.

Response

Thank for the comment supporting EPA’s authority to establish the Chesapeake Bay TMDL.

Comment ID 0227.1.001.008

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

As stated above, in order to meet its legal obligation, EPA must develop a Bay-wide TMDL. In addition, it is logical,

appropriate and fair for EPA to take this action. Consistent with the statutory scheme, binding judicial agreements, , and at the request of the Bay states, EPA has taken the lead in developing and proposing the TMDL, based on years of discussions and hard work with representatives of the Bay States, the scientific community, members of the public, local officials and other stakeholders. Given the multi-jurisdictional nature of the water quality problems in the Bay, it also makes immense practical sense for EPA to take the lead. EPA's lead role in developing the TMDL and the final deadlines of December 2010 and 2025, for implementation, are further supported by the final strategies developed pursuant to the President's May 12, 2009 Executive Order.

Response

Thank you for your comment in support of the Chesapeake Bay TMDL. EPA agrees with your comment.

Comment ID 0227.1.001.025

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

The 1987 Chesapeake Bay Agreement was very specific, laying out the purpose of this first historic water quality goal for the Chesapeake, "To ensure the productivity of the living resources of the Bay, we must clearly establish the water quality conditions they require and must then attain and maintain those conditions. Foremost, we must improve or maintain dissolved oxygen concentration in the Bay and its tributaries through a continued and expanded commitment to the reduction of nutrients from both point and nonpoint sources." For the first time in 23 years this water quality goal has a chance of being met, because the Chesapeake Bay TMDL will address everything that was laid out in 1987; the establishment of new dissolved oxygen water quality standards for the Bay and its tidal tributaries, and nutrient and sediment reduction allocations to the states, which will have to address both point and nonpoint sources of pollution. The court sanctioned Virginia consent agreement in 1999 established the requirement and deadlines for the Chesapeake Bay TMDL and was the trigger for the water quality section in the Chesapeake 2000 agreement. This fact should rule out any reasonable argument that there has not been enough notice that there would be a Chesapeake Bay TMDL. Eleven years of consideration is sufficient. Moreover, EPA has no choice but to develop a TMDL because the states have failed to do so. This action by EPA is required by the CWA and an abundance of other legally binding agreements.

Response

Thank you for your comment. EPA agrees, as described in Section 1 of the Chesapeake Bay TMDL, that the TMDL is legally required. EPA also agrees that there has been significant notice and public participation in of the development and establishment of the TMDL, as described in Section 1 (discussing the collaborative partnership of the Bay watershed jurisdictions) and 11 (discussing the public process and outreach in which EPA has engaged with respect to the TMDL).

Comment ID 0244-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

Cleaning up Chesapeake Bay is not in the EPA's job description. Sit down on this type of activity and shut up.

Response

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0265.1.001.004

Author Name: Clark, Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Hampton, Virginia

At the Commission meeting on October 20, 2010, the HRPDC acted to endorse the following position and attached comments.

--The EPA does not have the legal authority to establish a deadline in the TMDL.

--The EPA does not have the legal authority to establish a deadline in the TMDL.

Response

Thank you for your comment. Please see the response to comment number 0436.1.001.004. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0266.1.001.013

Author Name: Fagerstrom Angela

Organization: City of Binghamton, New York

WHEREAS, we oppose EPA increasing its federal regulatory control usurping state and local jurisdiction and authority in order to impose their TMDL, instead of working collaboratively with local communities, Soil and Water Conservation Districts, State environmental and agriculture agencies to address Bay watershed water quality concerns

Response

Thank you for your comment. Please see the response to comment number 0230.1.001.026. All seven Chesapeake Bay watershed jurisdictions – Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia, and the District of Columbia – contribute to the condition of the Chesapeake Bay. EPA has been working with these jurisdictions in a cooperative and collaborative manner to restore the health of the Chesapeake Bay. EPA believes the record of EPA's actions in establishing this TMDL clearly demonstrates that EPA has used a collaborative process to arrive at the final TMDL, one that has recognized and encouraged the environmental stewardship of all the watershed States, without whose full cooperation restoration of the Bay will be not occur. Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0267.1.001.002

Author Name: Bowman Cynthia

Organization: Cornell Law School Water Law Clinic

EPA's Authority to Establish Chesapeake Bay TMDLs for New York

Whether EPA has the authority to establish Chesapeake Bay TMDLs for New York State under either § 303(d) or § 117(g) of the Clean Water Act is unclear.

A. Authority under Clean Water Act § 303(d)

EPA bases its authority to establish a Bay TMDL for New York upon the Clean Water Act (CWA) § 303(d). However, it is unclear that EPA has followed the scheme envisaged by § 303(d) for setting the Chesapeake Bay TMLD allocations for New York. A comparison of the two procedures serves to clarify this point.

Section 303 of the CWA requires that each state adopt, pursuant to its own law, water quality standards (WQS) applicable to all interstate waters. If a state's WQS is inadequate, EPA must notify the state and specify changes that must be made. Only when the state again fails to provide a consistent WQS does the CWA allow EPA to set the state's WQS. Once the WQS is established, CWA § 303(d)(1)(C) requires the states to implement a total maximum daily load (TMDL) that will achieve the applicable WQS. Accordingly, under CWA § 303, TMDLs are driven by WQS in each state. Thus, only when a state fails to submit an appropriate TMDL can EPA establish a TMDL for the state. Indeed, given the primacy of each state in establishing the WQS and load allocations for its intrastate waters, it is reasonable to construe the CWA as requiring WQS and TMDL allocations that accord with the environmental factors unique to each state's water.

EPA has not followed the statutory scheme set forth in the CWA with respect to New York State. Section 303(d)(1)(C) states that the TMDL in each state "shall be established at a level necessary to implement the applicable water quality standards." EPA has not specified, however, the applicable Chesapeake Bay WQS for New York State that would form the basis for the TMDL allocated to the state.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. As discussed in the draft and final TMDLs, EPA is establishing the Chesapeake Bay TMDL pursuant to a number of existing authorities, including the CWA and its implementing regulations, judicial consent decrees requiring EPA to address certain impaired Chesapeake Bay and tidal tributary waters, a settlement agreement resolving litigation brought by the Chesapeake Bay Foundation, the current Chesapeake Bay Agreement, and Executive Order 13508. In establishing the Bay TMDL, EPA has acted pursuant to the consensus direction of the Chesapeake Executive Council‘s PSC and in partnership with each of the seven Chesapeake Bay watershed jurisdictions.

The CWA provides EPA with ample authority to establish the Chesapeake Bay TMDL. CWA section 117(g)(1) provides that [t]he Administrator, in coordination with other members of the [CEC], shall ensure that management plans are developed and implementation is begun by signatories to the Chesapeake Bay Agreement to achieve and maintain [among other things] the nutrient goals of the Chesapeake Bay Agreement for the quantity of nitrogen and phosphorus entering the Chesapeake Bay and its watershed [and] the water quality requirements necessary to restore living resources in the Chesapeake Bay ecosystem. Because it establishes the Bay and tidal tributaries‘ nutrient and sediment loading and allocation targets, the Chesapeake Bay TMDL is such a management plan. In addition, the Bay TMDL‘s loading and allocation targets both inform and are informed by, a larger set of federal and state management plans being developed for the Bay, including the jurisdiction WIPs and the May 2010 Bay strategy.

CWA section 303(d) requires jurisdictions to establish and submit TMDLs to EPA for review. Under certain circumstances, EPA also has the authority to establish TMDLs. The circumstances of this TMDL do not necessarily identify the outer bounds of EPA‘s authority. However, where impaired waters have been identified on jurisdictions‘ section 303(d) lists for many years, where the states in question have decided not to establish their own TMDLs for those waters, where EPA is establishing a TMDL for those waters at the direction of, and in cooperation with, the jurisdictions in question, and where those waters are part of an interrelated and interstate water system like the Chesapeake Bay that is impaired by pollutant loadings from sources in seven different jurisdictions, CWA section 303(d) authorizes EPA authority to establish that TMDL.
Dioxin/Organochlorine Center v. Clarke, 57 F.3d 1517 (9th Cir. 1995); Scott v. City of Hammond, 741 F.2d 992 (7th Cir. 1984); American Canoe Ass’n. v EPA, 54 F.Supp.2d 621 (E.D.Va. 1999).

On May 12, 2009, President Barack Obama signed Executive Order 13508—Chesapeake Bay Protection and Restoration. The Executive Order‘s overarching goal is to protect and restore the health, heritage, natural resources, and social and economic value of the Nation‘s largest estuarine ecosystem and the natural sustainability of its watershed. The Executive Order says the federal government should lead this effort and acknowledges that progress in restoring the Bay will depend on the support of state and local governments. To that end, the Executive Order directs the lead federal agencies, including EPA, to work in close collaboration with their state partners. To protect and restore the Chesapeake Bay and its tidal tributaries, the President directed EPA to “make full use of its authorities under the [CWA].” In establishing the Bay TMDL, EPA is doing no more—or less—than making full use of its CWA authorities to lead a collaborative and effective federal and state effort to meet the Bay‘s nutrient and sediment goals.

In addition, as discussed in the TMDL itself, a number of consent decrees, MOUs, and settlement agreements provide additional authority and support for EPA‘s decision to establish the Chesapeake Bay TMDL addressing certain waters identified as impaired on the Maryland, Virginia, and District of Columbia‘s 1998 section 303(d) lists and on the Delaware 1996 section 303(d) list. EPA is establishing the Chesapeake Bay TMDL consistent with those consent decrees, MOUs, and settlement agreements. It is immaterial whether Virginia was a party to the litigation that resulted in the Virginia consent decree. The decree represents a

judicially-enforceable obligation that EPA must fulfill if necessary, as is the case here.

EPA did establish New York's (and other headwater States') allocations consistent with CWA authority. EPA established the Chesapeake Bay TMDL to address 92 impaired segments of the Bay and its tidal tributaries within the boundaries of Virginia, DC, Maryland, and Delaware. Section 303(d) requires that the Bay TMDL be established at a "level necessary to implement the applicable water quality standards . . ." For the Bay TMDL, the applicable water quality standards are those standards established by Virginia, DC, Maryland, and Delaware (and approved by EPA) for the 92 impaired tidal Bay segments. Pursuant to EPA's regulations (130.2(i)), a TMDL is defined as the sum of its wasteload allocations and load allocations. Accordingly, EPA was required by the CWA and its regulations to establish the TMDL's allocations (including allocations for headwater States like New York) consistent with implementing water quality standards applicable to the tidal Bay waters. This is what EPA did.

As a legal matter, EPA is authorized to consider downstream water quality standards (including those in other states), when establishing or approving a TMDL. The U.S. Supreme Court in Arkansas v. Oklahoma, 503 U.S. 91 (1992), held that EPA has the authority to impose NPDES permit limitations and conditions based on downstream water standards. At issue in that case was EPA's issuance of an NPDES permit to an Arkansas facility that imposed conditions derived from the downstream state's water quality standards. Noting that "the statute clearly does not limit the EPA's authority to mandate such compliance," the Court held, "The regulations relied on by the EPA were a perfectly reasonable exercise of the Agency's statutory discretion. The application of state water quality standards in the interstate context is wholly consistent with the Act's broad purpose 'to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.' 33 U.S.C. § 1251(a). Moreover, as noted above, § 301(b)(1)(C) expressly identifies the achievement of state water quality standards as one of the Act's central objectives.

The Agency's regulations conditioning NPDES permits are a well-tailored means of achieving this goal." The regulations considered by the court, 40 C.F.R. § 122.4(d), provide, "No permit shall be issued . . . [w]hen the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States."

The principle articulated by the Supreme Court in the NPDES permitting context applies with equal force to TMDLs, which are an important tool for implementing section 301(b)(1)(C) with respect to point source discharges. As the Supreme Court held, EPA as the permitting authority is authorized to consider water quality standards in downstream segments (including those in other states) when establishing NPDES permit limitations and conditions for sources whose discharges ultimately flow to the downstream segments. For sources discharging to waters flowing into the Chesapeake Bay, those permit limitations would be derived from the TMDL for the Chesapeake Bay. See 40 C.F.R. § 122.44(d)(1)(vii)(B). Therefore, it follows that EPA is authorized to establish or approve TMDLs for impaired Bay waters with wasteload allocations and load allocations for upstream sources that take into account the downstream water quality standards that the TMDL is designed to meet.

Comment ID 0267.1.001.004

Author Name: Bowman Cynthia

Organization: Cornell Law School Water Law Clinic

In support of its assertion that § 303(d) authorizes EPA to establish a Chesapeake Bay TMDL for New York, EPA cites

three decisions: Dioxin/Organochlorine Center v. Clarke, 57 F.3d 1517 (9th Cir. 1995); Scott v. City of Hammond, 741 F.2d 992 (7th Cir. 1984); and American Canoe Ass'n. v EPA, 54 F.Supp.2d 621 (E.D.Va. 1999). Reliance upon these cases is inappropriate given the very different circumstances they concerned. First, the waterbodies at issue in these cases were all waterbodies of the states in which the TMDLs at issue were established. With respect to the Chesapeake Bay TMDL, bay states such as Virginia and Maryland are analogous to the states discussed in these cases. By contrast, New York does not border the Chesapeake Bay. Secondly, in each of the cases cited, the TMDLs at issue were based on actual, identifiable WQS that each state in question established independently after determining how its specific local conditions affect the impaired waterbody for which the TMDL was established. That has not happened with respect to New York.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. It is true that none of the cited cases had a need (based on their facts) to expressly address the issue of whether EPA has the authority to establish allocations for upstream States (and sources) in a TMDL for an interstate waterbody whose impairments are caused, in significant part, by pollutants originating in upstream states. The fact that the cited cases did not specifically address the out-of-State allocation issue does not make EPA's reliance on them "inappropriate." Indeed, all three cases clearly support the proposition that EPA has authority to establish this watershed TMDL for the 92 impaired Bay segments on the four Bay States' 303(d) lists. That being the case, it follows logically that – in establishing a TMDL for these 92 segments – EPA also must have authority to establish allocations within the entire Bay watershed at levels necessary to implement the water quality standards "applicable" to those 92 segments. If EPA does not have such authority, it is limited to establishing a TMDL for the 92 Bay segments that either (1) makes no allocations to (or assumptions about reductions from) the headwaters States and, instead, allocates or assumes reductions only from VA, MD, DC, and DE and places the burden on those States alone to meet the Bay's water quality standards; or (2) assumes (but does not allocate) reductions from the three headwaters States and makes allocations to VA, MD, DC, and DE at a level consistent with the assumed headwater State reductions. In the context of this TMDL and this interstate waterbody – where a significant portion of the nutrient and sediment loads originate in the headwaters States - EPA believes it is unreasonable to read the CWA as constraining its authority to make allocations only to the four tidal Bay jurisdictions. EPA also believes it is unreasonable to interpret the CWA as forcing EPA to establish TMDL allocations for the tidal bay jurisdictions that rely only on unspecified and unsupported "assumed" reductions from the headwaters States. In light of the CWA's goals and objectives, EPA believes this to be an unnecessarily narrow reading of the Act and – based on past history - one not likely to result in attainment of the Bay's applicable water quality standards.

Comment ID 0267.1.001.008

Author Name: Bowman Cynthia

Organization: Cornell Law School Water Law Clinic

B. EPA Authority under Clean Water Act § 117(g)

EPA also asserts that it derives authority to establish Bay TMDL allocations for New York from CWA § 117(g). Section 117(g)(1) provides that:

The Administrator, in coordination with other members of the Chesapeake Executive Council, shall ensure that management plans are developed and implementation is begun by signatories to the Chesapeake Bay Agreement to achieve and maintain [among other things] the nutrient goals of the Chesapeake Bay Agreement for the quantity of nitrogen and phosphorus entering the Chesapeake Bay and its watershed [and] the water quality requirements necessary to restore living resources in the Chesapeake Bay ecosystem.

As New York is not a signatory to the 1983, 1987, 1992, or 2000 Chesapeake Bay Agreements-but only came on to work as a voluntary partner with EPA and other signatories to restore the Bay-EPA's Bay TMDL allocations for New York do not fall under CWA § 117(g)(1).

Virginia, Delaware, and the District of Columbia are each subject to binding consent decrees requiring them to establish TMDLs for their Chesapeake Bay waters. New York, on the other hand, neither is under a binding consent decree nor has entered into any binding agreement requiring the establishment of TMDLs for its Chesapeake Bay tributaries. Rather, New York simply voluntarily entered into a Memorandum of Understanding which provides that the signatories will develop TMDLs for Chesapeake Bay waters not meeting water quality standards by 2011. A Memorandum of Understanding does not carry the same force of law as the binding consent decrees issued to Virginia, Delaware, and the District of Columbia.

Finally, EPA asserts that the Chesapeake Bay TMDL is a "management plan" within the meaning of CWA § 117(g)(1). EPA defines TMDL as "[t]he sum of the individual wasteload allocations (WLAs) for point sources, load allocations (LAs) for nonpoint sources and natural background, and a margin of safety (MOS). TMDLs can be expressed in terms of mass per time, toxicity, or other appropriate measures that relate to a state's water quality standard." A TMDL is a number representing a load for a specified contaminant. It is not a management plan. The management plan discussed in § 117(g) and described in § 117(g)(1) specifically contemplates a comprehensive project, program, or scheme. A management plan developed by a planning process is specified in § 208(b), the elements of which should be incorporated in the continuing planning process set out in 303(e). In no respect can a TMDL be considered a management plan representing such management planning processes. A TMDL is instead a mathematical derivation to assist in achieving the goals of a management plan. The statutory language of § 117(g) itself contemplates a comprehensive plan; it provides a list of water quality goals the management plan must achieve but neither specifies that a TMDL will achieve these various goals nor explicitly designates a TMDL in itself as an appropriate management plan. In short, §117(g) does not explicitly mandate, or even authorize, EPA to establish a TMDL for the Chesapeake Bay tributary states.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. Thank you for your comment. CWA section 117(g) requires that EPA “ensure that management plans are developed and implementation is begun” to meet the Bay’s nutrient goals and water quality requirements. EPA is not sure what the commenter means by saying that Congress did not provide EPA with authority (“regulatory,” or otherwise) to achieve the goals of CWA section 117(g). EPA has ample authority in the CWA (see e.g., sections 301, 303(c) and (d), 402, 319 and other provisions) to achieve the water quality goals of section 117(g). In addition, section 117(g) expressly directs (and impliedly authorizes) EPA “to ensure that management plans are developed and implementation is begun” to meet the Bay’s

nutrient goals and water quality requirements. That direction and authorization – even if it arguably does not provide EPA with any "additional" regulatory authorities – surely does not constrain use of authorities provided elsewhere in the Act. EPA has not asserted that section 117(g) gave it authority to "approve, disapprove, or change the state WIPs," and EPA has not done so. EPA has exercised the leadership role accorded to it by section 117(g) in a responsible and appropriate way by working collaboratively with the Bay jurisdictions to ensure that their WIPs are of sufficiently high quality to achieve the Bay's water quality goals. Please also see the response to comment number 0267.1.001.002.

Comment ID 0283-cp.001.002

Author Name: Mason James

Organization:

I feel the EPA has far outreached it's legal authority on this issue.

Response

Thank you for the comment. Please see the response to Comment number 0267.1.001.002

Comment ID 0311-cp.001.001

Author Name: Horton D.

Organization: Old Hickory Golf Club

Please stay out of State's jurisdictions. The Chesapeake Bay belongs to the states that border it and they are responsible for its condition. Each State has it's own unique status that should not be dictated to by outside agencies. I respectfully ask you to not dictate your policies in this area that clearly is a states' matter

Response

Thank you for your comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. As explained in Section 1 of the Chesapeake Bay TMDL and in responses to other similar comments, such as comment number 0481.1.001.002, EPA is acting within the scope of its authority in establishing the Chesapeake Bay TMDL.

Comment ID 0329.1.001.010

Author Name: Harrington Marilou

Organization: Town of Caroline, New York

Whereas, we oppose EPA increasing its federal regulatory control and usurping state and local jurisdiction and authority in order to impose their TMDL, instead of working collaboratively with State agriculture and environmental protection agencies, Soil and Water Conservation Districts and local communities to address Bay watershed water quality concerns; and

Whereas, we support NYS Department of Environmental Conservation's recommendations in their draft Phase I Watershed Implementation Plan which recognizes the environmental stewardship of New York farmers and inherent inequality of the current EPA proposal; and

Response

Thank you for your comment. Please see the response to comment number 0266.1.001.013. EPA also notes, with respect to substantive comments regarding an individual jurisdiction's draft Phase I WIP, that the draft WIPs submitted by the jurisdictions are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508 and in Section 7 of the Chesapeake Bay TMDL. The WIPs help ensure implementation of the Chesapeake Bay TMDL but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdiction for consideration as part of its WIP.

Comment ID 0381-cp.001.003

Author Name: Thompson Jeff

Organization: Historic East Baltimore Community Action Coalition, Inc. (HEBCAC)

• The Clean Water Act, three Bay Agreements, three court agreements, one memorandum of understanding, and one Presidential Executive Order all require development of a Bay wide TMDL. This current process is not only the right thing to do, it is legally required.

Response

Thank you for your comment. EPA appreciates your support for the Chesapeake Bay TMDL. EPA agrees, as discussed in Section 1 of the TMDL, that the Chesapeake Bay TMDL is legally required.

Comment ID 0383-cp.001.001

Author Name: Alderson G.

Organization:

Please consider this message as our comment on the draft TMDL for Chesapeake Bay. We live near the bay and we are a half-mile from a tributary, the Patapsco River. Members of our family enjoy the bay for crabbing, boating and swimming.

It's essential to adopt a TMDL that applies to the entire Chesapeake Bay. It is also legally required by the Clean Water Act, three bay agreements, one MOU and one Executive Order.

Response

Thank you for your comment. EPA appreciates your support for the Chesapeake Bay TMDL. EPA agrees, as discussed in Section 1 of the TMDL, that the Chesapeake Bay TMDL is legally required.

Comment ID 0389.1.001.003

Author Name: Iwanowicz Peter

Organization: New York State Department of Environmental Conservation

• EPA does not demonstrate legal authority to bind NY as part of the Bay TMDL
o In the Bay watershed, NY has no stream impairments due to nutrients on EPA's approved impaired waters list.
o EPA has failed to demonstrate how the CWA authorizes it to compel NY to comply with a TMDL established with respect to a water body located almost 400 miles away from and entirely outside of NY.
o NY is participating voluntarily as a good neighbor state pursuant to the 2000 MOU, a document that does not bind NY to a particular course of action to be mandated by EPA.
o EPA is deviating from the criteria approved in establishing the LI Sound TMDL.

Response

Thank you for your comment. Please see response comment number 0267.1.001.002. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0389.1.001.010

Author Name: Iwanowicz Peter

Organization: New York State Department of Environmental Conservation

Legal Authority
I. EPA Appears to Lack the Requisite Authority to Require New York to Take Measures to Assist the Chesapeake Bay Border States in Meeting the TMDL for the Bay

EPA has acknowledged at numerous points during this process the uniqueness of the Chesapeake Bay watershed and the complicating factors surrounding establishment of a TMDL for the Bay. See Draft TMDL at iv ("Chesapeake Bay TMDL is unique because of [its] extensive measures ..."); id. at 1-1 ("this TMDL is distinguished by the magnitude of the watershed it addresses .. "). This appears to be the very first time in the long history of the Clean Water Act ("CWA") that EPA is mandating that a State implement pollution reduction measures (i) with respect to pollution inputs into an in-state water body where no nutrient impairments exist and (ii) to assist in attaining a TMDL that EPA has established with respect to a water body located entirely outside of that State's jurisdiction. ,It is incumbent on EPA to fully explain how the CWA provides it with the authority to act under the unique and novel circumstances at issue here. Stated another way, EPA cannot expect New York and its municipalities to spend billions of dollars in the midst of the current economic climate to implement the stringent measures required under the draft TMDL without a full understanding of the agency's authority to require such expenditures. As discussed below, EPA's general assertions of authority, see Draft TMDL at 1-2 to 1-17, do not meet the basic threshold.

A. EPA Has Not Adequately Demonstrated How the CWA Provides It With Authority To Compel New York To Comply With the Chesapeake Bay TMDL

1. CWA § 117, Which Appears To Set Forth The Sole Process Under the CWA to Restore Water Quality To The Bay, Is Inapplicable to New York.

EPA asserts that the CWA provides it "with ample authority to establish the Chesapeake Bay TMDL" for all of the States within the Bay watershed, including New York. Draft TMDL at 1-13. In support of this proposition, EPA points first to CWA § 117(g)(1), but that section applies only to "members of the Chesapeake Bay Commission [CEC]," as EPA itself acknowledges. Draft TMDL at 1-13. Although New York has sought to work cooperatively with the CEC for several years, it has never been a member of the CEC and thus is not bound in any way by the requirements of § 117(g). On a related note, EPA acknowledges that § 117(g)(I) requires the CEC to develop a management plan "to achieve and maintain [among other things] the nutrient goals for the quantity of nitrogen and phosphorus entering the Chesapeake Bay and its watershed " ld. EPA concludes that the Chesapeake Bay TMDL represents "such a management plan." ld, Again, because New York is not a member of the CEC, it cannot be required to comply with a any plan developed under § 117(g) -- whether characterized as a TMDL or management plan. [FN1]

Not only must § 117(g) be read as inapplicable to New York, that provision appears to provide the primary, if not exclusive, process for restoring the Chesapeake Bay to health. The legislative history makes clear that, when it added § 117(g) to the CWA by amendment on November 7,2000, (i) the States of Virginia, Maryland, Pennsylvania, Washington, D.C. (collectively, "the Bay States"), and EPA had already entered into four Chesapeake Bay Agreements, each of which had the stated aim of restoring water quality to the Bay, (ii) Congress understood that the "Bay watershed covers 64,000 square miles including areas of ... New York," and (iii) New York had entered into a Memorandum of Understanding ("MOU"), agreeing to cooperate with EPA and the Bay States to reach targets set for 2010. See P.L. 106-457, Estuaries & Clean Water Act of 2000, House Conf. Rep. No. 106-995, at 32. Despite its knowledge of the circumstances surrounding restoration efforts with respect to the Bay, however, Congress specifically did not require New York's involvement in that process. To the contrary, § 117(b), also added in 2000, requires EPA to "continue the Chesapeake Bay Program," a program of which New York was not a participant at that time.

Congress' decision to require only the Bay States to participate in restoring the Bay should not be surprising considering that all of the Bay States (i) border the Chesapeake Bay and thus will benefit economically from its restoration, and (ii)

have for decades been in violation of water quality standards for the Bay, as well as the tributaries that flow directly into it. By contrast, the waters of the Susquehanna and Chemung Rivers when leaving New York are about 400 miles away from the Chesapeake Bay, and thus restoration of the Bay will provide zero economic benefit to New York. Additionally, all of New York's segments of the Susquehanna and Chemung Rivers are not nutrient impaired. Given the complicated economic, geographical, allocational, and compliance issues associated with assessing each of the State's roles in restoring the Bay and Congress' clear understanding of those issues when it added § 117(g), Congress' decision not to require New York's participation in the Bay's restoration must be seen as intentional. Indeed, EPA's determination to assert sole authority to make these complicated decisions for New York, and over New York's objections, appears to be well beyond the providence of EPA's authority. In sum, EPA cannot now defy Congress' intent in enacting § 117(g) by mandating that New York take a specific course of action with respect to restoring the Bay.

2. The Requirements Specified Under CWA § 303(d) Are Tied Solely To The States Where The Impaired Water Is Located.

EPA next cites generally to CWA § 303(d), see Draft TMDL at 1-13, but makes no effort to show how the actual language of that section provides EPA with authority to require a State to take measures to assist in attaining the TMDL established for a water body that is located entirely outside of that State's jurisdiction. The plain language of § 303(d), however, does not appear to provide EPA with any such authority. Section 303(d) is very specific in terms of the States over which EPA has authority: All requirements are tied to the States where the impaired waters are located. Under this interpretation, because the Chesapeake Bay is located far outside of New York's jurisdiction, New York cannot be required to comply with a TMDL established for the Bay. [FN2]

As a general matter, the CWA provides a two pronged approach to restoring and maintaining water quality in the nation's waters: requiring effluent limitations from point source discharges; and requiring all "waters within [a State's] boundaries" to meet water quality standards established for such waters. Friends of the Earth v. EPA, 333 F.3d 184, 185-86 (D.C. Cir. 2003); 33 U.S.C. §§ 1311(b)(1)(A) and (B); 1313(d)(1)(A). The TMDL requirement of § 303(d), in turn, is triggered only with respect to "those waters within [a State's] boundaries for which the effluent limitations required under section 1311(a)(1)(A) and section 1311(a)(l)(B) .. . are not stringent enough to implement any water quality standard applicable to such waters." (Emphasis added). Here, all segments of the Susquehanna and Chemung Rivers located within New York are achieving nutrient-based water quality standards established for those waterbodies. Thus, the CWA does not require -- and EPA does not otherwise allege -- that New York must establish a TMDL for its segments of the Susquehanna and Chemung Rivers. Indeed, with one minor exception,[FN3] it appears as though a State has no obligations under § 303 with respect to water bodies that meet water quality standards.

Nor does it appear that EPA can require New York to take measures pursuant to CWA § 303(d) to assist other States in attaining water quality standards to be established for the Bay -- a water body located entirely beyond New York's jurisdiction. The structure of § 303(d) suggests that Congress did not intend the TMDL process to be used to require measures to be implemented with respect to remote water bodies, such as New York's portion of the Susquehanna and Chemung Rivers. Again, all of the requirements in § 303(d) are attached only to the State where the impaired water body is located. Thus, for example, under § 303(d)(1)(C), each State shall identify only "those waters within its boundaries for which effluent limitations .. . are not stringent enough to implement any water quality standard, ,," 33 U,S,c. § 1313(d)(1)(A) (emphasis added)., With respect to such waters, the applicable State "shall establish for the waters identified in paragraph (1)(A) of this subsection, ... the total maximum daily load" for the pollutants at issue. Id § 1313(d)(1)(C) (emphasis added). In other words, Congress made it incumbent on the State where the impaired water

body is located to establish a TMDL for that water body. In no way, however, would that State have the authority either under the CWA or U.S. Constitution to impose pollutant load restrictions with respect to another State's sources of pollution.[FN4]

In this matter, EPA is asserting authority to establish its own TMDL for the Chesapeake Bay as a substitute for the TMDL that the Bay States have long been required, but have failed, to establish. Nevertheless, even under these circumstances, the CWA constrains EPA's authority, providing that (i) the agency is authorized to "establish such loads for such water as [it] determines necessary to implement [applicable] water quality standards," and (ii) the State where the impaired water body is located shall then "incorporate [such loads] into its current [water quality management or "WQM"] plan." 33 U.S.C. §1313(d)(l)(D)(2) (emphasis added); see also 40 C.F.R. § 130.6. By specifying that any load restrictions adopted by EPA are to be incorporated solely within a WQM plan to be developed by the State where the impaired water body is located, Congress clearly indicated that, at least with respect to the TMDL process, only that State is to be involved in restoring the water body back to health. As much as EPA may desire otherwise, there appears to be no mechanism under CWA § 303(d) to compel a State to implement measures to meet a TMDL established for an impaired water body located entirely outside of that State's jurisdiction.[FN5]

B. EPA's Other Asserted Grounds Do Not Provide It With Authority Over New York

EPA asserts a litany of additional grounds of authority over all of the States within the Chesapeake Bay watershed, citing to an Executive Order and a number of consent decrees, settlement agreements, and MOUs. Draft TMDL at 1-3 to 1-17. Only one of the documents cited by EPA, however, has any relevance to New York: The 2000 Six-Jurisdiction MOU, the only document referenced by EPA that New York, through the appropriate official (the Governor), actually signed. Nevertheless, that MOU obligates New York simply to "[w]ork cooperatively to achieve the nutrient and sediment reduction targets necessary to achieve the goals of the clean Chesapeake Bay by 2010 ..." Draft TMDL at 1-3. As discussed further below, New York has achieved significant reductions in both nitrogen a..'1d phosphorous inputs into its segments of the Susquehanna and Chemung Rivers since 2000 and certainly since 1985 when the Bay's impaired water quality was already well-known. New York made those reductions voluntarily to assist its sister States in cleaning up the Bay. Nothing in the 2000 MOU requires New York to do anything more. Certainly, New York never intended EPA to interpret its cooperation efforts as somehow allowing it to impose on New York a specific and unjustified course of action.

EPA cites to several additional documents as proof of supposed oral agreements made by various State employees at unspecified meetings but none of those documents were written or signed by officials that have authority to bind New York. See, e.g., Memorandum by W. Tayloe Murphy, Chair Chesapeake Bay Program Principals' Staff Committee, dated April 25, 2003 (Mr. Murphy has no authority to bind New York); EPA Reg. 3, "Setting & Allocating the Chesapeake Bay Basin Nutrient & Sediment Loads," Dec. 2003 (EPA Region 3 has no authority over New York and certainly cannot bind it through its own paper dealing with technical allocation issues). EPA goes as far as to cite to meeting minutes as proof that "the seven watershed jurisdictions and EPA reached consensus that EPA would establish the Bay TMDL on behalf of the jurisdictions . . " See Draft TMDL at 1-5 (citing to "Meeting Summary for the Chesapeake Bay Program Principals' Staff Committee Annapolis Friends Meeting House, Annapolis, MD, October 1, 2007"). But there is no proof that any New York official even attended the meeting referenced and, even if one did, s/he would have no authority to bind New York to a particular course of action by oral agreement.

New York has continued voluntarily to participate in the TMDL process based on its understanding that there would be

an equitable assessment of each State's final allocations of allowable nitrogen and phosphorous inputs into the Bay watershed. Indeed, New York's voluntary participation has always been contingent on EPA's application of a methodology that properly considers what it believed to be the two most important allocation criteria: (i) that "States without tidal waters - Pennsylvania, New York and West Virginia - would be provided some relief ... since they do not benefit as directly from improved water quality in the Bay and its tidal tributaries," and (ii) that "[p]revious nutrient reductions' would be credited towards achievement of the cap load." See Murphy Memo, at 2.[FN6] Unfortunately, EPA has severely misapplied these criteria in a manner that results -- at least in the Draft TMDL -- in New York having to reduce its nitrogen and phosphorous point and nonpoint inputs by a greater percentage than virtually all of the other States and from a much lower baseline. This outcome alone shows the unreasonableness of EPA's approach, at least with respect to New York.

C. Congress Recently Proposed Legislation To Provide EPA With The Authority It Currently Claims To Have Over New York

EPA's assertion that it has authority over New York through the Bay TMDL process also appears to be in conflict with Congress' recently proposed amendments to CWA § 117. See "Chesapeake Clean Water and Ecosystem Restoration Act of 2009," H.R. 3852, 111th Cong., 1st Sess. (Oct. 20, 2009). Under the proposed amendments, (i) New York would explicitly be required to comply with a modified CWA § 117, (ii) a new definition of "TMDL" would allow EPA to impose load restrictions from all States within the Chesapeake Bay watershed, including New York, and (iii) all such States, including New York, would be required to develop and implement management plans to, among other things, achieve and maintain "water quality requirements necessary to restore living resources in the Chesapeake Bay ecosystem." Id. CWA § 117(a)(8)(A), (a)(16), (g)(1) (proposed). The proposed amendments -- not yet passed -- would provide EPA with the identical authority it currently seeks to impose on New York. Obviously, if EPA already had such authority, there would be no need for the amendments.

II. EPA Has Failed to Adequately Explain Why It Deviated From the Procedure and Criteria Used to Establish the Long Island Sound TMDL

There appear to be only two nutrient-based TMDLs that have addressed pollutant inputs from upstream sources: the LI Sound TMDL and the Chesapeake Bay TMDL. The procedure and criteria used to establish the LI Sound and Chesapeake TMDLs, however, appear to be vastly different in a way that is inequitable to New York. EPA has failed to either note these differences or make any effort to explain why a different procedure and set of criteria are necessary in mandating New York's immediate participation in the Chesapeake Bay TMDL.

A. EPA Did Not Mandate Upstream Reductions in Approving the LI Sound TMDL.

The draft-version of the LI Sound considered load reductions from three upstream states- Massachusetts, Vermont, and New Hampshire. See LI TMDL at 32-33.[FN7] These upstream states, however, were quite concerned that New York and Connecticut lacked authority to require them to participate in the TMDL process. Vermont, for example, asserted that the two States lacked "authority to establish a wasteload allocation for nitrogen from the [upstream] states" and that "the CWA does not authorize one state to establish a TMDL for waters of another state." See "Response to Public Comments On the Long Island Sound Draft Total Maximum Daily Load Analysis To Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound," at 15 (December 2000).[FN8] In response, New York and Connecticut agreed, clarifying that (i) they lacked "the authority to require reductions of out-of-state sources," (ii) the "TMDL was

attempting to provide potential out-of-state reduction scenarios to show how WQS could be met," and (iii) their intent was simply "to request EPA begin [a] dialog with neighboring states." id. at 14-15.

Then in approving the LI Sound TMDL, EPA specifically did not mandate upstream reductions. See Notice from EPA's LI Sound Office, dated April 4, 2001 at 10.[FN9] To the contrary, in acknowledging that "some public comments on the draft TMDL questioned whether states have the authority to assign allocations to sources in other states," EPA took the position that it was "not approving the upstream nitrogen reductions as formal allocations but rather as reasonable assumptions on which the in basin reductions are based." Id. EPA went further to explain that it hoped only "to work[] with the three [upstream] states to address nitrogen loads affecting Long Island Sound," at least with respect to nonpoint source pollution. Id. [FN10] As an aside, there is no way to read CWA § 303(d) as providing EPA with authority over upstream states that EPA itself acknowledges the States lack. Nor is there any meaningful distinction between EPA's exercise of approval authority over a state-initiated TMDL as opposed to its exercise of authority to establish its own TMDL after finding a state-initiated TMDL defective. In other words, the authority EPA·lacks with respect to approving a state-initiated TMDL, it also lacks with respect to substituting its own. But, even if EPA does have authority to require upstream reductions under CWA § 303(d), it certainly did not exercise that authority in the context of the LI Sound TMDL. By contrast, EPA is requiring immediate upstream reductions in the context of the Chesapeake Bay TMDL.

[FN1] New York notes its disagreement with EPA's assertion that the TMDL itself is a management plan for the Bay.
[FN2] The cases that EPA cites on page 1-13 (fn. 8) of the draft TMDL are inapposite to the situation here. In Dioxin/Organochlorine Center v. Clarke, 57 F.3d 1517 (9th Cir. 1995), although the applicable water body flowed through 3-separate States, the court made clear that all segments of the water body were violating applicable water quality standards thus triggering the TMDL requirement for all of the States involved. Id. at 1520 ("[o]nce the states had made th[e] finding under § 1313(d)(l)(A), the states, pursuant to § 1313(d)(l)(C), or, the EPA, pursuant to.§. 1313(d)(2), were required to establish a [TMDL]"). The identical situation occurred in Scott v. City of Hammond, 741 F.2d 992 (7th Cir. 1984) and American Canoe Ass'n v. EPA, 54 F.Supp.2d 621 (E.D. Va. 1999), where the water bodies at issue were impaired, thus triggering the TMDL requirement for the States where the impaired water bodies are located.
[FN3] Section § 303(c) of the CWA requires each State to periodically review water quality standards for each of the waters within its boundaries.
[FN4] On a related note, the CWA makes clear that a State remains free to cooperate with other States on such matters and even to enter into an agreement but that such an agreement would only be binding "unless and until it has been approved by the Congress." CWA § 103(b), 33 U.S.C. § 1253(b). New York has not entered into any such agreement.
[FN5] Perhaps recognizing that the WQM planning requirements associated with the Bay are not applicable to New York, EPA has established an alternative planning process, under which each of the States is to submit a "watershed implementation plan" or "WIP" as the mechanism to implement its allocation of the TMDL. See Draft TMDL at vii ("The cornerstone of the accountability framework is the jurisdictions' development of ... WIPs, which serve as roadmaps for how and when a jurisdiction plans to meet its pollution allocations under the TMDL.). Notably, EPA is not making each of the State's WIPs a requirement of the final TMDL, at least tacitly recognizing that the WIPs are neither contemplated, nor enforceable, under the CWA.
[FN6] For example, at a Chesapeake Bay Partnership Principals' Staff Committee Meeting, on Oct. 23, 2009, James H. Tierney, an official with the New York State Dep't of Environmental Conservation, "[e]xpressed concern" about the various options EPA was exploring, noting that, while New York wall "willing to explore [its] participation in the TMDL, New York has not agreed to participate in the legally binding TMDL." See Mtg. Sum. at 5 (found at http://archive.chesapeakebay.net/pubs/calendar/PSC 10-23-09 Minutes 1 10431.pdf).

[FN7] Found at http://www.dec.ny.gov/docs/waterj>df/tmdllis.pdf.
[FN8] Found at http://www.ct.gov/dep/lib/dep/water/lis_water_quality/nitrogen_controlj>rogramlpctmdl.pdf.
[FN9] Found at http://www.epa.gov/regionl/eco/tmdl/pdfs/ct/longislandsound.pdf.
[FN10] EPA, which has direct authority to issue NPDES permits to dischargers in Massachusetts and New Hampshire, claimed it would use that authority, not authority under § 303(d),to reduce loads from those states. EPA Approval at 13.

Response

Thank you for your comment. Please see response comment number 0267.1.001.002 for discussion of general authority for EPA to establish the TMDL and how it applies to headwater jurisdictions. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. EPA disagrees with the commenter's characterization of the development of the Chesapeake Bay TMDL – EPA has been working with all seven Chesapeake Bay watershed jurisdictions (Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia, and the District of Columbia) in a cooperative and collaborative manner to restore the health of the Bay, which is a national treasure. EPA also disagrees with the commenter's general characterization of the TMDL as inequitable; without more specifics as to how the commenter feels there to be some inequality, however, EPA is unable to more specifically address this comment. Please also see response to Comment ID 0080-cp.001.002 (discussion of equity issues and New York).

Comment ID 0389.1.001.014

Author Name: Iwanowicz Peter

Organization: New York State Department of Environmental Conservation

In sum, EPA cannot expect New York to comply with the extraordinary measures proposed under the Draft TMDL without a full understanding of EPA's authority to act in the specific circumstances at issue here. This is particularly so given that this appears to be the first time in the history of the federal CWA that EPA is mandating that a state implement measures to assist in achieving a TMDL established for a water body located entirely outside of that State's jurisdiction. The extremely general references that EPA provides in Sections 1-3 of the Draft TMDL-in the form of various CWA citations, agreements, and meeting minutes-do not meet the basic threshold. Again, this does not mean that New York has concluded that EPA lacks authority; only that EPA has not provided a sufficient explanation of its authority over New York's rivers as part of the agency's solution to restore the Chesapeake Bay. Nor does this mean that New York will not continue to cooperate and agree to take reasonable measures to help its sister States in cleaning up the Bay.

Response

Thank you for your comment; please see the response to comment number 0389.1.001.010. EPA welcomes New York's continued cooperation and agreement to take reasonable measures to restore the Chesapeake Bay.

Comment ID 0391.1.001.002

Author Name: Downes Paul

Organization: Mountaire Farms Inc.

Mountaire Farms is particularly concerned that the draft TMDL exceeds the authority granted to the EPA by congress through the Clean Water Act. The Act is very clear; it is the responsibility of the state to establish TMDLs. EPA's role is to review and approve the TMDLs developed by the state. If EPA disapproves the TMDL, then EPA must establish the TMDL. The statute does not provide authority for EPA to conduct a TMDL at the request of the state. Nor does it provide the authority for EPA to do part of the TMDL while forcing the state via threats of "consequences" to develop watershed implementation plans.

Response

Thank you for your comment. Please see response comment number 0267.1.001.002 for discussion of general authority for EPA to establish the TMDL. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0418.1.001.002

Author Name: Devine Jon

Organization: Natural Resources Defense Council (NRDC)

In October 2007, the seven watershed jurisdictions and EPA reached consensus that EPA would establish the Bay TMDL on behalf of the jurisdictions with a target restoration date of 2025.[FN 1] EPA's release of this Draft TMDL, and eventual issuance of a final TMDL for the Bay, is the culmination of this lengthy process, and critical to the ultimate reduction of the excess nutrients and sediment that have diminished the health and productivity of this national treasure.

2. EPA Has A Legal Obligation to Develop the TMDL and Assure It Will Be Acheived

The Bay TMDL is premised upon, and is essential to implement, EPA's general obligations under the Clean Water Act and its specific duties concerning the Chesapeake Bay watershed. As summarized in detail in section 1.4 of the draft TMDL and the comments submitted by the Choose Clean Water Coalition submitted on this draft TMDL, the Agency's action in establishing the TMDL and insisting on watershed implementation plans (WIPs) from the Bay states is consistent with sections 303(d) and 117 of the Clean Water Act, the resolution of a number of lawsuits concerning the Bay and its tributaries, and EPA regulations and guidance.

EPA notes that it is appropriate for the Agency to establish a TMDL under the authority of section 303 of the Act in a situation like that in the Bay region,

where impaired waters have been identified on jurisdictions' section 303(d) lists for many years, where the states in question have decided not to establish their own TMDLs for those waters, where EPA is establishing a TMDL for those

waters at the discretion or, and in cooperation with, the jurisdictions in question, and where those waters are part of an interrelated and interstate water system. . . .

While this is by no means the only circumstance in which EPA needs to act, NRDC agrees that the current situation in the Bay demands EPA action.[FN 2]

[FN 1] U.S. EPA, Draft Chesapeake Bay Total Maximum Daily Load, at p. 1-5 (Sept. 24, 2010) (hereinafter "Draft TMDL").

[FN 2] See generally 33 U.S.C. 1313(d)(2) (concerning EPA action where states fail to submit approvable TMDLs); Dioxin/Organochlorine Center v. Clarke, 57 F.3d 1517, 1520 (9th Cir. 1995) (Oregon, Washington & Idaho "requested the EPA to issue the proposed and final TMDL as a federal action under the authority of § 1313(d)(2)").

Response

Thank you for your comment; EPA appreciates your support for the Chesapeake Bay TMDL. EPA agrees that EPA's establishment of the TMDL is legally required, as discussed in Section 1 of the TMDL.

Comment ID 0434.1.001.014

Author Name: Pryor Wayne

Organization: Virginia Farm Bureau Federation

V. Virginia's Implementation Plan Must Account for Cost, Achievability and Environmental Benefits.

Although EPA does not have legal authority under federal law to require an implementation plan, Virginia itself has enacted an implementation planning requirement. Va. Code § 62.1-44.19:4 et seq. This is a Virginia-specific law that EPA does not have the authority to enforce. Virginia's implementation planning statute requires an evaluation of the cost, achievability and environmental benefit of a given implementation plan. Va. Code § 62.1O-44:19:7(A). EPA's proposed TMDL and related implementation actions do not account for these mandated considerations.

Moreover, EPA ignores its own statutory and regulatory provisions authorizing consideration of cost and achievability in determining the appropriate designated uses for a water body. EPA has acknowledged that "[o]ne way to achieve efficiency in the process of assigning attainable designated uses is to better synchronize UAA analyses with the TMDL process. In practice, UAAs may be conducted prior to, concurrently with, or after the development and implementation of a TMDL. In many cases, the data generated during a TMDL could well serve as the foundation for deciding whether a change in a use is warranted." EPA, Basic Information: Introduction to UAAs, http://water.epa.gov/scitech/swguidance/waterquality/stadnards/uses/uaa/info.cfm.

EPA's regulations provide that a change to a designated use may be appropriate where "controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social

impact." 40 CFR § 131.10. For this reason, the National Research Council has recommended that states conduct use attainability analyses for a waterbody before a TMDL is developed. See Assessing the TMDL Approach to Water Quality Management, Committee to Assess the Scientific Basis of the Total Maximum Daily Load Approach to Water Pollution Reduction, National Research Council, 2001.

This is consistent with Virginia's statutory provisions, which provide a process for conducting a use attainability analysis (UAA) based on presentation of "reasonable grounds indicating that the attainment of the designated use for a water is not feasible." See Va. Code § 62.1-44.19:7.E. EPA's proposal fails to consider cost and achievability in its proposed TMDL, despite its own UAA regulations and Virginia's implementation planning statute.

The economic impacts of EPA's proposed TMDL are exorbitant for all Virginia stakeholders, but will have a profound impact on Virginia's agricultural community. Agriculture has the benefit of estimating some expenses based on existing data on cost of implementing AgBMPs through current state and federal programs.

o Virginia estimates that just one practice (cattle fencing) could cost more than $800 million to implement. Fencing cattle from streams, putting in crossings, providing alternative watering, etc. costs on average $30,000 for a Virginia cattle farmer.

o Virginia's Natural Resources Commitment Fund says AgBMP cost-share funds will need to be $63.2 million annually from 2025 in order to get 60% NPS reduction goals from agriculture. This is only cost-share funding from Virginia. It doesn't account for federal government's traditional share of funding or the money that comes from farmers.

o Current funding estimates are based solely on the cost of installing the practice, they do not account for costs like loss of productive land, replacing practices when weather damages occur, fluctuations in markets, etc.

o Economic conditions (lack of profits, increased input costs, additional credit not an option) means that extra money to meet regulations is nonexistent.

o Due to long-term devastating economic conditions for agriculture (like other sectors), federal backstops alone (mandatory permitting of small dairies, requiring some agricultural processing plants to do more) will be enough to drive some farmers out of business.

o Cost share funding will be critical to meeting the demands of EPA. Agriculture and forestry have seen depressed profits, just as the State and local governments have been facing historic deficits. Farmers, individual businesses and the State cannot meet this unfunded mandate from EPA without significant federal funding.

Given the current economic climate, Virginia's WIP, with its recognition of the need for trading and other alternative means of reducing nitrogen, phosphorus and sediment discharges, does an admirable job of balancing the costs and benefits of the TMDL and its implementation. Virginia's WIP has done so in compliance with the Virginia implementation planning statute. EPA's proposed TMDL does not adequately address these issues, but instead applies across-the-board reductions without regard to cost and achievability.

Response

Please see the response to 0038.1.001.024 outlining the federal effort towards the Bay and the response to 139.1.001.006 which discusses agricultural funding.

EPA will not be identifying the total federal, state, local and private cost burden in the TMDL for reasons discussed in the response to comment 0139.1.001.017.

Please see the response to comment 0067.1.001.009 addressing WIP backstops. For a discussion of why EPA will not be doing a UAA, please refer to 0481.1.001.010.

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0436.1.001.004

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Chesapeake, Virginia

At the Commission meeting on October 20, 2010, the HRPDC acted to endorse the following position and attached comments.

• The EPA does not have the legal authority to establish a deadline in the TMDL.
• The EPA does not have the legal authority to establish a deadline in the TMDL.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. CWA section 117(g) requires that EPA "ensure that management plans are developed and implementation is begun" to meet the Bay's nutrient goals and water quality requirements. Pursuant to that authority, and to support the TMDL EPA is establishing pursuant to section 303(d), EPA asked the Bay jurisdictions to develop and submit WIPs that provided for 60% implementation by 2017 and 100% implementation by 2025. In light of the decades-long history of not meeting these goals, a two-phase implementation framework is reasonable. EPA recognizes that there is much work to be done to restore the Bay; hence the final implementation target extending to 2025. In light of the Bay's importance, the delays so far in reaching those targets, and EPA's belief that this job can be done in the projected time, the staged 2017/2025 implementation framework is both lawful and reasonable. That being said, the TMDL by itself is not a self implementing mechanism and does not contain an implementation plan. That plan, or rather plans, are set forth in the State WIPs, the two year milestones, and other federal actions – components of the broader Chesapeake Bay Restoration Accountability Framework discussed in Sections 1 and 7 of the TMDL.

Comment ID 0444.1.001.005

Author Name: Allen Paul

Organization: Constellation Energy

While creation of a regional TMDL for the Chesapeake Watershed is important step in the improvement of overall water quality in the Bay, we are concerned that EPA has exceeded its authority under the Clean Water Act (CWA) in three key areas: (1) by establishing TMDLs for the six watershed states and the District of Columbia, (2) by requiring the states and the District of Columbia to provide Implementation Plans subject to EPA's approval and (3) forcing an implementation schedule and threatening consequences for failure to meet milestones. These three issues are more fully described, including reference to legislative history and applicable case law, in the comments submitted by UWAG and the FWQC. Rather than repeat the arguments, we refer EPA to those comments. If EPA believes it must go beyond the creation of a regional TMDL for the Bay and force a schedule and have sanctions for failure in order to meet the goals of the Chesapeake Bay Restoration Program and Executive Order, it should first seek proper legislative authority.

Response

Thank you for your comment. Please see response comment number 0267.1.001.002 for discussion of general authority for EPA to establish the TMDL and response to comment number 0436.1.001.004 (discussion of Section 117 of CWA 2017/2025 implementation framework).

Comment ID 0447-cp.001.002

Author Name: Gaag Halle

Organization: Baltimore Water Alliance

The Bay TMDL must by law be created because states have failed to do so, and multiple law suits have demanded it.

Response

Thank you for your comment. EPA appreciates your support for the Chesapeake Bay TMDL. EPA agrees that the TMDL is legally required, as described in Section 1 of the TMDL.

Comment ID 0460-cp.001.002

Author Name: Comment Anonymous

Organization:

• The Clean Water Act, three Bay Agreements, three court agreements, one memorandum of understanding, and one Presidential Executive Order all require development of a Bay wide TMDL. This current process is not only the right

thing to do, it is legally required.

Response

Thank you for your comment. EPA appreciates your support for the Chesapeake Bay TMDL. EPA agrees that the TMDL is legally required, as discussed in Section 1 of the TMDL.

Comment ID 0467.1.001.005

Author Name: Williams Shannon

Organization: The Harrisburg Authority, Harrisburg, Pennsylvania

II. Legal Basis of TMDL

A. Section 303(d) of the Clean Water Act, which addresses TMDL development, provides EPA with the authority to develop a TMDL only if it first disapproves a state submitted TMDL. There is no indication that a state developed TMDL was submitted to EPA by a Bay State Jurisdiction, which was subsequently disapproved. Therefore, EPA is without statutory authority to develop the Bay TMDL.

B. The draft TMDL suggests, without any basis, that Section 117(g) of the Clean Water Act includes a nondiscretionary duty on the part of EPA to develop the Bay TMDL.

Response

Thank you for your comment. Please see response comment number 0267.1.001.002 for discussion of general authority for EPA to establish the TMDL

Comment ID 0479.1.001.003

Author Name: Gansler Douglas

Organization: Maryland Office of the Attorney General

Effective and enforceable federal regulation of interstate pollution is an essential element of the Clean Water Act. Congress's "major purpose" in enacting the 1972 amendments to the Clean Water Act was "to establish a comprehensive long-range policy for the elimination of water pollution." S.Rep. No. 92-414, at 95, 2 Leg. Hist. 1511; see also City of Milwaukee v. Illinois, 451 U.S. 304, 318 (1981). Part of the comprehensive nature of the Clean Water Act is a series of provisions giving EPA responsibility over interstate disputes involving the violation of a receiving state's water quality standards.

City of Milwaukee v. Illinois, 451 U.S. at 325-26; see also 33 U.S.C. §§ 1342(b)(3), (b)(5), (d)(2)(A), and (d)(4). To some

extent, these statutory authorities take the place of the federal common law remedies states previously possessed to address the pollution of their territorial waters from interstate sources. Id. With this enhanced oversight of interstate disputes, EPA has a responsibility to act when water pollution is a multijurisdictional problem and the jurisdictions involved have failed to act over a long period of time. See Dioxin/Organochlorine Center v. Clarke, 57 F.3d 1517 (9th Cir. 1995); Scott v. City of Hammond, 741 F.2d 992 (7th Cir. 1984); American Canoe Ass 'n. v EPA, 54 F.Supp.2d 621 (E.D.Va. 1999). The Chesapeake Bay TMDL is an essential and necessary component in rectifying a long history of inaction and unenforceable voluntary commitments at the state and federal levels in the Bay watershed.

Response

Thank you for your comment. EPA appreciates your support for the Chesapeake Bay TMDL. EPA agrees that the TMDL is legally required, as discussed in Section 1 of the TMDL. All seven Chesapeake Bay watershed jurisdictions – Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia, and the District of Columbia – contribute to the condition of the Chesapeake Bay. EPA has been working with these jurisdictions in a cooperative and collaborative manner to restore the health of the Chesapeake Bay. EPA believes the record of EPA's actions in establishing this TMDL clearly demonstrates that EPA has used a collaborative process to arrive at the final TMDL, one that has recognized and encouraged the environmental stewardship of all the watershed States, without whose full cooperation restoration of the Bay will be not occur. EPA appreciates in particular the leadership of the State of Maryland.

Comment ID 0480.1.001.002

Author Name: Falk Hilary

Organization: Choose Clean Water Coalition

The Clean Water Act, three major Bay Agreements and scores of minor ones, three consent decrees, dozens of Memoranda of Agreement/Understanding (MOA/MOU) and a Presidential Executive Order all require development of a Bay-wide TMDL. It is not only legally required, but perfectly logical, appropriate and fair for EPA to develop this TMDL. Moreover, EPA has used this authority wisely, engaging in a highly transparent public process developing the TMDL (and seeking comments on the draft), providing states ample opportunity to prepare and revise draft Watershed Implementation Plans, (WIPs), and seeking to implement allocations that are substantially equivalent to those the states have had since 2003.

Response

Thank you for your comment. Please see the response to comment number 0227.1.001.025.

Comment ID 0480.1.001.006

Author Name: Falk Hilary

Organization: Choose Clean Water Coalition

II. EPA is Legally Obligated to Develop a Bay Wide TMDL

While the history of the Chesapeake Bay restoration effort illustrates decades of work to address water quality issues, the legal history demonstrates EPA's obligation to develop the TMDL in the absence of the Bay states' ability to meet water quality goals. EPA has accurately set forth the statutory and regulatory basis for its proposed TMDL in Section 1.4 of the draft TMDL entitled "Legal Framework for the Chesapeake Bay TMDL" as well as relevant consent decrees issued by federal courts in Virginia, the District of Columbia and Delaware, an MOU with respect to the TMDL for Maryland's portion of the Chesapeake Bay and its tidal tributaries and a Settlement Agreement resolving litigation with the Chesapeake Bay Foundation seeking issuance of a Bay-wide TMDL. The Clean Water Act, three major Bay Agreements and scores of minor ones, three consent decrees, dozens of Memoranda of Agreement/Understanding and a Presidential Executive Order all require development of a Bay-wide TMDL.

Section 303(d) of the Clean Water Act
EPA's statutory authority to develop the Bay-wide TMDL is derived from Section 303(d) of the Clean Water Act.

The CWA required each state, …, to submit by June 28, 1979 (no more than 180 days after the EPA identified certain pollutants, pursuant to § 1314(a)(2)(D)) the first of its TMDL calculations to the Administrator of the EPA. Within thirty days after this submission, the Administrator must take one of two actions. She may approve the TMDL, in which case it becomes binding on the states. If, however, she disapproves it, the Administrator must devise her own binding TMDL for the state within thirty days of disapproval. CWA § 303(d)(2), 33 U.S.C. § 1313(d)(2).

Kingman Park Civic Ass'n v EPA, 84 F.Supp. 2d 1, 2 (D.D.C. 1999).

Thus, Section 303(d) of the Clean Water Act requires states, in the first instance, to identify impaired waters and develop "TMDLs." 40 C.F.R. § 130.7(d). If a state clearly indicates through inaction or otherwise that it will not be able to develop the TMDL, then the duty to prepare the TMDL shifts to EPA. See, e.g., Scott v. Hammond, 741 F. 2d 992 (7th, Cir. 1984) (holding that lengthy inaction on the part of a state can constitute a "constructive submittal" of an inadequate TMDL, thereby transferring the duty to prepare to EPA); Kingman Park, 84 F.Supp. 2d 1, 2; American Canoe Ass'n, Inc. v. United States Envtl. Protection Agency, 30 F. Supp. 2d 908, 919--22 (E.D. Va. 1998) ("American Canoe I") (holding that EPA must take action to develop TMDLs for states that fail to do so); Alaska Ctr. for the Env't v. Reilly, 762 F. Supp. 1422, 1426--29 (W.D. Wa. 1991) ("Congress intended that EPA's affirmative duties be triggered upon a state's failure to submit a list or any TMDL at all."); cf Miccosukee Tribe of Indians v. United States Envtl. Protection Agency, 105 F.3d 599, 602--03 (11th Cir. 1997) (holding that, despite the lack of an actual submission from Florida indicating that it had changed the water-quality standards, EPA's nondiscretionary duty under 33 U.S.C. § 1313(d)(4)(B) would be triggered if Florida had actually altered its water-quality standards).

The line of decisions stemming from Scott v. Hammond, 741 F. 2d 992 (7th Cir. 1984), clearly established that the duty to develop TMDLs for impaired waters transfers to EPA through the mechanism of a "constructive submittal" when a state fails to timely submit a TMDL. See, e.g. Kingman Park, 84 F.Supp. 2d 1-2; American Canoe I, 30 F. Supp. 2d at 919-22; Alaska Ctr. for the Env't, 762 F. Supp. at 1426-29. Otherwise, a state could ignore its duty to prepare restoration plans for impaired waters forever, so long as it did not actively submit inadequate plans to EPA for review and approval, clearly not what Congress intended in enacting the Clean Water Act. As the court in Kingman Park

recognized, Congress could not have meant for EPA to sit idly by for more than a decade while states failed to carry out their statutory mandates. Kingman Park, 84 F.Supp. 2d at 7.

Here, not only have none of the Bay states developed TMDLs for either their portions of the Bay (Maryland and Virginia) or their tributaries to the Bay, but they have affirmatively asserted that they were not able to develop the TMDL on their own, and invited EPA to assume the lead and take over developing the Bay TMDL.[FN 11] Further, states agreed that a "state by state" approach to develop the TMDLs was scientifically and administratively less desirable than continuing to use a regional approach as they did with the water quality criteria. The well established doctrine of "constructive submission" of an inadequate TMDL by a state, which triggers EPA's duty to take over, coupled with the states' express request in this case that EPA take the lead in developing the Bay wide TMDL, provide ample authority for EPA's action in doing so.

In addition to the request of the states and EPA's legal obligation under the constructive submission doctrine, there is a compelling and logical reason for EPA to manage or coordinate the development of the Bay TMDL. The Bay watershed includes portions of six states, and all of the District of Columbia, and it would be impossible for one state to develop a TMDL to address more than a small part of the problem. No matter how firm Maryland and Virginia are with polluters or dischargers in their states, they could not fix the problems alone and could not order polluters or dischargers in upstream states, Pennsylvania or New York, for example, to cut back on their discharges.

Further, EPA often takes the lead role in developing TMDLs for interstate waters. See Dioxin/Organochlorine Center v. Clarke, 57 F.3d 1517 (9th Cir. 1995) (OR, WA and ID listed the Columbia River as impaired by a toxic compound, dioxin, but decided against developing TMDLs on their own. "Instead, after consultation and involvement in the development of the draft TMDL, the states requested the EPA to issue the proposed and final TMDL as a federal action under the authority of sec. 1313(d)(2)." The Columbia River TMDL for dioxin was upheld in the face of challenges filed by both environmentalists and industries. Rivers that form borders between states, such as the Savannah River, or that flow from one state to another, such as the Arkansas, or bays that receive pollutants from numerous states, such as the Chesapeake, are good candidates for EPA-developed TMDLs.

Prior TMDL Litigation and Agreements
As discussed above, Section 303(d) of the Clean Water Act requires states to identify water quality limited segments of water bodies within their borders and to establish the TMDL of pollutants that each water quality limited segment can assimilate, 33 U.S.C. § 1313(d)(1)(C)); this duty transfers to EPA, however, when the states fail to act. In 1997, EPA was sued because it did not act when Virginia failed to develop TMDLs for impaired water bodies. American Canoe I. That matter was settled via a consent decree approved by the federal court. American Canoe v. EPA, 54 F. Supp. 2d 621 (E.D. Va. 1999) ("American Canoe II").

EPA was also sued for failing to ensure that the District of Columbia identify impaired bodies of water within its jurisdiction and developed TMDLs for those waters. Kingman Park Civic Association v EPA, 84 F. Supp. 2d 1 (D. DC 1999). Like American Canoe, that matter was settled via consent decree which set deadlines for listing impaired water bodies and developing TMDLs for them. Those bodies of water are all tributaries to the Chesapeake Bay.

In addition, in 1996 the American Littoral Society and the Sierra Club sued EPA to ensure that TMDLs were developed for impaired waters on Delaware's Section 303(d) list which included a tidal Bay segment, the Upper Nanticoke River. American Littoral Society, et al. v. EPA, et al., No. 96-330 (D. Del.).The parties entered a consent decree in 1997 which

required EPA to develop TMDLs if Delaware failed to do so. While Delaware adopted some TMDLs, it does not have in place a TMDL to meet the current water quality standards for the tidal Bay segment, effectively leaving that task to EPA.

EPA was also sued for failing to require Pennsylvania to identify impaired bodies of water and establishing TMDLs for those waters. American Littoral Society, et al. v. EPA, No. 96-489 (E.D. Pa.). That matter was resolved via consent decree on April 9, 1997. Under the terms of the consent decree, EPA was to develop TMDLs for over 570 listed waters if Pennsylvania did not.

Another TMDL suit was filed against EPA in West Virginia. Ohio Valley Environmental Coalition, Inc., et al. v. Carol Browner, et al., No. 2:95-0529 (S.D.W.VA.). Like the other matters, this case was resolved by consent decree in 1997. In that decree, EPA agreed to develop TMDLs for over 500 listed waters if West Virginia did not.

A similar claim was brought concerning Maryland's portion of the Bay. That claim was resolved via a MOU between Maryland and EPA in 1998. Like the American Canoe and Kingman Park consent decrees, this MOU required EPA to develop a TMDL for Maryland's portion of the Chesapeake Bay if Maryland failed to do so by 2010. Maryland did not develop such a TMDL.

Thus, EPA's Bay wide TMDL complies with its legal authority and commitment to prepare TMDLs for all of the Bay segments covered by these various consent decrees and MOUs. See Draft TMDL § 2.2.4.

Section 117(g) of the Clean Water Act
EPA's authority to issue the Bay wide TMDL is also supported by Section 117 of the Clean Water Act, which provides:
(g) Chesapeake Bay Program
(1) Management strategies
The Administrator, in coordination with other members of the Chesapeake Executive Council, shall ensure that management plans are developed and implementation is begun by signatories to the Chesapeake Bay Agreement to achieve and maintain -
(A) the nutrient goals of the Chesapeake Bay Agreement for the quantity of nitrogen and phosphorus entering the Chesapeake Bay and its watershed.
(B) the water quality requirements necessary to restore living resources in the Chesapeake Bay ecosystem; …[FN 12]

33 U.S.C. § 1267(g)(1)(A)-(g)(1)(B).[FN 13] Use of the word "shall" makes the Administrator's obligation mandatory. Lexecon Inc. v. Milberg Weiss Bershad Hynes & Lerach, 523 U.S. 26, 35 (1998) ("The mandatory 'shall,' ... normally creates an obligation impervious to judicial discretion"). Thus, EPA was required to develop a management plan to comply with the nutrient reduction goals of the Chesapeake 2000 agreement - 40% nutrient reduction and removal of the Bay from the Section 303(d) list. The proposed Chesapeake Bay TMDL is the most appropriate such '"plan" to "achieve and maintain …the nutrient goals…and water quality requirements" referred to in Section 117(g) because it is tailored to achieving compliance with the water quality standards for nutrients and sediment. It is the principal tool provided in the Clean Water Act for this purpose, and therefore is precisely what Congress intended that EPA should do in implementing Sections 303(d) and 117(g).

Fowler v. EPA Settlement Agreement - Requires TMDL by December 31, 2010
In addition to the statutory requirements that EPA develop a Bay-wide TMDL, EPA is also required to take this action

pursuant to the consent decree in the Fowler case. In that case, EPA was sued for failing to comply with Section 117(g) and the Bay Agreements. Fowler v. EPA, Case No. 09-cv-00005-CKK, D. D.C., January 5, 2009. That matter was settled by agreement between the parties. The agreement provides that EPA will develop a Bay wide TMDL "[b]y December 31, 2010, pursuant to 33 U.S.C. §§ 1313(d) and 1267..." Settlement Agreement Section III.A.1. That agreement set forth a number of other deadlines for submission and completion of state watershed implementation plans. Thus, EPA is also required pursuant to the settlement agreement in Fowler to develop a Bay wide TMDL.

[FN 11] This decision was formalized at the meeting of the Principals' Staff Committee (PSC) on October 1, 2007. It was agreed that the Bay watershed TMDLs would be developed jointly between the six Bay watershed states, the District of Columbia and EPA, and then established by EPA. It was further agreed that the Water Quality Steering Committee would draft nutrient and sediment cap load allocations by tributary basin and jurisdiction, and the Principals' Staff Committee would formally adopt these allocations.

[FN 12] There are three other goals identified by the CWA: toxics reduction; habitat restoration and wetlands protection, and; restoration for living resources, e.g., oysters and grasses. The majority of these goals have not been met.

[FN 13] This section was re-codified as part of the Estuaries and Clean Water Act of 2000, Title II Chesapeake Bay Restoration. One of the explicit purposes of the Restoration title was "to achieve the goals established in the Chesapeake Bay Agreement." Pub.L. 106-457, Title II, Sec. 202(b)(2), Nov. 7, 2000, 114 Stat. 1967.

Response

Thank you for your comment. EPA appreciates your support for the Chesapeake Bay TMDL. EPA agrees that the TMDL is legally required, as discussed in Section 1 of the TMDL.

Comment ID 0480.1.001.009

Author Name: Falk Hilary

Organization: Choose Clean Water Coalition

Conclusion about Legal Authority to Develop (and Implement) the Bay TMDL
As stated above, in order to meet its legal obligation, EPA must develop a Bay-wide TMDL. In addition, it is logical, appropriate and fair for EPA to take this action. Consistent with the statutory scheme, binding judicial agreements, and at the request of the Bay states, EPA has taken the lead in developing and proposing the TMDL, based on years of discussions and hard work with representatives of the Bay states, the scientific community, members of the public, local officials and other stakeholders. Given the multi-jurisdictional nature of the water quality problems in the Bay, it also makes immense practical sense for EPA to take the lead. EPA's lead role in developing the TMDL and the final deadlines of December 2010 and 2025, for implementation, are further supported by the final strategies developed pursuant to the President's May 12, 2009 Executive Order.

Response

Thank you for your comment. EPA appreciates your support for the Chesapeake Bay TMDL. EPA agrees that the TMDL is legally required, as discussed in Section 1 of the TMDL.

Comment ID 0480.1.001.020

Author Name: Falk Hilary

Organization: Choose Clean Water Coalition

The court sanctioned Virginia consent agreement in 1999 established the requirement and deadlines for the Chesapeake Bay TMDL and was the trigger for the water quality section in the Chesapeake 2000 agreement. This fact should rule out any reasonable argument that there has not been enough notice that there would be a Chesapeake Bay TMDL. Eleven years of consideration is sufficient. Moreover, EPA has no choice but to develop a TMDL because the states have failed to do so. This action by EPA is required by the CWA and an abundance of other legally binding agreements.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. Please see the response to comment number 0027.1.001.025.

Comment ID 0481.1.001.002

Author Name: Andes Fredric

Organization: Federal Water Quality Coalition

If a state fails to establish a TMDL, EPA has no direct enforcement authority against the state.[FN 1] Instead, in the absence of state action, EPA may backstop the state by acting directly under section 303(d) of the CWA to establish TMDLs.[FN 2]

In the context of the Draft TMDL, it appears that EPA is acting in a backstop capacity for 23 waterbodies in Virginia for TMDLs for dissolved oxygen or nutrients and 2 waterbodies in the District of Columbia for TMDLs for pH. Draft TMDL, at 1-14 to 1-16. The Coalition questions EPA's authority to establish TMDLs for the remaining water quality segments and pollutants. EPA cites to a memorandum of understanding (MOU) with Maryland as authority to establish TMDLs in that state. However, EPA cannot expand its CWA authority by entering into a MOU. Draft TMDL, at 1-16. Finally, EPA cites its settlement agreement with the Chesapeake Bay Foundation (CBF) as authority. Draft TMDL, at 1-17. However, EPA cannot enter into judicial settlements with third parties to expand its CWA authority. Thus, except for the 25 TMDLs where EPA has backstop authority based on a judicial determination that a state had failed to act, EPA does not have authority to establish TMDLs for the Chesapeake Bay Watershed, because the CWA places initial responsibility for

TMDL development with states.

EPA puts forward the argument that it is authorized to establish a Chesapeake Bay TMDL because section 117(g) directs it to "ensure that management plans are developed and implementation is begun" by signatories to the Chesapeake Bay Agreement. Draft TMDL, at 1-13 (citing 33 U.S.C. § 1267(g)). EPA argues that "the Chesapeake Bay TMDL is such an implementation plan." Id. This argument ignores principles of statutory interpretation. The statutory phrases "TMDL" and "management plan" are not interchangeable, and the CWA's text evinces Congress's intent to treat them differently. TMDLs are defined separately by Congress in section 303(d) of the CWA. On the other hand, when Congress refers to non-regulatory nonpoint source plans developed by states, it refers to management plans. See 33 U.S.C. § 1329 (discussing state nonpoint source management programs) and 33 U.S.C. § 1288 (discussing state area-wide waste treatment management plans). Congress also uses the term management plan when discussing the comprehensive conservation and management plans established for estuaries of national significance under section 320 of the CWA. If Congress intended for Chesapeake Bay management plans to be considered TMDLs, it would have used the term "TMDL" and not the term "management plan" when describing Bay programs under section 117(g).

Thus, EPA has no authority to establish TMDLs for the entire Chesapeake Bay Watershed.

[FN 1] Congress may not establish a federal law that compels a state to take regulatory action. See New York v. United States, 505 U.S. 144, 162 (1992). ("While Congress has substantial power to govern the Nation directly,…the Constitution has never been understood to confer upon Congress the ability to require the States to govern according to Congress' instruction.").

[FN 2] Scott v. City of Hammond, 741 F.2d 992, 996 (7th Cir. 1984), cert. denied, 469 U.S. 1196 (1985) ("[S]tate inaction amounting to a refusal to act" would be interpreted as a constructive submission of no TMDL, thus triggering EPA's duty to approve or disapprove such submission and to establish the TMDL itself (in the event of a disapproval)).

Response

Thank you for your comment. Please see response comment number 0267.1.001.002 for discussion of general authority for EPA to establish the TMDL and response to comment number 0436.1.001.004 (discussion of Section 117 of CWA 2017/2025 implementation framework). For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0482.1.001.014

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

B. The Draft TMDL Exceeds EPA's Backstop Authority.

As noted above, EPA has backstop authority to establish a TMDL when a state fails to act or establishes an invalid

TMDL. However, that authority is not limitless. EPA has exceeded those limits on its authority by proposing to establish a TMDL without waiting for state action, and by proposing to establish a TMDL that encroaches on state authority.

In the context of the Draft TMDL, it appears that EPA is acting in a backstop capacity only for 23 Virginia TMDLs and 2 TMDLs for the District of Columbia. See Draft TMDL, at 1-14 to 1- 16. EPA also cites a memorandum of understanding (MOU) with Maryland as authority to establish TMDLs in that state. Draft TMDL, at 1-16. However, EPA cannot change the CWA through a MOU. Finally, EPA cites its settlement agreement with the Chesapeake Bay Foundation (CBF) as authority. Draft TMDL, at 1-17. However, that settlement agreement also cannot give EPA authority that it does not have under the CWA.

EPA puts forward the argument that section 117(g) authorizes an EPA-established Chesapeake Bay TMDL because that provision directs EPA to "ensure that management plans are developed and implementation is begun." Draft TMDL, at 1-13. EPA argues that "the Chesapeake Bay TMDL is such an implementation plan." Id. This argument ignores principles of statutory interpretation. TMDLs are defined by Congress in section 303(d) of the CWA. Congress also provides definitions for management plans under various sections of the CWA. When Congress refers to nonpoint source plans developed by states, it refers to management plans. See 33 U.S.C. 1329 (discussing state nonpoint source management programs) and 33 U.S.C. 1288 (discussing state area-wide waste treatment management plans). Congress also uses the term management plan when discussing the comprehensive conservation and management plans established for estuaries of national significance under section 320 of the CWA. If Congress intended for Chesapeake Bay management plans to be considered TMDLs, it would not have used the term "management plan."

It is black letter law that the Clean Water Act does not provide any federal authority to regulate nonpoint sources of pollutants.[FN22] To understand the scope of EPA's authority to establish a TMDL under section 303(d) of the CWA - particularly where nonpoint sources are a significant source within the watershed - it is instructive to look at the two sections of the CWA that specifically address nonpoint source pollution. While these sections call for plans to address nonpoint source pollution, EPA is not given backstop authority.

For example, the CWA specifically addresses the circumstance where nonpoint sources prevent the attainment of water quality standards in section 319(a) of the CWA:

The Governor of each State shall, after notice and opportunity for public comment, prepare and submit to the Administrator for approval, a report which - identifies those navigable waters within the State which, without additional action to control nonpoint sources of pollution, cannot reasonably be expected to attain or maintain applicable water quality standards or the goals and requirements of this chapter. 33 U.S.C. 1329(a).

In this circumstance, states develop nonpoint source management programs that identify best management practices to address nonpoint sources. 33 U.S.C. 1329(b). Section 319 allows EPA to issue the report called for in section 319(a) if a state fails to act. Significantly, however, EPA is given no backstop authority if a state fails to develop a management plan under section 319(b). Instead, a local jurisdiction may develop such a plan and receive federal 319 funds to implement it. 33 U.S.C. 1329(b).

Similarly, section 208 of the CWA directs states to develop area wide waste treatment plans that include:

a process to (i) identify, if appropriate, agriculturally and silviculturally related nonpoint sources of pollution, including

return flows from irrigated agriculture, and their cumulative effects, runoff from manure disposal areas, and from land used for livestock and crop production, and (ii) set forth procedures and methods (including land use requirements) to control to the extent feasible such sources. 33 U.S.C. 1288(b)(2)(F).

Again, EPA is not given any backstop authority, although local governments can develop such management plans.

[FN22] See, e.g., Oregon Natural Resources Council v. U.S. Forest Serv., 834 F.2d 842, 849 (9th Cir. 1987) ("Nonpoint sources, because of their very nature, are not regulated under the NPDES. Instead, Congress addressed nonpoint sources of pollution in a separate portion of the Act which encourages states to develop areawide waste treatment management plans.").

Response

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0482.1.001.020

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

We conclude that it is not possible for EPA to establish a legally and technically defensible TMDL for the entire 64,000 square mile Chesapeake Bay watershed. This task is beyond the tools provided by the CWA. However, establishing separate TMDLs for the 92 impaired tributaries to the Chesapeake Bay is not beyond the authorities and capabilities of the individual watershed jurisdictions. The undersigned urge EPA to withdraw its Draft TMDL, address the flaws in its modeling, and work with the watershed jurisdictions to develop TMDLs for the Chesapeake Bay Watershed that are attainable without causing widespread and significant economic and social impacts on the people who live and work in the Chesapeake Bay Watershed, as well as the people who rely on the food, fiber and fuel that is produced there.

Response

Thank you for your comment. Please see response comment number 0267.1.001.002 for discussion of general authority for EPA to establish the TMDL. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0499.1.001.002

Author Name: Grimm James

Organization: Texas Poultry Federation

Texas Poultry Federation is particularly concerned that the draft TMDL exceeds the authority granted to the EPA by congress through the Clean Water Act. The Act is very clear; it is the responsibility of the state to establish TMDLs. EPA's role is to review and approve the TMDLs developed by the state. If EPA disapproves the TMDL, then EPA must establish the TMDL. The statute does not provide authority for EPA to conduct a TMDL at the request of the state. Nor does it provide the authority for EPA to do part of the TMDL while forcing the state via threats of "consequence" to develop watershed implementation plans.

Response

Thank you for your comment. Please see response comment number 0267.1.001.002 for discussion of general authority for EPA to establish the TMDL and response to comment number 0436.1.001.004 (discussion of Section 117 of CWA 2017/2025 implementation framework).

Comment ID 0506.1.001.002

Author Name: Schwalb Steven

Organization: Perdue Farms Incorporated

Perdue Farms Incorporated is particularly concerned that the draft TMDL exceeds the authority granted to the EPA by congress through the Clean Water Act. The Act is very clear; it is the responsibility of the state to establish TMDLs. EPA's role is to review and approve the TMDLs developed by the state. If EPA disapproves the TMDL, then EPA must establish the TMDL. The statute does not provide authority for EPA to conduct a TMDL at the request of the state. Nor does it provide the authority for EPA to do part of the TMDL while forcing the state via threats of "consequences" to develop watershed implementation plans.

Response

Thank you for your comment. Please see the response to comment number 499.1.001.002. Please also see response comment number 0267.1.001.002 for discussion of general authority for EPA to establish the TMDL and response to comment number 0436.1.001.004 (discussion of Section 117 of CWA 2017/2025 implementation framework).

Comment ID 0510.1.001.013

Author Name: Haterius Stephen

Organization: National Association of State Departments of Agriculture (NASDA)

The Draft TMDL is contrary to existing law. EPA is attempting to exceed its CWA authority in the Draft TMDL. In the

Draft TMDL, EPA asserts that it has the authority to issue a TMDL over the objections of a watershed jurisdiction, even though it has not gone through the formal process set forth in the CWA of disapproving a state TMDL. In the Draft TMDL, EPA has disapproved state WIPs and is threatening to take action against watershed jurisdictions based on that disapproval, even though EPA has no authority to approve or disapprove WIPs. In the Draft TMDL, EPA is arrogating the authority to implement a TMDL by giving wasteload allocations to every source it can identify, including 1006 individual residences, even though EPA has no authority to implement a TMDL that requires reductions from both point sources and nonpoint sources to meet water quality standards.

Response

With respect to the first two sentences of your comment, please see the response to comment number 499.1.001.002. With respect to the third sentence of your comment, please see the response to comments numbers 0293.1.001.014 and 0481.1.001.003. Please also see response comment number 0267.1.001.002 for discussion of general authority for EPA to establish the TMDL.

Comment ID 0513.1.001.007

Author Name: Hoot Lynne

Organization: Maryland Grain Producers Association (MGPA)

We believe that EPA does not have the authority to dictate to the state what should and should not be included in it the Maryland WIP. EPA is attempting to exceed its CWA authority in the Draft TMDL. In the Draft TMDL, EPA asserts that it has the authority to issue a TMDL over the objections of a watershed jurisdiction, even though it has not gone through the formal process set forth in the CWA of disapproving a state TMDL. We believe that EPA does not have the authority to regulate agricultural non-point source pollution under the CWA.

Response

With respect to the first three sentences of your comment, please see the response to comment number 499.1.001.002. With respect to the last sentence of your comment, please see the relevant portion of the response to comment number 0510.1.001.013. Please also see response to comment number 0267.1.001.002 for discussion of general authority for EPA to establish the TMDL and response to comment number 0436.1.001.004 (discussion of Section 117 of CWA 2017/2025 implementation framework).

Comment ID 0545.1.001.003

Author Name: Friedman Suzy

Organization: Environmental Defense Fund (EDF)

Unfortunately, the states and their partners have not met the 2010 restoration goals. EPA has worked cooperatively with the Bay States for decades in a transparent, public process to reduce nutrient and sediment pollution to the Bay.

These efforts, while helpful, have not been sufficient to bring these waters into attainment with water quality standards, thus triggering the need, under the Clean Water Act, to develop a Bay-wide TMDL. None of the Bay States have developed TMDLs for their portion of the Bay watershed. Instead, they have invited EPA to take the lead in developing the Bay TMDL. [FN4] EPA is not only well within its legal authority to promulgate the TMDL, as discussed below; EPA is obligated to do so.

Just as a state's submittal of an inadequate TMDL triggers EPA's obligation to "devise" a TMDL (Kingman Park Civic Ass'n v. EPA. 84 F.supp. 2d 1, 2 (D.D.C. 1999), so too does failure to submit a TMDL to EPA at all. Courts have held that this failure constitutes "constructive submittal," because to rule otherwise would create an illogical result that Congress could not possibly have intended: to give unlimited license to states to sit on their hands and evade all responsibility for developing TMDLs while our waters continue to deteriorate. See e.g., Kingman Park at 1-2; American Canoe Ass'n. Inc. v. U.S. EPA, 30 F. Supp. 2d 908, 919-22 (E.D. Va. 1998); Alaska Ctr. For the Env't v. Reilly, 762 F. Supp. 1422, 1426-29 (W.D. Wa. 1991).

Moreover, Section 117(g)(1) of the Clean Water Act unambiguously requires EPA to act:

The Administrator, in coordination with other members of the Chesapeake Executive Council, shall ensure that management plans are developed and implementation is begun by signatories to the Chesapeake Bay Agreement to achieve and maintain -

(A) the nutrient goals of the Chesapeake Bay Agreement for the quantity of nitrogen and phosphorus entering the Chesapeake Bay and its watershed.
(B) the water quality requirements necessary to restore living resources in the Chesapeake Bay ecosystem; ....

33 U.S.C. Sec. 1267(g)(1)(A)-(g)(1)(B) (emphasis supplied).

The use of the word "shall" signals Congressional intent to impose a mandatory agency obligation. See e.g., Lexecon, Inc. v. Millberg Weiss Bershad Hynes & Lerach. 523 U.S. 26, 35 (1998).

Not only does EPA have authority and the responsibility to issue the Bay-wide TMDL, EPA has used its authority wisely by 1) engaging in a highly transparent, public process to develop the TMDL (including this opportunity submit public comments on the draft); and 2) providing states sufficient opportunity to prepare and revise draft Watershed Implementation Plans (WIPs) based upon their long-standing Tributary Strategies.

[FN4] EPA's role was decided at the October 1, 2007, Principals' Staff Committee.

Response

Thank you for your comment. EPA appreciates your support for the Chesapeake Bay TMDL. EPA agrees that the TMDL is legally required, as discussed in Section 1 of the TMDL.

Comment ID 0554.1.001.005

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

For impaired waters, states shall establish, in accordance with a priority ranking given to impaired waters by the states, TMDLs for pollutants identified by EPA under Section 304(a)(2) of the Act. 33 U.S.C. § 1313(d)(1). Phosphorous, nitrogen and sediment are all pollutants identified by EPA as requiring TMDLs.[FN4] The Chesapeake Bay and many of the waters that comprise its watershed have been listed as "impaired" by the states in the Bay basin.[FN5] As the Draft TMDL states, these impairments "cause algae blooms that consume oxygen and create ‘dead zones' where fish and shellfish cannot survive, block sunlight that is needed for underwater grasses, and smother aquatic life on the bottom."[FN6] Such "high levels of nitrogen, phosphorous, and sediment enter the water from agricultural operations, urban and suburban runoff, wastewater facilities, air pollution and other sources, including septic systems."[FN7]

Generally, formulation of TMDLs is the primary responsibility of the states, with required oversight and approval from EPA. 33 U.S.C. § 1313(d). However, in the case of the Chesapeake Bay, where multiple state jurisdictions are involved, EPA has taken the lead in establishing the TMDL, which will be the "largest and most complex" TMDLs ever established of the approximately 40,000 completed since the passage of the CWA.[FN8]

[FN4] See 74 Fed. Reg. 47,792-94 (Sept. 17, 2009) (describing various impairments of the Bay and its tributaries); Draft TMDL at Executive Summary (ES) iv.
[FN5] Id.; Draft TMDL at ES iii.
[FN6] Draft TMDL at ES iii.
[FN7] Id.
[FN8] Id. at ES iv.

Response

Thank you for your comment, which EPA interprets as supporting the Chesapeake Bay TMDL.

Comment ID 0587.1.001.003

Author Name: Watts George

Organization: U.S. Poultry & Egg Association, National Turkey Federation (NTF), and National Chicken Council (NCC)

2. EPA Legal Authority and Policy Issues

We question a number of the claims EPA has made on its authority to develop the Chesapeake Bay TMDL and to impose requirements on the jurisdictions. These issues are organized within four categories, below.

General Issues with Claims of Authority

In previous Federal Register Notices and in the TMDL document, EPA has claimed it is required to develop and issue the TMDL and also has authority to develop and issue the TMDL. Our associations have reviewed these claims and do not agree with EPA's position. The next section of comments includes an assessment of the statutory authority for issuing TMDLs. As an introduction to that section, we note that we believe EPA has significantly exceeded the authority provided the Agency by Congress through the Clean Water Act. The CWA clearly establishes the states as the entities responsible for listing waters as impaired under section 303(d) and issuing TMDLs to address those water quality issues. We recognize that EPA is under consent decrees and has entered into settlement agreements related to the Chesapeake Bay, however it is important to understand that consent decrees and settlements merely create "obligations" for EPA, they do not provide "authority." Authority can only be granted by Congress through the CWA, and Congress clearly provided the authority to the states, not to EPA.

Statutory Authority

EPA stated in the September 22, 2010 Federal Register (FR) Notice that "EPA is establishing the Draft TMDL for nitrogen, phosphorus, and sediment for each of the 92 segments in the tidal portion of the Chesapeake Bay watershed pursuant to Sections 117(g) and 303(d) of the Clean Water Act (CWA)."

The FR Notice goes on to say:

Section 303(d) of the CWA requires that each State identify those waters within its boundaries for which existing technology-based pollution controls required by the CWA are not stringent enough to attain or maintain state water quality standards. A TMDL must be established for each of those 'impaired' waters. (emphasis added in bold)

It is interesting to note the same statement in the September 17, 2009 Federal Register Notice (74 FR 47792) clearly stated that it is the states responsibility, not EPA, to develop the TMDL:

Section 303(d) of the CWA requires that each State identify those waters within its boundaries for which existing technology-based pollution controls required by the CWA are not stringent enough to attain or maintain state water quality standards. States are required to establish TMDLs for those "impaired" waters. (emphasis added in bold)

Modification of this language does not veil the inherent discrepancy in the approach EPA is taking with regard to the authority afforded to it under the Act nor does the Federal Register explain "how" these sections of the Act actually provide the necessary authority for EPA to develop the TMDL.

The statutory requirement to develop TMDLs is found in section 303(d) of the Act. It states,

(d) IDENTIFICATION OF AREAS WITH INSUFFICIENT CONTROLS; MAXIMUM DAILY LOAD; CERTAIN EFFLUENT LIMITATIONS REVISION

(1)(A) Each State shall identify those waters within its boundaries for which the effluent limitations required by section 1311(b)(1)(A) and section 1311(b)(1)(B) of this title are not stringent enough to implement any water quality standard applicable to such waters. The State shall establish a priority ranking for such waters, taking into account the severity of

the pollution and the uses to be made of such waters.

(C) Each State shall establish for the waters identified in paragraph (1)(A) of this subsection, and in accordance with the priority ranking, the total maximum daily load, for those pollutants which the Administrator identifies under section 1314(a)(2) of this title as suitable for such calculation. Such load shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality.

(2) Each State shall submit to the Administrator from time to time, with the first such submission not later than one hundred and eighty days after the date of publication of the first identification of pollutants under section 1314(a)(2)(D) of this title, for his approval the waters identified and the loads established under paragraphs (1)(A), (1)(B), (1)(C), and (1)(D) of this subsection. The Administrator shall either approve or disapprove such identification and load not later than thirty days after the date of submission. If the Administrator approves such identification and load, such State shall incorporate them into its current plan under subsection (e) of this section. If the Administrator disapproves such identification and load, he shall not later than thirty days after the date of such disapproval identify such waters in such State and establish such loads for such waters as he determines necessary to implement the water quality standards applicable to such waters and upon such identification and establishment the State shall incorporate them into its current plan under subsection (e) of this section.

The Act is very clear; it is the responsibility of the state to establish TMDLs. EPA's role is to review and approve the TMDLs developed by the state. If EPA disapproves the TMDL, then EPA must establish the TMDL. The statute does not provide authority for EPA to conduct a TMDL at the request of the state. Nor does it provide the authority for EPA to do part of the TMDL while forcing the state via threats of "consequences" to develop watershed implementation plans.

EPA also cites 117(g) of the Clean Water Act as authority (Draft TMDL page 1-12). This is not an accurate characterization of section 117. Section 117 has no connection to section 303(d), and therefore no connection to the TMDL for the Bay. Section 117 is designed to ensure the EPA coordinates with the states for purposes of developing management plans. Management strategies under section 117 are not the same as TMDLs under section 303. Had Congress intended them to be the same, congress would have provided language to that effect, linking the two sections of the Act.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. Please also see response to comment number 0267.1.001.002 for discussion of general authority for EPA to establish the TMDL.

Comment ID 0606.1.001.004

Author Name: Schmidt-Perkins Dru

Organization: 1000 Friends of Maryland

At the 2007 Chesapeake Executive Council meeting, Maryland's Governor Martin O'Malley, chair of the Chesapeake Executive Council, formally announced that the Chesapeake Bay Program would not meet its water quality goals by 2010. This failure to meet the 2010 restoration goals was acknowledged again in 2008 at the annual Council meeting, when EPA revealed that the current restoration pace would not meet the nitrogen goals until 2034 and the phosphorus goals until 2050. In June 2008, the Principals' Staff Committee of the Chesapeake Bay Program formally requested that EPA accelerate the Bay TMDL so it takes effect no later than December 31, 2010 - not May 1, 2011.[FN 2] EPA agreed to the request from its partners and pledged to finalize the Bay TMDL by the end of 2010.

Removing the Bay from the Section 303(d) list would have avoided the need for development of a TMDL for the Bay. The failure to meet that deadline triggered the court ordered obligations found in the American Canoe and Kingman Park consent decrees and the MOU with Maryland to develop a Bay TMDL (discussed in further detail below).

II. The TMDL Is Legally Required

While the history of the Chesapeake Bay restoration effort illustrates decades of work to address water quality issues, the legal history demonstrates EPA's authority to develop the TMDL in the absence of the Bay states' ability to meet water quality goals. EPA has accurately set forth the statutory and regulatory basis for its proposed TMDL in Section 1.4 of the draft TMDL entitled "Legal Framework for the Chesapeake Bay TMDL" as well as relevant consent decrees issued by federal courts in Virginia, the District of Columbia and Delaware, an MOU with respect to the TMDL for Maryland's portion of the Chesapeake Bay and its tidal tributaries and a Settlement Agreement resolving litigation with the Chesapeake Bay Foundation seeking issuance of a Bay-wide TMDL.

Section 303(d) of the Clean Water Act

EPA's statutory authority to develop the Bay wide is derived from Section 303(d) of the Clean Water Act. Sec. 303(d) of the Clean Water Act requires states, in the first instance, to identify impaired waters and develop "TMDLs". 40 C.F.R. § 130.7(d). If a state clearly indicates through inaction or otherwise that it will not be able to develop the TMDL, then the duty to prepare the TMDL shifts to EPA. [FN 3]

The line of decisions stemming from Scott v. Hammond, 741 F. 2d 992 (7th Cir. 1984), clearly established that the duty to develop TMDLs for impaired waters transfers to EPA through the mechanism of a "constructive submittal" of an inadequate TMDL by the state. See, e.g. Kingman Park, 84 F.Supp. 2d 1-2; American Canoe Ass'n, 30 F. Supp. 2d at 919-22; Alaska Ctr. for the Env't, 762 F. Supp. at 1426-29. Otherwise, a state could ignore its duty to prepare restoration plans for impaired waters forever, so long as it did not actively submit inadequate plans to EPA for review and approval, clearly not what Congress intended in enacting the Clean Water Act. As the court in Kingman Park recognized, Congress could not have meant for EPA to sit idly by for more than a decade while states flagrantly violate their statutory mandates. Kingman Park, 84 F.Supp. 2d at 7.

Here, not only have none of the Bay jurisdictions developed TMDLs for either their portions of the Bay (Maryland and Virginia) or their tributaries to the Bay, but they have affirmatively asserted that they were not able to develop the TMDL on their own, and invited EPA to assume the lead and take over developing the Bay TMDL [FN 4]. Further, states agreed that a "state by state" approach to develop the TMDLs was scientifically and administratively less desirable than continuing to use a regional approach as they did with the water quality criteria. The well established doctrine of "constructive submission" of an inadequate TMDL by a state, which triggers EPA's duty to take over, coupled with the

states' express request in this case that EPA take the lead in developing the Bay-wide TMDL, provide ample authority for EPA's action in doing so.

Further, EPA often takes the lead role in developing TMDLs for interstate waters. See Dioxin/Organochlorine Center v. Clarke, 57 F.3d 1517 (9th Cir. 1995) (OR, WA and ID listed the Columbia River as impaired by a toxic compound, dioxin, but decided against developing TMDLs on their own. "Instead, after consultation and involvement in the development of the draft TMDL, the states requested the EPA to issue the proposed and final TMDL as a federal action under the authority of sec. 1313(d)(2)." The Columbia River TMDL for dioxin was upheld in the face of challenges filed by both environmentalists and industries.). Rivers that form borders between states, such as the Savannah River, or that flow from one state to another, such as the Arkansas, or bays that receive pollutants from numerous states, such as the Chesapeake, are good candidates for EPA-developed TMDLs.

Prior TMDL Litigation and Agreements

As discussed above, Section 303(d) of the Clean Water Act requires states to identify water quality limited segments of water bodies within their borders and to establish the total maximum daily load of pollutants that each water quality limited segment can assimilate,, 33 U.S.C.S. § 1313(d)(1)(C);); this duty transfers to EPA, however, when the states fail to act.. In 1997, EPA was sued because it did not act when Virginia failed to develop TMDLs for impaired water bodies. American Canoe v EPA, 30 F. Supp. 2d 908 (E.D. Va. 1998) (hereafter "American Canoe I"). That matter was settled via a consent decree approved by the federal court. American Canoe v. EPA, 54 F. Supp. 2d 621 (E.D. Va. 1999) ((hereafter "American Canoe II").

EPA was also sued for failing to ensure that the District of Columbia identify impaired bodies of water within its jurisdiction and developed TMDLs for those waters. Kingman Park Civic Association v EPA, 84 F. Supp. 2d 1 (D. DC 1999). Like American Canoe, that matter was settled via consent decree which set deadlines for listing impaired water bodies and developing TMDLs for them. Those bodies of water are all tributaries to the Chesapeake Bay.

In addition, in 1996 the American Littoral Society and the Sierra Club sued EPA to ensure that TMDLs were developed for impaired waters on Delaware's Section 303(d) list which included a tidal Bay segment, the Upper Nanticoke. The parties entered a consent decree in 1997 which required EPA to develop TMDLs if Delaware failed to do so. While Delaware adopted some TMDLs, it does not have in place a TMDL to meet the current water quality standards for the tidal Bay segment, effectively leaving that task to EPA.

A similar claim was brought concerning Maryland's portion of the Bay. That claim was resolved via a memorandum of understanding between Maryland and EPA in 1998. Like the American Canoe and Kingman Park consent decrees, this memorandum required EPA to develop a TMDL for Maryland's portion of the Chesapeake Bay if Maryland failed to do so by 2010. EPA's Bay wide TMDL complies with its authority and commitment to prepare TMDLs for all of the Bay segments covered by these various consent decrees and MOUs. See Draft TMDL § 2.2.4.

Section 117(g) of the Clean Water Act

EPA's authority to issue the Bay wide TMDL is also supported by Section 117 of the Clean Water Act (33 U.S.C. § 1267(g)(1)(A)-(g)(1)(B)). Use of the word "shall" makes the Administrator's obligation mandatory. Lexecon Inc. v. Milberg Weiss Bershad Hynes & Lerach, 523 U.S. 26, 35 (1998) ("The mandatory 'shall,' ... normally creates an

obligation impervious to judicial discretion"). Thus, EPA was required to develop a management plan to comply with the nutrient reduction goals of the Chesapeake 2000 agreement. The proposed Chesapeake Bay TMDL is the most appropriate such 'plan" to "achieve and maintain …the nutrient goals…and water quality requirements "referred to in Section 117(g) because it is tailored to achieving compliance with the water quality standards for nutrients and sediment. It is the principal tool provided in the Clean Water Act for this purpose, and therefore is precisely what Congress intended that EPA should do in implementing Sections 303(d) and 117(g).

Fowler v. EPA Settlement Agreement - Requires TMDL by December 31, 2010

EPA was sued for failing to comply with Section 117(g) and the Bay Agreements. Fowler v. EPA, Case No. 09-cv-00005-CKK, D. D.C., January 5, 2009. That matter was settled by agreement between the parties. The agreement provides that EPA will develop a Bay wide TMDL "[b]y December 31, 2010, pursuant to 33 U.S.C. §§ 1313(d) and 1267..." Settlement Agreement Section III.A.1. Thus, EPA is also required pursuant to the settlement agreement in Fowler to develop a Bay wide TMDL.

[FN 2] PSC Meeting minutes June 18-19, 2008

[FN 3] See, e.g., Scott v. Hammond, 741 F. 2d 992 (7th, Cir. 1984) (holding that lengthy inaction on the part of a state can constitute a 'constructive submittal' of an inadequate TMDL, thereby transferring the duty to prepare to EPA); Kingman Park, 84 F.Supp. 2d 1, 2; American Canoe Ass'n, Inc. v. United States Envtl. Protection Agency, 30 F. Supp. 2d 908, 919--22 (E.D. Va. 1998) (holding that EPA must take action to develop TMDLs for states that fail to do so); Alaska Ctr. for the Env't v. Reilly, 762 F. Supp. 1422, 1426--29 (W.D. Wa. 1991) ("Congress intended that EPA's affirmative duties be triggered upon a state's failure to submit a list or any TMDL at all."); cf Miccosukee Tribe of Indians v. United States Envtl. Protection Agency, 105 F.3d 599, 602--03 (11th Cir. 1997) (holding that, despite the lack of an actual submission from Florida indicating that it had changed the water-quality standards, EPA's nondiscretionary duty under 33 U.S.C. § 1313(d)(4)(B) would be triggered if Florida had actually altered its water-quality standards).

[FN 4] This decision was formalized at the meeting of the Principals' Staff Committee (PSC) on October 1, 2007. It was agreed that the Bay watershed TMDLs would be developed jointly between the six Bay watershed states, the District of Columbia and EPA, and then established by EPA. It was further agreed that the Water Quality Steering Committee would draft nutrient and sediment cap load allocations by tributary basin and jurisdiction, and the Principals' Staff Committee would formally adopt these allocations.

Response

Thank you for your comment. EPA appreciates your support for the Chesapeake Bay TMDL. EPA agrees that the TMDL is legally required, as discussed in Section 1 of the TMDL.

Comment ID 0606.1.001.007

Author Name: Schmidt-Perkins Dru

Organization: 1000 Friends of Maryland

IV. Conclusion

We have a moral and legal imperative to protect these local waters upon which 17 million people rely. The Clean Water Act, three major Bay Agreements and scores of minor ones, three consent decrees, dozens of Memoranda of Agreement/Understanding and a Presidential Executive Order all require development of a Bay-wide TMDL. It is not only legally required, but perfectly logical, appropriate and fair for EPA to develop this TMDL. Moreover, EPA has used this authority wisely, engaging in a highly transparent public process developing the TMDL (and seeking comments on the draft), providing states ample opportunity to prepare and revise draft Watershed Implementation Plans, (WIPs), and seeking to implement allocations that are substantially equivalent to those the states have had since 2003.

Response

Thank you for your comment. Please see the response to comment number 0227.1.001.025.

Comment ID 0607.1.001.002

Author Name: Bauhan Hobey

Organization: Virginia Poultry Federation (VPF)

Legal and Policy Issues

The draft TMDL exceeds the authority granted to EPA by Congress. The Clean Water Act (CWA) prescribes specific requirements and procedures for developing TMDLs for impaired waters. EPA is not following these procedures nor adhering to these requirements. The CWA does not give EPA any authority to require or implement TMDL implementation plans as the agency is attempting to do. The CWA does not give EPA authority to mandate state actions under threat of federal sanctions as the agency is attempting to do. The CWA requires states to develop TMDL for waters that fail to meet water quality standards. The CWA authorizes EPA to adopt a TMDL for an individual water body or segment only after the agency has determined that a state has failed to develop a TMDL for that particular water body or segment. In this regard, the draft TMDL does not adhere to the CWA.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. Please also see response to comment number 0267.1.001.002 for discussion of

general authority for EPA to establish the TMDL.

Comment ID 0680.1.001.002

Author Name: Satterfield Bill

Organization: Delmarva Poultry Industry, Inc. (DPI)

Delmarva Poultry Industry, Inc. and our 2,000 members particularly are concerned that the draft TMDL exceeds the authority granted to the EPA by Congress through the Clean Water Act. The Act is very clear; it is the responsibility of the states to establish TMDLs. EPA's role is to review and approve the TMDLs developed by the states. If EPA disapproves the TMDL, then EPA must establish the TMDL. The statute does not provide authority for EPA to conduct a TMDL at the request of the state nor does it provide the authority for EPA to do part of the TMDL while forcing the states via threats of "consequences" to develop watershed implementation plans.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0689.1.001.002

Author Name: Hann Steven

Organization: Capital Region Council of Governments TMDL Work Group

2. The draft TMDL states that "EPA is establishing the Chesapeake Bay TMDL pursuant to a number of existing authorities, including the CWA and its implementing regulations... " Section 303(d) of the Clean Water Act provides EPA with the authority to develop a TMDL only if it first disapproves a state submitted TMDL. There is no indication in the draft TMDL that any of the Bay jurisdictions with impaired waters within the Chesapeake Bay Watershed has submitted a TMDL to EPA, which has been subsequently disapproved. Therefore, EPA is without statutory authority to develop the Bay TMDL.

3. The draft TMDL cites to Section 117(g) of the Clean Water Act as providing EPA with authority to develop the Bay TMDL and to require states to develop WIPs. Moreover, in the draft TMDL, EPA asserts that the Bay TMDL is considered a "management plan" under Section 117(g) of the Clean Water Act (p.1-13). In fact, there is no relationship between Section 117 and Section 303 of the Clean Water Act, the latter of which provides the only basis under the Clean Water Act for the establishment of TMDLs.
(a) Even if EPA is provided authority to develop management plans under Section 117(g) of the Clean Water Act, a management plan is not a TMDL (p.1-13). Therefore, Section 117(g)(1) of the Clean Water Act does not provide EPA with the authority to develop the Bay TMDL.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. Please see response to comment number 0267.1.001.002 for discussion of general authority for EPA to establish the TMDL and response to comment number 0436.1.001.004 (discussion of Section 117 of CWA 2017/2025 implementation framework).

Comment ID 0700.001.003

Author Name: Tamberrino Frank

Organization: Harrisonburg-Rockingham Chamber of Commerce

At our last Public Policy Committee meeting, it was noted that EPA may not have followed the process and requirements spelled out in the Clean Water Act for developing a TMDL. The agency is taking measures which are reserved for states under the Act, and inappropriately mandating state actions.

Response

Thank you for your comment. Please see response to comment number 0267.1.001.002 for discussion of general authority for EPA to establish the TMDL and response to comment number 0436.1.001.004 (discussion of Section 117 of CWA 2017/2025 implementation framework).

Comment ID 0740.001.010

Author Name: Hanmer R.

Organization:

Waters not meeting water quality standards are required by the Clean Water Act to be listed as "impaired" under sec. 303(d). I understand that Maryland and Delaware listed all or part of their Chesapeake Bay and tidal tributary waters as impaired for aquatic life protection in 1996. In 1998, Virginia and EPA completed the listing process for Virginia's Chesapeake Bay and tidal tributary,waters. By 1998, then, the Bay and most of its tidal tributaries had been officially identified as impaired under sec. 303(d) of the federal act.

Once impaired waters are listed under 303(d), the Clean Water Act requires the creation of a TMDL for each listed segment, to establish allocations (allowable loads) for the-pollutants in question. TMDLs guide the water quality restoration effort and establish a basis for better accounting of pollutant sources and their cleanup. Delay by the states and EPA in establishing TMDLs for the Bay pollutants led to lawsuits. Most importantly for the timing of the Chesapeake Bay TMDL, EPA settled the lawsuit brought by the American Canoe Association et al., agreeing to establish needed TMDLs for Virginia impaired waters over a 12-year schedule. Given the complexity of establishing the Bay TMDLs, and the preparatory steps required, the Virginia settlement allowed EPA until May 2011 to complete these TMDLs.

EPA and the states in the Bay Program undertook two parallel efforts to respond to this challenge and make the best use of the years available. They agreed to accelerate the cooperative Bay program effort to correct nutrient and sediment pollution, and to establish, basinwide, a Clean Water Act foundation for standards, load allocations and regulatory activities, using the open, collaborative mechanisms of the Chesapeake Bay Program. The partners would also seek to use pertinent Clean Air Act requirements to control air deposition of nitrogen compounds.

Thus, EPA and its Chesapeake Bay Program partners (the states of Maryland, Virginia, Pennsylvania, the District of Columbia, and the Chesapeake Bay Commission) established, in the new Chesapeake 2000 Agreement, a more focused and accelerated program to install nutrient and sediment controls to restore water quality through implementation of improved tributary strategies to achieve tributary-specific nutrient and sediment load allocations. It was hoped that this initiative might succeed so well that Bay tidal waters could be "de-listed", making the Chesapeake Bay TMDL unnecessary. The deadline for restoring water quality, removing the Bay's tidal waters from the lists of impaired waters and forestalling the TMDL, was 2010.

The states of Delaware, New York and West Virginia were actively recruited to sign memoranda of understanding with the Bay Program Partners in 2000-2002. These states agreed to join all aspects of the Bay water quality restoration program, and thus participated in the steps outlined below and in Chesapeake Bay Program Principals' Staff Committee (PSC) meetings where water quality policy decisions were made by consensus of the federal-state partners. (Note that, over time, not all headwater states, concurred in every decision made by the PSC.)

Response

Thank you for the supporting comment. EPA in general agrees with the comment.

Comment ID 0746.1.001.006

Author Name: Carl Jimmie

Organization: Southern Tier Chesapeake Bay TMDL Commenting Coalition

II. The TMDL is Unapprovable as Proposed Because it is Both Unachievable and Unfair

Under the Clean Water Act, it is the states that are required to submit lists of Water Quality Limited Segments (WQLSs) and TMDLs to the EPA at certain times. 33 U.S.C. § 1313(d)(2). Once a state makes the required submission, certain mandatory duties by EPA are triggered and, within 30 days, EPA must review the state's submissions. Id. If approved by EPA, the submissions are incorporated by the state into its continuing planning process established under CWA § 1313(e)(3). If EPA does not approve the submission, EPA has 30 days after disapproval to make its own identification of waters and establish TMDLs necessary to implement the applicable water quality standards. Id. In such a case, the State incorporates EPA's TMDLs into its current plan under § 1313(e) of the Clean Water Act. CWA § 303(d)(2), 33 U.S.C. § 1313(d)(2). Thus, the Clean Water Act contemplates that TMDLs are to be developed by the states and, while the TMDLs are subject to EPA's authority to review and reject such TMDLs, the steps necessary for actual implementation of the TMDLs remain the province of the states and such standards must be "approvable and

defensible" (EPA Memorandum, Robert H. Wayland, III, adopted August 17, 1997 [http://www.epa.gov/owow/tmdillisgid.html]). While EPA has a further role with respect to its supervision of point source discharge permits, EPA does not have the authority to control nonpoint sources under the Clean Water Act by writing, imposing and then adopting TMDLs for the states when the Act's explicit language delegates those responsibilities to the states.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. Please see response to comment number 0267.1.001.002 for discussion of general authority for EPA to establish the TMDL and response to comment number 0436.1.001.004 (discussion of Section 117 of CWA 2017/2025 implementation framework).

4.3 - SCOPE OF THE BAY TMDL - 303(D) SEGMENTS COMPARED TO CONSENT DECREE AND MOU SEGMENTS

Comment ID 0199.1.001.005

Author Name: Frederick Thomas

Organization: Rivanna Water & Sewer Authority

In addition, as the Chesapeake Bay Program has long ago determined, the James River does not influence mid-Bay water quality and any regulation of James River nutrient discharges should occur only for local water quality protection. Locally, the applicable water quality standard is the chlorophyll standard adopted by Virginia in 2005 and approved by EPA. Since adoption of this standard, the State issued the Virginia Regulations governing WWTPs and local governments designed and constructed the required new facilities with long-term debt, which now must be repaid by the public over the next 20 to 30 years.

Response

EPA disagrees. The Virginia consent decree requires EPA to establish a TMDL for “each water and pollutant identified in Attachment A and C” of the decree if Virginia has not done so by a date certain. The James River’s tidal tributaries are identified on Attachment A (Part 2) of the 1999 Virginia consent decree as impaired by “nutrients,” with specific focus on “aquatic life concerns.” It is immaterial that Virginia did not establish a numeric chlorophyll standard for those segments until 2005. At the time EPA established this TMDL, the segments remained listed and impaired, and the 2005 chlorophyll standard protective of aquatic life uses was an “applicable” water quality standard for purposes of section 303(d)(1)(C). Accordingly, the 1999 Virginia consent decree requires that EPA establish a TMDL for those segments at a level that implements the applicable chlorophyll standard.

Comment ID 0213.1.001.003

Author Name: Daley Edwin

Organization: Hopewell Regional Wastewater Treatment Facility (HRWTF), Virginia

James River TMDL is Virginia's Responsibility:

For years, we have understood that the James River has very little impact on the main stem and the dead zone of the Chesapeake Bay. However, EPA has proposed drastic cuts to James allocations on the basis of chlorophyll standards violations. Achievements of these proposed backstop allocations will not improve the Bay water quality.

In addition, as EPA is aware, the chlorophyll standard lacks a sound scientific foundation. Virginia's WIP proposes a systemic study to address this and determine a scientifically sound method for eutrophic measurement. Since this is a state standard, it is Virginia's responsibility to enforce the standard and to develop a method for standard achievement. Since the James River chlorophyll standard was adopted in 2005, we do not believe this is part of EPA's responsibility under its TMDL Consent Decrees with the American Canoe Association and Kingman Park Civic Association and therefore, should not be part of this TMDL. Hence, Virginia's WIP approach is a responsible approach toward developing an appropriate standard while maintaining progress in meeting the Chesapeake Bay goals in 2017 and 2025.

Response

EPA disagrees. The Virginia consent decree requires EPA to establish a TMDL for "each water and pollutant identified in Attachment A and C" of the decree if Virginia has not done so by a date certain. The James River's tidal tributaries are identified on Attachment A (Part 2) of the 1999 Virginia consent decree as impaired by "nutrients," with specific focus on "aquatic life concerns." It is immaterial that Virginia did not establish a numeric chlorophyll standard for those segments until 2005. At the time EPA established this TMDL, the segments remained listed and impaired, and the 2005 chlorophyll standard protective of aquatic life uses was an "applicable" water quality standard for purposes of section 303(d)(1)(C). Accordingly, the 1999 Virginia consent decree requires that EPA establish a TMDL for those segments at a level that implements the applicable chlorophyll standard. Please also see the response to comment number 0288.1.001.036.

Comment ID 0267.1.001.003

Author Name: Bowman Cynthia

Organization: Cornell Law School Water Law Clinic

Admittedly, there are a few waterbodies in the New York portion of the watershed that are on the § 303(d) list of impaired waters. For example, segments of the Susquehanna River watershed on the § 303(d) list of impaired waters are Beaver Lake (phosphorus), Park Creek and its tributaries (pathogen), Unadilla River (pathogen), White Birch Lake (phosphorous), and Whitney Point Lake/Reservoir (phosphorous).[FN 2] In the Chemung River watershed, segments

that are on the § 303(d) list of impaired waters are Koppers Pond (PCBs) and Lake Salubria (phosphorus).[FN 3] Because New York State has not developed TMDLs for these waters, EPA should, and must under § 303(d), establish a phosphorus load allocation for these specific waterbodies. Further, § 303(d) mandates that EPA base New York's phosphorous allocation on the WQS that New York has set for phosphorous for these waters. Alternatively, under § 303(b)(2), EPA may promulgate a water quality standard if EPA has determined the WQS submitted by the State is inconsistent with § 303(a). However, EPA has neither established a TMDL for the waterbodies in New York State impaired by phosphorus, nor has it determined that the WQS submitted by New York State are inconsistent with the applicable requirements of § 303(a). EPA's September 24th draft TMDL does not consider New York's WQS in establishing the Chesapeake Bay TMDL. Rather, EPA has based its phosphorous allocation for New York on phosphorous impairments in the Chesapeake Bay (as opposed to basing the phosphorus allocation on the phosphorus impairments within the New York tributaries). CWA § 303(d) does not contemplate this procedure.

[FN 2] U.S. ENVTL. PROTECTION AGENCY, SECTION 303(D) LIST FACT SHEET FOR WATERSHED: UPPER SUSQUEHANNA, http://oaspub.epa.gov/tmdl/huc_rept.control?p_huc=02050101&p_huc_desc=UPPER%20SUSQUEHANNA).
[FN 3] U.S. ENVTL. PROTECTION AGENCY, Section 303(d) List Fact Sheet for Watershed: CHEMUNG, http://oaspub.epa.gov/tmdl/huc_rept.control?p_huc=02050105&p_huc_desc=CHEMUNG.

Response

EPA disagrees with the comment and its underlying assumption that any Bay-related TMDL allocations affecting nutrient and sediment pollutant loadings originating in New York (or the other headwater States) must be established by those headwaters States and based solely on their own State water quality standards. In the 38 years since passage of the CWA, none of the Bay headwaters States (New York, Pennsylvania, and West Virginia) has established or submitted a TMDL to EPA that allocates nutrient or sediment loadings in their jurisdictions at a level necessary to implement water quality standards in the Bay or its tidal tributaries. Moreover, the headwaters States requested and collaborated with EPA in the establishment of this Bay TMDL and its allocations. Accordingly, EPA has acted within its authority under CWA 303(d) to establish allocations to the headwater States in the Bay TMDL consistent with the need to implement tidal Bay water quality standards.

Nor was it necessary for EPA to first require that the headwaters States revise their own water quality standards to "take into consideration" the applicable tidal Bay water quality standards and "ensure" that their "upstream" standards provide for "downstream" standards attainment. EPA is establishing the Bay TMDL to implement the tidal Bay standards, not the headwater States' own "upstream" standards. (The Bay TMDL does, however, ensure that applicable, local standards are met.) The fact that a headwater State's standards may not already be stringent enough per 131.10(b) to ensure implementation of the tidal Bay standards does not constrain EPA's ability and authority under 303(d) to establish Bay TMDL allocations that are fully protective of the applicable downstream tidal Bay standards. To interpret CWA 303(c) and (d) otherwise would turn the Act on its head by subjecting a TMDL's ability to protect its targeted waters (and their "applicable" water quality standards) to limitations contained in upstream water quality standards. Likewise, under the framework of the Bay TMDL, EPA need not establish TMDLs or allocations for specific waters on New York's 303(d) list because they are not meeting local water quality standards. The purpose of this TMDL is to achieve the applicable standards for the 92 impaired Bay segments. New York is free to develop TMDLs for waters with local impairments outside the context of this TMDL on an appropriate schedule.

Comment ID 0467.1.001.007

Author Name: Williams Shannon

Organization: The Harrisburg Authority, Harrisburg, Pennsylvania

D. What is the EPA's authority to enforce a Chesapeake Bay TMDL in Pennsylvania when all of the impaired streams are outside of the Commonwealth and the Bay TMDL doesn't apply to Pennsylvania?

Response

Thank you for your comment. Please see the response to comment numbers 0267.1.001.003 and 0689.1.001.004

4.4 - GENERAL/MISCELLANEOUS

Comment ID 0060.1.001.004

Author Name: Bredwell III Paul

Organization: U.S. Poultry & Egg Association, National Turkey Federation (NTF), and National Chicken Council (NCC)

The proposal also sets important legal precedents for the use of EPA's authority in other regions of the nation where family farms and processors are located. As a consequence, the entire U.S. industry and we as trade associations have a direct interest in this rulemaking.

Response

Thank you for your comment. Although the Chesapeake Bay TMDL is not a rulemaking, EPA has developed this TMDL consistent with EPA authority under the CWA.

Comment ID 0062.1.001.015

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

Further, this date is embodied in a settlement agreement, not a judicial consent decree, so EPA need only seek an extension from CBF. Even if the CBF is unwilling to agree to a modification of the settlement agreement, the only remedy CBF has under that agreement is to reinstate its lawsuit against EPA, which we believe is without merit. Further, if EPA makes the requested information relating to Scenario Builder available to the public quickly, the Agency will still be able to issue the 23 TMDLs in Virginia and the 2 TMDLs in the District of Columbia by May 2011, avoiding

the need to amend the consent decrees requiring issuance of those TMDLs by May 1, 2011 and May 31, 2011, respectively.

Response

It is true EPA declined to extend the TMDL's 45-day comment period. To do so would have made it impossible for EPA to establish the Bay TMDL by December 31, 2010. EPA places a very high value on meeting its public commitment to establish the TMDL by that date. EPA does not want to break faith with the States who requested it or the public who expects it. Moreover, EPA is acting pursuant to Executive Order 13508 to "make full use of its authorities" to protect the Bay, as well as a promise EPA made in a May 2010 settlement agreement resolving Fowler v. EPA. While EPA could have attempted to negotiate an extension of the Fowler agreement date, EPA believes that - under all the circumstances of this TMDL, including the considerable transparency of the process to date and EPA's considerable efforts to engage in public outreach – its efforts were better spent finishing work on the TMDL in order to avoid any further delays in implementing EPA's and States' 27-plus year old commitment to restore the Bay's water quality.
EPA agrees that its settlement agreement resolving Fowler v. EPA and the Executive Order do not expand its CWA authority to establish the Bay TMDL. EPA never said they did. Rather, EPA said it was establishing the Bay TMDL by December 31, 2010 to meet a commitment it made in the settlement agreement to act by that date

In response to requests for more modeling-related information, EPA disagrees that it had not made information on Scenario Builder and other essential models available. For example EPA posted scenario builder information that was used for all of the calibration model inputs (the same thing as SB output) except for the acres of BMPs, which was calculated outside of SB in March 2010 at:
ftp://ftp.chesapeakebay.net/modeling/phase5/Phase%205.3%20Calibration/Model%20Input/

In addition the following information on the Watershed Model calibration was posted on the following websites spring of 2010:

- http://www.chesapeakebay.net/phase5.htm: Scroll down to Phase 5.3 Watershed Model Output Data and Phase 5.3 Watershed Model Input Data
ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/

This information was also available through links provided in Section 5 of the draft TMDL, which was released for a 45-day public comment period on September 24th. Further, the Watershed Model code and calibration data, as well as the Scenario Builder documentation, were linked to our website before the draft TMDL was released.

The Scenario Builder programming codes are available for download at:
ftp://ftp.chesapeakebay.net/modeling/ScenarioBuilder/ScenarioBuilderSource/
EPA also made additional information available in November 2010. See emails from EPA James Curtin to several persons including commenter dated November 2, 2010. EPA believes it has made sufficient information available for the public to reasonably and intelligently comment on the Bay TMDL.

Comment ID 0066.1.001.018

Author Name: Rountree Glynn

Organization: National Association of Home Builders (NAHB)

EPA continually points to the TMDL schedule included in its May 2010 settlement with former Maryland state senator C. Bernard Fowler, the Chesapeake Bay Foundation, Maryland and Virginia watermen's associations, and others in Fowler v. EPA that calls for the completion of the Bay TMDL by December 31, 2010 as the reason for a truncated public review. The Agency, however, has full authority to revise the schedule and timeline to allow for a sufficient comment period. Indeed, because the current deadline is simply an agreed-to date within a court settlement, EPA can renegotiate. [FN6] In fact, the Settlement Agreement gives EPA flexibility to extend the December 31 deadline and certainly does not limit or modify EPA's discretion to allow the public sufficient time to review and comment on the 94 Bay TMDLs. [FN7] Because the very purpose of the public comment process is to allow stakeholders to analyze the proposal and provide comments and suggestions that may improve the effectiveness and lower the costs of the rule, providing additional time for this vital and necessary input provides benefits to both the Agency and the public.

It is only fair that the public be given ample time and opportunity to participate in the development and finalization of this important and sweeping proposal. The Chinese saying: "Find enlightenment through heeding many points of view. Find ignorance through heeding few" is one EPA should follow. EPA needs to give stakeholders the broadest opportunity possible for them to fully understand and make their suggestions on the proposed rule. The best way to do that is to provide a minimum of 180 additional days for the public comment period for the proposed Bay TMDL.

[FN6] Fowler v. EPA Settlement Agreement, Section IV.A. ("[t]he parties may modify any deadline or other term of this agreement in writing.").
[FN7] Fowler v. EPA Settlement Agreement, Sections VI.A, D, & E. (noting that the agreement does not limit or modify EPA's discretion under the APA or require EPA to violate the APA, and allowing EPA to delay deadlines under certain circumstances upon notice to the plaintiffs).

Response

Please see the response to comment number 0062.1.001.015 (CBF Settlement and extension request) and 0251.1.001.005.

Comment ID 0070.1.001.013

Author Name: Hughes Robert

Organization: Eastern PA Coalition for Abandoned Mine Reclamation (EPCAMR)

EPCAMR understands that the Chesapeake Bay TMDL addresses ONLY the restoration of aquatic life uses for the Bay and its tributaries that are impaired from excess nutrients and sediment. EPCAMR has performed biological sampling on stream segments over the years where aquatic life has been restored to segments of streams that have been previously impaired by AMD and are now being restored due to the implementation of AMD remediation strategies and

implementation of construction projects. Perhaps a more comprehensive biological assessment review needs to be completed in the tributaries of the Chesapeake Bay, particularly downstream of treated AMD stream segments or pollution sources. Since sediment is a major contributor to the problems within the Chesapeake Bay, the TMDL should consider that AMD in its iron hydroxide form, and in the form of fine coal silt, once it settles out on the streambed are sediments that can choke out all aquatic life, stream habitats, spawning grounds, promote algal growth, and create areas of low dissolved oxygen levels. In areas where the coal silt basins and abandoned culm banks are directly along the streambanks of some of our rivers and streams, riparian corridor establishment would help to prevent further streambank erosion and siltation into the watersheds during peak stormflows and flooding events. Air deposition to the watershed, particularly in the Northeast Region of the Basin, contribute much of the acid impaired headwater streams that lack the buffering capacity to handle the acid rain contributions from the Western Ohio and Pittsburgh Region that tends to fall over our portion of the basin. See http://www.tu.org/conservation/eastern-conservation/brook-trout/education/threats/acid-deposition for details.

Response

EPA agrees that the Bay TMDL addresses the pollutants nitrogen, phosphorus and sediment as they impair the aquatic life uses of the Chesapeake Bay tidal waters, and the waters impacted in Pennsylvania by mining wastes are outside the scope of the TMDL. EPA also agrees that to the extent the TMDL reduces sediment loadings in the headwater state tributaries, including those impaired by mining wastes, local water quality should show some improvement. EPA also notes that the Bay TMDL does include allocations to air sources and will continue to track reductions in that sector.

Comment ID 0169.1.001.027

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

The Clean Water Act and EPA‘s regulations do not give it the authority to establish a 2025 compliance deadline in the TMDLs.

Response

Thank you for your comment. Please see response to comment number 0436.1.001.004 (discussion of Section 117 of CWA 2017/2025 implementation framework).

Comment ID 0194.1.001.012

Author Name: Ashley Keith

Organization: Home Builders Association of Metro Harrisburg

EPA has indicated that a certain amount of "retrofitting" to existing urban stormwater conveyance systems is necessary. The cost to Pennsylvania's municipalities to accomplish this task would be staggering. You folks know that the entire country is in a recession; our municipalities are shedding employees, projects and cutting services. Unless the federal government funds this program few if any municipalities will do retrofitting setting up a "stare down" with EPA and very likely costly litigation.

Response

Please see the response to 0038.1.001.024 outlining the federal effort towards the Bay and the response to comment 0501.1.001.005 for a discussion of the cost of public sector point source upgrades.

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0194.1.001.014

Author Name: Ashley Keith

Organization: Home Builders Association of Metro Harrisburg

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA) directs federal agencies "unless otherwise prohibited by law [to] assess the effects of Federal regulatory actions on State, local, and tribal governments, and the private sector…" Section 202 (a) of the act directs agencies to provide a qualitative and quantitative assessment of the anticipated costs and benefits of a federal mandate resulting in annual expenditures of $100 million or more, including the costs and benefits to State, local, and tribal governments or the private sector.

Response

EPA is not considering cost in the TMDL for reasons discussed in the response to comment 0139.1.001.017. Further, EPA reminds the commenter that we are under legal obligation to establish a TMDL that meets water quality standards. This requires EPA to establish the loadings necessary to meet water quality standards given reasonable assurance that standards will be achieved. Please see the response to 0038.1.001.024 outlining the federal effort towards the Bay.

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0200.1.001.005

Author Name: Devilbiss Thomas

Organization: Carroll County Government, Maryland

• Although ultimately it is a shared effort to put particular measures in place to achieve the reductions, it would be essential to be clear on who is actually legally responsible for achieving the goals. It will be crucial to incorporate language to the process to exempt local jurisdictions from civil suits, particularly given the uncertainly of where the resources and capacity to implement the WIP are coming from at this point.

Response

Thank you for your comment. Please see response to comment number 0436.1.001.004 (discussion of implementation framework).

Comment ID 0201.1.001.008

Author Name: Fawver Gary

Organization: Pennsylvania Department of Transportation

Third, neither EPA nor PADEP have the regulatory authority to impose standards on properties located outside the urbanized MS4 areas defined in the Clean Water Act. The Phase II regulations provide the State (not EPA) with the discretion to designate areas other than urbanized areas determined by the Census. 40 C.F.R. §122.32. To designate additional areas, a determination must be made that the MS4 contributes substantially to the pollutant loadings. 40 C.F.R. § 123.35(b). No factual support has been provided to support designating additional areas for coverage under the MS4 permit program. The significant contributors of sediment in PA are agriculture and timbering activities.

Response

EPA disagrees with the commenter's assertion about lack of CWA legal authority for urban/suburban stormwater controls necessary to implement the Bay TMDL and lack of EPA authority to designate sources of stormwater as point sources regulated by NPDES permits. EPA has taken the jurisdiction's WIPs into account in establishing allocations in the TMDL. Because this is EPA's TMDL, the CWA requires that EPA establish nutrient and sediment allocations at a level necessary to implement applicable water quality standards. To the extent EPA backstop assumptions serve as a basis for the TMDL's final allocations, those assumptions would have been necessitated by inadequacies in the jurisdictions' WIPs. That being the case, EPA would have been obligated to make allocations stringent enough to meet applicable standards sooner or later based, in part, on such assumptions.

EPA agrees that the procedural requirements of the federal regulations cited apply to EPA as well as the state in designating sources. See Section 4 for factual discussion of the impact of stormwater pollution on the Bay as well as other responses within this comment.

Comment ID 0211.1.001.019

Author Name: McCarthy R.

Organization: Town of Erwin, New York

the EPA allocations are unachievable therefore it is arbitrary, capricious and contrary to law for EPA to impose and for any state to enforce such TMDL allocations,

Response

EPA disagrees with this comment – the allocations in the TMDL are achievable, as explained more fully in the TMDL document, specifically sections 6,8 and 10. EPA asked the jurisdictions to submit watershed implementation plans (WIPs) to support their TMDL allocation decisions for various pollutant loading sectors. EPA reviewed the WIPs to determine if they provide adequate "reasonable assurance" to support the jurisdictions' allocations. Where the WIPs did not provide such assurances, the CWA requires EPA to adjust the allocations in an appropriate manner so they are established at a level necessary to implement applicable water quality standards. For the most part EPA based its allocations on the State WIPs. See Section 8 of the TMDL for specific discussion of the basis for EPA allocations.

Comment ID 0212.1.001.006

Author Name: Greenland Victoria

Organization: Arlington County, Department of Environmental Services, Virginia

We understand the authority granted by the Clean Water Act to enforce water quality standards set for the Bay and its tidal tributaries. However, the regulatory framework for MS4 permits under the Clean Water Act is different than the framework EPA has more recently articulated for MS4 permits with the Bay TMDL and other TMDLs in the region and country.

Section 402.p.3.b.iii of the Clean Water Act (CWA) states that MS4 permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable [emphasis added]...." The plain language of the CWA applies this 'MEP' standard to MS4 permits, rather than a strict standard to comply with water quality criteria, as is the case with the Bay TMDL.

To date, MS4 permits have been administered by regulatory agencies in the region using the MEP standard. In contrast, EPA and some courts have reached a conclusion that the MEP standard does not apply to MS4 permits when water quality criteria are violated.

The statutory and regulatory basis for this interpretation is unclear at best and, at worst, is in direct conflict with the plain language of the Clean Water Act. We, therefore, have serious and ongoing questions about EPA's authority to enforce any standard other than the MEP standard for MS4 permits.

Response

EPA disagrees with the comment that MS4 permittees are exempt from the requirement of the CWA set forth in Section 301(b)(1)(C) to not cause or contribute to the exceedance of water quality standards. EPA agrees that Section 402(p) adds a supplemental standard unique for MS4s identified as the maximum extent practicable (MEP) and that this MEP standard is the one most commonly implemented in the NPDES permit for MS4s. See Section 4 discussing NPDES Permitted Stormwater for further details.

Comment ID 0213.1.001.005

Author Name: Daley Edwin

Organization: Hopewell Regional Wastewater Treatment Facility (HRWTF), Virginia

It is our understanding that EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance". We question whether EPA's unpromulgated "reasonable assurance" guidance is even legal because the regulation on which the guidance is based has never been put into effect.

Response

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0217.1.001.008

Author Name: Pozgar David

Organization: Logan Township

EPA cannot provide “Reasonable Assurance” that placing significantly lower limits on point sources (with many industrial point sources below the limit of technology) will be implemented and successful.

This approach exasperates the unstable economic conditions that exist today. This approach will likely lead to multiple legal actions that will result in significant delays to the restoration of the Bay.

Response

The existence of the NPDES regulatory program and the issuance of an NPDES permit(s) provide the reasonable assurance that the WLAs in the TMDL will be achieved. That is because federal regulations implementing the CWA require that effluent limits in permits be consistent with “the assumptions and requirements of any available [WLA]” in an approved TMDL [40 CFR 122.44(d)(1)(vii)(B)].

Please see the response to 0038.1.001.024 outlining the federal effort towards the Bay and the response to comment 0501.1.001.005 addressing public sector point sources. With regard to WIP backstops, please see the response to comment 0067.1.001.009 and section 8 of the TMDL.

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0218.1.001.007

Author Name: Wright Ronald

Organization: Borough of Everett Area Municipal Authority, Bedford County, Pennsylvania

This approach exasperates the unstable economic conditions that exist today. This approach will likely lead to multiple legal actions that will result in significant delays to the restoration of the Bay.

Response

Please see the response to 0038.1.001.024 outlining the federal effort towards the Bay. EPA allowed jurisdictions the opportunity to develop a Watershed Implementation Plan that meets the TMDL allocations. If a jurisdiction is unable to meet the targeted allocations or provide the justification on how it will meet those allocations then EPA must ensure that the TMDL allocations will be met with or without regard to cost as referenced in the response to comment 0067.1.001.009 and section 8 of the TMDL.

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0230.1.001.055

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

The American Canoe AND Kingman Park Consent Decrees Do Not Address Virginia's Chlorophyll-a

EPA continues to assert in it must complete the Bay TMDL by 2011 (the December, 2010 deadline is a self-imposed acceleration) because of two consent decrees issued in the late 1990/early 2000 timeframe, American Canoe Association, Inc., et al v. EPA, Civil Action No. 98-99-A (U.S. D.Ct. ED VA, 1999) [FN102] and Kingman Park Civic Association, et al v. EPA, Case No. 1:98CV00758 (U.S. D.Ct. D.C., 2000). Draft TMDL at 1-14 - 1-16.

VAMWA submits that EPA's obligations to develop a TMDL by May, 2011 do not extend to establishing loadings on the James River for chlorophyll-a. As the earlier discussion of the history of the establishment of the standard (see Section VI above) illustrates, the James River chlorophyll-a standard was not even adopted until 2005. In contrast, the American Canoe Consent Decree, was signed and filed in Federal Court in 1999 and covers TMDLs on the then existing 1998/99 303(d) list for Virginia. It is therefore impossible that EPA's obligation from the American Canoe Consent Decree extends to chlorophyll-a on the James given that the standard did not even come into existence until six years later. Although EPA has wrapped the James chlorophyll-a issue up into this TMDL, it is not obligated to do so, and should not have done so in light of the major concerns expressed by the State and VAMWA regarding the existing standard.

[FN102] Attached hereto as Appendix 51.

Response

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0232.1.001.004

Author Name: Deboer Jay

Organization: Virginia Association of Realtors

The EPA should delay adoption of the TMDL and backstops for at least one year and until no sooner than December 31, 2011 for the following reasons:

--No legal authority exists for the full range of urban/suburban retrofits the EPA draft TMDL or backstops would require of existing properties, including state and local highways. These include installing rain gardens and tearing up parking lots and installing stormwater controls including pervious asphalt. Such controls are far more expensive and achieve far less pollutant reductions per dollar spent than wastewater treatment plant upgrades or many agricultural best management practices contained in the Virginia draft WIP.

--Agricultural BMPs could be funded through a nutrient trading fund which accepts payments from urban/suburban land disturbing projects.

Response

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0251.1.001.007

Author Name: Duckett Robert

Organization: Peninsula Housing & Builders Association (PHBA)

PHBA members also strongly dispute the authority of the EPA to mandate that private owners reduce or retrofit their property's impervious surfaces, as may be imposed in the proposed backstop allocations. Both the U.S. Constitution and Virginia Constitution protect private property owners from a "taking without just compensation" by the government. The very high estimated costs associated with the retrofit requirements or mandates in the proposed backstop allocations clearly approach a "taking without just compensation" of private property. HBAV would urge the EPA to seek other less expensive and less intrusive solutions to the clean up of the Bay and its tributaries.

Response

Thank you for your comment. Please see the response to comment number 0232.1.001.004.

Comment ID 0265.1.001.016

Author Name: Clark, Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Hampton, Virginia

III. EPA DOES NOT HAVE THE LEGAL AUTHORITY TO ESTABLISH A DEADLINE IN THE TMDL

Nothing in either section 303(d) of the Clean Water Act (CWA) or its implementing regulations gives EPA the legal authority to set a deadline for attainment in the TMDL, nor has EPA cited to any such authority in the TMDL.[FN 7] EPA's proposed 2025 deadline would establish a single schedule in the form of a deadline for achieving compliance with the allocations for all NPDES permitted sources within the Chesapeake Bay watershed. Such a deadline is in direct conflict with EPA's own regulations, which authorize compliance schedules in NPDES permits, not TMDLs. See 40 C.F.R. § 122.47 (providing that a "permit may, when appropriate, specify a schedule of compliance leading to compliance with CWA and regulations.") While this may be EPA's TMDL, it is for the states with delegated NPDES permit programs, not EPA, to establish schedules and deadlines for achieving compliance with the allocations in the TMDL. See 40 C.F.R. § 123.25; 40 C.F.R. § 130.5(b)(1).

It is also well established that schedules of compliance to implement state water quality standards are purely matters of state law, which EPA has no authority to override. See In the Matter of Star-Kist Caribe, Inc., NPDES Appeal No. 88-5, 4 EAB 33, 36 (EAB 1992) (the responsibility of [s]tates under the law to make specific provision for schedules of compliance … is unequivocal"); In re District of Columbia Water and Sewer Authority, NPDES Appeal Nos. 05-02, 07-10, 07-11, and 07-12, EAB 714, 734 (EAB 2008) ("it is the role of the states, not EPA, to determine whether and under what circumstances compliance schedules may be incorporated in NPDES permits.") Therefore, EPA's attempt to establish a compliance deadline in the TMDL has no basis in the CWA or its implementing regulations, and improperly seeks to override the discretion reserved to the states to establish appropriate schedules of compliance on a case-by-case basis. Thus, the 2025 deadline should be removed from the TMDL.

[FN 7] EPA's own guidance effectively acknowledges that it lacks the authority to impose a compliance deadlines in TMDLs. See New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs), Memo from Robert Persciasepe, 4 (Aug. 8, 1997) (stating that "Section 303(d) does not establish any new implementation authorities beyond those that exist elsewhere in State, local, Tribal or Federal law").

Response

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0266.1.001.002

Author Name: Fagerstrom Angela

Organization: City of Binghamton, New York

WHEREAS, certain local entities, including Broome County Soil and Water and the Binghamton-Johnson City Joint Sewage Treatment Facility, have encouraged City Council to request a statement of opposition from the New York State Legislature and New York State Governor Patterson; and requests intervention by our elected representatives in

the United States Congress, New York State Senate and New York State Assembly in securing a moratorium on regulatory implementation of the Chesapeake Bay TMDL in New York until such objections and concerns are fully addressed

Response

EPA appreciates the comment.

Comment ID 0266.1.001.012

Author Name: Fagerstrom Angela

Organization: City of Binghamton, New York

WHEREAS, we object to EPA's discriminatory regulatory process that disproportionately burdens our communities and farms with costly mandates, weakens our rural economies; disrupts local food systems and provides no additional water quality protection for the Chesapeake Bay watershed

Response

Thank you for the comment. EPA disagrees with the comment that the reductions in nutrient and sediment pollution called for in the Bay TMDL will not improve water quality in the Bay.

Comment ID 0266.1.001.021

Author Name: Fagerstrom Angela

Organization: City of Binghamton, New York

RESOLVED that the City of Binghamton urges its Congressional and State representatives to intercede with EPA, and enact superseding legislation if required, to delay implementation of the Chesapeake Bay TMDL and request that EPA report to them on their response and adaptations regarding the aforementioned concerns; and be it further

RESOLVED, that the Clerk of the City of Binghamton shall immediately forward a certified copy of this resolution to our two United States Senators, the Honorable Charles E. Schumer and the Honorable Kirsten E. Gillibrand; to our United States Representative, the Honorable Maurice D. Hinchey; to the Honorable Governor David A. Paterson; to our New York State Senator, the Honorable Thomas W. Libous; to our New York State Assemblywoman, the Honorable Donna A. Lupardo; to the Acting Commissioner of the NYS Department of Environmental Conservation; and to the Commissioner of the NYS Department of Agriculture and Markets; and be it further

RESOLVED, that the Clerk of the City of Binghamton shall immediately forward a certified copy of this resolution to Shawn M. Garvin, Regional Administrator, U.S. Environmental Protection Agency, Region III, 1650 Arch Street,

Philadelphia, Pennsylvania 19103-2029; to Judith Enck, Regional Administrator, U.S. Enviromnental Protection Agency, Region II, 290 Broadway, New York, New York 10007-1866, and to the Water Docket, Docket ID: EPA-R03-0W-2010-0736, Environmental Protection Agency, Mail Code: 28221T, 1200 Pennsylvania Avenue N.W., Washington, DC 20460 by mail and electronic filing on <www.regulations.gov>

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0288.1.001.008

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

For many of Virginia‘s POTWs, the concentration levels based upon the "moderate" backstop are significantly lower than the concentration levels used to derive the WLAs in the Virginia Regulations and now in Virginia‘s Draft WIP. As a result, EPA‘s "moderate" backstop reduces POTW WLAs in order to satisfy EPA‘s desire for additional reasonable assurance.

EPA‘s Draft TMDL puts Virginia‘s POTWs at risk that additional dollars will be needed to complete additional upgrades that will comply with EPA‘s WLAs, or, even worse, that upgrades that have been completed or are well underway will be stranded in place. This is completely unjustifiable based upon EPA‘s earlier remarks, and is unwarranted based upon the minimal impact wastewater has on Bay water quality as compared to other sectors. In addition, as explained below, EPA‘s rejection of Virginia‘s Draft WIP is legally objectionable. The Clean Water Act does not give EPA the authority to review and/or approve WIPs, or to direct their specific terms. EPA‘s decision to overwrite Virginia‘s Draft WIP is unlawful per the Clean Water Act.

Response

The final TMDL has revised the allocations significantly so the commenter is directed to Section 8 of the final TMDL for more detailed discussion of backstops. Although additional dollars may be needed to complete additional upgrades of POTWs, EPA does not understand how upgrades that are underway or already completed would be “stranded in place.” With respect to the portion of the comment challenging EPA’s legal authority, see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0288.1.001.036

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

The American Canoe AND Kingman Park Consent Decrees Do Not Address Virginia's Chlorophyll-a

EPA continues to assert in it must complete the Bay TMDL by 2011 (the December, 2010 deadline is a self-imposed acceleration) because of two consent decrees issued in the late 1990/early 2000 timeframe, American Canoe Association, Inc., et al v. EPA, Civil Action No. 98-99-A (U.S. D.Ct. ED VA, 1999)[FN102] and Kingman Park Civic Association, et al v. EPA, Case No. 1:98CV00758 (U.S. D.Ct. D.C., 2000). Draft TMDL at 1-14 - 1-16.

VAMWA submits that EPA's obligations to develop a TMDL by May, 2011 do not extend to establishing loadings on the James River for chlorophyll-a. As the earlier discussion of the history of the establishment of the standard (see Section VI above) illustrates, the James River chlorophyll-a standard was not even adopted until 2005. In contrast, the American Canoe Consent Decree, was signed and filed in Federal Court in 1999 and covers TMDLs on the then-existing 1998/99 303(d) list for Virginia. It is therefore impossible that EPA's obligation from the American Canoe Consent Decree extends to chlorophyll-a on the James given that the standard did not even come into existence until six years later. Although EPA has wrapped the James chlorophyll-a issue up into this TMDL, it is not obligated to do so, and should not have done so in light of the major concerns expressed by the State and VAMWA regarding the existing standard.

[FN102] Attached hereto as Appendix 51. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A51]

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0293.1.001.014

Author Name: Pomeroy Christopher

Organization: Virginia Municipal Stormwater Association, Inc. (VAMSA)

VAMSA does not dispute that TMDL implementation planning is important for moving clean-up programs ahead after TMDL adoption and for illustrating NPS reductions plans. However, because WIPs are not derived from CWA section 303(d) authority,[FN30] the details of these plans are not subject to EPA approval or control. EPA's decision in its Draft TMDL to create "backstops"-requirements that in effect revise the Virginia's Draft WIP-is not supported by federal law.

In addition to acting without specific authorization from federal law, EPA's actions are also inconsistent with state primacy granted by Section 510 of the Act:

Except as expressly provided in this Act, nothing in this Act shall (1) preclude or deny the right of any state or political

subdivision thereof or interstate agency to adopt or enforce (A) any standard or limitation respecting discharges of pollutants, or (B) any requirement respecting control or abatement of pollution; except that if an effluent limitation, or other limitation, effluent standard, prohibition, pretreatment standard, or standard of performance is in effect under this Act, such State or political subdivision or interstate agency may not adopt or enforce any effluent limitation, or other limitation, effluent standard, prohibition, pretreatment standard, or standard of performance which is less stringent than the effluent limitation, or other limitation, effluent standard, prohibition, pretreatment standard, or standard of performance under this Act; or (2) be construed as impairing or in any manner affecting any right or jurisdiction of the States with respect to the waters (including boundary waters) of such States.") [FN31]

Federal law clearly gives Virginia the authority to develop its own requirements and programs, so long as they are not less stringent than those established under the Act.[FN32] Because EPA has no statutory authority to establish WIPs, it is impossible for Virginia's Draft WIP to be less stringent.

For these reasons, Virginia should have the discretion to establish its own WIP, without EPA passing judgment and usurping what is rightfully the state's role in this process.

[FN30] Section 303(d) of the Clean Water Act mandates that states must prepare TMDLs for impaired waters, and authorizes EPA to approve or disapprove the loadings. If EPA chooses to disapprove, it has the authority to develop loadings on its own accord ("If the Administrator disapproves such identification and load, he shall not later than thirty days after the date of such disapproval identify such waters in such state and establish such loads for such waters as he determines necessary to implement the water quality standards applicable to such waters and upon such identification and establishment the State shall incorporate them into its current plan under subsection (e) of this section.") 33 U.S.C. §1313. Section 303(e) specifically gives the State the authority and responsibility to develop a "continuing planning process" for addressing navigable waters. A part of this planning process is TMDLs (again, TMDL implementation plans are not mentioned). Nowhere in the text of Section 303(d) or (e) is EPA permitted to pass judgment on state implementation plans.

[FN31] 33 U.S.C. 1370.

[FN32] Virginia law (Chesapeake Bay and Virginia Waters Clean-Up and Oversight Act) includes a provision for the development of a Bay clean-up plan. Va. Code 62.1-44.117.

Response

EPA Response to Legal Comments Regarding the Chesapeake Bay TMDL

EPA received a number of comments that raise legal issues in connection with EPA's establishment of the Chesapeake Bay TMDL. Identical (or very similar) issues were raised by a number of different commenters. In hopes of providing a more readable and understandable response to these legal comments, EPA has developed this consolidated response, rather than responding "piecemeal" to all the individual comments raising legal issues. In addition, readers are referred to those sections of the draft and final TMDL discussing TMDL's and the CWA and the Bay TMDL's legal framework.

A. Comments regarding EPA authority to establish the TMDL and its allocations

1. While some commenters appeared to concede that EPA had authority to establish the Bay TMDL at least for waters covered by the Virginia, D.C., and Delaware consent decrees, other commenters challenged EPA authority to establish the Bay TMDL for any of the Bay's waters.

Response: As discussed in the draft and final TMDLs, EPA is establishing the Chesapeake Bay TMDL pursuant to a number of existing authorities, including the CWA and its implementing regulations, judicial consent decrees requiring EPA to address certain impaired Chesapeake Bay and tidal tributary waters, a settlement agreement resolving litigation brought by the Chesapeake Bay Foundation, the current Chesapeake Bay Agreement, and Executive Order 13508. In establishing the Bay TMDL, EPA has acted pursuant to the consensus direction of the Chesapeake Executive Council's PSC and in partnership with each of the seven Chesapeake Bay watershed jurisdictions.

The CWA provides EPA with ample authority to establish the Chesapeake Bay TMDL. CWA section 117(g)(1) provides that [t]he Administrator, in coordination with other members of the [CEC], shall ensure that management plans are developed and implementation is begun by signatories to the Chesapeake Bay Agreement to achieve and maintain [among other things] the nutrient goals of the Chesapeake Bay Agreement for the quantity of nitrogen and phosphorus entering the Chesapeake Bay and its watershed [and] the water quality requirements necessary to restore living resources in the Chesapeake Bay ecosystem. Because it establishes the Bay and tidal tributaries' nutrient and sediment loading and allocation targets, the Chesapeake Bay TMDL is such a management plan. In addition, the Bay TMDL's loading and allocation targets both inform and are informed by, a larger set of federal and state management plans being developed for the Bay, including the jurisdiction WIPs and the May 2010 Bay strategy.

CWA section 303(d) requires jurisdictions to establish and submit TMDLs to EPA for review. Under certain circumstances, EPA also has the authority to establish TMDLs. The circumstances of this TMDL do not necessarily identify the outer bounds of EPA's authority. However, where impaired waters have been identified on jurisdictions' section 303(d) lists for many years, where the states in question have decided not to establish their own TMDLs for those waters, where EPA is establishing a TMDL for those waters at the direction of, and in cooperation with, the jurisdictions in question, and where those waters are part of an interrelated and interstate water system like the Chesapeake Bay that is impaired by pollutant loadings from sources in seven different jurisdictions, CWA section 303(d) authorizes EPA authority to establish that TMDL.
Dioxin/Organochlorine Center v. Clarke, 57 F.3d 1517 (9th Cir. 1995); Scott v. City of Hammond, 741 F.2d 992 (7th Cir. 1984); American Canoe Ass'n. v EPA, 54 F.Supp.2d 621 (E.D.Va. 1999).

On May 12, 2009, President Barack Obama signed Executive Order 13508—Chesapeake Bay Protection and Restoration. The Executive Order's overarching goal is to protect and restore the health, heritage, natural resources, and social and economic value of the Nation's largest estuarine ecosystem and the natural sustainability of its watershed. The Executive Order says the federal government should lead this effort and acknowledges that progress in restoring the Bay will depend on the support of state and local governments. To that end, the Executive Order directs the lead federal agencies, including EPA, to work in close collaboration with their state partners. To protect and restore the Chesapeake Bay and its tidal tributaries, the President directed EPA to "make full use of its authorities under the [CWA]." In establishing the Bay TMDL, EPA is doing no more—or less—than making full use of its CWA authorities to lead a collaborative and effective federal and state effort to meet the Bay's nutrient and sediment goals.

In addition, as discussed in the TMDL itself, a number of consent decrees, MOUs, and settlement agreements provide additional authority and support for EPA‘s decision to establish the Chesapeake Bay TMDL addressing certain waters identified as impaired on the Maryland, Virginia, and District of Columbia‘s 1998 section 303(d) lists and on the Delaware 1996 section 303(d) list. EPA is establishing the Chesapeake Bay TMDL consistent with those consent decrees, MOUs, and settlement agreements. It is immaterial whether Virginia was a party to the litigation that resulted in the Virginia consent decree. The decree represents a judicially-enforceable obligation that EPA must fulfill if necessary, as is the case here.

2. One commenter said that EPA had inappropriately relied on Dioxin/Organochlorine Center v. Clarke, 57 F3d 1517 (9th Cir. 1995), Scott v. City of Hammond, 741 F.2d 992 (7th Cir. 1984) and American Canoe Ass’n v. EPA, 54 F.Supp.2d 621 (E.D.Va. 1999) as support for including Bay TMDL allocations for New York. The commenter said those cases were inapposite because (1) New York (and presumably the other Bay headwaters States) did not have impaired waters addressed by the Bay TMDL and (2) the Bay TMDL (and its headwaters allocations) was based on Bay-State water quality standards and not on water quality standards adopted by New York (and the other headwaters jurisdictions) that already accounted for how local conditions affected the downstream Bay impairments.

Response: It is true that none of the cited cases had a need (based on their facts) to expressly address the issue of whether EPA has the authority to establish allocations for upstream States (and sources) in a TMDL for an interstate waterbody whose impairments are caused, in significant part, by pollutants originating in upstream states. The fact that the cited cases did not specifically address the out-of-State allocation issue does not make EPA’s reliance on them “inappropriate.” Indeed, all three cases clearly support the proposition that EPA has authority to establish this watershed TMDL for the 92 impaired Bay segments on the four Bay States’ 303(d) lists. That being the case, it follows logically that – in establishing a TMDL for these 92 segments – EPA also must have authority to establish allocations within the entire Bay watershed at levels necessary to implement the water quality standards “applicable” to those 92 segments. If EPA does not have such authority, it is limited to establishing a TMDL for the 92 Bay segments that either (1) makes no allocations to (or assumptions about reductions from) the headwaters States and, instead, allocates or assumes reductions only from VA, MD, DC, and DE and places the burden on those States alone to meet the Bay’s water quality standards; or (2) assumes (but does not allocate) reductions from the three headwaters States and makes allocations to VA, MD, DC, and DE at a level consistent with the assumed headwater State reductions. In the context of this TMDL and this interstate waterbody – where a significant portion of the nutrient and sediment loads originate in the headwaters States - EPA believes it is unreasonable to read the CWA as constraining its authority to make allocations only to the four tidal Bay jurisdictions. EPA also believes it is unreasonable to interpret the CWA as forcing EPA to establish TMDL allocations for the tidal bay jurisdictions that rely only on unspecified and unsupported “assumed” reductions from the headwaters States. In light of the CWA’s goals and objectives, EPA believes this to be an unnecessarily narrow reading of the Act and – based on past history - one not likely to result in attainment of the Bay’s applicable water quality standards.

3. One commenter says that EPA did not follow the CWA’s “statutory scheme” for setting the TMDL’s allocations for New York because it based those allocations on water quality standards applicable to the tidal Chesapeake and not on New York’s own water quality standards.

Response: EPA did establish New York’s (and other headwater States’) allocations consistent with CWA authority. EPA established the Chesapeake Bay TMDL to address 92 impaired segments of the Bay and its tidal tributaries within the boundaries of

Virginia, DC, Maryland, and Delaware. Section 303(d) requires that the Bay TMDL be established at a "level necessary to implement the applicable water quality standards . . ." For the Bay TMDL, the applicable water quality standards are those standards established by Virginia, DC, Maryland, and Delaware (and approved by EPA) for the 92 impaired tidal Bay segments. Pursuant to EPA's regulations (130.2(i)), a TMDL is defined as the sum of its wasteload allocations and load allocations. Accordingly, EPA was required by the CWA and its regulations to establish the TMDL's allocations (including allocations for headwater States like New York) consistent with implementing water quality standards applicable to the tidal Bay waters. This is what EPA did.

As a legal matter, EPA is authorized to consider downstream water quality standards (including those in other states), when establishing or approving a TMDL. The U.S. Supreme Court in Arkansas v. Oklahoma, 503 U.S. 91 (1992), held that EPA has the authority to impose NPDES permit limitations and conditions based on downstream water standards. At issue in that case was EPA's issuance of an NPDES permit to an Arkansas facility that imposed conditions derived from the downstream state's water quality standards. Noting that "the statute clearly does not limit the EPA's authority to mandate such compliance," the Court held, "The regulations relied on by the EPA were a perfectly reasonable exercise of the Agency's statutory discretion. The application of state water quality standards in the interstate context is wholly consistent with the Act's broad purpose 'to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.' 33 U.S.C. § 1251(a). Moreover, as noted above, § 301(b)(1)(C) expressly identifies the achievement of state water quality standards as one of the Act's central objectives.
The Agency's regulations conditioning NPDES permits are a well-tailored means of achieving this goal." The regulations considered by the court, 40 C.F.R. § 122.4(d), provide, "No permit shall be issued . . . [w]hen the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States."

The principle articulated by the Supreme Court in the NPDES permitting context applies with equal force to TMDLs, which are an important tool for implementing section 301(b)(1)(C) with respect to point source discharges. As the Supreme Court held, EPA as the permitting authority is authorized to consider water quality standards in downstream segments (including those in other states) when establishing NPDES permit limitations and conditions for sources whose discharges ultimately flow to the downstream segments. For sources discharging to waters flowing into the Chesapeake Bay, those permit limitations would be derived from the TMDL for the Chesapeake Bay. See 40 C.F.R. § 122.44(d)(1)(vii)(B). Therefore, it follows that EPA is authorized to establish or approve TMDLs for impaired Bay waters with wasteload allocations and load allocations for upstream sources that take into account the downstream water quality standards that the TMDL is designed to meet.

4. One commenter seemed to suggest that EPA did not have authority "to establish a Bay TMDL for New York" because (1) New York had not failed to submit an appropriate TMDL and (2) EPA had not first required New York to revise its State water quality standards.

Response: EPA disagrees with the comment and its underlying assumption that any Bay-related TMDL allocations affecting nutrient and sediment pollutant loadings originating in New York (or the other headwater States) must be established by those headwaters States and based solely on their own State water quality standards. In the 38 years since passage of the CWA, none of the Bay headwaters States (New York, Pennsylvania, and West Virginia) has established or submitted a TMDL to EPA that allocates nutrient or sediment loadings in their jurisdictions at a level necessary to implement water quality standards in the Bay or its tidal tributaries. Moreover, the headwaters States requested and collaborated with EPA in the establishment of this Bay TMDL and its allocations. Accordingly, EPA has acted within its authority under CWA 303(d) to establish allocations to the headwater

States in the Bay TMDL consistent with the need to implement tidal Bay water quality standards.

Nor was it necessary for EPA to first require that the headwaters States revise their own water quality standards to "take into consideration" the applicable tidal Bay water quality standards and "ensure" that their "upstream" standards provide for "downstream" standards attainment. EPA is establishing the Bay TMDL to implement the tidal Bay standards, not the headwater States' own "upstream" standards. (Reductions made to achieve the Bay TMDL are expected to improve the local water quality of the nontidal receiving waters.) The fact that a headwater State's standards may not already be stringent enough per 131.10(b) to ensure implementation of the tidal Bay standards does not constrain EPA's ability and authority under 303(d) to establish Bay TMDL allocations that are fully protective of the applicable downstream tidal Bay standards. To interpret CWA 303(c) and (d) otherwise would turn the Act on its head by subjecting a TMDL's ability to protect its targeted waters (and their "applicable" water quality standards) to limitations contained in upstream water quality standards. Likewise, under the framework of the Bay TMDL, EPA need not establish TMDLs or allocations for specific waters on New York's 303(d) list because they are not meeting local water quality standards. The purpose of this TMDL is to achieve the applicable standards for the 92 impaired Bay segments. New York is free to develop TMDLs for waters with local impairments outside the context of this TMDL on an appropriate schedule.

5. A number of commenters said that that – rather than "usurping" the States' roles – EPA should work "collaboratively" with them and recognize their "environmental stewardship."

Response: EPA believes the record of EPA's actions in establishing this TMDL clearly demonstrates that EPA has used a collaborative process to arrive at the final TMDL, one that has recognized and encouraged the environmental stewardship of all the watershed States, without whose full cooperation restoration of the Bay will be not occur.

6. One commenter said EPA was attempting to expand its CWA authority by referencing a TMDL-establishment MOU with Maryland, the 2010 settlement agreement resolving Fowler v. EPA, and the Chesapeake Bay Executive Order.

Response: EPA agrees that its settlement agreement resolving Fowler v. EPA and the Executive Order do not expand its CWA authority to establish the Bay TMDL. EPA never said they did. Rather, EPA said it was establishing the Bay TMDL by December 31, 2010 to meet a commitment it made in the settlement agreement to act by that date. Regarding the Maryland MOU, EPA referenced that document (signed in 1998; revised in 2004) in the draft TMDL because Maryland's commitments in that MOU were key to EPA victory (twice) in lawsuits alleging that Maryland was in default of its CWA TMDL obligations. Without Maryland's MOU commitments (and actions), it is possible the court might have found Maryland in default and ordered establishment of TMDLs via an EPA backstop on a schedule similar to the Virginia consent decree. If that had happened, EPA's authority to establish TMDL's for Maryland's impaired Bay waters would be as clear as it is for Virginia. While it is true that an MOU cannot by itself enlarge Congressionally-bestowed powers, under these circumstances the existence of the Maryland MOU in the context of the two Maryland TMDL lawsuits explains why it is reasonable for EPA to establish within the Bay TMDL – and with Maryland's full agreement – "backstop" TMDLs for Maryland's impaired Bay waters.

B. Comments regarding the Watershed Implementation Plans (WIPs)

1. Some commenters said that implementation plans associated with the TMDL are not part of the TMDL itself and, thus, not subject to EPA approval. More specifically, some commenters claim that EPA's "rejection" of Virginia's draft WIP is "legally

objectionable" because the CWA does not give EPA the authority to review and/or approve WIPs, or to direct their specific terms.

Response: EPA agrees with the commenters that the CWA does not require or authorize EPA to "approve" or "disapprove" jurisdictions' WIPs. And EPA has not done that here. Nor did EPA direct their specific terms. Instead, EPA identified expectations and a guide for the contours of the WIPs, and asked the jurisdictions to submit WIPs to support their recommendations for the decision by EPA in making its TMDL allocation decisions for various pollutant loading sectors. EPA reviewed the WIPs to determine if they provide adequate "reasonable assurance" to support the jurisdictions' recommended allocation scenarios. Where those WIPs were determined to provide adequate reasonable assurance and met the respective jurisdictions pollutant cap loading, EPA used all (or those parts found adequate) as the basis for its TMDL allocations for that jurisdiction. Where portions of the WIPs did not provide such assurances, as the CWA requires, EPA establishes the backstop allocations in an appropriate manner so the resulting TMDL allocations are established at a level necessary to implement applicable water quality standards.

2. Some commenters said EPA did not have authority to establish a 2025 compliance deadline in the Bay TMDL.

Response: CWA section 117(g) requires that EPA "ensure that management plans are developed and implementation is begun" to meet the Bay's nutrient goals and water quality requirements. Pursuant to that authority, and to support the TMDL EPA is establishing pursuant to section 303(d), EPA asked the Bay jurisdictions to develop and submit WIPs that provided for 60% implementation by 2017 and 100% implementation by 2025. In light of the decades-long history of not meeting these goals, a two-phase implementation framework is reasonable. EPA recognizes that there is much work to be done to restore the Bay; hence the final implementation target extending to 2025. In light of the Bay's importance, the delays so far in reaching those targets, and EPA's belief that this job can be done in the projected time, the staged 2017/2025 implementation framework is both lawful and reasonable. That being said, the TMDL by itself is not a self implementing mechanism and does not contain an implementation plan. That plan, or rather plans, are set forth in the State WIPs, the two year milestones, and other federal actions – components of the broader Chesapeake Bay Restoration Accountability Framework discussed in TMDL section 1.2.2 and 7.2.

C. Comments regarding "Reasonable Assurance"

1. One commenter asserts that "reasonable assurance "is a concept that does not originate in either the CWA or EPA regulations" and that EPA "created" the concept of reasonable assurance in 1997 guidance. The commenter goes on to assert that a TMDL is a "number" and "[n]othing in the statute gives EPA the authority to judge how that number is assigned or divided."

Response: EPA disagrees that "reasonable assurance "is a concept that does not originate in either the CWA or EPA regulations" and that EPA "created" the concept of reasonable assurance in 1997 guidance.

In the first place, EPA explained the concept of reasonable assurance as early as its initial TMDL guidance in April 1991, not 1997. The concept has been further explained in subsequent guidance documents.

More importantly, the commenter is incorrect in asserting that a TMDL is merely a "number" and "[n]othing in the statute gives EPA the authority to judge how that number is assigned or divided." A TMDL not just is a number. Rather, it is a collection of

numbers representing WLAs and LAs assigned to various pollutant sources, all of which must add up to a "total" loading of pollutants consistent with meeting applicable water quality standards. TMDL = WLA(s) + LA(s) + MOS. When approving (or in the case of the Bay TMDL) establishing a TMDL, EPA has an obligation to ensure that the sum of the WLAs and the LAs adds up to a "total" number that will implement the applicable water quality standards. This is where "reasonable assurance" comes in.

While neither the CWA nor EPA's regulations expressly mention the phrase "reasonable assurance," the congruent requirements of CWA 303(d)(1)(C) and 301(b)(1)(C) implicitly require it. Section 303(d)(1)(C) requires that a TMDL be "established at a level necessary to implement the applicable water quality standards . . . " See also 40 C.F.R. 130.7(c)(1). A TMDL calculates the maximum amount of pollutant loadings that a waterbody can receive and still meet water quality standards, sometimes referred to as assimilative capacity. For waterbodies with both point and nonpoint sources of pollutants, a TMDL writer must decide how to apportion loadings between point and nonpoint sources subject to the TMDL. Section 303(d)(1)(C) requires that the point source-nonpoint source allocation split be "at a level necessary to implement the applicable water quality standards." Without a demonstration in the TMDL's record of "reasonable assurance" that the chosen nonpoint source load allocations will in fact be met, there is no assurance that the TMDL equation will not add up to a sum that exceeds a level necessary to implement the applicable water quality standards.

Section 301(b)(1)(C) and EPA's permitting regulations provide additional support for reading a "reasonable assurance" requirement into a TMDL. Section 301(b)(1)(C) requires that point source permits have effluent limits as stringent as necessary to meet water quality standards. EPA's permitting regulations echo that requirement and, in addition, require that permits include effluent limits "consistent with the assumptions and requirements of any available wasteload allocation for the discharge" approved by EPA. 40 CFR 122.44(d)(1)(vii)(A) & (B). For WLAs to serve as a basis for a WQBEL, they must themselves be stringent enough so that (in conjunction with the waterbody's other loadings) they meet water quality standards. In the absence of reasonable assurance that a TMDL's LAs will in fact be met, the TMDL's WLAs cannot serve as an effective permitting guide. That can happen, however, if (1) the TMDL's combined nonpoint source load allocations and point source wasteload allocations do not exceed the water quality standard-based loading capacity and (2) there is "reasonable assurance" that the load allocation will be achieved. Such a demonstration ensures that an effluent limitation that is "consistent" with a TMDL's wasteload allocation pursuant to 122.44 (d)(1)(vii)(B) will also mees water quality standards as required by CWA 301(b)(1)(C) and 122.44 (d)(1)(vii)(A).

D. Comments regarding TMDL's "Backstop allocations"

1. Some commenters said EPA should "delay adoption of the TMDL and backstops for at least one year" because (1) there is no legal authority for the urban/suburban retrofits necessary to implement the TMDL and (2) such measures would be far more expensive and cost-effective than POTW upgrades or agricultural BMPs.

Response: EPA disagrees with the commenter's assertion about lack of CWA legal authority for urban/suburban stormwater controls necessary to implement the Bay TMDL. Moreover, these arguments do not support delaying the TMDL. It is important that EPA establish the Bay TMDL as soon as possible. The TMDL is an important element in Bay restoration, and the Bay's waters have been impaired and restoration delayed for many years. EPA afforded the Bay jurisdictions two opportunities (draft Phase I WIPs and final Phase II WIPs) to describe the mix of implementation measures (informed by cost and other considerations) they intend to pursue in order to meet the TMDL's nutrient and sediment targets. EPA has taken the jurisdiction's WIPs into account in

establishing allocations in the TMDL. Because this is EPA's TMDL, the CWA requires that EPA establish nutrient and sediment allocations at a level necessary to implement applicable water quality standards. To the extent EPA backstop assumptions serve as a basis for the TMDL's final allocations, those assumptions would have been necessitated by inadequacies in the jurisdictions' WIPs. That being the case, EPA would have been obligated to make allocations stringent enough to meet applicable standards sooner or later based, in part, on such assumptions. EPA has reasonably decided to establish the Bay TMDL and its allocations sooner rather than later. For further information on retofits please see response to comment number 0232.1.001.004

E. Comments regarding James River allocations

1. Some commenters said it was not EPA's responsibility under the Virginia or D.C. consent decrees to establish a TMDL to meet the James River's 2005 chlorophyll standards.

Response: EPA disagrees. The Virginia consent decree requires EPA to establish a TMDL at a level necessary to implement the applicable water quality standards for "each water and pollutant identified in Attachment A and C" of the decree if Virginia has not done so by a date certain. The James River's tidal tributaries are identified on Attachment A (Part 2) of the 1999 Virginia consent decree as impaired by "nutrients," with specific focus on "aquatic life concerns." It is immaterial that Virginia did not establish a numeric chlorophyll standard for those segments until 2005. The numeric chlorophyll a criteria adopted by Virginia specific to the James is to provide additional protection to aquatic life uses from the harmful effects of excess nutrients. These numeric criteria reinforce and support the restoration of those portions of the James River identified on the 1998 303(d) listing for impaired aquatic life uses. At the time EPA established this TMDL, the segments remained listed and impaired, and the 2005 chlorophyll standard was an "applicable" water quality standard for purposes of section 303(d)(1)(C). Accordingly, the 1999 Virginia consent decree requires that EPA establish a TMDL for those segments at a level that implements the applicable chlorophyll standard.

2. Some commenters said the James River has "very little impact" on the main stem and dead zone of the Bay and achievement of the proposed James River nutrient allocations "will not improve the Bay water quality." EPA provides responses to that comment elsewhere in this document.

3. Some commentators said the James River chlorophyll standard "lacks a sound scientific foundation."
Response: EPA approved this submission of revised James River numeric chlorophyll a criteria (WQS) by Virginia in 2005 as effective and applicable water quality standards (WQS) for purposes of the CWA. On that basis EPA disagrees with this comment. This comment is outside the scope of the TMDL, since the CWA requires TMDLs to be established to "applicable" WQS, and the numeric chlorophyll a criteria are such standards. See above response. EPA suggests the commenter review the 2005 submission by Virginia and EPA's approval if the commenter has further questions.

F. Comments re length of comment period and modeling information

1. Many commenters requested EPA to extend the TMDL's 45-day comment period.

Response: It is true EPA declined to extend the TMDL's 45-day comment period. To do so would have made it impossible for EPA to establish the Bay TMDL by December 31, 2010. EPA places a very high value on meeting its public commitment to establish the TMDL by that date. EPA does not want to break faith with the States who requested it or the public who expects it. Moreover, EPA is acting pursuant to Executive Order 13508 to "make full use of its authorities" to protect the Bay, as well as a promise EPA made in a May 2010 settlement agreement resolving Fowler v. EPA. While EPA could have attempted to negotiate an extension of the Fowler agreement date, EPA believes that - under all the circumstances of this TMDL, including the considerable transparency of the process to date and EPA's considerable efforts to engage in public outreach – its efforts were better spent finishing work on the TMDL in order to avoid any further delays in implementing EPA's and States' 27-plus year old commitment to restore the Bay's water quality.
EPA agrees that its settlement agreement resolving Fowler v. EPA and the Executive Order do not expand its CWA authority to establish the Bay TMDL. EPA never said they did. Rather, EPA said it was establishing the Bay TMDL by December 31, 2010 to meet a commitment it made in the settlement agreement to act by that date

2. Some commenters stated that EPA did not make information on Scenario Builder model available and requested EPA to make more modeling-related information available.

Response: EPA disagrees that it had not made information on Scenario Builder and other essential models available. For example EPA posted scenario builder information that was used for all of the calibration model inputs (the same thing as SB output) except for the acres of BMPs, which was calculated outside of SB in March 2010 at:

ftp://ftp.chesapeakebay.net/modeling/phase5/Phase%205.3%20Calibration/Model%20Input/

In addition the following information on the Watershed Model calibration was posted on the following websites spring of 2010:

- http://www.chesapeakebay.net/phase5.htm : Scroll down to Phase 5.3 Watershed Model Output Data and Phase 5.3 Watershed Model Input Data
- http://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/

This information was also available through links provided in Section 5 of the draft TMDL, which was released for a 45-day public comment period on September 24th. Further, the Watershed Model code and calibration data, as well as the Scenario Builder documentation, were linked to our website before the draft TMDL was released.

The Scenario Builder programming codes are available for download at:
- http://ftp.chesapeakebay.net/modeling/ScenarioBuilder/ScenarioBuilderSource/

In response to requests for more specific SB information, EPA also made additional information available in November 2010 as discussed in emails from EPA James Curtin to several persons including Susan Bodine dated November 2, 2010. EPA believes it has made sufficient information available for the public to reasonably and intelligently comment on the Bay TMDL. For a more detailed response on modeling, please see response to comment number 379.1.001.006.

G. Comments regarding CWA 117(g)

1. A number of commenters questioned EPA's reliance on CWA section 117(g) in support of its authority to establish the Bay TMDL and headwater State allocations.

Response: EPA disagrees with commenters who believe section 117(g) does not provide additional authority for EPA to establish the Bay TMDL.

Specifically, EPA disagrees with the comment that the term "management plans," as used in section 117(g), may not be interpreted to include the Bay TMDL. EPA notes that Congress did not include within section 117(g) a definition of the term "management plans." Accordingly, there is room for reasonable interpretation of its meaning. Webster's defines a "plan" as a "goal; aim," or, alternatively, "an orderly arrangement of parts of an overall design or objective." Defined this way, a section 117(g) Chesapeake Bay "management plan" may reasonably be interpreted to include its goal, aim, or objective – in this case, the Bay TMDL and its allocations.

In section 117(g) Congress directed EPA, in coordination with the signatories to the Chesapeake Bay Agreement, to "ensure that management plans are developed and implementation is begun to achieve and maintain, among other things (1) the "nutrient goals" of the Bay agreement "for nitrogen and phosphorus entering the Chesapeake Bay and its watershed" and (2) "the water quality requirements necessary to restore living resources in the Chesapeake Bay." In this context it is reasonable for EPA to interpret the term "management plans" as used in section 117(g) to include, not only an identification of the actions proposed to be taken by EPA and the other signatories, but also the section 303(d)-based identification of the numerically-expressed "nutrient goals" and "water quality requirements" [nitrogen, phosphorus, and sediment allocations] that would inform those actions. The fact that Congress may have used similar terms in wholly different contexts, e.g., "management program" in section 319, "management plan" in section 320, "areawide waste treatment management plan" in section 208, does not mean that – for the purposes of interpreting and implementing section 117(g) - EPA may not interpret the section 117(g) term "management plans" to include that part of the plan that identifies its target or goal.

EPA also disagrees with the comment that EPA may not allocate pollutant reductions to New York because it was not a signatory to the Bay Agreement but only a "voluntary partner." Even if section 117(g) were not part of the CWA, section 303(d) gives EPA all the authority it needs to establish this TMDL. Section 117(g) merely underscores that authority as well as specifically directing EPA to take such actions to further restore Bay water quality. While it is true that New York (as well as West Virginia and Delaware) did not sign the 2000 Bay Agreement, those States subsequently (in 2000 and 2002) signed a MOU with EPA and the other four Bay watershed jurisdictions in which they agreed to work cooperatively to meet the Bay Agreement's goals by 2010 so the Bay's impaired waters could be removed from the States' section 303(d) lists. Moreover, in 2007 New York, West Virginia and Delaware reached consensus with the signatory jurisdictions that EPA should establish the Bay TMDL on behalf of them all. By signing the MOU, joining the consensus that EPA should establish this TMDL, and participating with EPA in the development of the TMDL and their own WIPs, New York and the other non-signatory States have made themselves functionally and - for the TMDL's purposes - legally equivalent to the signatory States regarding their Bay TMDL status.

2. Some commenters said that Congress did not "provide authority to EPA to achieve the goals set in section 117" of the CWA and

that regulation and enforcement is "directly in the hands of each signatory." Others said Congress did not provide EPA in 117(g) with "regulatory authority" to achieve those goals, or authority to "approve, disapprove, or change the state WIPs."

Response: CWA section 117(g) requires that EPA "ensure that management plans are developed and implementation is begun" to meet the Bay's nutrient goals and water quality requirements. EPA is not sure what the commenter means by saying that Congress did not provide EPA with authority ("regulatory," or otherwise) to achieve the goals of CWA section 117(g). EPA has ample authority in the CWA (see e.g., sections 301, 303(c) and (d), 402, 319 and other provisions) to achieve the water quality goals of section 117(g). In addition, section 117(g) expressly directs (and impliedly authorizes) EPA "to ensure that management plans are developed and implementation is begun" to meet the Bay's nutrient goals and water quality requirements. That direction and authorization – even if it arguably does not provide EPA with any "additional" regulatory authorities – surely does not constrain use of authorities provided elsewhere in the Act. EPA has not asserted that section 117(g) gave it authority to "approve, disapprove, or change the state WIPs," and EPA has not done so. EPA has exercised the leadership role accorded to it by section 117(g) in a responsible and appropriate way by working collaboratively with the Bay jurisdictions to ensure that their WIPs are of sufficiently high quality to achieve the Bay's water quality goals.

H. Comments regarding CWA 510

1. Some commenters said EPA's disapproval of State WIPs, establishment of replacement WIPs, or establishment of the Bay TMDL is inconsistent with state primacy under CWA section 510.

Response: EPA disagrees with this comment. In the first place, EPA has not "disapproved" any State WIPs or established a replacement WIP for a State. Instead, EPA asked the jurisdictions to submit WIPs to support their recommendations for EPA's TMDL allocation decisions for various pollutant loading sectors. EPA reviewed the WIPs to determine if they provide adequate "reasonable assurance" to support the jurisdictions' allocations. Where the WIPs did not provide such assurances, the CWA required EPA to adjust the allocations in an appropriate manner so they are established at a level necessary to implement applicable water quality standards. CWA section 510 preserves a State's right to adopt its own standards or limitations regarding discharges of pollutants, except that States may not be "less stringent" than applicable federal requirements. EPA reviewed the WIPs to determine if they provide adequate "reasonable assurance" to support the jurisdictions' recommended allocations scenario. Where those WIPs were determined to provide adequate reasonable assurance and met the respective jurisdictions' pollutant cap loading, EPA used all (or those portions found adequate) as the basis for its TMDL allocations for that jurisdiction. Where portions of the WIPs did not provide such assurances, as the CWA requires, EPA makes backstop allocations in an appropriate manner so the resulting TMDL allocations are established at a level necessary to implement applicable water quality standards. In so doing, EPA did not act in contravention of Section 510 because nothing in section 510 precludes EPA from establishing a TMDL at a level necessary to implement the applicable State-adopted and EPA-approved water quality standards.

2. Some commenters allege that EPA's establishment of the Bay TMDL is an impermissible intrusion into State authority and an exercise in State "compulsion" in violation of the 10th Amendment and principles of federalism.

Response: EPA disagrees. Taken as a whole, the record of EPA's and the Bay jurisdictions' activities over the past decade demonstrates that EPA has established he Bay TMDL in collaborative partnership with the Bay jurisdictions and not through compulsion of them. EPA is under legal obligation to establish the Bay TMDL for certain waters in Virginia, DC, and Delaware.

Each of those jurisdictions has collaborated with EPA in establishing the TMDL. In a similar manner, Maryland (pursuant to its MOU) and the headwaters states of New York, Pennsylvania, and West Virginia have also collaborated with EPA, the Chesapeake Executive Council and the PSC in developing the Bay watershed TMDL. EPA has neither impermissibly intruded into State authority nor compelled the jurisdictions in violation of the 10th Amendment or principles of federalism. Indeed, EPA has invited the jurisdictions to take the lead in developing WIPs for their own States designed to inform EPA's TMDL allocations decisions and thereafter implement the TMDL's loading targets. In doing so, EPA demonstrated its respect for our federal system and the priority of the States to determine how the TMDL will be implemented.

While it is true that EPA on a number of occasions provided the jurisdictions with its "expectations" regarding their implementation efforts, EPA died not "compel" any particular outcomes. The jurisdictions' discretion was bounded only by the statutory requirement that their implementation proposals provide EPA with sufficient "reasonable assurance" that the TMDL allocations are established at a level necessary to implement the applicable Bay-wide water quality standards. To the extent a jurisdiction's WIP did not do that, EPA was compelled by the CWA to establish allocations in the TMDL to meet standards. While some of those allocations may have been based on assumptions about additional implementation and oversight by EPA, that is nothing more (under the circumstances) than the federal-state scheme established by the Act contemplates and requires. This approach is fully consistent with CWA, the Constitution, and principles of federalism. It is also consistent with the Ninth Circuit's 2002 decision in Pronsolino v. Nastri, 291 F.3d 1123. As in Pronsolino, EPA recognizes that implementation of the Bay TMDL is primarily a state responsibility. Here – as in Pronsolino - EPA did notrequire or include implementation plans "within the TMDL." EPA asked for them – in part pursuant to section 117(g) – to inform and support the allocation setting process. As with the Garcia River TMDL, the Bay TMDL "serves as an informational tool for the creation of the state's implementation plan." It is not a substitute for it.

Nor is it the case that assumptions about future EPA regulatory or NPDES oversight authority that support any EPA allocation decisions "commandeer" State legislative processes in violation of the 10th Amendment to the Constitution. During the TMDL development process, EPA invited the jurisdictions to make the difficult legal, policy, and budgetary choices necessary to implement the pollution reductions needed to meet applicable Bay water quality standards. The Chesapeake Bay Commission (CBC), a member of the Chespeake Executive Council, represents the legislatures of the three signatory states. The CBC has been an active participant in this process. The States have also made such hard choices in their WIPs. If EPA believes some of those measures are insufficient in the aggregate to meet those standards, it must establish TMDL allocations that it believes ("reasonable assurance") can, and will, meet standards. The Bay jurisdictions have choices and discretion regarding how to implement their WIPs in service of the TMDL. EPA has not – and will not - "commandeer" their legislative and administrative processes. However, EPA does reserve the right to exercise its own federal authorities and prerogatives in an appropriate manner (either through rulemaking, enforcement, NPDES oversight, or other means) to ensure that the TMDL's and CWA's goals are met. In relying on assumptions about potential future federal actions, EPA is not "prejudging" the outcome of future rulemakings or other actions. The exact scope and design of any such rulemakings must of necessity await the conclusion of the APA rulemaking process, including the opportunity for public comment, or in the case of a designation process, as provided by the CWA and its implementing regulations. However, in assessing and providing "reasonable assurance" to support the TMDL's allocations, it is appropriate for EPA to make allocations based on certain assumptions about what "backstop" actions are available to it in the event the jurisdictions' WIPs (or their implementation) are not sufficiently robust to meet the Bay's water quality standards.

H. Miscellaneous Legal Issues

1. One commenter asked whether EPA considered how the TMDL might impact environmental justice, especially with regard to its impacts within densely populated watersheds.

Response: EPA believes the Bay TMDL and Bay restoration in general is fully consistent with its broader efforts to promote environmental justice. Around the watershed there are many disadvantaged and minority communities whose lives and livelihoods are closely tied to a healthy Bay: as a source of employment, recreation, food, and quality of life. EPA recognizes that restoring Bay water quality will not be cheap and that the costs may have to be borne broadly. However, on balance, EPA believes restoring Bay water quality is fully consistent with environmental justice principles.

2. Some commenters assert that the high estimated costs of stormwater retrofits "approach" a "taking" without compensation prohibited by State and the U.S. Constitution.

Response: EPA disagrees. EPA's Bay TMDL is not a federal or state regulation, and its wasteload and load allocations do not as a matter of law effect an unconstitutional "taking" of private property. Nor is the TMDL a permit that requires a private property owner to retrofit his or her property. The TMDL and its allocations are, instead, a reasonable and lawful exercise of EPA's authority under CWA 303(d) to establish pollutant loading targets that guide the jurisdictions' and EPA's efforts to implement measures designed to implement the Bay's water quality standards. See also response to Comment number 0232.1.001.004 for more discussion of the takings issue.

3. On commenter [0533.1.001.001] questioned whether EPA's TMDL is based on data EPA collected from survey's of communities, wastewater treatment plants, and other regulated entities without the proper OMB clearance.

Response: EPA disagrees. While EPA used information from a great number of sources, to the best of EPA's knowledge, EPA used the OMB clearance numbers associated with general TMDL development and establishment as authorized. For some information, EPA relied on responses from entitles already required to submit information under such instruments as NPDES permits and/or other federal requirements.

Comment ID 0293.1.001.026

Author Name: Pomeroy Christopher

Organization: Virginia Municipal Stormwater Association, Inc. (VAMSA)

The American Canoe and Kingman Park Consent Decrees Do Not Address Virginia Chlorophyll-a

EPA continues to assert in it must complete the Bay TMDL by 2011 (the December, 2010 deadline is a self-imposed acceleration) because of two consent decrees issued in the late 1990/early 2000 timeframe, American Canoe Association, Inc. v. EPA, Civil Action No. 98-99-A (E.D. Va. 1999) [FN43] and Kingman Park Civic Association v. EPA, Case No. 1:98CV00758 (E.D. Va. 2000). Draft TMDL at 1-14 - 1-16.

VAMSA submits that EPA's obligations to develop a TMDL by May, 2011 do not extend to establishing loadings on the

James River for chlorophyll-a. As the earlier discussion of the history of the establishment of the standard (see Section VI(A) above) illustrates, the James River chlorophyll-a standard was not even adopted until 2005. In contrast, the American Canoe Consent Decree was signed and filed in Federal Court in 1999 and covers TMDLs on the then-existing 1998/99 303(d) list for Virginia. It is therefore impossible that EPA's obligation from the American Canoe Consent Decree extends to chlorophyll-a on the James given that the standard did not even come into existence until 6 years later. Although EPA has wrapped James chlorophyll up into this TMDL, it is not obligated to do so, and should not have done so in light of the major concerns expressed regarding the existing standard.

[FN43] Attached hereto as Appendix 16 [Comment Letter refers to additional information in the form of an attachment. See comment 0582.1.001.001]).

Response

This comment is duplicative of comment number 0288.0.001.036. Please see the response to that comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0298.2.001.026

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC)

SOME PROVISIONS AND ASSUMPTIONS OF THE TMDLS ARE CONTRARY TO EXISTING FEDERAL AND VIRGINIA LAW.

Requirements that the City go onto private property to inspect for sources of pollution or to take action on stormwater infrastructure on private property are beyond the City‘s legal capacity because they are contrary to the Dillon Rule, to the Fourth and Fifth Amendments of the United States Constitution, and Article I, Sections 10 and 11 of the Virginia Constitution. Also, the City has no authority to demand retrofits on state and federal government property. In addition, most federal agencies refuse to pay stormwater fees, claiming that it is an illegal tax on the federal government. In essence, not only is this a massive unfunded mandate that will force local rate-payers to shoulder the burden of paying the federal government‘s rightful share of the costs, it is in effect a hidden increase in federal taxation on those rate-payers without proper legislative action.

Attempts to delegate enforcement of the Clean Water Act on the City, and to thus control the means and methods of state and local government, are contrary to the federalism doctrine and the Tenth Amendment to the United States Constitution.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0330.1.001.003

Author Name: Krasnoff Alan

Organization: City of Chesapeake, Virginia

The City is a member of the Hampton Roads Planning District Commission (HRPDC) and the Virginia Municipal Stormwater Association (VAMSA), both of which organizations have analyzed the Draft TMDL with the assistance of scientific and environmental experts. The City fully endorses the position adopted by the member localities at the HRPDC meeting on October 20,2010, and the position of the VAMSA, which jointly include:

• The EPA does not have the legal authority to establish a deadline for implementation of the Draft TMDL.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0331.1.001.021

Author Name: Wilson B.

Organization: City of Virginia Beach, Virginia

VII. EPA DOES NOT HAVE THE AUTHORITY TO ESTABLISH A DEADLINE IN THE TMDL FOR ACHIEVING THE LOAD REDUCTIONS

The Clean Water Act and EPA‘s regulations do not give it the authority to establish a 2025 compliance deadline in the TMDLs. Even if such authority exists, the EPA fails to establish why 2025 was selected as a compliance date, and there is no evidence that it cannot be 2030 or 2050. The arbitrary and capricious selection of 2025 forces the City, as well as the other Hampton Roads localities and private businesses, to incur vast financial obligations at a time when they can least afford to do so.

The EPA also does not have the authority through the Clean Water Act to review or disapprove the Commonwealth‘s WIP. Its action is inconsistent with thousands of other TMDLs that have been established across the country.

Of all the source sectors covered by the TMDLs, none is affected more by the 2025 deadline that the urban runoff sector because much of the difficulty and cost of achieving the urban runoff load reductions is associated with retrofits independent of redevelopment. Historic redevelopment rates fall far short of those that would be needed to achieve the load reductions without forcing the City to acquire the property interests needed for the retrofits and assume responsibility for retrofit installation and maintenance. The resultant effect is particularly adverse to the City of Virginia

Beach.

Further, much of this retrofitting, if not done when properties redevelop, would require significant changes to land use law in the Commonwealth of Virginia. Without legislative action and necessary regulatory change which would further reduce an already untenable deadline for compliance by the localities, no Virginia locality has the authority to require the retrofitting of private property.

Response

With respect to the first paragraph of this comment, regarding the 2025 date, please see the response to comment number 0169.1.001.027. With respect to the second paragraph, regarding EPA's review of Virginia's Watershed Implementation Plan, please see the response to comments numbers 0293.1.001.014 and 0481.1.001.003. With respect to the remainder of the comment, please see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0336-cp.001.005

Author Name: Napolitano John

Organization: Napolitano Enterprise

6. The backstop provisions I think are unlawful. How does the EPA think they have the authority to mandate to a private property owner that he/she retro thier property to meet new standards.

Response

Please see the response to comment number 0232.1.001.004 and 0293.1.001.014.

Comment ID 0357.1.001.004

Author Name: Pugh Molly

Organization: Virginia Grain Producers Association (VGPA)

Virginia has put forth a largely workable and feasible Watershed Implementation Plan (WIP) that EPA does not have the authority to override through "backstop" measures. According to the Clean Water Act, EPA can only act if the state fails to do so and Virginia's current draft WIP and various successful programs cannot be considered failure to act. In fact, EPA has no authority to regulate non-point sources. Further, Congress has not provided authority to EPA to achieve the goals set in Section 117 of the Clean Water Act. Regulation and enforcement is directly in the hands of each signatory. We request that EPA present the federal legislation that grants it the authority to override state actions and impose additional cost and regulations on that state's residents, land and watersheds.

Response

Please see the response to comments numbers 0293.1.001.014 and 0481.1.001.003. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0376.1.001.007

Author Name: Smith Brooks

Organization: Virginia Manufacturers Association VMA

B. EPA Does Not Have the Authority to Compel Virginia to Develop a WIP, Much Less Threaten Draconian (Full Back Stop) Allocations on the Basis of Alleged WIP Deficiencies.

EPA does not have authority to require, much less reject, TMDL implementation plans. The Clean Water Act only gives EPA authority over the impaired water designations and the TMDLs themselves. CWA 303(d)(2). It does not give EPA the ability to weigh in on how the TMDLs will be implemented, if at all.

Implementation planning is not part of Section 303(d) of the Clean Water Act or the regulations promulgated thereunder. Even if it were, meaningful implementation plans cannot be developed until after a TMDL is in place and the reductions set forth in the TMDL are established. Thus, even if EPA had the authority to require a WIP (which it does not), it is premature to require development of such measures before a TMDL has been finalized and the specific allocations required by the TMDL are known.

EPA asserts that "Section 117(g) of the Clean Water Act provides a legal framework for ensuring that the signatory jurisdictions develop and begin implementing management plans that achieve the nutrient and sediment loading reductions needed to restore the Bay." [FN5] But the legislative history of Section 117(g) makes clear that Congress did not provide EPA with any additional regulatory authority to require implementation plans.[FN6]

By its own admission, EPA also lacks any existing regulatory authority to require implementation plans.[FN7] EPA attempted to establish such authority in its 2000 TMDL rule revisions. See 65 Fed. Reg. at 43,667 (to be codified at 40 C.P.R. § 130.32(11)). However, as noted above, those revisions never took effect and were eventually withdrawn.[FN8]

EPA's practice in reviewing and approving or disapproving state TMDLs makes it clear that EPA lacks any existing regulatory authority over implementation plans.[FN9] Whenever a state TMDL includes an implementation planning component, EPA routinely notes in its decision letter that the Agency is not taking any action on that component because it falls outside of the TMDL process. [FN10]

Virginia itself has enacted legislation requiring development of implementation plans for TMDLs. Va. Code §§ 62.1-44.19:4 to -44.19:8. This is a Virginia statute, not a delegated requirement from EPA. EPA has no independent authority to enforce it.

Even if EPA did have the ability to enforce Virginia's implementation planning statute, EPA would be bound by the

criteria identified in that statute. Virginia's statute requires that cost and achievability must be evaluated as part of the implementation plan development. Va. Code § 62.1-44.19:7 . EPA's evaluation of Virginia's WIP fails to recognize cost and achievability as factors that must be considered in the development of an implementation plan, and thus does not comply with Virginia law.

EPA cannot impose draconian allocations on the basis of deficiencies in an implementation plan that it has no authority to mandate. Even if EPA did have the ability to require an implementation plan under Virginia's statutory program, it has failed to apply the achievability and cost criteria required under that program.

[FN5] EPA's 202(a) Report at p. 15; see also Bay TMDL at 1-12.

[FN6] "The [Congressional] Committee expects EPA to meet the requirements of this paragraph through the award of implementation grants under subsection (e). Nothing in the Chesapeake Bay Restoration Act provides EPA with any additional regulatory authorities." H. Rept. 550, 106th Cong., 2d Sess., at 3 (2000).

[FN7] See EPA's Overview of Impaired Waters and Total Maximum Daily Loads Program ("Section 303(d) of the CWA does not specifically require implementation plans for TMDLs."). This basic concession is repeated in literally thousands of EPA decision rationales approving state TMDL submittals (for example, see footnote 25 below).

[FN8] Several industry petitioners challenged EPA's statutory authority under Section 303(d) of the Clean Water Act to require implementation plans. One of the arguments raised was that EPA misconstrued the language "at a level necessary" in 303(d)(l)(C) to mean "level of regulatory effort" instead of "pollutant level," as clearly contemplated by Congress. Additionally, Congress had already supplied a means for EPA to oversee implementation through section 303(e). Congress would not have drawn the requirements of that section so broadly if it had intended the 303(d) TMDL to include implementation requirements.

[FN9] See EPA's Overview of Impaired Waters and Total Maximum Daily Loads Program ("Although states are not required under section 303(d) to develop TMDL implementation plans, many states include implementation plans with the TMDL or develop them as a separate document. When developed, TMDL implementation plans may provide additional EPA information on what point and nonpoint sources contribute to the impairment and how those sources are being controlled, or should be controlled in the future.").

[FN10] See, e.g., EPA's decision rationale for approving the Tidal Potomac PCB TMDL established by the Interstate Commission on the Potomac River Basin, dated October 31, 2007, at p. 12 ("Neither the Clean Water Act nor the EPA implementing regulations, guidance or policy requires a TMDL to include an implementation plan. EPA therefore does not approve or disapprove implementation plans as part of the TMDL process.") (emphasis added).

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0376.1.001.032

Author Name: Smith Brooks

Organization: Virginia Manufacturers Association VMA

VMA believes that Virginia's September 3,2010 WIP provides a sensible, well-reasoned and effective strategy for addressing Virginia's contribution to Chesapeake Bay impairment. Although the TSS allocations for industrial point sources will need to be revised to address site-specific conditions, once those corrections are made VMA supports the WIP. EPA's rejection of Virginia's WIP and development of its own proposed allocation scheme in the TMDL is not supported by substantial evidence, exceeds EPA's legal authority, and reflects an approach to sediment that on its face is arbitrary and capricious. It is VMA's hope that EPA will work with the Virginia regulatory agencies and Virginia stakeholders to develop a final TMDL that is based on sound science, environmental benefit and equitable allocations.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. The final TMDL includes significantly revised allocations. Please see Section 8 of the TMDL for final allocations.

Comment ID 0399.001.014

Author Name: Comment Anonymous

Organization: Town of Erwin, New York

WHEREAS, the Town of Erwin opposes the EPA increasing its federal regulatory control and usurping state and local jurisdiction and authority in order to impose their TMDL, instead of working collaboratively with State agriculture and environmental protection agencies, Soil and Water Conservation Districts and local communities to address the Chesapeake Bay Watershed water quality concerns

Response

Please see the response to comment number 0311_cp.001.001.

Comment ID 0410.1.001.007

Author Name: Pujara Karuna

Organization: Maryland State Highway Administration (SHA)

Has EPA considered how the TMDL might impact environmental justice? SHA can envision a point where options

become severely limited for meeting reduction goals, especially within densely developed watersheds.

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0421-cp.001.004

Author Name: Comment Anonymous

Organization: Cloverfield Farm

The EPA also propses methods of regulating the amount of runoff that is produced in the watershed by meas that oversteps the authority given to them by the clean water act.

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0432.1.001.001

Author Name: William Neilson John Bell and

Organization: Pennsylvania Farm Bureau

At the outset, we affirm and incorporate as part of our comments the comments that were jointly submitted to EPA and to the respective Bay states by the American Farm Bureau Federation and several other national and regional agricultural organizations ("AFBF et al.") in response to the draft TMDL and Bay states' proposed WIPs. The comments by AFBF et al. raise numerous serious questions and objections, relative to EPA's legal authority under the Clean Water Act to impose types of requirements, restrictions and sanctions that EPA is attempting to impose, not only with respect to the draft TMDL but also with respect to EPA's regulatory actions pursuant to President Obama's Executive Order on the Chesapeake Bay and execution of its Consent Agreement with the Chesapeake Bay Foundation.

The obvious design, objective and regulatory effect behind EPA's recent regulatory administration of the Chesapeake Bay is to exercise direct federal regulatory control of nonpoint pollution source activities and to federally direct the specific means and measures that states are to perform in control of nonpoint source pollution and sanction states that do not implement nonpoint source pollution control programs in a manner that conforms to EPA's expectations. As aptly noted by AFBF et al. in their comments, the federal Clean Water Act expressly and extensively limits EPA's authority to directly regulate individual nonpoint source activities and EPA's authority to directly regulate states' management of nonpoint source control programs.

More specifically, EPA's authority to establish a TMDL under the Clean Water Act does not give EPA authority to impose the type of pervasive regulatory oversight of Bay states in nonpoint source pollution control, as EPA is attempting to do through the draft TMDL, the President's Executive Order, or measures acquiesced by EPA in Consent Agreements.

While comments to follow may try to be more practical and constructive with respect to EPA's draft TMDL and Pennsylvania's draft Watershed Implementation Plan ('WIP") being proposed in response to measures recently taken by EPA, EPA should not read our comments as suggesting EPA is acting legally with respect to the demands that EPA is attempting to place in the development of state WIPs or its attempt to sanction states whose WIPs do not meet EPA's expectations. We continue to assert that EPA has overwhelmingly exceeded its limited authority under the Clean Water Act in measures EPA has taken in its administration of the Bay.

Response

Thank you for the comment. For a comprehensive discussion of legal issues please see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0434.1.001.003

Author Name: Pryor Wayne

Organization: Virginia Farm Bureau Federation

The VA Farm Bureau has significant concerns about the legal basis for EPA's proposed TMDL, as well as its profound cost and impact on the agricultural community. Specifically:

• EPA does not have the legal authority to approve, disapprove or unilaterally change Virginia's WIP.

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0434.1.001.010

Author Name: Pryor Wayne

Organization: Virginia Farm Bureau Federation

III. EPA Does Not Have the Legal Authority to Impose the Backstops in Its Proposed TMDL.

A. EPA Does Not Have the Authority to Require Implementation Plans, Much Less Impose Stringent Backstop Allocations as a Consequence of Alleged Deficiencies in State Implementation Plans.

1. Section 303 of the Clean Water Act Does Not Give EPA TMDL Implementation Authority.

Section 303(d) of the CWA requires states to establish TMDLs for pollutants contributing to water quality impairment at levels that will allow the waters to meet applicable water quality standards. 33 U.S.C. § 1313(d). If a state fails to perform this action, EPA has no enforcement authority against the state.[FN1] Instead, in the absence of state action, EPA may act directly.[FN2] This means that, under section 303(d) of the CWA, EPA is authorized to establish TMDLs if a state fails to act. No additional authority is conferred on EPA when it establishes a TMDL. In particular, EPA is given no implementation authority beyond that which it has under other provisions of the CWA.

Under current law, a TMDL is the sum of the wasteload and load allocations that allow a body of water to meet water quality standards. 40 C.F.R. § 130.2(i). Implementation plans are not part of the TMDL and are not subject to EPA approval. Section 303(d)(2) of the CWA requires states to incorporate approved TMDLs into the water quality management plans that the states maintain under section 303(e). This framework is carried through in EPA's existing TMDL regulations as well as its 1997 guidance document on TMDL implementation. See 40 C.F.R. § 130.7(a) and "New Policies for Establishing and Implementing Total Maximum Daily Loads" (1997) (noting that "Section 303(d) does not establish any new implementation authorities beyond those that exist elsewhere in State, local, Tribal, or Federal law.").

While EPA's 1997 Guidance does recommend that states submit implementation plans to EPA for review and comment, it does not purport to make implementation plans subject to EPA approval. See also EPA's Overview of Impaired Waters and Total Maximum Daily Loads Program ("Section 303(d) of the CWA does not specifically require implementation plans for TMDLs. "), accessible at http://www.epa.gov/OWOW/TMDL/intro.html; EPA's decision rationale for approving the Tidal Potomac PCB TMDL established by the Interstate Commission on the Potomac River Basin, dated October 31, 2007, at p. 12 ("Neither the Clean Water Act nor the EPA implementing regulations, guidance or policy requires a TMDL to include an implementation plan. EPA therefore does not approve or disapprove implementation plans as part of the TMDL process.") (emphasis added).

In 2000, EPA issued regulations that, among other things, would have required each TMDL to include an implementation plan. 65 Fed. Reg. 43586 (July 13, 2000). Congress blocked implementation of those regulations, and eventually EPA withdrew them. See P.L. 106-246 and 68 Fed. Reg. 13607 (Mar. 19, 2003).

As EPA acknowledges, the entire "accountability framework" EPA keeps referencing "is not itself an approvable part of the TMDL." Draft TMDL at page 7-4 (emphasis in original). Thus, neither section 303(d) of the CWA, EPA's regulations or guidance give EPA authority to approve, disapprove, or change Virginia's WIP.

2. Section 117 of the Clean Water Act Does Not Give EPA TMDL Implementation Authority.

EPA implies that section 117(g) of the Clean Water Act provides it with the regulatory authority to approve Virginia's WIP. See Draft TMDL, at 1-12 ("The accountability framework is also being established pursuant to CWA section 117(g)(l)."). Specifically, EPA is relying on language in section 117(g) that states that "the Administrator, in coordination

with other members of the Chesapeake Executive Council, shall ensure that management plans are developed and implementation is begun by signatories to the Chesapeake Bay Agreement...."

However, in enacting 117(g) in the "Chesapeake Bay Restoration Act of 2000" (enacted as Title II of the Estuaries and Clean Waters Act of 2000 (P.L. 106-457)), Congress did not provide the federal government with regulatory authority to achieve the goals listed in section 117(g). The Estuaries and Clean Waters Act of 2000 merges ten water quality bills that had each passed the House of Representatives as stand-alone bills with one bill that passed the Senate. The stand-alone version of Title II was H.R. 3039.[FN3] Therefore, the following language from the committee report for H.R. 3039 provides legislative history for section 117(g):

"(g) Chesapeake Bay Program.-
(l) Management Strategies.-Directs EPA, in coordination with other members of the Council, to ensure that management plans are developed and implementation is begun by signatories to the Chesapeake Bay Agreement to achieve the goals of that Agreement. The Committee expects EPA to meet the requirements of this paragraph through the award of implementation grants under subsection (e). Nothing in the Chesapeake Bay Restoration Act provides EPA with any additional regulatory authorities. "

H.R. Rept. No. 550, 106th Cong., 2d Sess., at 3 (2000) (emphasis added).

Thus, section 117(g) of the Clean Water Act does not give EPA authority to approve, disapprove, or change the state WIPs.

3. An Executive Order does not grant EPA authority to approve state WIPs.

EPA also cites Executive Order 13508 as authority to dictate the terms of state WIPs. "In addition, Executive Order 13508 directs EPA and other federal agencies to build a new accountability framework that guides local, state, and federal water quality restoration efforts." Draft TMDL, at 1-12. It would be a violation of Separation of Powers for the President to grant the Executive Branch any authority through an Executive Order or otherwise. Other than a few powers granted directly by the Constitution (and not at issue here) the Executive Branch can only implement the laws that Congress has passed. It cannot create any new authority.

Thus, Executive Order 13508 does not give EPA authority to approve, disapprove, or change the state WIPs.

B. EPA's Proposed TMDL Exceeds Its Authority Under the Clean Water Act and United States Constitution.

1. EPA Lacks Authority to Compel a Schedule for Implementation of the TMDL or to Threaten Consequences Against States that Fail to Meet this Schedule.

EPA has unilaterally established a schedule for achieving 60% of the reductions set forth in the Bay TMDL by 2017, and 100% of the reductions by 2025. See Bay TMDL Executive Summary at 1. To meet this schedule, EPA has mandated that the states meet recurring two-year milestones to demonstrate their restoration progress or suffer certain EPA-prescribed consequences. Bay TMDL at page 1-12 ("The Bay TMDL will be implemented using an accountability framework that includes WIPs, 2-year milestones, EPA's tracking and assessment of restoration progress and, as necessary, specific federal actions if the Bay jurisdictions do not meet their commitments.").

The problem with EPA's schedule and mandate is that EPA has no authority to compel them. Nothing in the Clean Water Act or EPA's implementing regulations provides a deadline for TMDL implementation. To the contrary, TMDLs are simply planning tools that help to inform state water quality management decisions. EPA has conceded as much in prior TMDL litigation. See, e.g., Pronsolino v. Nastri, 291 F.3d 1123, 1129 (9th Cir. 2002).

2. EPA Cannot Require States to Undertake Specific Implementation Measures.

EPA's only authority under the TMDL program is to allocate loads and wasteloads to nonpoint and point sources. It does not have the authority to require states to adopt new regulatory provisions under the guise of "assumptions" used to prepare the load allocations in the TMDL. But EPA's proposed TMDL goes much further.

EPA states that, under 40 CFR § 122.44(d)(l)(vii)(B), water quality based effluent limitations in permits must be "consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA pursuant to 40 C.F.R. § 130.7."[FN4] In section 8 of the Draft TMDL, EPA says: "This section summarizes the assumptions that are incorporated into the Chesapeake Bay TMDL allocations in a TMDL." EPA then attempts to incorporate implementation measures into the TMDL itself. For example, EPA assumes that watershed jurisdictions will issue new regulations that will regulate every animal feeding operation, regardless of the number of animals and regardless of whether or not the facility discharges:

As with stormwater point sources, in its backstop allocations EPA has included currently unregulated AFOs in the WLA portion of the TMDL. For such sources, EPA's draft backstop allocation is based on two assumptions: (l) currently unregulated sources will become regulated under the NPDES permit program some day through appropriate designation! rulemaking/ permits; and (2) the projected sector wasteload reductions (based on NPDES effluent controls consistent with the WLA) will result in those needed reductions.

Draft TMDL, at 8-11 (emphasis added).

Nothing in the CWA or EPA regulations gives EPA the authority to use EPA's permitting regulations to compel state regulatory action. In fact, such authority would violate the 10th Amendment to the U.S. Constitution. In New York v. United States, 505 U.S. 144 (1992), the Supreme Court struck down a provision of federal law that required States to provide for the disposal of radioactive wastes. The Court held that Congress may not "commandeer the legislative processes of the States by directly compelling them to enact and enforce a federal regulatory program. Id. at 161. In other words: "While Congress has substantial power to govern the Nation directly, ...the Constitution has never been understood to confer upon Congress the ability to require the States to govern according to Congress' instruction." Id. at 162. Accordingly, the Clean Water Act and 40 C.F.R. 122.44(d)(l)(vii)(B) cannot be read to give EPA authority to make "assumptions" that a state will enact and enforce a regulatory program, and then try to enforce that "assumption" through the CWA permitting program.

[FN1] Congress may not establish a federal law that compels a state to take regulatory action. See New York v. United States, 505 U.S. 144, 162 (1992). ("While Congress has substantial power to govern the Nation directly, ...the Constitution has never been understood to confer upon Congress the ability to require the States to govern according to Congress' instruction.").

[FN2] Scott v. City of Hammond, 741 F.2d 992, 996 (7th Cir. 1984), cert. denied, 469 U.S. 1196 (1985) ("[S]tate inaction amounting to a refusal to act" would be interpreted as a constructive submission of no TMDL, thus triggering EPA's duty to approve or disapprove such submission and to establish the TMDL itself (in the event of a disapproval)).

[FN3] See Congo Rec. H7490 (daily ed. Sept. 12,2000).

[FN4] Of course, the Chesapeake Bay TMDL will not be approved by EPA pursuant to 40 C.F.R. § 130.7 because this TMDL is not being developed by states. Thus, it is uncertain what legal effect this regulation will have with respect to permits for point sources in the Chesapeake Bay watershed. Arguably, it has no effect.

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0434.1.001.012

Author Name: Pryor Wayne

Organization: Virginia Farm Bureau Federation

D. EPA's Threats of Consequences Overstate EPA's Authority.

In the Draft TMDL, EPA expressly states that unless states "[d]evelop and submit Phase I, II, and III WIPs consistent with the expectations and schedule described in EPA's letter of November 4, 2009, and the amended schedule described in EPA's letter of June 11, 2010," EPA will take one or more punitive actions that were outlined in a December 29, 2010, letter to watershed jurisdictions. Draft TMDL, at 7-11. This remarkably heavy-handed statement is a complete departure from the cooperative federalism that is the hallmark of the CWA. Under the CWA, authorized states such as Virginia carry out CWA programs in that state. EPA does not dictate the terms of how water quality standards are to be met. If EPA believes that a state is not administering the CWA permitting program properly, EPA may withdraw approval of the state program. 33 U.S.C. § 1342(c)(3). EPA has some authorities, short of program withdrawal. However, these authorities address specific fact patterns, not EPA displeasure with a state WIP. Moreover, those consequences must be related to achievement of the water quality goals. Here, EPA cannot demonstrate that the partial and full backstop allocations it is threatening to impose are necessary for the water quality standards to be attained.

E. EPA Cannot Use the TMDL Process to Create a Permitting Program for Unregulated Sources.

If EPA does not agree with a state WIP, EPA claims the authority to use residual designation authority to regulate unregulated sources in that state. As noted above, one of the assumptions EPA is making in its backstop allocations is that all animal feeding operations are regulated sources. Presumably, EPA intends to impose this assumption on Virginia by designating animal feeding operations (AFOs) as regulated concentrated animal feeding operations

(CAFOs).

EPA's authority to designate AFOs as CAFOs is governed by 40 C.F.R. § 122.23(c). However, that authority is limited. First, the AFO must actually discharge pollutants.[FN5] Second, either the state or the EPA Regional Administrator must make a determination that the particular AFO "is a significant contributor of pollutants to waters of the United States." Third, if a state is authorized to carry out the CWA permitting program (which includes every watershed jurisdiction except for the District of Columbia) then the Regional Administrator may designate an AFO as a CAFO only if "the Regional Administrator has determined that one or more pollutants in the AFO's discharge contributes to an impairment of a downstream or adjacent State or Indian Country water that is impaired for that pollutant." 40 C.F.R § 122.23(c)(1). EPA will not be able to rely on its Chesapeake Bay Watershed model to make these determinations, because the model cannot predict water quality impacts at the individual facility level. Thus, EPA will have to develop site-specific data before it can make such a determination.

Notably absent from the regulation is the authority to designate an AFO as a CAFO because EPA does not like a state's WIP. Accordingly, EPA does not have the legal authority, must less the technical support, for its residual designation authority against AFOs (in both its backstop allocation and in its evaluation of the Virginia's WIP).

[FN5] See Waterkeeper Alliance et at. v. EPA, 399 F.3d 486,504 (2d Cir. 2005); Service Oil, Inc v. EPA, 590 F.3d 545 (8th Cir. 2009).

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0436.1.001.016

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Chesapeake, Virginia

III. EPA DOES NOT HAVE THE LEGAL AUTHORITY TO ESTABLISH A DEADLINE IN THE TMDL

Nothing in either section 303(d) of the Clean Water Act (CWA) or its implementing regulations gives EPA the legal authority to set a deadline for attainment in the TMDL, nor has EPA cited to any such authority in the TMDL. [FN 7] EPA's proposed 2025 deadline would establish a single schedule in the form of a deadline for achieving compliance with the allocations for all NPDES permitted sources within the Chesapeake Bay watershed. Such a deadline is in direct conflict with EPA's own regulations, which authorize compliance schedules in NPDES permits, not TMDLs. See 40 C.F.R. § 122.47 (providing that a "permit may, when appropriate, specify a schedule of compliance leading to compliance with CWA and regulations.") While this may be EPA's TMDL, it is for the states with delegated NPDES permit programs, not EPA, to establish schedules and deadlines for achieving compliance with the allocations in the TMDL. See 40 C.F.R. § 123.25; 40 C.F.R. § 130.5(b)(1).

It is also well established that schedules of compliance to implement state water quality standards are purely matters of state law, which EPA has no authority to override. See In the Matter of Star-Kist Caribe, Inc., NPDES Appeal No. 88-5, 4 EAB 33, 36 (EAB 1992) (the responsibility of [s]tates under the law to make specific provision for schedules of compliance … is unequivocal"); In re District of Columbia Water and Sewer Authority, NPDES Appeal Nos. 05-02, 07-10, 07-11, and 07-12, EAB 714, 734 (EAB 2008) ("it is the role of the states, not EPA, to determine whether and under what circumstances compliance schedules may be incorporated in NPDES permits.") Therefore, EPA's attempt to establish a compliance deadline in the TMDL has no basis in the CWA or its implementing regulations, and improperly seeks to override the discretion reserved to the states to establish appropriate schedules of compliance on a case-by-case basis. Thus, the 2025 deadline should be removed from the TMDL.

[FN 7] EPA's own guidance effectively acknowledges that it lacks the authority to impose a compliance deadlines in TMDL's. See New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs), Memo from Robert Persciasepe, 4 (Aug. 8, 1997) (stating that "Section 303(d) does not establish any new implementation authorities beyond those that exist elsewhere in State, local, Tribal or Federal law").

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0440.1.001.002

Author Name: Land Larry

Organization: Virginia Association of Counties (VACo)

• Legal complications for localities: With respect to EPA expectations on urban storm water retrofits, VACo is also concerned about such legal issues affecting localities as right-of-entry to private property and vested rights, especially with respect to requiring stormwater retrofits and other enforcement functions.

Response

Thank you for the comment. See response to comment number 0232.1.001.004. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0457.1.001.001

Author Name: Zaepfel Patrick

Organization:

1. The Notice fails to acknowledge that it constitutes a notice of proposed rulemaking, subject to the processes and procedures of the Administrative Procedures Act. Failure to make this clear to the public is in itself a violation of the Administrative Procedures Act ("APA") and principles of administrative law that pre-date the enactment of the APA.

Response

Thank you for the comment. The TMDL is not a rule. EPA has provided significant notice of its action and opportunity for public involvement. See Section 11 of the TMDL. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0457.1.001.004

Author Name: Zaepfel Patrick

Organization:

4. Looking at the cap loads resulting from the Pennsylvania WIP, many industrial dischargers were examining very expensive but mostly financially-bearable capital upgrades. Now, with the Draft TMDL threatening, these industries will be forced to look at the viability of their operations, not mere capital upgrades. While the importance of the Bay is beyond a doubt, if the industrial base of the Susquehanna River watershed is eviscerated, the environmental benefits of the Draft TMDL will quickly be overshadowed by the financial upheaval created. Given its very significant economic impact and the direct impact on the States, the Draft TMDL should have been subject to cost-benefit and economic impact analysis. Failing to do so violates Executive Orders 12866 and 13132, as well as the Unfunded Mandates Reform Act of 1995. Considering that the source cap loads cover thousands of lightly regulated dischargers (including a handful of individual residences), EPA should also have examined it in light of the Small Business Regulatory Enforcement Fairness Act of 1996, which requires that a Regulatory Flexibility Analysis be performed if a regulation will have a significant financial impact on a substantial number of small businesses.

Response

Please see the response to 0038.1.001.024 outlining the federal effort towards the Bay. EPA allowed jurisdictions the opportunity to develop a Watershed Implementation Plan that meets the TMDL allocations. If a jurisdiction is unable to meet the targeted allocations or provide the justification on how it will meet those allocations then EPA must ensure that the TMDL allocations will be met with or without regard to cost as referenced in the response to comment 0067.1.001.009 and section 8 of the TMDL.

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0475.1.001.003

Author Name: Frazier Katie

Organization: Virginia Agribusiness Council

B) Legal and policy issues that arise from EPA's assertion of authority over implementation of the Draft TMDL

In comments submitted by a group of interested agricultural organizations at the state and national level to EPA regarding the Draft Chesapeake Bay TMDL, specific legal questions were raised regarding EPA's assertion of authority over implementation of the Bay TMDL and Virginia's Draft WIP. We call your attention to these comments and encourage EPA to respond to them. Specifically, we question EPA's threats to retaliate against watershed jurisdictions that do not develop WIPs conforming to EPA's expectations. We believe that these threats exceed EPA's authority under the Clean Water Act (CWA). These comments highlight concerns including a) EPA has failed to provide meaningful public review of the Draft TMDL, b) the Draft TMDL is arbitrary and capricious, and c) the Draft TMDL is contrary to law.

We are encouraging Virginia to continue to establish a plan for implementation of the Chesapeake Bay Watershed TMDLs in a manner that Virginia believes is best for Virginians and the environment and continues Virginia's recognition of the tremendous progress that has already been made by the agriculture community.

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0481.1.001.003

Author Name: Andes Fredric

Organization: Federal Water Quality Coalition

Even where EPA does have backstop authority to establish TMDLs where states fail to do so, it is important to note that establishing a TMDL is legally distinct from establishing measures to implement a TMDL.

Implementation plans associated with a TMDL are not part of the TMDL itself and, thus, are not subject to EPA approval. Pursuant to EPA's own regulations, a TMDL is the sum of the wasteload and load allocations necessary to meet water quality standards. 40 C.F.R. § 130.2(i). Section 303(d)(2) of the CWA requires states to incorporate approved TMDLs into the water quality management plans that the states maintain under section 303(e). This framework is carried through in EPA's existing TMDL regulations as well as its 1997 guidance document on TMDL implementation. See 40 C.F.R. § 130.7(a) and "New Policies for Establishing and Implementing Total Maximum Daily Loads" (1997 Guidance) (noting that "Section 303(d) does not establish any new implementation authorities beyond those that exist elsewhere in State, local, Tribal, or Federal law.").

The 1997 Guidance does recommend that states that rely on nonpoint source reductions to achieve water quality standards in a TMDL provide "reasonable assurance" that the nonpoint source reductions will be achieved. However,

the 1997 Guidance does not suggest that implementation plans are subject to EPA approval or that EPA has authority to require reasonable assurance. See also EPA's Overview of Impaired Waters and Total Maximum Daily Loads Program ("Section 303(d) of the CWA does not specifically require implementation plans for TMDLs."), accessible at http://www.epa.gov/OWOW/TMDL/intro.html . As EPA has stated: "Neither the Clean Water Act nor the EPA implementing regulations, guidance or policy requires a TMDL to include an implementation plan. EPA therefore does not approve or disapprove implementation plans as part of the TMDL process." See EPA's decision rationale for approving the Tidal Potomac PCB TMDL established by the Interstate Commission on the Potomac River Basin, dated October 31, 2007, at p. 12 (emphasis added).

In 2000, EPA issued regulations that, among other things, would have required each TMDL to include an implementation plan. 65 Fed. Reg. 43586 (July 13, 2000). Congress blocked implementation of those regulations, and eventually EPA withdrew them. See P.L. 106-246 and 68 Fed. Reg. 13607 (Mar. 19, 2003).

In 2002, the U.S. Court of Appeals for the Eleventh Circuit reversed an order by the U.S. District Court that had required EPA to establish implementation plans in Georgia in connection with TMDLs already required by a consent decree in that state. The Court held that neither the Clean Water Act nor EPA's regulations require an implementation plan as an element of TMDLs. Sierra Club v. Meiburg, 296 F.3d 1021, 1031 (11th Cir. 2002) (noting that the 2000 regulations that would have required implementation plans were never implemented and subsequently withdrawn and holding that "[o]f course, the national policy and objectives relating to clean water are most reliably embodied in the Act itself which puts the responsibility for implementation of TMDLs on the states."); see also Amigos Bravos v. Green, 306 F.Supp.2d 48 (D.D.C. 2004) (no implementation plan is required under section 303(d)). Further, as the Ninth Circuit recognized in Pronsolino v. Nastri: "States must implement TMDLs only to the extent that they seek to avoid losing federal grant money; there is no pertinent statutory provision otherwise requiring implementation of § 303 plans or providing for their enforcement." 291 F.3d 1123, 1140 (9th Cir. 2002).

The distinction between the TMDL and the plan for implementing it is particularly important in those watersheds, such as the Chesapeake Bay, where both point and nonpoint sources are contributing pollutants. For example, in 2002 the Ninth Circuit found that TMDLs for nonpoint sources do not upset the federalism balance of the CWA only because the implementation of TMDLs remains within the states' exclusive authority. Pronsolino v. Nastri, 291 F.3d 1123, 1140 (9th Cir. 2002).

EPA admits that the watershed implementation plans (WIPs) are not part of the TMDL itself. "The WIPs are part of the accountability framework meant to implement the Chesapeake Bay TMDL, but they are not part of the TMDL itself." Draft TMDL, at 1-2. Further, EPA admits that: "While the accountability framework informs the TMDL, section 303(d) does not require that EPA ‘approve' the framework per se, or the jurisdiction's WIPs that constitute part of that framework." Draft TMDL, at 1-12.

Instead, EPA appears to rely on CWA Section 117(g) to set forth authority over implementation plans. See Draft TMDL, at 1-12 ("The accountability framework is also being established pursuant to CWA section 117(g)(1)"). Specifically, EPA relies on the following language in section 117(g): "the Administrator, in coordination with other members of the Chesapeake Executive Council, shall ensure that management plans are developed and implementation is begun by signatories to the Chesapeake Bay Agreement…." 33 U.S.C. § 1267(g)(1)

However, in enacting 117(g) in the "Chesapeake Bay Restoration Act of 2000" (enacted as Title II of the Estuaries and

Clean Waters Act of 2000 (P.L. 106-457)), Congress did not provide the federal government with regulatory authority to achieve the goals listed in section 117(g). The Estuaries and Clean Waters Act of 2000 merges ten water quality bills that had each passed the House of Representatives as stand-alone measures with one bill that passed the Senate. The stand-alone version of Title II was H.R. 3039.[FN 3] The following language from the committee report for H.R. 3039 provides legislative history for section 117(g):

"(g) Chesapeake Bay Program.-
(1) Management Strategies.-Directs EPA, in coordination with other members of the Council, to ensure that management plans are developed and implementation is begun by signatories to the Chesapeake Bay Agreement to achieve the goals of that Agreement. The Committee expects EPA to meet the requirements of this paragraph through the award of implementation grants under subsection (e). Nothing in the Chesapeake Bay Restoration Act provides EPA with any additional regulatory authorities."

H.R. Rept. No. 550, 106th Cong., 2d Sess., at 3 (2000) (emphasis added).

Therefore, Congress did not grant EPA authority pursuant to CWA Section 117(g) to approve, disapprove, or change the state WIPs.

EPA also cites Executive Order 13508 as authority to dictate the terms of state WIPs. "In addition, Executive Order 13508 directs EPA and other federal agencies to build a new accountability framework that guides local, state, and federal water quality restoration efforts." Draft TMDL, at 1-12. It would violate the separation of powers doctrine for the President to grant the Executive Branch any authority through an Executive Order or otherwise. Other than a few powers granted directly by the Constitution (and not at issue here) the Executive Branch can only implement the laws that Congress has passed. It cannot create any new authority. Therefore, Executive Order 13508 does not give EPA authority to approve, disapprove, or change the state WIPs.

In section 7 of the Draft TMDL, EPA also claims the authority to judge state WIPs under the rubric of "reasonable assurance." "Reasonable assurance" is a concept that does not originate in either the CWA or EPA regulations. Rather, EPA created this concept in its 1997 Guidance. Under that guidance, EPA wants "reasonable assurances" that load allocations will be met if relied upon to establish point source wasteload allocations, and encourages submission of implementation plans to EPA. But, the 1997 Guidance does not purport to make implementation plans subject to EPA approval or give EPA authority to require reasonable assurance.[FN 4] Nonetheless, in the Draft TMDL, EPA goes even further than its 1997 Guidance and asserts that "reasonable assurance that the TMDL's LAs will be achieved depends on whether practices capable of reducing the specified pollutant load (1) exist; (2) are technically feasible at a level required to meet allocations; and (3) have a high likelihood of implementation within a given period." Draft TMDL, at 7-1.

EPA claims it has the authority to demand reasonable assurance under the CWA. Draft TMDL, at vii. However, the only statutory provision that EPA cites for this alleged authority is the requirement in section 303(d) that a TMDL be "established at a level necessary to implement the applicable water quality standard." Id. EPA claims that "[d]ocumenting adequate reasonable assurance increases the probability that regulatory and voluntary mechanisms will be applied such that it achieves the pollution reduction levels specified in the TMDL and therefore attains WQS." Id. This statement does not support any assertion of authority to require reasonable assurance. The TMDL is merely the sum of the load allocations and the wasteload allocations for a pollutant. The statute requires that the TMDL be set at a

"level" necessary to meet water quality standards. A level is a number. Nothing in the statute gives EPA the authority to judge how that number is assigned or divided. Whether a TMDL is achieved is part of the development process. How a TMDL is achieved is an implementation issue left to the exclusive authority of the states, given their primary authority and expertise over on-the-ground permitting and management decisions.

EPA acknowledges that its entire "accountability framework" is "not itself an approvable part of the TMDL." Draft TMDL, at 7-4 (emphasis in original). We commend EPA for acknowledging this fundamental limitation in its TMDL authority.

[FN 3]See Cong. Rec. H7490 (daily ed. Sept. 12, 2000).

[FN 4] "New Policies for Establishing and Implementing Total Maximum Daily Loads" (1997) (noting that "Section 303(d) does not establish any new implementation authorities beyond those that exist elsewhere in State, local, Tribal, or Federal law").

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0481.1.001.005

Author Name: Andes Fredric

Organization: Federal Water Quality Coalition

Through its backstop allocations in section 8 of the Draft TMDL, EPA is already threatening to impose "consequences" and undertake the implementation measures discussed in subparagraph C, above. To support these proposed actions, EPA cites the regulatory provision requiring water quality based effluent limitations in permits to be "consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA pursuant to 40 C.F.R. 130.7."[FN 6] In section 8 of the Draft TMDL, EPA states that: "This section summarizes the assumptions that are incorporated into the Chesapeake Bay TMDL allocations in a TMDL." EPA then proceeds to use the word "assume" or "assumption" 59 times in an attempt to bootstrap its permitting regulations into a mechanism to compel a watershed jurisdiction to undertake specific implementation measures. These assumptions include the use of residual designation authority (discussed above) and the expansion of the CWA permitting program through new regulations.[FN 7]

We assume that, in section 8, EPA is attempting to give itself authority to object to state permits that do not incorporate EPA's proposed regulatory requirements. However, nothing in the CWA or EPA regulations gives EPA the authority to use its permitting regulations to compel state regulatory action. In fact, such authority would violate the 10th Amendment to the U.S. Constitution. In New York v. United States, 505 U.S. 144 (1992), the Supreme Court struck down a provision of federal law that required States to provide for the disposal of radioactive wastes. The Court held that Congress may not "commandeer the legislative processes of the States by directly compelling them to enact and

enforce a federal regulatory program. Id. at 161. In other words: "While Congress has substantial power to govern the Nation directly,…the Constitution has never been understood to confer upon Congress the ability to require the States to govern according to Congress' instruction." Id. at 162. Accordingly, the Clean Water Act and 40 C.F.R. 122.44(d)(1)(vii)(B) cannot be read to give EPA authority to make "assumptions" that a state will enact and enforce a regulatory program, and then try to enforce that "assumption" through the CWA permitting program.

For example, in section 8 of the Draft TMDL, EPA assumes much greater reductions from wastewater treatment plants than those put forth in the state WIPs. For wastewater, EPA's backstop allocations assume controls achieving 4 mg/L TN and 0.3 mg/L TP based on design flows in Virginia, and the limit of technology or 3 mg/L TN and 0.1 mg/L TP in West Virginia, New York, Pennsylvania, and Delaware, Draft TMDL, at 8-14, 8-16. EPA also is asserting the authority to impose "full" backstop allocations that would require wastewater treatment plants to achieve 3 mg/L TN and 0.1 mg/L TP based on average current flow from 2007 to 2009, not design flow. Draft TMDL, at 8-17. As individual sources and communities have pointed out, achieving these reductions will cost billions of dollars and are not economically feasible. Further, if EPA establishes WLAs based on current flows rather than design flows, EPA will take away any opportunity for a community to grow, forcing population growth and economic development into open space, contrary to smart growth principles.

For stormwater in Virginia, West Virginia, New York, Pennsylvania, and Delaware, EPA's backstop allocations assume that states have incorporated conditions into MS4 permits that would result in significant reductions in sediment and nutrient runoff through a combination of retrofitting and redevelopment requirements covering 50 percent of developed lands. Draft TMDL, at 8-15. According to EPA, over 7 percent of the 64,000 square mile Chesapeake Bay watershed is developed and recent United States Geological Service data indicate that the amount of developed land may be twice what EPA has assumed in the Draft TMDL. See http://archive.chesapeakebay.net/pubs/calendar/47751_10-28-10_Handout_2_11032.pdf . Retrofitting 4480 square miles of area is not feasible. In fact, EPA has suggested that it would cost $7.9 billion a year. See The Next Generation of Tools and Actions to Restore Water Quality in the Chesapeake Bay: A Revised Report Fulfilling Section 202a of Executive Order 13508, at 24. As noted below, Hampton Roads, Virginia, estimates that meeting the retrofitting requirements of the backstop allocation would cost its community $679 million a year.

EPA's backstop allocations in section 8 of the Draft TMDL are either technologically or economically infeasible and EPA cannot force watershed jurisdictions to adopt these allocations.

[FN 6] 40 CFR 122.44(d)(1)(vii)(B). Of course, the Chesapeake Bay TMDL will not be approved by EPA pursuant to 40 C.F.R. 130.7 because this TMDL is not being developed by states. Thus, it is uncertain what legal effect this regulation will have with respect to permits for point sources in the Chesapeake Bay watershed. Arguably, it has no effect.

[FN 7] For example, EPA cites its intent to develop new stormwater regulations to support the assumptions underlying its backstop allocations. Draft TMDL, at 8-10 to 8-11. Of course, EPA cannot prejudge the outcome of a rulemaking in the Draft TMDL so it cannot rely on its intent to do rulemaking as support for its backstop allocations.

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0481.1.001.011

Author Name: Andes Fredric

Organization: Federal Water Quality Coalition

The APA requires agencies to provide the public with the opportunity to comment on their actions. 5 U.S.C. 553(c). In order to provide for meaningful public comment under the APA, agencies must disclose the data or other material that the agency relies on to make a final decision. Participation is not meaningful if an agency bases its action on information that is not available to the public. United States v. Nova Scotia Food Prods. Corp., 568 F.2d 240 (2d Cir. 1977). Courts will consider what steps the agency took to apprise interested persons of important data or information related to the rulemaking. See, e.g., Portland Cement Ass'n v. Ruckelshaus, 486 F.2d 375 (DC Cir. 1973), cert. denied, 417 U.S. 921 (1974) ("it is not consonant with the purposed of a rule-making proceeding to promulgate rules on the basis of inadequate data, or on data that, in critical degree, is known only to the agency."). An agency must be able to support a final action (such as establishing a TMDL) based on evidence in the administrative record that it compiles. Motor Vehicle Mfrs. Ass'n v. State Farm Mutual Insurance Co. 463 U.S. 29 (1983). In reviewing an agency decision, a court will only look at information that is in the record. Florida Power & Light Co. v. Lorion, 470 U.S. 729, 743-44 (1985).

Among the most significant pieces of information relied upon by EPA to develop the Draft TMDL are the inputs to and outputs from a model called "Scenario Builder." EPA relied on these inputs to determine the assumptions under which the model predicts that water quality standards will be met. EPA then incorporated those assumptions into the Draft TMDL. See Draft TMDL, section 8 & Appendix H.

Scenarios representing different nutrient and sediment loading conditions were run using the Chesapeake Bay Phase 5.3 Watershed Model and the resultant model scenario output was fed as input into the Chesapeake Bay Water Quality Model to evaluate the response of critical water quality parameters, specifically dissolved oxygen, water clarity, underwater bay grasses and chlorophyll a. Draft TMDL, Appendix H, at 1.

For EPA's backstop allocations, EPA used the same process in reverse, first establishing the allocations, and then trying to find a combination of scenarios that could achieve the allocations: After applying all the backstop allocations that EPA determined were necessary, EPA ran the combination of specific practices and allocations through the Scenario Builder, Watershed Model and WQSTM to ensure that the allocations provided in the Chesapeake Bay TMDL would result in attainment of WQS. Draft TMDL, at 8-5.

To allow for meaningful public review of the Draft TMDL, EPA must make available to the public the data and scenario results that are the inputs and outputs of the "Scenario Builder" model that provides inputs to the Chesapeake Bay Watershed model. Unfortunately, EPA has not done so.

The Draft TMDL purports to provide information on Scenario Builder: "Additional information related to Scenario Builder

and its application in Bay TMDL development (USEPA 2010d) is at http://www.chesapeakebay.net/modeling.aspx?menuitem=19303". Draft TMDL, at 4-33 and 5-26. No information on Scenario Builder is available at that link. By chance, we located a link to the Scenario Builder documentation in the caption to figure 5-12 on page 5-26 of the Draft TMDL. See C. Brosch, "Estimates of County- Level Nitrogen and Phosphorus Data For Use in Modeling Pollutant Reduction, Documentation for Scenario Builder Version 2.2 (September 2010) (hereinafter Brosch 2010). However, that documentation does not provide the specific inputs to and outputs from the model that were relied upon by EPA to develop the TMDL, as described above. Further, that document makes it clear the Scenario Builder model is not available for public review. In fact, it is still under development. Brosch 2010, at 8.

Watershed jurisdictions may have been provided with scenario inputs and outputs when they were developing their draft WIPs. However, that information is not available to the public on any of the websites that are referenced in the Draft TMDL. In fact, EPA's primary modeling website states that scenario data and Phase 5 scenario results are "coming soon." See, e.g., http://ches.communitymodeling.org/models/CBPhase5/index.php (accessed November 8, 2010).

Further, while EPA has provided outside reviewers with the code for its Watershed Model, it has provided no opportunity to review the Scenario Builder model, even though that model provides all the inputs to the Watershed Model. Thus, no one outside of EPA has had the opportunity to evaluate the Scenario Builder model by running it themselves. Instead, it is a black box.

On November 2, 2010, six days before the end of the comment period for the Draft TMDL, James Curtin of EPA's Office of General Counsel made links to the scenario data and scenario results available to four persons, via an email. On the same date, Jim Edwards of EPA's Chesapeake Bay Program Office sent an email to representatives of states, federal agencies, universities, and others who have been participating in the TMDL development process regarding the availability of the Scenario Builder information. However, the links to the Scenario Builder inputs and outputs and the code for the model have not made available in the administrative record for the Draft TMDL and are not on EPA's website for the Draft TMDL. The November 2, 2010, email from Mr. Curtin does not cure EPA's failure to provide the public with notice of and a meaningful opportunity to comment on the Draft TMDL.

EPA's failure to make adequate information about this important model available for public review is not only a violation of the APA, but it also violates the agency's own regulations at 40 C.F.R. 130.7(c)(1)(ii), which require that calculations used to establish TMDLs be subject to public review. To cure these deficiencies in providing the public with notice of and an opportunity to comment on the Draft TMDL, EPA must make the Scenario Builder model, as well as all the inputs and outputs used to develop the Draft TMDL, publicly available and reopen the comment period to allow for public review on this critical information.

Even if EPA had made appropriate information available to the public, 45- days is an insufficient public comment period. While the APA does not specify a minimum period for comment, Executive Order 12,866 provides that most rulemakings "should include a comment period of not less than 60 days." Exec. Order No. 12,866 § 6(a). In fact, agencies often provide greater than 60 days for complex or controversial rules, of which the Draft TMDL is both (the Draft TMDL that is out for public review consists not only of the 370 pages of the Draft TMDL document, but also the 1672 pages of the 22 appendices, as well as the technical analysis and modeling information that is referenced throughout the draft TMDL).

Response

With regard to the public comment period, please see response to comment 0060.1.001.001.
EPA notes that the Chesapeake Bay TMDL is not a federal regulation. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0481.1.001.012

Author Name: Andes Fredric

Organization: Federal Water Quality Coalition

When finalized, the Chesapeake Bay TMDLs will be reviewable in district court under the APA as final agency actions. Longview Fibre Co. v. Rasmussen, 980 F.2d 1307 (9th Cir. 1992). Under the APA, a court shall "set aside agency action, findings, and conclusions found to be arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A). Agency action is considered arbitrary or capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise. Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43 (1983).

Reliance on a flawed model that produces inaccurate results is considered arbitrary and capricious under the APA. If EPA's model bears "no rational relationship to the reality it purports to represent," it is arbitrary and capricious. Columbia Falls Aluminum Co. v. EPA, 139 F.3d 914, 923 (D.C.Cir.1998) (citations omitted) (finding EPA's decision to set a treatment standard using the toxicity characteristic leaching procedure model to be arbitrary when EPA admitted that it is not a good model for disposal conditions to which the hazardous waste at issue would be subject). To avoid arbitrary decision-making when using a model, there must be a rational connection between the factual inputs, the modeling assumptions, the modeling results and the conclusions drawn from these results. Sierra Club v. Costle, 657 F.2d 298, 332-33 (D.C.Cir.1981). A reviewing court also will reverse an agency action that relies on a model, "if the model is so oversimplified that the agency's conclusions from it are unreasonable." Appalachian Power Co. v. EPA, 249 F.3d 1032, 1052 (D.C. Cir. 2001) (citations omitted).

When a model is challenged, EPA must provide a full analytic defense. Eagle-Picher Indus., Inc. v. U.S. EPA, 759 F.2d 905, 921 (D.C.Cir.1985). EPA must be able to explain the assumptions and methodology used in preparing the model. Small Refiner Lead Phase-Down Task Force v. EPA, 705 F.2d 506, 535 (D.C. Cir. 1983). EPA's TMDL model is flawed and indefensible.

Finally, a reviewing court will consider whether or not a model was subject to full public review when determining whether it is arbitrary and capricious. As found in Sierra Club: "The safety valves in the use of such sophisticated methodology are the requirement of public exposure of the assumptions and data incorporated into the analysis and the acceptance and consideration of public comment, the admission of uncertainties where they exist, and the insistence

that ultimate responsibility for the policy decision remains with the agency rather than the computer. Sierra Club v. Costle, 657 F.2d 298, 332-33 (D.C.Cir.1981).

If EPA continues to insist on establishing TMDLs for the Chesapeake Bay watershed based on models that have inputs and assumptions that are not rationally connected to the results and conclusions; that have no rational relationship to the reality they are supposed to represent, and that have not been subject to full public review, while failing to admit the model's uncertainties, the final TMDLs will be arbitrary and capricious.

Response

The Chesapeake Bay Watershed Model and the input data sets have four formal partnership-driven cycles of development, calibration, verification, and management application since the mid-1980s, supporting programmatic and policy decisions and directions embedded within the 1987 Chesapeake Bay Agreement, 1992 Amendments to the Chesapeake Bay Agreement, the 1997 Nutrient Reevaluation, and the Chesapeake 2000 Agreement. With the development and publication of the Bay TMDL, the partnership has carried out the fifth such cycle supporting management decision-making.

The technical direction for the development, management application, and independent review of the Chesapeake Bay Program Partnership's models is carried out through several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. Descriptions of each of these groups is provided within Section 1 of the final Bay TMDL. Each has broad representation by federal, state, local, academic, and private groups. Programmatic and policy direction on the application of the models and their use in supporting decision making is undertaken through the partnership's Management Board (previously the Implementation Committee) and the Principals' Staff Committee. All the independent scientific peer reviews of the models are carried by the Chesapeake Bay Program's Scientific and Technical Advisory Committee. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference calls can be found in Appendix C of the final Bay TMDL.

The Phase 5.3 Watershed Model was been developed, calibrated and verified through collaboration with federal, state, academic, and private partners. Development teams at the Chesapeake Bay Program Office (CBPO) and the U.S. Geological Survey (USGS) included EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed and approved by several of the above groups. All the Phase 5.3 Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf.

In addition, there have been two independent scientific peer-reviews of the Chesapeake Bay Phase 5 Watershed Model in 2005 and 2008 involving scientists drawn from across the country-Penn State University, Virginia Tech, Duke University, University of North Carolina, University of Maryland Baltimore County, and University of Florida—and overseen by the Scientific and Technical Advisory Committee. These independent peer reviews and the Chesapeake Bay Program partnership's responses can be found at:

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf
http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf
http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf
http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

Best management practice (BMP) and conservation practice effectiveness estimates, which are critical to decision-making, are based on a 2-year study, undertaken by the Mid-Atlantic Water Program, a consortium of the nine major land grant universities, involving extensive peer-reviewed scientific literature, field studies, and input from technical panels comprised of USDA, NRCS, state land grant universities, state agricultural agencies, and key practitioners. Extensive information and documentation regarding the effectiveness estimates is available at http://www.chesapeakebay.net/watershedimplementation plantools.aspx?menuitem=52044.

In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the draft TMDL. The draft TMDL document has lists of additional TMDL-related meetings in Appendix V.

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0481.1.001.013

Author Name: Andes Fredric

Organization: Federal Water Quality Coalition

While EPA initially claims that its model is "accurate and reliable," Draft TMDL at 5-1, it later admits that its models are uncertain "best estimates." Draft TMDL, at 5-15. In addition, EPA does not plan to address inaccuracies in its models before finalizing the TMDL on December 31, 2010. See letter dated June 11, 2010, from Shawn Garvin, Regional Administrator, EPA Region III, to the Principal's Staff Committee (discussing EPA's plans to update the model to address known flaws in 2011, after the TMDL is established).

To justify its planned action, EPA states that: "In no case, does EPA anticipate any likelihood of a jurisdiction 'over-controlling' between now and 2017 in this first phase of planning and implementation." Id. This statement completely ignores the fact that the Draft TMDL includes 480 pages of individual allocations to thousands of sources and that, for point source dischargers, those allocations will have real regulatory consequences. Those consequences will occur immediately for any source that needs a new permit or needs to renew a permit. Hence, the final TMDL that EPA issues on December 31, 2010, will have an immediate and direct impact on dischargers in the Chesapeake Bay watershed, and invariably will "overcontrol" some sources.

Based on the limited information available for public review, we are very concerned that the inputs to EPA's Watershed Model do not accurately reflect pollutant loadings to the Chesapeake Bay.

For example, based on recent United States Geological Service (USGS) data, the amount of impervious surface in the watershed may be more than twice as much as what EPA has assumed in its model. See http://archive.chesapeakebay.net/pubs/calendar/47751_10-28- 10_Handout_2_11032.pdf .

States, which have had access to EPA's Scenario Builder inputs, also have identified errors in EPA's assumptions. For example, West Virginia found that EPA's model scenario inappropriately categorized loadings from an incomplete list of industrial stormwater sources. Draft West Virginia WIP, at 21. West Virginia also points out that EPA's model underestimates the extent of urban lands:

This is a Bay-wide issue recognized as a significant technical flaw and will be rectified in the model that will be available for Phase II WIPs. This land use reconfiguaration, along with other planned "fixes" will necessitate model recalibration that will change pollutant loadings of all land uses. The grouped allocation will be recalculated, and may be distributed between regulated entities. Draft West Virginia WIP, at 26.

Virginia notes that the Watershed Model includes incorrect acreage for Virginia's three CSO communities and has incorrect CSO loads for Lynchburg. Draft Virginia WIP, at 50.

New York notes that: "There are a number of areas where the model does not include and/or does not fully account for fundamental conditions, practices and programs in New York." Draft New York WIP, at 38. For example, the Watershed Model fails to reflect the comprehensive nature of New York's MS4 and construction stormwater programs. Id. at 44.

Pennsylvania notes that subdividing loads into a finer scale (by county) "cannot be initiated until EPA completes revisions to the phase 5.3 Chesapeake Bay watershed model." Pennsylvania Draft WIP, at 7. According to New York, "[d]ue to past and potential future revisions of the draft nutrient and sediment load allocations and the short time frame to prepare this Draft Phase I WIP" "it is not practical to establish specific nutrient reduction expectations, such as Waste Load Allocations for individual discharges in this Draft Phase I WIP." Draft New York WIP, at 8.

Notwithstanding the fact that its model does not support such decisions, EPA has proposed a Draft TMDL that allocates loadings at a very fine scale. Draft TMDL, section 8 and Appendix Q. These fine-scale load allocations are not supported by data or EPA's models and thus are arbitrary and capricious.

Empirical research has demonstrated that the assumptions that EPA is using in its modeling are false. Dr. Kathy Boomer of the Smithsonian Environmental Research Center has compared sediment losses predicted by the Revised Universal Soil Loss Equation (RUSLE) with actual losses measured at over 100 locations in the Chesapeake Bay. Dr. Boomer found that the predicted losses exceeded the actual losses by over 100 percent. Dr. Boomer concludes that all variations of this model are not reliable tools for predicting sediment loss. Boomer et al.: USLE-based Empirical Models Fail to Predict Sediment Discharges, J. Environ. Qual. 37:79-89 (2008). Notwithstanding this definitive study, the Scenario Builder Model uses RUSLE to predict sediment losses from a variety of land uses. See Brosch 2010 (repeatedly citing RUSLE as a source of data).

EPA also obfuscates the inaccuracies in its model by failing to acknowledge its inherent uncertainty. External reviewers

have repeatedly recommended that EPA acknowledge the uncertainty in its models. Scientific and Technical Advisory Committee, Chesapeake Bay Watershed Model Phase V Review (Feb. 20, 2008), at 3, 8 (hereinafter 2008 STAC review). Instead of acknowledging uncertainty, however, EPA claims that: "Because of the amount of data and resources taken to develop, calibrate, and verify the accuracy of the Bay models, the uncertainty of the suite of models is minimized." Draft TMDL, at 5-1. This is not a true statement.

EPA also claims that the Watershed Model has been calibrated. Draft TMDL, at iv. However, that is not true. At a September 9, 2010, meeting of the National Research Council committee that is tasked with evaluating Chesapeake Bay TMDL implementation, committee members raised the lack of calibration of the TMDL model as an issue. Committee Chair Dr. Kenneth Reckhow asked EPA why they did not follow the recommendations regarding model calibration made in reviews by previous NAS committees as well as the Chesapeake Bay Program Science and Technical Advisory Committee. See 2008 STAC review, at 3 (noting that the panel did not believe adequate calibration of the model had been achieved).

It is clear from the Draft TMDL itself that little actual calibration has occurred. For example, the water quality data used is based on data inputs to the SPARROW model from 1980, the early 1990s, and the late 1990s. EPA used the SPARROW model to estimate edge of stream data that was then used to calibrate the Chesapeake Bay watershed model. Draft TMDL, at 5-25. Thus, EPA is using results from one model to calibrate another.

Lack of calibration is due to insufficient data. The Chesapeake Bay watershed monitoring network measures the discharge of nutrient and sediment loads from only 85 sites in watersheds larger than 1,000 square kilometers. Draft TMDL, at 5-11.

All of the information about Chesapeake Bay water quality is modeled. The model outcomes were compared to observed data from 1991-2000. Draft TMDL, at 6-7. The calibration for dissolved oxygen and chlorophyll a is based on 1985 to 1994 data. Id. Thus, even where calibration to actual data occurred, it was not based on current data. This dearth of calibration using actual monitoring data calls into question all the outputs of the Chesapeake Bay Watershed model.

Finally, it appears that the Watershed Model does not include any inputs associated with groundwater, the 4.5 million cubic yards of sediment that is stirred up during navigation dredging each year, or vessel discharges. The model also does not include the benefits associated with filter feeders. These inputs could have a significant effect on the outputs of the model.

Significantly, EPA also has identified flaws in the results of its modeling and has chosen to ignore its modeled results when the model does not show attainment of water quality standards. But in all other instances where it suits EPA's policy direction, the agency presumes the model to be valid. Draft TMDL, at 6-11. It is arbitrary and capricious for EPA to rely on the model in certain situations but disregard it when convenient - such as ignoring nonattainment of water quality standards. If the model cannot be relied on in some instances, then there is no reason to assume it is valid for others.

Response

As the commenter notes and as stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the phase 5.3 will be updated, not for the December 31 2010 TMDL, but in support of development of the Phase II Watershed Implementation Plans, which will be due after the 2010 TMDL. EPA has clearly stated that adjustments may be made to the allocations at that time and reflected in amendments to the 2010 Bay TMDL. Changes to the model generated numbers are a direct result of improving inputs data and simulation methods.

The same Shawn Garvin letter states "prior to 2017, EPA plans to review the full suite of the partnership's Bay models based on the best available science and decision-support tools and consider whether updated models should be developed to support phase III implementation plans and potential modifications to the Bay TMDL allocations." New data and science will always continue to become available and, as stated in the above mentioned letter, EPA is using an adaptive management approach to incorporate new information as it becomes available with scheduled upgrades during 2011 and 2017. There is no anticipation of jurisdictions over-controlling nutrients in the interim.

Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf

EPA is promoting an adaptive management approach, but towards the same goal post as the Bay TMDL—restored Chesapeake Bay water quality as defined by Delaware, Maryland, Virginia, and the District of Columbia's Chesapeake Bay water quality standards regulations.

Fluctuations in the extent of developed lands (impervious and pervious) in different versions of the watershed model are due to changing technology and methods used for mapping developed lands and for inferring change over time. Changes have also been prompted by concerns expressed by the States, local governments, and other interested parties. For each version of the Chesapeake Bay Watershed Model, the Chesapeake Bay Program Office strives to use the best available data and methods to provide information that is accurate, consistent, and comparable across the watershed and over time. A new version of the Watershed Model, Phase 5.3.2, will be coming out soon and will include an extent of impervious surface greater than that used in any previous version of the model due to the inclusion of impervious surfaces associated with all roads and single-detached housing units outside of dense urban areas.

The commenter expresses concern that states have identified issues with scenario builder inputs. These inputs generally come from the states themselves. In 2009, EPA provided all watershed states with the opportunity to review all pertinent agricultural input data and to supply state-specific or county-specific values. Some states chose to revise portions of the agricultural data at that time.

Additionally, the model development process has ample opportunity for input as the technical direction for the development, management application, and independent review of the Chesapeake Bay Program Partnership's models is carried out through several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. Descriptions of each of these groups is provided within Section 1 of the final Bay TMDL. Each has broad representation by federal, state, local, academic, and private groups. Programmatic and policy direction on the application of the models and their use in supporting decision making is undertaken through the partnership's Management Board (previously the Implementation Committee) and the Principals' Staff Committee. All the independent scientific peer reviews

of the models are carried by the Chesapeake Bay Program's Scientific and Technical Advisory Committee. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference calls can be found in Appendix C of the final Bay TMDL.

The technical direction for the development, management application, and independent review of the Chesapeake Bay Program Partnership's models is carried out through several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. Descriptions of each of these groups is provided within Section 1 of the final Bay TMDL. Each has broad representation by federal, state, local, academic, and private groups. Programmatic and policy direction on the application of the models and their use in supporting decision making is undertaken through the partnership's Management Board (previously the Implementation Committee) and the Principals' Staff Committee. All the independent scientific peer reviews of the models are carried by the Chesapeake Bay Program's Scientific and Technical Advisory Committee. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference calls can be found in Appendix C of the final Bay TMDL.

The Phase 5.3 Watershed Model was been developed, calibrated and verified through collaboration with federal, state, academic, and private partners. Development teams at the Chesapeake Bay Program Office (CBPO) and the U.S. Geological Survey (USGS) included EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed and approved by several of the above groups. All the Phase 5.3 Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf.

In addition, there have been two independent scientific peer-reviews of the Chesapeake Bay Phase 5 Watershed Model in 2005 and 2008 involving scientists drawn from across the country-Penn State University, Virginia Tech, Duke University, University of North Carolina, University of Maryland Baltimore County, and University of Florida—and overseen by the Scientific and Technical Advisory Committee. Suggestions for calibration and validation made during these peer-reviews were incorporated into the phase 5.3 watershed model.

As stated in section 5 of the TMDL report, the complexity in the case works to decrease the uncertainty in the decision. In empirical modeling, increasing parameters generally increases the uncertainty of a given parameter, not of the prediction. However, in this type of deterministic modeling where the watershed model is used as an accounting tool, the removal of components to simplify the modeling would not improve the decision-making process. For example, it is clear that using fewer calibration stations, gathering less BMP information, eliminating land use types, etc would almost certainly result in a decrease in accuracy of the model and fairness of the allocations.

As described in section 6.2.3 of the Draft TMDL document, the implicit margin of safety in the nutrient allocations due to conservative TMDL and modeling assumptions accounts for uncertainty in the models. Due to additional uncertainty in the

sediment modeling, an additional explicit margin of safety was adopted which reduced the available loading for Load Allocation and Waste Load Allocation.

The USGS SPARROW model is an empirical model of loads from the watershed and as such is a useful check against the deterministic Phase 5.3 Watershed Model. It was used in conjunction with literature values from syntheses and individual papers which collectively represented over 100 peer-reviewed journal articles to estimate initial loading from different land use types.

EPA does not agree that 85 monitoring sites for the watershed model is insufficient.

On page 6-7 of the draft TMDL it states that the estuarine model was calibrated to 1991-2000 data. The 1985-1994 time frame is from the document which fully details the calibration procedure. The same procedure was followed for the 1991-2000 calibration time frame. The calibration period is consistent with the hydrologic averaging period section 6.1.1 of the draft TMDL document. The calibration of the estuarine model does not effect the calibration of the Chesapeake Bay Watershed model.

EPA agrees that the U.S. Geological Survey (USGS) estimates that approximately 50% of the nitrogen that reaches the tidal water flows through the groundwater at some point in its path to the Chesapeake Bay. Groundwater delivery of water and nutrients is simulated in the Phase 5.3 watershed model. Please see the Phase 5.3 Chesapeake Bay Watershed Model report at http://www.chesapeakebay.net/model_phase5.aspx?menuitem=26169 for more details.

The Water Quality and Sediment Transport Model (WQSTM) of the Chesapeake simulates input loads of sediment from the watershed, shoreline erosion, resuspension due to wave energy, and ocean inputs. Currently total suspended sediment loads resuspended by maintenance dredging in tidal waters is absent in the WQSTM as a model input. If warranted, this input load can be considered in the next generation Bay Model that will assess the Bay Program's TMDL progress in 2017.

The WQSTM fully simulates the effects of oyster and menhaden filter feeders on water quality and demonstrates that at restored resource levels water quality benefits from these filter feeders are substantial.

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0482.1.001.005

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

B. EPA Has Not Provided Sufficient Access to the Documents and Data that Support the Draft TMDL.

The APA requires agencies to provide the public with the opportunity to comment on their actions. 5 U.S.C. 553(c). In order to provide for meaningful public comment under the APA, agencies must disclose the data or other material that

the agency relies on to make a final decision. Participation is not meaningful if an agency bases its action on information that is not available to the public. United States v. Nova Scotia Food Prods. Corp., 568 F.2d 240 (2d Cir. 1977). In taking a final action, such as establishing a TMDL, an agency must be able to support that action based on evidence that is before the agency. Motor Vehicle Mfrs. Ass'n v. State Farm Mutual Insurance Co. 463 U.S. 29 (1983). In reviewing an agency decision, a court will only look at information that is in the record. Florida Power & Light Co. v. Lorion, 470 U.S. 729, 743-44 (1985).

1. EPA Has Not Provided Sufficient Access to the Documents Relied Upon to Develop the Draft TMDL.

EPA has not followed the requirement to provide a meaningful opportunity to comment on the Draft TMDL. Much of the information that EPA has relied upon in developing the TMDL is not in the administrative record. In fact, one of the 22 appendices to the Draft TMDL is a 16-page "Index of Documents Supporting the Chesapeake Bay TMDL." Draft TMDL at Appendix B. This index states that: "For each listed document, full reference citation (in the case of a formal publication) and URL address for direct web-based electronic access to the document will be provided." "In the case of reference to data, the data repository and the URL address for direct electric access to the data will be provided." Draft TMDL, App. B, at 1 (emphasis added). EPA acknowledges that Appendix B currently does not provide access to all the documents listed: "The final Bay TMDL will include a more comprehensive and complete index of documents."

Providing data to the public after a final decision is made deprives the public of a meaningful opportunity to comment on an agency's proposed action. The items listed in Appendix B without providing public access include, among other things:

- "Links to all Bay models independent scientific peer reviews and supporting documentation."
- "All STAC sponsored monitoring review workshops proceedings."
- "All the documents produced during the MRAT process."
- "Link to the CBP sampling and analysis protocols and procedures manual(s)."
- "Malcom Pirnie's Tech Memos on the hydrological critical period."
- "EPA technical response to Malcom Pirnie's Tech Memos on the hydrological critical period."

Simply listing a document in an appendix to the Draft TMDL and then including that list in the administrative record does not provide meaningful public comment. EPA's record for the Draft TMDL fails to meet the requirements of the APA.

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0482.1.001.007

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

EPA is aware that the data supporting its Draft TMDL are based on flawed assumptions. Notwithstanding this knowledge, EPA intends to issue a final Chesapeake Bay TMDL on Dec. 31, 2010. If EPA proceeds as planned, this final TMDL will make allocations to both point sources and nonpoint sources based on data that EPA knows are inaccurate. If EPA finalizes the Draft TMDL without first revising its modeling, that final agency action will be arbitrary and capricious under the APA.

A. Reliance on a Flawed Model is Arbitrary and Capricious under the APA.

TMDLs are reviewable under the APA as final agency actions. Longview Fibre Co. v. Rasmussen, 980 F.2d 1307 (9th Cir. 1992). Under the APA, a court shall "set aside agency action, findings, and conclusions found to be arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A). Agency action is considered arbitrary or capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise. Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43 (1983).

Reliance on a flawed model that produces inaccurate results is considered arbitrary and capricious under the APA. If EPA's model bears "no rational relationship to the reality it purports to represent," it is arbitrary and capricious. Columbia Falls Aluminum Co. v. EPA, 139 F.3d 914, 923 (D.C.Cir.1998) (citations omitted) (finding EPA's decision to set a treatment standard using the toxicity characteristic leaching procedure model to be arbitrary when EPA admitted that it is not a good model of the disposal conditions to which the hazardous waste at issue would be subject).

To avoid arbitrary decision-making when using a model, an agency must be able to draw a rational connection between the factual inputs, modeling assumptions, modeling results and conclusions drawn from these results. Sierra Club v. Costle, 657 F.2d 298, 332-33 (D.C.Cir.1981). A reviewing court also will reverse an agency action that relies on a model, "if the model is so oversimplified that the agency's conclusions from it are unreasonable." Appalachian Power Co. v. EPA, 249 F.3d 1032, 1052 (D.C. Cir. 2001) (citations omitted).

When a model is challenged, EPA must provide a full analytic defense. Eagle-Picher Indus., Inc. v. U.S. EPA, 759 F.2d 905, 921 (D.C.Cir.1985). EPA must be able to explain the assumptions and methodology used in preparing the model. Small Refiner Lead Phase-Down Task Force v. EPA, 705 F.2d 506, 535 (D.C. Cir. 1983).

Finally, a reviewing court will consider whether or not a model was subject to full public review when determining whether it is arbitrary and capricious.

The safety valves in the use of such sophisticated methodology are the requirement of public exposure of the assumptions and data incorporated into the analysis and the acceptance and consideration of public comment, the admission of uncertainties where they exist, and the insistence that ultimate responsibility for the policy decision remains with the agency rather than the computer.

Sierra Club v. Costle, 657 F.2d 298, 332-33 (D.C. Cir. 1981).

If EPA establishes the final TMDLs for the Chesapeake Bay watershed based on models that have inputs and assumptions that are not rationally connected to the results and conclusions, that have no rational relationship to the

reality they are supposed to represent, and that have not been subject to full public review, while failing to admit the model's uncertainties, the final TMDLs will be arbitrary and capricious.

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0482.1.001.011

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

E. The Watershed Model and Therefore the Draft TMDL Violate the Data Quality Act.

In accordance with the Data Quality Act, EPA has developed Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency (Information Quality Guidelines or Guidelines).[FN14] Because the models relied upon by EPA to develop the Draft TMDL are not accurate, reliable, and unbiased, EPA should cease its TMDL development efforts until the flaws in its models are addressed.

EPA issued its Information Quality Guidelines to ensure and maximize the quality of all disseminated information, particularly with respect to the information's objectivity, utility, and integrity. The above discussion of EPA's Chesapeake Bay modeling demonstrates that the models do not yet meet this standard. This is particularly true because the Watershed Model and Draft TMDL are "influential" information and therefore are subjected to an even more rigorous standard of quality.

1. The Draft TMDL and the Watershed Model Qualify as "Influential" Information.

"Influential" information, which is information that will have a clear and substantial impact on important public policies or private sector decisions, must "adhere to a rigorous standard of quality" and "should be subject to a higher degree of quality."[FN15] As noted in the Guidelines, information that supports policy documents, like EPA's Watershed Model and Draft TMDL, as well as information that addresses "precedent-setting or controversial scientific or economic issues" is considered influential. Further, certain "disseminated information that may have a clear and substantial impact on important public policies or private sector decisions" is also influential and subject to the higher degree of quality standard.

EPA's Watershed Model is the basis for a Draft TMDL that will result in tens of billions of dollars of expenditures to address water quality. Thus, there can be no question that the Watershed Model and the Draft TMDL are highly influential and thus, the underlying information must be of higher quality.

2. "Influential" information must pass a two-step quality test.

For "influential" information, such as Watershed Model and the Draft TMDL, EPA has adopted a two-pronged approach to ensure that influential information will meet rigorous quality standards. First, EPA determined that when evaluating environmental problems it would apply a:

"weight-of-the-evidence" approach that considers all relevant information and its quality, consistent with the level of effort and complexity of detail appropriate to a particular risk assessment."[FN16]

Second, EPA adapted the quality principles in the Safe Drinking Water Act Amendments (SDWA) of 1996 to ensure the objectivity of influential scientific information, as follows:

(A) The substance of the information is accurate, reliable and unbiased. This involves the use of: (i) the best available science and supporting studies conducted in accordance with sound and objective scientific practices, including, when available, peer reviewed science and supporting studies; and (ii) data collected by accepted methods or best available methods (if the reliability of the method and the nature of the decision justifies the use of the data).[FN17]

EPA has not followed its own approach for assuring that the Watershed Model and the Draft TMDL, as "influential" information, is based on "accurate, reliable and unbiased" information. As discussed above, EPA is aware that the inputs to the Watershed Model from its Scenario Builder Model are inaccurate, but EPA has ignored these flaws and has proceeded to issue a Draft TMDL that is based on flawed modeling.

3. EPA has disseminated the Draft TMDL without complying with the Information Quality Guidelines.

EPA's reliance on the Scenario Builder model, which is still under development and has never been peer reviewed, violates the Agency's own Information Quality Guidelines. Accordingly, EPA must cease using Scenario Builder to provide any inputs to decisions that will have permitting and other regulatory consequences.

4. Following EPA's Information Quality Guidelines Will Improve the Integrity of the Chesapeake Bay TMDL Process.

EPA's Information Quality Guidelines are intended to protect the integrity of information disseminated by EPA. Unfortunately, EPA's failure to provide accurate information on water quality has undermined that credibility of the entire Chesapeake Bay TMDL effort. As noted by Virginia:

A significant concern is the nearly absolute reliance on modeling rather than looking directly at outcomes in the Bay. While this model has seen seven years of development it continues to experience fundamental flaws that call its credibility into question. Similarly, we are convinced that the manner in which it has been used for this Bay-wide TMDL assumes a level of precision far beyond what the model is capable of and without regard for economic consequences. This ‘inputs based' rather than ‘outputs based' approach hurts the credibility of the overall effort. Draft Virginia WIP, at ii.

EPA should cease using Scenario Builder until it is completed, peer reviewed, and available for public review, and should cease the development of the Chesapeake Bay TMDL until the issues discussed above are addressed.

[FN14] United States Environmental Protection Agency, Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency, EPA/260R-02-008 (Oct. 2002) available at http://www.epa.gov/quality/informationguidelines/documents/EPA_InfoQualityGuidelines.pdf (Information Quality Guidelines).
[FN15] Id. at 20.
[FN16] Id. at 21.
[FN17] Id. at 22.

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0482.1.001.012

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

In the Draft TMDL, EPA asserts both the authority to implement the TMDL directly and to compel states to implement the TMDL as EPA dictates. Both assertions exceed EPA's authority under the CWA.

During the development of the Draft TMDL, EPA repeatedly assured states that EPA would establish gross load and wasteload allocations by waterbody and would leave implementation of the TMDL to the states, as set forth in the CWA. See, e.g., Chesapeake Bay Program, Water Quality Steering Committee, May 18, 2009, Conference Call, Summary of Decisions, Actions, and Issues, at 6 ("Even though this is our methodology will include a wastewater v. other sources split, the states will be assigned a single number and can redistribute the load reduction responsibilities this at their discretion." [sic]). Notwithstanding these assurances, in the Draft TMDL, EPA is asserting the authority to supersede the allocations of pollutant loadings proposed by states in their WIPs with federal allocations. Draft TMDL, at 8-2 (asserting the authority to establish draft backstop allocations for each watershed jurisdictions based on EPA's conclusion that none of the WIPs are adequate). Further, EPA is asserting the authority to compel states to implement those allocations. Draft TMDL, at 7-11 to 7-12 (outlining the actions EPA may take to compel implementation of the federal TMDL).

As discussed below, these actions go beyond what is contemplated in the CWA. First, EPA does not have the authority to implement a TMDL. Second, EPA does not have the authority to unilaterally change state implementation plans. Third, EPA cannot compel states to take specific implementation measures. Finally, nothing in the CWA requires point sources to meet water quality standards that are infeasible. In fact, as discussed below, EPA or the states must determine whether meeting the Chesapeake Bay water quality standards is feasible, before establishing this TMDL.

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0482.1.001.013

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

A. Under the CWA, a TMDL Does Not Include Implementation Measures.

Section 303(d) of the CWA requires states to establish TMDLs for impaired waters at levels necessary to achieve applicable water quality standards. 33 U.S.C. 1313(d). If a state fails to perform this action, EPA has no enforcement authority against the state.[FN18] Instead, in the absence of an acceptable state TMDL, EPA may act in a backstop capacity to establish a TMDL.[FN19] However, no additional authority is conferred on EPA when it establishes a TMDL. In particular, EPA is given no implementation authority beyond that which it has under other provisions of the CWA.

A TMDL is a calculation, which must be set at a level deemed necessary to meet water quality standards and which must equal the sum of any wasteload allocations and load allocations assigned to point sources, nonpoint sources, and natural background. 33 U.S.C. § 1313(d)(1)(C); 40 C.F.R. 130.2(i). A TMDL can be one number or the sum of multiple numbers. Thus, when a state establishes a TMDL, it may make wasteload allocations to individual point sources, and it may make gross load allocations, but it is not compelled to do so.[FN20] The CWA only requires that the TMDL be set at a "level" necessary to meet water quality standards. 33 U.S.C. 1313(d). Thus, under the CWA, only a single loading number per pollutant per water body is required.

How a TMDL is achieved, including allocating pollutant loadings, is an implementation issue left to the exclusive authority of the states, given their primary authority and expertise over on-the-ground permitting and management decisions. Sierra Club v. Meiburg, 296 F.3d 1021, 1031 (11th Cir. 2002); see also Amigos Bravos v. Green, 306 F.Supp.2d 48 (D.D.C. 2004) (no implementation plan is required under section 303(d)).[FN21]

Based on the structure and language of the CWA, EPA cannot cross the line between identifying a level of pollutants necessary to meet water quality standards and establishing implementation requirements, when EPA establishes a TMDL. All matters concerning whether, when, and how to implement TMDLs are explicitly reserved for states and are not subject to EPA control. See Pronsolino v. Nastri, 291 F.3d 1123, 1140 (9th Cir. 2002). The TMDL is an "informational tool" to assist states in their water quality management planning. Id.

This conclusion is supported by both the language and the structure of the CWA and EPA's regulations. For nonpoint sources, water quality management plans are not enforceable and are limited to plans based on measures designed to control pollution to the maximum extent practicable (33 U.S.C. 1329(a)(1)(C) (section 319 state nonpoint source management programs) or a process to identify feasible procedures and methods to control agriculture and silviculture related nonpoint sources of pollution (33 U.S.C. 1288 (b)(2)(F) (discussing state area-wide waste treatment management plans). For point sources, EPA regulations require water quality based effluent limitations in permits to be "consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by

the State and approved by EPA pursuant to 40 C.F.R. 130.7." 40 CFR 122.44(d)(1)(vii)(B) (emphasis added), This regulation does not give EPA the authority to implement a federal TMDL because it only applies to TMDLs developed by states.

It also is important to note that in 2002 the Ninth Circuit found that TMDLs for nonpoint sources do not upset the federalism balance of the CWA because the implementation of TMDLs remains within the states' exclusive authority. Pronsolino v. Nastri, 291 F.3d 1123, 1140 (9th Cir. 2002). Further, as the Ninth Circuit noted: "States must implement TMDLs only to the extent that they seek to avoid losing federal grant money; there is no pertinent statutory provision otherwise requiring implementation of § 303 plans or providing for their enforcement." Id. See also, Sierra Club v. Meiburg, 296 F.3d at 1031 ("Of course, the national policy and objectives relating to clean water are most reliably embodied in the Act itself which puts the responsibility for implementation of TMDLs on the states.").

Given Congress's careful exclusion of EPA from state implementation of water quality standards with regard to nonpoint sources, the CWA cannot rationally be construed to confer on EPA the authority to establish a TMDL that dictates implementation mandates for nonpoint sources. Thus, the Act does not provide EPA with authority to establish a TMDL for the Chesapeake Bay that goes beyond an informational tool.

[FN18] Congress may not establish a federal law that compels a state to take regulatory action. See New York v. United States, 505 U.S. 144, 162 (1992). ("While Congress has substantial power to govern the Nation directly,…the Constitution has never been understood to confer upon Congress the ability to require the States to govern according to Congress' instruction.").
[FN19] Scott v. City of Hammond, 741 F.2d 992, 996 (7th Cir. 1984), cert. denied, 469 U.S. 1196 (1985) ("[S]tate inaction amounting to a refusal to act" would be interpreted as a constructive submission of no TMDL, thus triggering EPA's duty to approve or disapprove such submission and to establish the TMDL itself (in the event of a disapproval)).
[FN20] EPA acknowledges this point in the Draft TMDL by establishing in section 9 TMDLs that identify the gross wasteload and load allocations by for each waterbody, without attempting to allocate these loads to specific sources. Although the draft backstop TMDLs in Appendix Q for the proposed water quality standards make much finer allocations, nowhere in the Draft TMDL is an allocation to specific sources of a TMDL designed to achieve current water quality standards.
[FN21] In 2000, EPA issued regulations that, among other things, would have required each TMDL to include an implementation plan. 65 Fed. Reg. 43586 (July 13, 2000). Congress blocked implementation of those regulations, and eventually EPA withdrew them. See P.L. 106-246 and 68 Fed. Reg. 13607 (Mar. 19, 2003). In reaching its conclusion that implementation plans are not elements of TMDLs, the Meiburg court noted that the 2000 regulations that would have required implementation plans were never implemented and subsequently withdrawn. 296 F.3d at 1033.

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0482.1.001.015

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

C. Under the CWA, EPA Cannot Disapprove and Unilaterally Change Watershed Implementation Plans.

Implementation plans are not part of the TMDL and are not subject to EPA approval. Section 303(d)(2) of the CWA requires states to incorporate approved TMDLs into the water quality management plans that the states maintain under section 303(e). This framework is carried through in EPA's existing TMDL regulations as well as its 1997 guidance document on TMDL implementation. See 40 C.F.R. 130.7(a) and "New Policies for Establishing and Implementing Total Maximum Daily Loads" (1997) (noting that "Section 303(d) does not establish any new implementation authorities beyond those that exist elsewhere in State, local, Tribal, or Federal law.").

The 1997 Guidance does call for "reasonable assurances" that load allocations will be met if relied upon to establish point source wasteload allocations, and encourages submission of implementation plans to EPA. However, the 1997 guidance does not purport to make implementation plans subject to EPA approval or to give EPA authority to require reasonable assurance. See also EPA's Overview of Impaired Waters and Total Maximum Daily Loads Program ("Section 303(d) of the CWA does not specifically require implementation plans for TMDLs."), accessible at http://www.epa.gov/OWOW/TMDL/intro.html; EPA's decision rationale for approving the Tidal Potomac PCB TMDL established by the Interstate Commission on the Potomac River Basin, dated Oct. 31, 2007, at p. 12 ("Neither the Clean Water Act nor the EPA implementing regulations, guidance or policy requires a TMDL to include an implementation plan. EPA therefore does not approve or disapprove implementation plans as part of the TMDL process.") (emphasis added).

Thus, EPA has no authority to approve, disapprove, or change the state WIPs.

1. Section 117 of the Clean Water Act Does Not Authorize EPA Control Over TMDL Implementation.

EPA does admit that the WIPs are not part of the TMDL itself. "The WIPs are part of the accountability framework meant to implement the Bay TMDL, but they are not part of the Bay TMDL itself." Draft TMDL, at 1-2. Further, EPA admits that: "While the accountability framework informs the TMDL, section 303(d) does not require that EPA 'approve' the framework per se, or the jurisdiction's WIPs that constitute part of that framework." Draft TMDL, at 1-12.

Thus, EPA does not appear to be relying on section 303(d) as the source of its authority to mandate the elements of state implementation plans for a Chesapeake Bay TMDL. Instead, EPA appears to be relying on section 117(g) of the Clean Water Act. See Draft TMDL, at 1-12 ("The accountability framework is also being established pursuant to CWA section 117(g)(1)"). Specifically, EPA is relying on language in section 117(g) that states that "the Administrator, in coordination with other members of the Chesapeake Executive Council, shall ensure that management plans are developed and implementation is begun by signatories to the Chesapeake Bay Agreement…."

However, in enacting 117(g) in the "Chesapeake Bay Restoration Act of 2000" (enacted as Title II of the Estuaries and Clean Waters Act of 2000 (P.L. 106-457)), Congress did not provide the federal government with regulatory authority to achieve the goals listed in section 117(g). The Estuaries and Clean Waters Act of 2000 merges ten water quality bills that had each passed the House of Representatives as stand-alone bills with one bill that passed the Senate. The

standalone version of Title II was H.R. 3039.[FN23] Therefore, the following language from the committee report for H.R. 3039 provides legislative history for section 117(g):

"(g) Chesapeake Bay Program.-
(1) Management Strategies.-Directs EPA, in coordination with other members of the Council, to ensure that management plans are developed and implementation is begun by signatories to the Chesapeake Bay Agreement to achieve the goals of that Agreement. The Committee expects EPA to meet the requirements of this paragraph through the award of implementation grants under subsection (e). Nothing in the Chesapeake Bay Restoration Act provides EPA with any additional regulatory authorities."

H.R. Rept. No. 550, 106th Cong., 2d Sess., at 3 (2000) (emphasis added).

Thus, section 117(g) of the Clean Water Act does not give EPA authority to approve, disapprove, or change the state WIPs. It merely authorizes the use of grant funding to "ensure" that the states develop and begin implementation of management plans.

2. An Executive Order Does Not Grant EPA Authority to Approve State WIPs.

EPA also cites Executive Order 13508 as authority to dictate the terms of state WIPs. "In addition, Executive Order 13508 directs EPA and other federal agencies to build a new accountability framework that guides local, state, and federal water quality restoration efforts." Draft TMDL, at 1-12. It would be a violation of Separation of Powers for the president to grant the Executive Branch any authority through an Executive Order or otherwise. Other than a few powers granted directly by the Constitution (and not at issue here) the Executive Branch can only implement the laws that Congress has passed. It cannot create any new authority.

Thus, Executive Order 13508 does not give EPA authority to approve, disapprove, or change the state WIPs.

3. The Concept of "Reasonable Assurance" Does Not Authorize EPA Control Over TMDL Implementation.

In section 7 of the Draft TMDL, EPA claims the authority to judge state WIPs under the rubric of "reasonable assurance." "Reasonable assurance" is a concept that does not exist in either the CWA or EPA regulations. As noted above, EPA created this concept in its 1997 TMDL guidance. Under that guidance, EPA calls for "reasonable assurances" that load allocations will be met if relied upon to establish point source wasteload allocations, and encourages submission of implementation plans to EPA. But, the 1997 Guidance does not purport to make implementation plans subject to EPA approval or to give EPA authority to dictate the terms of state plans.[FN24] Nevertheless, in the Draft TMDL, EPA goes even further than its 1997 Guidance and asserts that a TMDL must provide reasonable assurance and that a determination whether "reasonable assurance that the TMDL's LAs will be achieved depends on whether practices capable of reducing the specified pollutant load (1) exist; (2) are technically feasible at a level required to meet allocations; and (3) have a high likelihood of implementation within a given period." Draft TMDL, at 7-1.

EPA claims it has the authority to require reasonable assurance under the CWA. Draft TMDL, at vii. However, the only statutory provision that EPA cites for this alleged authority is the requirement in section 303(d) that a TMDL be "established at a level necessary to implement the applicable water quality standard." Id. EPA claims that

"[d]ocumenting adequate reasonable assurance increases the probability that regulatory and voluntary mechanisms will be applied such that it achieves the pollution reduction levels specified in the TMDL and therefore attains WQS." Id. This statement does not support any assertion of authority to require reasonable assurance. The TMDL is merely the sum of the load allocation and the wasteload allocation for a pollutant. The statute requires that the TMDL be set at a "level" necessary to meet water quality standards. A level is a number. Nothing in the statute gives EPA the authority to dictate whether, when, or how that level is to be met. These are matters of TMDL implementation, which is outside of EPA's authority.

EPA also cites Executive Order 13508 as authority to require reasonable assurance. Draft TMDL, at vii. However, as discussed above, no executive order can confer any authority that the Executive Branch does not already have. EPA has no authority to require "reasonable assurance," and Executive Order 13508 cannot create authority where none exists.

Finally, EPA cites the letters it has sent to watershed jurisdictions as the basis for "its heightened expectations for reasonable assurance in the Chesapeake Bay watershed and its basis for expecting WIPs to assist in its demonstration." Draft TMDL, at 7-2. No letter written by EPA can grant it authority that the law does not provide. Thus, the letters from EPA to the watershed jurisdictions also provide no authority to require "reasonable assurance."

As EPA acknowledges, the entire "accountability framework" "is not itself an approvable part of the TMDL." Draft TMDL, at 7-4 (emphasis in original). Given the fact that EPA's only authority under the TMDL program is to approve or disapprove the numeric loadings that make up the TMDL, this statement essentially admits that EPA does not have the authority it is claiming.

[FN23] See Cong. Rec. H7490 (daily ed. Sept. 12, 2000).
[FN24] "New Policies for Establishing and Implementing Total Maximum Daily Loads" (1997) (noting that "Section 303(d) does not establish any new implementation authorities beyond those that exist elsewhere in State, local, Tribal, or Federal law").

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0482.1.001.016

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

D. EPA Cannot Require States To Take Specific Implementation Measures.

Notwithstanding this lack of authority, EPA is using the "reasonable assurance" framework to disapprove the state

WIPs. "EPA has determined that none of the jurisdictions' draft Phase I WIPs provided sufficient reasonable assurance that programs would be implemented to achieve the necessary pollutant load reductions." Draft TMDL, at 8-2. Based on this conclusion, in section 8 of the Draft TMDL EPA makes unilateral changes to the state WIPs. Again, EPA has no authority to do so.

Section 8 of the Draft TMDL is titled: "Watershed Implementation Plan Evaluation and Draft Backstop Allocations." In this section, EPA goes far beyond allocating loads and wasteloads to nonpoint and point sources. In this section, EPA attempts to bootstrap a provision of its permitting regulations to try and force TMDL implementation measures on states by "assuming" them.

As EPA points out, under 40 CFR 122.44(d)(1)(vii)(B), water quality based effluent limitations in permits must be "consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA pursuant to 40 C.F.R. 130.7."[FN25] In section 8 of the Draft TMDL, EPA says: "This section summarizes the assumptions that are incorporated into the Chesapeake Bay TMDL …." Draft TMDL, at 8-12. EPA then proceeds to use the word "assume" or "assumption" 59 times in an attempt to bootstrap its authority over discharge permits into far broader power to "assume" and thereby dictate a variety of implementation measures.

Through this interpretation, EPA attempts to incorporate implementation measures into the TMDL itself. For example, EPA assumes that watershed jurisdictions will issue new regulations that will regulate every animal feeding operation, regardless of the number of animals and regardless of whether or not the facility discharges:

As with stormwater point sources, in its backstop allocations EPA has included currently unregulated AFOs in the WLA portion of the TMDL. For such sources, EPA's draft backstop allocation is based on two assumptions: (1) currently unregulated sources will become regulated under the NPDES permit program some day through appropriate designation/ rulemaking/ permits; and (2) the projected sector wasteload reductions (based on NPDES effluent controls consistent with the WLA) will result in those needed reductions. Draft TMDL, at 8-11 (emphasis added).

Nothing in the CWA or EPA regulations gives EPA the authority to use EPA's permitting regulations to compel state regulatory action. In fact, as noted in footnote 18, above, such authority would violate the 10th Amendment to the U.S. Constitution. In New York v. United States, 505 U.S. 144 (1992), the Supreme Court struck down a provision of federal law that required States to provide for the disposal of radioactive wastes. The Court held that Congress may not "commandeer the legislative processes of the States by directly compelling them to enact and enforce a federal regulatory program. Id. at 161. In other words: "While Congress has substantial power to govern the Nation directly,…the Constitution has never been understood to confer upon Congress the ability to require the States to govern according to Congress' instruction." Id. at 162. Accordingly, the Clean Water Act and 40 C.F.R. 122.44(d)(1)(vii)(B) cannot be read to give EPA authority to make "assumptions" that a state will enact and enforce a regulatory program, and then try to enforce that "assumption" through mandatory implementation of an EPA-drafted TMDL.

[FN25] Of course, the Chesapeake Bay TMDL will not be approved by EPA pursuant to 40 C.F.R. 130.7 because this TMDL is not being developed by states. Thus, it is uncertain what legal effect this regulation will have with respect to permits for point sources in the Chesapeake Bay watershed. Arguably, it has no effect.

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0496.1.001.002

Author Name: Allsbrook Lynn

Organization: City of Hampton, Virginia, Department of Public Works

• The EPA does not have the legal authority to establish a deadline in the TMDL.

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0496.1.001.013

Author Name: Allsbrook Lynn

Organization: City of Hampton, Virginia, Department of Public Works

III. EPA DOES NOT HAVE THE LEGAL AUTHORITY TO ESTABLISH A DEADLINE IN THE TMDL

Nothing in either section 303(d) of the Clean Water Act (CWA) or its implementing regulations gives EPA the legal authority to set a deadline for attainment in the TMDL, nor has EPA cited to any such authority in the TMDL.[FN7] EPA's proposed 2025 deadline would establish a single schedule in the form of a deadline for achieving compliance with the allocations for all NPDES permitted sources within the Chesapeake Bay watershed. Such a deadline is in direct conflict with EPA's own regulations, which authorize compliance schedules in NPDES permits, not TMDLs. See 40 C.F.R. § 122.47 (providing that a "permit may, when appropriate, specify a schedule of compliance leading to compliance with CWA and regulations.") While this may be EPA's TMDL, it is for the states with delegated NPDES permit programs, not EPA, to establish schedules and deadlines for achieving compliance with the allocations in the TMDL. See 40 C.F.R. § 123.25; 40 C.F.R. § 130.5(b)(1).

It is also well established that schedules of compliance to implement state water quality standards are purely matters of state law, which EPA has no authority to override. See In the Matter of Star-Kist Caribe, Inc., NPDES Appeal No. 88-5, 4 EAB 33, 36 (EAB 1992) (the responsibility of [s]tates under the law to make specific provision for schedules of compliance ... is unequivocal"); In re District of Columbia Water and Sewer Authority, NPDES Appeal Nos. 05-02, 07-10, 07-11, and 07-12, EAB 714,734 (EAB 2008) ("it is the role of the states, not EPA, to determine whether and under what circumstances compliance schedules may be incorporated in NPDES permits.") Therefore, EPA's attempt to

establish a compliance deadline in the TMDL has no basis in the CWA or its implementing regulations, and improperly seeks to override the discretion reserved to the states to establish appropriate schedules of compliance on a case-by-case basis. Thus, the 2025 deadline should be removed from the TMDL.

[FN7] EPA's own guidance effectively acknowledges that it lacks the authority to impose a compliance deadlines in TMDLs. See New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs), Memo from Robert Perciasepe, 4 (Aug. 8, 1997) (stating that "Section 303(d) does not establish any new implementation authorities beyond those that exist elsewhere in State, local, Tribal or Federal law").

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0507.1.001.003

Author Name: Sullivan Sean

Organization: Liberty University and Thomas Road Baptist Church

EPA's approach for the Draft TMDL follows the approach adopted in the agency's July 2000 revisions to 40 C.F.R. Part 130,[FN4] which were rejected by Congress before they were finalized[FN5] and subsequently withdrawn in 2003 by way of a notice and comment rulemaking.[FN6] Just like in the Draft TMDL, the 2000 TMDL Rule required states to submit "implementation plans" ("IP") as part of their submission of TMDLs for impaired waterbodies.[FN7] Just like in the Draft TMDL, the 2000 TMDL Rule asserted the right to determine whether there are "reasonable assurances" that an implementation plan would actually be implemented.[FN8]

In the proposal for the 2000 TMDL Rule, EPA argued that the language of Section 303(d)(1)(C) authorized the agency to require IPs because the statute "requires TMDLs to be established at levels 'necessary to implement' water quality standards."[FN9] In the Draft TMDL, EPA does not state a specific source of its authority to require WIPs or to demand reasonable assurances regarding their implementation. Rather, EPA simply states that it is imposing these requirements "pursuant to both the Clean Water Act and the Chesapeake Bay Executive Order."[FN10] Given that an executive order cannot grant an agency powers that it does not possess under its authorizing statute,[FN11] and in the absence of a citation to any other section in the Clean Water Act, it appears the agency is again basing its assertion of authority on the phrase "necessary to implement" in Section 303(d)(l)(C). Neither this provision nor Section 117, which specifically addresses the Chesapeake Bay, authorizes EPA's approach.

A. Section 303(d) Does Not Authorize EPA to Demand WIPs or Reasonable Assurances

1. The Plain Language o(Section 303(d) does not Authorize the Draft TMDL

First, the language of Section 303(d)(l)(C), when read as a whole, makes it clear that EPA's reading is untenable. The provision reads in full:

Each State shall establish for the waters identified in paragraph (I)(A) of this subsection, and in accordance with the priority ranking, the total maximum daily load, for those pollutants which the Administrator identifies under section 1314 (a)(2) of this title as suitable for such calculation. Such load shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality. [FN12]

When a state sets a TMDL, it is establishing a "load," i.e., a maximum level of pollutants that can enter a waterbody and still permit compliance with water quality standards, nothing more. EPA's authority to set a TMDL when it rejects a state's submission is similarly focused on the maximum level of pollutants that can enter an impaired water without causing an exceedence of water quality standards. [FN13] Nothing in Section 303(d)(I)(C), Congress's use of the phrase "necessary to implement," or any other authority cited by EPA, can be read to grant the agency authority to initiate a wholesale evaluation of a state's legal authority or its budgetary policies regarding water quality. [FN14]

2. The Structure of the Clean Water Act's Water Quality Provisions Confirm that Section 303(d) Does Not Authorize EPA's Approach

Applying EPA's proposed interpretation of a TMDL produces absurd results in other portions of Section 303(d) - as well as other portions of the Act - and confirms that EPA's approach in the Draft TMDL is impermissible. For example, if EPA's right to reject a state's TMDL includes the right to reject its WIP, the agency has only thirty days to develop a federal WIP for each impaired segment. [FN15] This is a curious result, given that EPA's authority to impose water quality-based effluent limitations under Section 302(b) requires the agency to give 90 days notice before imposing such a limitation. [FN16]

Similarly, EPA's interpretation allows it to sidestep cost-benefit analyses and procedural requirements in Section 302. EPA has suggested that it cannot consider costs in the development of the Draft TMDL, because Section 303(d) does not authorize the agency to consider costs in setting a TMDL. Of course, if a TMDL is nothing more than an amount of pollutants that can be released into a waterbody without causing a water quality standards exceedence, it makes sense that cost should not be a factor in setting a TMDL. Indeed, cost is irrelevant to the maximum amount of nitrogen, phosphorus or sediment that the Chesapeake Bay can absorb. But, cost is not irrelevant in determining whether - and where - to apply pollution controls to achieve compliance with water quality standards. Congress explicitly acknowledged that fact by creating Section 302(b), which permits EPA to alter water quality-based effluent limitations when:

[T]here is no reasonable relationship between the economic and social costs and the benefits to be obtained (including attainment of the objective of this chapter) from achieving such limitation. [FN17]

Thus, if EPA is correct about its authority under Section 303(d), Congress authorized EPA to impose water quality-based effluent limits without regard to cost and did not prescribe the process by which the agency could do so. But in the previous section of the Act, Congress required EPA to publish notice 90 days prior to imposing a water quality-based effluent limit, and it created a safety valve to allow EPA and the states to alter those effluent limits based on a cost-benefit analysis. It is unlikely that Congress would create procedural requirements and a cost-benefit safety valve in Section 302 but then authorize EPA to sidestep those requirements through the agency's gap-filling authority for Section 303(d). It is much more likely that EPA's interpretation of Section 303(d) is incorrect.

The fact that Sections 208, 305 and 319 of the Clean Water Act grant EPA limited authority to require states to address sources of non-point source pollution does not alter this conclusion. Ultimately, EPA's authority to take action against states that fail to implement TMDL-related non-point source pollution controls is limited to suspending a state's eligibility for federal Clean Water Act grants and revoking EPA's delegation of NPDES permitting authority.[FN18] As the Ninth Circuit noted in Pronsolino v. Nastri:

States must implement TMDLs only to the extent that they seek to avoid losing federal grant money; there is no pertinent statutory provision otherwise requiring implementation of [Section] 303 plans or providing for their enforcement. [FN19]

3. The Draft TMDL is Contrary to EPA's TMDL Regulations

40 C.F.R. Part 130 does not authorize EPA to require a WIP or "reasonable assurances" regarding a WIP for the Chesapeake Bay TMDL (or any other TMDL). As noted above, in 2003, EPA explicitly rejected the notion that its TMDL regulations include either concept.[FN20] The phrases "watershed implementation plan" and "reasonable assurance" appear nowhere in Part 130.[FN21]

Furthermore, EPA rejected the concept of IPs being a part of a TMDL and the notion of requiring "reasonable assurances" of the implementation of an IP. In a notice and comment rulemaking between 2002 and 2003, EPA found this approach is "unworkable" under the Clean Water Act.[FN22] When an agency announces its understanding of a statute through rulemaking, it may not adopt a contrary interpretation without additional notice and comment rulemaking [FN23] EPA has not conducted any further rulemaking regarding IPs or WIPs, and the agency's shift back to requiring implementation plans and "reasonable assurances" is impermissible under the Administrative Procedure Act.[FN24]

B. Section 117 Does Not Alter EPA's Regulatory Authority regarding the Chesapeake Bay

A review of the language of Section 117 of the Clean Water Act and its legislative history reveals no authority for EPA to require a WIP or "reasonable assurances." When Congress created Section 117 in 1987, it did so in order to create EPA's Chesapeake Bay Office and to authorize the agency to provide technical and financial assistance to the states' effort to address water quality. There is nothing in the language of Section 117, as it existed between 1987 and 2000, that affords any Chesapeake Bay-specific regulatory authority to EPA.

The addition of Section 117(g) in 2000 does not alter this conclusion. Rather, Section 117(g) is simply a generalized admonition to EPA and the Chesapeake Executive Council to ensure that management plans are developed and implemented. [FN25] A comparison of EPA's authority regarding the Great Lakes under Section 118 versus its authority regarding the Chesapeake Bay under Section 117 demonstrates that Congress did not grant EPA any special regulatory authority over the Chesapeake Bay by way of Section 117. Section 118 explicitly authorizes EPA to develop water quality guidance for the Great Lakes, including water quality standards, antidegredation policies and implementation procedures.[FN26] EPA is to publish the guidance for notice and comment in the Federal Register, and the Great Lakes states:

[S]hall adopt water quality standards, antidegradation policies, and implementation procedures for waters within the Great Lakes System which are consistent with such guidance [FN27]

Section 118(c)(2)(C) continues:

If a Great Lakes State fails to adopt such standards, policies, and procedures, the Administrator shall promulgate them not later than the end of such two-year period.[FN28]

In 1997, the D.C. Circuit affirmed that Section 118 gave EPA authority to develop and impose a federal water quality program for the Great Lakes if the states did not develop their own. [FN29]To be sure, Congress knew how to create a watershed-specific program that includes backstop authorities along the lines of those asserted by EPA in the Draft TMDL. It created such a program in 1987 for the Great Lakes. The absence of similar language from the original version of Section 117 or the 2000 amendments is conspicuous and it is a clear demonstration of Congress's intent that EPA should not have similar authority in the Chesapeake Bay. [FN30] And, the fact that Congress felt the need to explicitly authorize the Great Lakes program by adding Section 118 is strong evidence that Section 303(d) - as well as EPA's other water quality-related authorities under the Clean Water Act - do not authorize the agency's approach in the Draft TMDL.

[FN4] See 65 Fed. Reg. 43,586 (July 13,2000) (the "2000 TMDL Rule").

[FN5] See Military Construction Appropriations Act FY 2000 Supplemental Appropriations, Pub. L. No. 106-426, 114 Stat. 1897 (2000).

[FN6] See 67 Fed. Reg. 79,020 (Dec. 27, 2002) (proposing to withdraw 2000 TMDL Rule); 68 Fed. Reg. 13,608 (Mar. 19,2003) (finalizing withdrawal of 2000 TMDL Rule).

[FN7] See 65 Fed. Reg. at 43,625; 64 Fed. Reg. at 46,032-33.

[FN8] See 65 Fed. Reg. at 43,625; 64 Fed. Reg. at 46,033-34.

[FN9] 64 Fed. Reg. at 46,016.

[FN10] Draft TMDL, Executive Summary at 5. In a December 29, 2009 letter from Shawn Garvin to L. Preston Bryant, EPA asserted that Section 117(g) also authorizes its approach in the Draft TMDL. This alleged authority is addressed in Section I.B, below.

[FN11] See Chamber a/Commerce a/the United States v. Reich, 74 F.3d 1322, 1332-33 (D.C. Cir. 1996) (explaining Executive Order cannot compel agency action contrary to governing statutes).

[FN12] 33 U.S.C. § 1313(d)(l)(C) (emphasis added).

[FN13] See 33 U.S.C. § 1313(d)(2); 40 C.F.R. § 130.7(c & d).

[FN14] See Sierra Club v. Meiburg, 296 F.3d 1021, 1034 (11th Cir. 2002) (holding consent decree required EPA to

follow Clean Water Act to implement TMDL and that Act requires states to implement TMDLs subject to "some oversight" from EPA); Amigos Bravos v. Green, 306 F. Supp. 2d 48,57 (D.D.C. 2004) ("There is no statutory language requiring submission to or approval of a State's implementation plan by the EPA; rather the statute only requires that the EPA approve or disapprove the TMDL."); Pronsolino v. Marcus, 91 F. Supp. 2d 1337, 1340-47 (N.D. Cal. 2000) (providing detailed explanation of limited federal authority to enforce TMDLs), aff'd sub nom Pronsolino v. Nastri, 291 F.3d 1123 (9th Cir. 2002).

[FN15] 33 U.S.C. § 1313(d)(2); 40 C.F.R. § 130.7(d)(2).

[FN16] See Indiana Michigan Power Co. v. Department of Energy, 88 F.3d 1272, 1277 (D.C. Cir. 1996).

[FN17] 33 U.S.C. § 1312(b)(2)(A).

[FN18] See 67 Fed. Reg. at 79,023 (describing federal authority regarding non-point sources of loads and compliance with water quality standards).

[FN19] 291 F.3d 1123, 1140 (9th Cir. 2002).

[FN20] 68 Fed. Reg. at 13,612.

[FN21] 40 C.F.R. Part 130, passim.

[FN22] See 67 Fed. Reg. at 79,025; 68 Fed. Reg. at 13,612. While EPA stated in the [mal withdrawal notice that this action should not be taken as a decision on the agency's authority for the 2000 TMDL Rule, almost eight years have passed, and EPA has not provided a legal justification for the 2000 TMDL's approach since. In light of the court holdings discussed in note 14, supra, it is clear EPA's approach is contrary to the statute.

[FN23] See Homemakers North Shore, Inc. v. Bowen, 832 F.2d 408, 413 (7th Cir. 1987).

[FN24] EPA's suggestion that the Draft TMDL is a model for future TMDLs in other impaired waters suggests that the agency is trying to accomplish by guidance what it was prohibited from doing by Congress and subsequently withdrew. Substantive changes to the TMDL program require notice and comment rulemaking. See id.

[FN25] See 33 U.S.C. § 1267(g)(l).

[FN26] See 33 U.S.c. § 1268(c).

[FN27] 33 U.S.C. § 1268(c)(2)(C) (emphasis added).

[FN28] Id

[FN29] See American Iron & Steel Institute v. EPA, 115 F.3d 979, 987-88 (D.C. Cir. 1997) (concluding authority for EPA's regulatory authority over Great Lakes arises from Section 118).

[FN30] The legislative histories of Sections 117 and 118 also indicate that Congress did not intend to afford EPA the type of regulatory authority over the Chesapeake Bay that it gave the agency regarding the Great Lakes. Compare H.R. Conf. Rep. No. 99-1004 at 93 (discussing grant program established by Congress in 1987 for Chesapeake Bay) and H.R Conf. Rep. 106-995 at 36-37 (discussing purpose of adding subsection (g) to Section 117 and stating purpose was to require EPA to ensure "plans are developed and implementation is begun" by the states) with H.R. Conf. Rep. No. 99-1004 at 95 (stating Section 118 requires EPA "to develop and implement action plans" to improve water quality and to incorporate those plans into states' non-point source pollution plans under Section 319).

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0507.1.001.004

Author Name: Sullivan Sean

Organization: Liberty University and Thomas Road Baptist Church

Section 303(d) explicitly confines the concept of a TMDL to a maximum pollutant load that a waterbody within a particular state can receive and remain in compliance with water quality standards. In other words, states set a maximum pollutant load, or TMDL, for waters within their jurisdictional boundaries, and EPA's right to approve or reject a TMDL is limited to determining whether the state's calculated level of permissible daily pollutant loads will achieve compliance with the approved water quality standards. In relevant part, Section 303(d)(1)(A) reads:

Each State shall identify those waters within its boundaries for which the effluent limitations required by section 1311 (b)(1)(A) and section 1311 (b)(1)(B) of this title are not stringent enough to implement any water quality standard applicable to such waters. [FN31]

Section 303(d)(1)(C) then requires:

Each State shall establish for the waters identified in paragraph (l)(A) of this subsection, and in accordance with the priority ranking, the total maximum daily load, for those pollutants which the Administrator identifies under section 1314 (a)(2) of this title as suitable for such calculation.[FN32]

Thus, the plain language of the Clean Water Act indicates that TMDLs are to be established on a state-by-state basis. As a consequence, a TMDL for a surface water in Virginia may not be determined based upon whether pollutant loads in Virginia will have an effect on surface water quality in another state.

When discharges in one state cause water quality standards violations in another, the Clean Water Act creates an NPDES permit objection process that is designed to force the states to reach an agreement on how to resolve the problem, but that accord is largely a matter of state law and beyond the scope of the Clean Water Act. Section 402 permits EPA to object to NPDES permits issued by the offending state and it permits the affected state to object to

NPDES permits by way of a water quality standards compliance certification under Section 401.[FN33] Combined, these objection authorities encourage the states to come to an agreement as to additional pollutant load reductions, pursuant to their state law-based authorities. By establishing maximum pollutant loads for waters in one state based on water quality effects in another state, EPA has exceeded its authority under Section 303(d).

To the extent that EPA believes it has authority to address interstate water quality matters under other portions of the Clean Water Act, such as Section 302 or 330, the agency has not asserted those authorities in this proceeding, nor has it complied with the procedures of those provisions, nor has it explained the basis for its assertion of that authority. Hence, those authorities are not relevant to the Draft TMDL.

[FN31] 33 U.S.c. § 1313(d)(l)(A) (emphasis added).

[FN32] 33 U.S.C. § 1313(d)(1)(C) (emphasis added).

[FN33] See note 14, supra.

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0507.1.001.008

Author Name: Sullivan Sean

Organization: Liberty University and Thomas Road Baptist Church

EPA has publicly admitted that it does not intend to finalize its modeling, or correct known errors in the model, until after it promulgates the final TMDL and backstop rule for the Chesapeake Bay.[FN47] The agency contends that:

In no case, does EPA anticipate any likelihood of a jurisdiction 'overcontrolling' between now and 2017 in this first phase of planning and implementation.[FN48] But, this justification misses the point. First, the backstop rule's wasteload allocations will be effective when the Draft TMDL becomes final and EPA rejects a state's final WIP.[FN49] If a point source is required to begin reducing its discharges of nitrogen, phosphorus or sediment shortly thereafter, the TMDL's consequences will certainly be felt before 2017. Because it is impossible for EPA to know whether the allocations are appropriate until the agency corrects its modeling, there is no way to know whether the backstop rule will force point source dischargers to incur significant compliance costs that will ultimately prove unnecessary. Second, EPA's rulemaking is subject to judicial review based on the administrative record at the time it takes final action.[FN50] If EPA finalizes the Draft TMDL on December 31, 2010, a court will judge it based upon the information before the agency on that date. If EPA's model bears "no rational relationship to the reality it purports to represent," the court will reject the Draft TMDL.[FN51]

[FN47] See Letter from Shawn Garvin, Regional Administrator, EPA Region III to the Principals' StaffCommiltee (June 11,2000); FWQC Comments at 18; Comments of Henrico County, Virginia at 4-6; Comments of the Virginia Association of Realtors.

[FN48] Id 49 See FWCQ Comments at 18.

[FN50] See National Association of Home Builders v. Defenders of Wildlilfe, 551 U.S. 644, 659 (2007).

[FN51] Columbia Falls Aluminum Co. v. EPA, 139 F.3d 914, 923 (D.C.Cir.1998).

Response

Although future upgrades to the modeling have identified, EPA believes the current modeling framework is appropriate for this TMDL. For information on the development and review of the watershed model, see response to 0169.1.001.005.

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0515.1.001.016

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

F. There Are Limits to EPA's Authority to Adopt the TMDL and Compel Watershed Implementation Plans

It is arbitrary, capricious, and contrary to law for EPA to approve a TMDL that contains allocations that one or more of the subject jurisdictions believe are technologically unachievable within the schedule laid out in the draft TMDL. It is also our understanding that the EPA lacks legal authority to approve a TMDL imposing a schedule on Bay jurisdictions. We have also been informed that the EPA's legal authority to compel Bay jurisdictions to adopt WIPs before final TMDL is issued is questionable. Generally, "implementation plans" are written after a TMDL is finalized. This is so all components of the TMDL are considered and implementation can be carried-out in a coherent manner. In this TMDL promulgation process, however, the EPA required the jurisdictions to draft their WIP-Is before the TMDL was even publicly available and to finalize their WIP-Is before the EPA promulgates a final TMDL.

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0515.1.001.019

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

I. The EPA Did Not Comply with the Administrative Procedure Act In This TMDL Processs

The EPA did not comply with the federal Administrative Procedure Act by making all underlying calculations (including computer program source code and computer-generated calculations) publicly available. See, Section I in our October 29, 2010 letter (on-line Comment Docket Comment Attachment #145.1) pointing-out that the underlying basis for the TMDL is not yet complete, thereby clearly indicating that the TMDL itself is not yet complete, so plainly the TMDL is not approvable in its present form. The EPA's water quality planning, management and implementation regulations mandate that public access and opportunity to review all essential information must be provided. Specifically, the regulations for establishing TMDLs require that the "[c]alculations to establish TMDLs shall be subject to public review as defined in the State [Continuing Planning Processes]." See, 40 C.F.R. §130.7(c)(l)(ii). Despite our prior request, the Scenario Builder modeling program, which contains or performs many calculations that the EPA has used to develop the TMDL, has not been made available for public review. As a result, unidentified assumptions are incorporated into the TMDL. See, TMDL Section 8.3.2 and Appendix H.

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0518.1.001.005

Author Name: DuVal Barry

Organization: Virginia Chamber of Commerce (VCC)

For the EPA to impose this level of impact on the well- being of the Commonwealth, its citizens and its businesses, while ignoring a notice requirement and cost analysis requirements of federal law (the Administrative Procedures Act and the Small business Regulatory Act), is unacceptable.

Response

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0518.1.001.006

Author Name: DuVal Barry

Organization: Virginia Chamber of Commerce (VCC)

The VCC would also question the wisdom and authority of the EPA to mandate that private owners reduce or retrofit their property's impervious surfaces, as may be imposed in the proposed backstop allocations. Both the U.S. Constitution and Virginia Constitution protect private property owners from a "taking without just compensation" by the government. The very high estimated costs associated with the retrofit requirements or mandates in the proposed backstop allocations clearly approach a "taking without just compensation" of private property. VCC would urge the EPA to seek other less expensive and less intrusive solutions to the cleaning of the Bay and its tributaries.

Response

EPA disagrees. EPA's Bay TMDL is not a federal or state regulation, and its wasteload and load allocations do not as a matter of law effect an unconstitutional "taking" of private property. Nor is the TMDL a permit that requires a private property owner to retrofit his or her property. The TMDL and its allocations are, instead, a reasonable and lawful exercise of EPA's authority under CWA 303(d) to establish pollutant loading targets that guide the jurisdictions' and EPA's efforts to implement measures designed to implement the Bay's water quality standards. See also response to Comment number 0232.1.001.004.

Comment ID 0528.1.001.009

Author Name: Barnes C.

Organization: County of Spotsylvania, Virginia

E. The Socio-Economic Impact of the Proposed Urban Runoff Allocations - Although a precise calculation of the cost of the proposed TMDLs is beyond the staffing and financial resources of the Spotsylvania, one likely effect would be to prevent any development or redevelopment within Spotsylvania. The long term effects of that would be to strangle Spotsylvania's vitality. The short term effect would be litigation challenging Spotsylvania's ability to impose the draconian standards required under the TMDLs.

Response

EPA will not be estimating cost burdens as a part of the TMDL for reasons discussed in the response to comment 0139.1.001.017.

Comment ID 0528.1.001.015

Author Name: Barnes C.

Organization: County of Spotsylvania, Virginia

VII. EPA DOES NOT HAVE THE AUTHORITY TO ESTABLISH A DEADLINE IN THE TMDL FOR ACHIEVING THE LOAD REDUCTIONS

The CWA and EPA's regulations do not give it the authority to establish a 2025 compliance deadline in the TMDLs.

Of all the source sectors covered by the TMDLs, none is affected more by the 2025 deadline that the urban runoff sector because much of the difficulty and cost of achieving the urban runoff load reductions is associated with retrofits independent of redevelopment. Historic re-development rates within the multiple Spotsylvania watershed fall far short of those that would be needed to achieve the load reductions without forcing the locality to acquire the easements needed for retrofits and assuming responsibility for retrofit installation and maintenance.

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0533.1.001.001

Author Name: Comment Anonymous

Organization:

I am a resident of the Chesapeake Bay Watershed and I am particularly concerned by the data collection methods used by the EPA for the draft TMDL. The following are specific places in the TMDL where data collection is mentioned without any detail regarding the authority to collect those data.

Page 4-12 of the Draft TMDL report states
Information related to loading from the other 60 CSO communities in the watershed includes spatial data collected as a result of a direct survey of the communities to support the TMDL, limited water quality and overflow data from some of the CSO communities in the watershed, and representative water quality concentrations available in the literature.

Page 4-40 of the draft TMDL report states
Digital maps of 2009 sewer service areas were provided by 257 of the 403 major wastewater treatment plants in the watershed contacted during a 2009 survey sponsored by EPA.

These sections indicate EPA surveyed regulated entities to get information. I do not recall seeing a Federal Register notice providing notice of EPA's request to the Office of Management and Budget for authority to collect information.

I contacted my local municipality and was provided a letter they received from EPA dated September 21, 2009. It looks like a form letter because it does not even include a formal addressed to section. Looking at the letter EPA sent out, EPA included an OMB authorization number -- The OMB number is 2040-0071. I looked up 2040-0071. 2040-0071 provides authority for EPA to collect data from the States for the water quality report required under the Clean Water Act. It estimates a burden based on 59 respondents. I do not understand how EPA could interpret this to provide

authority to request data from over 400 hundred wastewater plants. Unless of course it was EPA's intent to mislead the municipality into thinking EPA had authority when it did not.

Can you please explain what authority EPA had to survey over 400 entities? Why did EPA cite 2040-0071 as authority? The data requested required a significant expenditure of resources by the wastewater plants and the plants were provided very little time. Also, given the fact EPA was making numerous public appearances talking about "consequences" for not following EPA direction, the wastewater plants had little choice but to comply. EPA should be required to pay back the money wasted by the 400+ municipal agencies that had to respond to this.

This is from the Federal Register Notice EPA published when they were finalizing 2040-0071.

> December 18, 2007
> ENVIRONMENTAL PROTECTION AGENCY
> [EPA-HQ-OW-2003-0026, FRL-8507-8]

Agency Information Collection Activities; Submission to OMB for Review and Approval; Comment Request; National Water Quality Inventory Reports (Renewal); EPA ICR No. 1560.08, OMB Control No. 2040-0071

AGENCY: Environmental Protection Agency (EPA).
ACTION: Notice.

Abstract: Section 303(d) of the Clean Water Act requires States to identify and rank waters which cannot meet water quality standards

(WQS) following the implementation of technology-based controls. Under Section 303(d), States are also required to establish total maximum daily loads (TMDLs) for listed waters not meeting standards as a result of pollutant discharges. In developing the Section 303(d) lists, States are required to consider various sources of water-quality related data and information, including the Section 305(b) State water quality reports. The State Section 305(b) reports contain information on the extent of water quality degradation, the pollutants and sources affecting water quality, and State progress in controlling water pollution.

EPA's Assessment and Watershed Protection Division (AWPD) works with its Regional counterparts to review and approve or disapprove State Section 303(d) lists and TMDLs from 56 respondents (the 50 States, the District of Columbia, and the five Territories). Section 303(d) specifically requires States to develop lists and TMDLs ``from time to time'' and EPA to review and approve or disapprove the lists and the TMDLs. EPA also collects State 305(b) reports from 59 respondents (the 50 States, the District of Columbia, five Territories, and 3 River Basin commissions).

Burden Statement: The annual public reporting and recordkeeping burden for this collection of information is estimated to average 66,590 hours per year per respondent for the 56 respondents with both
305(b) and 303(d) responsibilities and TMDL development activities. The average reporting burden for the 3 respondents with only 305(b) responsibilities is estimated at 3,659 hours per year. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining

information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements which have subsequently changed; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

Respondents/Affected Entities: States, Territories, River Basin Commissions.
Estimated Number of Respondents: 59. Frequency of Response: Biennially.
Estimated Total Annual Hour Burden: 3,740,017.
Estimated Total Annual Cost: $177,837,808, includes no capital or O&M costs.
Changes in the Estimates: There is no change in hours in the total estimated burden currently identified in the OMB Inventory of Approved ICR Burdens.

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0548.1.001.006

Author Name: Smith Brooks

Organization: Utility Water Act Group

5. UWAG opposes EPA's mandate of implementation plans.

As a predicate to the release of the draft TMDL, EPA compelled the states to submit WIPs detailing allocation schemes suitable to meet EPA's target loads for nitrogen, phosphorus, and sediment. According to EPA, WIPs "are the first element of a new accountability framework" set forth in Executive Order 13508.[FN 8] The second element is a series of two-year milestones by which states must assess their progress under these plans.[FN 9] WIPs must contain the following eight elements:

• Interim and final nutrient and sediment target loads, subdivided by the pollutant source sector within each of the 92 segments of the watershed;
• Current loading baseline and program capacity assessment (i.e., legal, regulatory, programmatic, financial, staffing, and technical ability to achieve the target loads);
• Accounting for additional loads due to growth;
• Gap analysis of new capacity, additional incentives, new or enhanced regulatory programs, market-based tools, technical and financial assistance, and new legislative authorities needed to achieve the target loads;
• Commitment and strategy to fill gaps;
• Tracking and reporting protocols;
• Contingencies for slow or incomplete implementation; and
• Detailed targets and schedule with rolling two-year milestones.[FN 10]

EPA's expectations regarding WIPs are misplaced for two reasons. First, implementation planning is not part of Section 303(d) of the Clean Water Act or the regulations that implement it. Second, even if it were, meaningful implementation plans cannot be developed until after a TMDL is in place and the reductions set forth in the TMDL are established.

a. Implementation planning is not part of the federal TMDL program.

UWAG is aware of, and supports, EPA's long-standing position that TMDLs are not self-implementing. See, e.g., EPA's Overview of Impaired Waters and Total Maximum Daily Loads Program. [FN 11] For this reason, UWAG appreciates the practical need for implementation planning to achieve the goals of the TMDL process. Some Bay states, like Virginia, already have implementation planning requirements set forth in state law. See, e.g., Va. Code 62.1-44.19:7.[FN 12] But EPA lacks any similar authority.

EPA asserts that "Section 117(g) of the Clean Water Act provides a legal framework for ensuring that the signatory jurisdictions develop and begin implementing management plans that achieve the nutrient and sediment loading reductions needed to restore the Bay." [FN 13] But the legislative history of Section 117(g) makes clear that Congress did not provide EPA with any additional regulatory authority to require implementation plans.[FN 14]

By its own admission, EPA also lacks any existing regulatory authority to require implementation plans.[FN 15] EPA attempted to establish such authority in its 2000 TMDL rule revisions. See 65 Fed. Reg. at 43,667 (to be codified at 40 C.F.R. §130.32(11)). However, as noted above, those revisions never took effect and were eventually withdrawn. [FN 16]

EPA's practice in reviewing and approving or disapproving state TMDLs makes clear that EPA lacks any existing regulatory authority over implementation plans.[FN 17] Whenever a state TMDL includes an implementation planning component, EPA routinely notes in its decision letter that the Agency is not taking any action on that component because it falls outside of the TMDL process.[FN 18]

[FN 8] November 4, 2009 letter to The Honorable L. Preston Bryant, Jr., Chair of the Chesapeake Bay Program's Principals' Staff Committee, Enclosure B, at p. 13.
[FN 9] Id.
[FN 10] Id. at pp. 25-30.
[FN 11] Accessible at http://www.epa.gov/OWOW/TMDL/intro.html.
[FN 12] This requirement reads as follows: "The Board shall develop and implement a plan to achieve fully supporting status for impaired waters, except when the impairment is established as naturally occurring. The plan shall include the date of expected achievement of water quality objectives, measurable goals, the corrective actions necessary, and the associated costs, benefits, and environmental impact of addressing impairment and the expeditious development and implementation of total maximum daily loads when appropriate and as required…."
[FN 13] EPA's 202(a) Report at p. 15, see also Bay TMDL at 1-12.
[FN 14] "The Committee expects EPA to meet the requirements of this paragraph through the award of implementation grants under subsection (e). Nothing in the Chesapeake Bay Restoration Act provides EPA with any additional regulatory authorities." H. Rept. 550, 106th Cong., 2d Sess., at 3 (2000).
[FN 15] See EPA's Overview of Impaired Waters and Total Maximum Daily Loads Program ("Section 303(d) of the CWA does not specifically require implementation plans for TMDLs."). This basic concession is repeated in literally

thousands of EPA decision rationales approving state TMDL submittals (for example, see footnote 18 below).
[FN 16] Several industry petitioners, including UWAG, challenged EPA's statutory authority under Section 303(d) of the Clean Water Act to require implementation plans. We argued that EPA misconstrued the language "at a level necessary" in 303(d)(1)(C) to mean "level of regulatory effort" instead of "pollutant level," as clearly contemplated by Congress. We also argued that Congress had already supplied a means for EPA to oversee implementation through section 303(e). We maintained that Congress would not have drawn the requirements of that section so broadly if it had intended the 303(d) TMDL to include implementation requirements. Consistent with those earlier arguments, UWAG continues to dispute EPA's authority now.
[FN 17] See EPA's Overview of Impaired Waters and Total Maximum Daily Loads Program ("Although states are not required under section 303(d) to develop TMDL implementation plans, many states include implementation plans with the TMDL or develop them as a separate document. When developed, TMDL implementation plans may provide additional information on what point and nonpoint sources contribute to the impairment and how those sources are being controlled, or should be controlled in the future.").
[FN 18] See, e.g., EPA's decision rationale for approving the Tidal Potomac PCB TMDL established by the Interstate Commission on the Potomac River Basin, dated October 31, 2007, at p. 12 ("Neither the Clean Water Act nor the EPA implementing regulations, guidance or policy requires a TMDL to include an implementation plan. EPA therefore does not approve or disapprove implementation plans as part of the TMDL process.") (emphasis added).

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0548.1.001.012

Author Name: Smith Brooks

Organization: Utility Water Act Group

10. Conclusion.

UWAG appreciates the magnitude of the challenge that EPA faces developing a TMDL for a watershed as large and complex as the Chesapeake Bay, and UWAG supports certain elements of EPA's draft TMDL. However, UWAG is concerned that several of EPA's policy predicates exceed the Agency's authority under the Clean Water Act.

In particular, we are concerned that EPA is attempting to use this particular TMDL proceeding to bypass the regulatory process on core issues in the TMDL program - issues that extend beyond the Bay watershed to thousands of other impaired watersheds across the country. If EPA views reasonable assurance and implementation planning as keys to the successful restoration of the Bay, then we encourage EPA to pursue regulatory authority for those tools at the federal level. Toward that end, we recommend that EPA revisit the extensive record already in place for the 2000 and 2003 rulemakings and follow the overwhelming stakeholder sentiment that reasonable assurance should be tied to practicability, and implementation planning should be conducted under Section 303(e) of the Clean Water Act, outside of the TMDL process.

Unless and until EPA meets its rulemaking obligations under the Administrative Procedure Act, EPA cannot lawfully force states to demonstrate reasonable assurance or submit implementation plans, as proposed. Nor can EPA impose consequences on states for failing to meet those requirements, as threatened.

UWAG is committed to working with EPA to establish TMDLs that are scientifically sound, legally defensible, cost effective, and equitable. UWAG also is committed to working with EPA to explore a range of available and appropriate tools for achieving our shared water quality goals in the Chesapeake Bay and around the country.

Response

Thank you for the comment. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0554.1.001.004

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

Additionally, for successful clean up to occur under the TMDL, it is necessary for the Act to apply to all the important waters in the Bay's watershed. This is especially true since an important clean-up strategy of the Draft TMDL is to expand use of the NPDES permitting throughout the watershed. Such efforts may be undermined - as have CWA permitting implementation and enforcement actions nationwide - unless EPA establishes clear protections for all the waters in the Bay and the 92 subwatersheds identified by the Draft TMDL. As such, we believe that EPA should, must, and can assert categorical Clean Water Act jurisdiction over all important headwaters and geographically isolated waters in the region of the Bay's watershed.

Response

Thank you for the comment which EPA understands as supporting the TMDL.

Comment ID 0554.1.001.007

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

EPA’s plan to expand NPDES permitting to achieve water quality compliance in the Bay will likely fail unless EPA provides clarity to the legal uncertainty regarding the current scope of CWA protections within the Bay's watershed.

Response

Thank you for your comment, which EPA construes to be in support of the Chesapeake Bay TMDL.

Comment ID 0554.1.001.009

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

Additionally, due to two Supreme Court decisions, SWANCC [FN23] and Rapanos,[FN24] as well as subsequent agency guidance, CWA jurisdiction over certain waters, particularly many of the important headwater streams and wetlands, and geographically isolated waters that are so vital to the health of the Bay, is in doubt. The current case-by-case approach for asserting CWA jurisdiction over many waters set forth by the Corps and EPA in the 2007 Guidance provides neither consistency nor certainty regarding protection for many waters in the Bay's watershed. Without such certainty, it will be difficult to accurately ascertain sources of WLAs and LAs, to properly allocate loads, and implement permitting programs pursuant to such allocations. Thus, successful implementation of the TMDL depends on clarity regarding the scope of CWA jurisdiction throughout the Bay's basin. As is explained below, NWF believes that EPA can - and must - assert categorical jurisdiction over headwater streams and wetlands, and geographically isolated waters in the Bay to provide the certainty and protections needed to make the TMDL a legal and useful tool for restoring the Bay back to health. Such assertion of watershed-wide jurisdiction will also be consistent with the Draft Bay Strategy that seeks to achieve protection and restoration objectives by taking a watershed-wide approach.

[FN23] Southern Waste Agency of Northern Cook County v. United States Army Corps of Engineers, 531 U.S. 159 (2001).
[FN24] Rapanos v. United States Army Corps of Engineers, 547 U.S. 715 (2006).

Response

Thank you for the comment which EPA construes as supportive. To the extent the comment is suggesting the CWA is the primary authority for EPA to establish the TMDL including the definition of waters of the United States EPA agrees. The TMDL does not by itself expand or otherwise modify the scope of the definition of waters of the United States. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0554.1.001.016

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

Prior to 2001, it was clear that the CWA protected all important waters within the aquatic ecosystem, including the many small intermittent and ephemeral streams and their associated wetlands that eventually converge to form the

Chesapeake Bay. Today, due in large part to two Supreme Court decisions, Rapanos and SWANCC, as well as subsequent EPA and Corps guidance documents, those protections are no longer assured. In order to be able to ensure effective clean-up of the Bay, and to establish meaningful allocations, particularly among WLAs and LAs in the TMDL, EPA must assert categorical protections over all important waters in the Bay. EPA can-and must-categorically protect all headwater streams and wetlands in the Bay's basin, as well as geographically "isolated" waters in the Bay's basin.

President Obama has set out clear objectives for EPA and other agencies to "establish a clear path to meeting, as expeditiously as practicable, water quality and environmental restoration goals for the Chesapeake Bay." President Obama has furthermore explicitly instructed EPA to "us[e] Clean Water Act tools, including strengthening existing permit programs and extending coverage where appropriate" in order to clean up and restore the Bay.[FN54] Thus, EPA has already been directed to appropriately extend CWA jurisdiction throughout the Bay's basin. As such, EPA must restore CWA protections for Bay watershed wetlands and nonnavigable tributaries historically covered under the Act. As detailed below, NWF believes that this can be done in a manner that establishes certain CWA jurisdiction over most of the important waters throughout the Bay's watershed. Failure to do so threatens to seriously hamper the effectiveness of the TMDL.

[FN54] 74 Fed. Reg. at 23,101-02 (emphasis added).

Response

Thank you for the comment which EPA construes as supportive. In response to the first paragraph, please see the response to comment number 0554.1.001.009. In response to the second paragraph, to the extent the comment is suggesting the CWA is the primary authority for EPA to establish the TMDL including the definition of waters of the United States EPA agrees. The TMDL does not by itself expand or otherwise modify the scope of the definition of waters of the United States or EPA's authority thereunder. For a comprehensive discussion of legal issues including this one see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0554.1.001.017

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

Under the previous Administration, the EPA's and Corps of Engineers' response to SWANCC and Rapanos was unwarranted legally and not protective of important resources. After SWANCC, EPA and the Corps put out guidance as part of an Advance Notice of Proposed Rulemaking (ANPRM) to redefine jurisdiction under the Act.[FN67] The proposed rulemaking was dropped in December of 2003 after more than forty states, countless conservation organizations, including several hunting and fishing groups, and 220 members of Congress commented in overwhelming favor of keeping the current and broadly protective rules.[FN68] However, the harmful guidance (the 2003 Guidance) that was part of the ANPRM was never rescinded. The 2003 Guidance fails to protect so-called "isolated" wetlands and waters.

The response to Rapanos by EPA and the Corps was similarly troubling. In 2007, the Corps and the EPA issued Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States on June 5, 2007 (the 2007 Guidance).[FN 69] The 2007 Guidance is harmful in several respects. It removes protection for certain tributaries, and makes it extremely difficult to protect many others, particularly intermittent and ephemeral headwater streams. Similarly, it makes it very difficult to protect many of the important wetlands that neighbor such streams and tributaries. Instead, it sets up an unpredictable, inconsistent and cumbersome process for determining the jurisdictional status of many waters on a case-by-case basis that provides little clarity over what waters are or are not covered within a major watershed like that of the Chesapeake Bay. While the current directives have not been formally abandoned, they are flawed and illegal in several respects and need not bind or guide EPA or the Corps.

3. EPA Has Primary Authority to Protect Waters under the CWA and May Categorically Protect Important Waters in the Bay's Watershed.

Under the CWA, jurisdictional determinations are the responsibility of EPA. EPA must therefore act upon its duty to ensure all jurisdictional determinations are made in accordance with, and to the fullest extent permitted by, the law. This charge, as stated above, is reiterated in EO 13,508. While the Act gives primary permitting authority to the Corps for Section 404 permits,[FN70] ultimate authority for protection of all waters rests with EPA. This was the conclusion of Attorney General Civiletti in 1979, where he found that "the structure and intent of the Act support an interpretation of § 404 that gives the Administrator the final administrative responsibility for construing the term ‘navigable waters.'"[FN71] It is, therefore, EPA's responsibility to determine whether waters are jurisdictional under the Act.

As described below, current law allows EPA to categorically protect many if not all of the important waters in the Bay.[FN72] As stated above, the EPA need not adhere to the illegal 2007 Guidance and should dismiss its restrictive and confusing approach to determining jurisdiction. Primarily, the 2007 Guidance allows little meaningful region-wide aggregation of similar aquatic resources to determine that, cumulatively, such resources have a "significant nexus" to other waters. For instance, the 2007 Guidance allows for no aggregation of tributaries' impacts on downstream waters, and only very limited aggregation of wetland impacts. This improper interpretation of Rapanos should be dismissed by EPA and has already been dismissed by at least one court with jurisdiction over waters in the Bay's basin.

Instead, as described below, there is ample basis in Rapanos for EPA to assert CWA region-wide jurisdiction over the headwater streams and wetlands, and geographically isolated waters of the Bay's watershed. First, current regulations allow EPA to protect all tributaries in the Bay. Second, Justice Kennedy's "significant nexus" test allows EPA to categorically assert protection over the Bay's headwater wetlands. Finally, EPA can protect geographically isolated waters in the Bay under current regulations and the "significant nexus" test in the Rapanos opinion.

[FN67] See Advance Notice of Proposed Rulemaking on the Clean Water Act Regulatory Definition of "Waters of the United States",

[FN68] Fed. Reg. 1991 (Jan. 15, 2003).

[FN68] Rapanos, 547 U.S. at 795 n.4 (Stevens, J., dissenting); Letter from 220 Members of Congress to The Honorable George W. Bush, President of the United States (Nov. 24, 2003).

[FN69] U. S. Environmental Protection Agency and U.S. Army Corps of Engineers, Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States (June 5, 2007), available at, http://www.epa.gov/owow/wetlands/pdf/RapanosGuidance6507.pdf (last visited Nov. 1, 2010), noticed at 72 Fed. Reg. 31,824 (June 8, 2007).

[FN70] 33 U.S.C. § 1344(a).

[FN71] 43 U.S. Op. Atty. Gen. 197, 200-202 (Sept. 5, 1979) (footnote references omitted).

[FN72] Despite this authority, Congress must provide certainty nationwide that all important waters remain protected by the Clean Water Act. Due to the hydrological nature and more humid conditions of the Chesapeake Bay region, plus the vast studies and documentation of connections between the headwaters of the Bay and the Bay itself, categorical protections by EPA of Bay waters presents a compelling opportunity. While EPA categorical determinations are justified in watersheds across the country, they may be harder to establish in other regions with less documentation and different hydrological conditions. Even in the Bay watershed, without Congressional clarity, asserting CWA jurisdiction over all important waters will involve more resources and more risk of litigation from industry than Congress intended.

Response

Thank you for the comment which EPA construes as supportive. To the extent the comment is suggesting the CWA is the primary authority for EPA to establish the TMDL ,including the definition of “waters of the United States,” EPA agrees. EPA agrees that protection of headwater streams and wetlands is important. The TMDL does not by itself expand or otherwise modify the scope of the definition of waters of the United States or EPA’s authority thereunder or represent a separate determination of how EPA uses that term. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0554.1.001.019

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

Currently at-risk non-navigable tributaries and associated wetlands comprise a substantial portion of the Bay watershed and have documented significant impacts on the health of the Bay.[FN83] One hundred and eleven thousand (111,000) miles of creeks, streams, and rivers throughout the Bay watershed converge into fifty major tributaries that send water to the Chesapeake Bay.[FN84] The Susquehanna River is the Bay's largest tributary and contributes more than one half of the freshwater that enters the Bay.[FN85] The Susquehanna and its tributaries originate as small headwater streams and wetlands in New York, drain Central Pennsylvania, and empty into the Bay in Maryland. The Potomac and James Rivers are the next two largest tributary systems flowing to the Chesapeake Bay.[FN86]

Each of these major Bay tributaries begins at their headwaters, far upstream of the traditionally navigable rivers they will become. Headwaters are "the dendritic system of wetlands, swales and small streams that make up the beginnings of

most watersheds."[FN87] Headwater streams[FN88] comprise the majority of streams and waters in a watershed, and they play the most important role within the watershed in improving water quality by filtering runoff, sediment, nutrients, and contaminants before they move further downstream.[FN89]

EPA has estimated that first-order headwater streams, alone, comprise over 50 percent of the over 200,000 miles of streams in EPA Region III, which encompasses most of the Bay watershed.[FN90] The Bay watershed's extensive headwater streams are important tributaries to downstream navigable waters, but they do not always flow year round; nor do they always flow above ground. Many EPA Region III first-order streams have intermittent flow periods during the summer months or during dry years.[FN91]

Headwater streams in the limestone or karst regions of the Bay watershed flow underground for some length before they re-emerge as surface streams some distance downstream. These types of streams have a definite hydrological connection to downstream traditionally navigable rivers, though the connection is not apparent by observing surface water flows exclusively.[FN92] Many Bay watershed headwater streams, as well as higher order nonnavigable tributaries, have been channelized over time and incorporated into ditch and stormwater systems that connect non-navigable streams and adjacent wetlands to downstream waters.[FN93] Manmade ditches draining Bay watershed wetlands are nonetheless conduits of flow and pollutants downstream toward the Bay and are properly subject to the CWA.

Approximately 1.7 million wetland acres remain in the Bay watershed.[FN94] Almost 90 percent (about 1.5 million acres) of these remaining wetlands are non-tidal, freshwater "palustrine" wetlands, including freshwater marshes, wet meadows, forested swamps, and bogs. Forested palustrine wetlands comprise the bulk of these freshwater wetlands. These are the freshwater wetlands most likely to be considered "adjacent" for CWA purposes because they are located next to but not within the banks of freshwater lakes, streams, or rivers. Some might be considered "isolated," though most of these are connected to surface waters by groundwater.[FN95] Over 36,000 of these palustrine wetland acres were destroyed between 1982 and 1989 alone. [FN96]

EPA Region III has estimated that roughly 36 percent of the Region's remaining wetlands are headwater wetlands.[FN97] About 12 percent of the Region's remaining wetlands are headwater wetlands that lack a perennial or intermittent surface water connection to traditionally navigable waters.[FN98] These Bay area headwater wetland habitats include bogs, fens, Delmarva Bays, eastern vernal pools, and pocosins.[FN99]

An estimated 35-39 percent of the wetland acreage in the U.S. Fish and Wildlife Service's Upper Delmarva Potholes (or Bays) study area was designated "isolated," though many of these wetlands were likely to have groundwater connections to streams.[FN100] In addition to groundwater connections, many headwater wetlands on the Delmarva Peninsula are connected to downstream waters by drainage ditches.[FN101] EPA Region III field studies show that "fully 73% of the assessed sites had groundwater pathways connecting them to downstream water bodies." Groundwater was frequently one of several hydrological sources linking downstream waters.[FN102]

Importantly, EPA's field studies also found that the interrelationships between wetlands with linkages by non-perennial surface and/or groundwater flows and their surroundings require on-site inspections because these complex linkages are not displayed on widely used mapping and planning tools.[FN103] Consequently, while the great majority of Bay watershed headwater wetlands are connected hydrologically to downstream traditionally navigable waters, identifying these complex connections with precision in each case for regulatory purposes is often very time and resource

intensive. Requiring regulators to definitively establish such a connection in each case prior to asserting jurisdiction unnecessarily complicates permitting, undermines CWA enforcement, and undermines the legitimacy and effectiveness of the Chesapeake Bay TMDL.

[FN83] NWF acknowledges that much of the information cited here to support the importance of these at-risk waters to the health of the Chesapeake Bay was prepared by EPA and others in the wake of the SWANCC and Rapanos decisions and in several instances should be updated to support EPA categorical protection of wetlands and tributaries of the Bay watershed. Nevertheless, for purposes of these preliminary comments, the information cited here makes a compelling case for such region-wide protection, and additional and updated information compiled by EPA and Bay partner states will as well.

[FN84] Chesapeake Bay Watershed Partners Agreement (2001); U.S. Environmental Protection Agency, Chesapeake Bay: Introduction to an Ecosystem, EPA 903-R-04-003 (July 2004) (Introduction to an Ecosystem) at 1, 5.

[FN85] Introduction to an Ecosystem at 5; Draft TMDL § 2.1, 2-1.

[FN86] Introduction to an Ecosystem at 5; Draft TMDL § 2.1, 2-1.

[FN87] Consolidated EPA Region III Response to the Advanced Notice of Proposed Rulemaking on the Clean Water Act Regulatory Definition of "Waters of the United States" (2003) (EPA Region III ANPRM Response) at 3.

[FN88] Headwater streams are typically defined as first and second order streams. Higher order streams are formed by the confluence of lower order tributary streams. See Meyer, J. L. et al., Where Rivers Are Born

[FN89] EPA Region III ANPRM Response at Appendix E, Literature Review: Extent and Function of Headwater Streams, EPA, Wheeling West Virginia (February 2003) at 3-9; see also Where Rivers Are Born (describing in detail the important links between headwaters and downstream waters); Downing, D., et al., Technical and Scientific Challenges in Implementing Rapanos' "Water of the United States," American Bar Association, NATURAL RESOURCES AND ENVIRONMENT, 42, Vol. 22, No. 1 (Summer 2007) at 43 (stating, "The small size of headwater streams means that, in such waters, more water is in direct contact with the streambed and its associated subsurface flows (hyporheic zone), where most processing [to remove pollutants] takes place. Thus, headwaters as a category can have a disproportionate positive effect on the integrity of downstream waters."); M.M. Brinson, Changes in the Functioning of Wetlands Along Environmental Gradients, 13 (2) Wetlands 65 (June 1993); Bruce J. Peterson, et al., Control of Nitrogen Export from Watersheds by Headwater Streams, 292 Science 86-90 (April 6, 2001).

[FN90] EPA Region III ANPRM Response, at 10, Appendix E at 3; see also Rhodes, C.A., EPA Region III, Findings in the Mid-Atlantic Region Concerning Implications for Clean Water Act Jurisdiction for Various Interpretations of SWANCC, presented to the ASWM Legal Workshop, Albuquerque New Mexico, October 18, 2005 (EPA Mid-Atlantic Findings Presentation), at 16, 20.

[FN91] Id. See also 2006 EPA State-by-State NHD Analysis of Stream Categories and Drinking Water Data estimating that 53 percent of the U.S. (except Alaska) stream miles are start reaches (headwaters) and 59 percent have intermittent or ephemeral flow. The start reach/headwater stream percentages for the Chesapeake Bay watershed

states of NY, PA, MD, DE, and VA all range between 55 percent and 59 percent.

[FN92] EPA Region III ANPRM Response, at 4.

[FN93] See Council on Environmental Quality, Environmental Trends (1989) at 35 (estimating that 10 percent of perennial streams in the United States have been channelized); Where Rivers Are Born, at 11.

[FN94] See Tiner, R.W., Trends in the Chesapeake Bay Watershed Wetlands, U.S. Fish and Wildlife Service, Ecological Services, Hadley, MA,(derived from Tiner's estimate of 690,000 hectares remaining in 1989).

[FN95] See Hershner, Carl, et al., Wetlands of Virginia: total, isolated and headwater, Virginia Institute of Marine Science (VIMS) Special Report No. 03-1 (February 2003).

[FN96] Trends in the Chesapeake Bay Watershed Wetlands, supra.

[FN97] EPA Region III ANPRM Response, at 9-11; see also EPA Mid-Atlantic Findings Presentation, at 12-14.

[FN98] Id. These numbers likely underestimate the extent of headwater wetlands because National Wetland Inventory (NWI) maps underestimate wetland acreage and small headwater wetlands are the type most frequently missed by the NWI.

[FN99] EPA Region III ANPRM Response, Appendix I: Threatened and Endangered Species, at 1. The Delmarva bays are so named because of their location on the Delmarva Peninsula, the peninsula on the Eastern Shore of the Chesapeake Bay that includes all of Delaware, as well as parts of Maryland and Virginia.

[FN100] Tiner, R.W., et al, Geographically Isolated Wetlands: A Preliminary Assessment of their Characteristics and Status in Selected Areas of the United States (Geographically Isolated Wetlands), U.S. Department of Interior, Fish and Wildlife Service, Northeast Region, Hadley, MA. (June 2002), at Section 2, Delmarva Potholes, Section 3, Region 5 Study Results.

[FN101] Ator, Scott W., et al. Hydrologic and Geochemical Controls on Pesticide and Nutrient Transport to Two Streams on the Delmarva Peninsula. U.S. Geological Survey, Scientific Investigations Report 2004-5051.

[FN102] EPA Region III ANPRM Response, Section IV, Case Study, at 1, 4.

[FN103] Id.

Response

Thank you for the comment which EPA construes as supportive. To the extent the comment is suggesting the CWA is the primary authority for EPA to establish the TMDL, including the definition of “waters of the United States,” EPA agrees. EPA agrees that protection of headwater streams and wetlands is important. The TMDL does not by itself expand or otherwise modify the scope of the definition of waters of the United States or EPA’s authority thereunder or represent a separate determination of how EPA uses

that term. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0554.1.001.021

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

Removal of the source water protection measures afforded by the CWA would increase risks to human health, and will require additional infrastructure expenditures by public utilities using surface water intakes.[FN113] For example, if CWA jurisdiction is removed for first order streams, untreated or partially treated municipal sewage or animal waste discharged upstream of a drinking water intake could contaminate water supplies with pathogens such as Cryptosporidium and E.Coli that are hardy and resistant to treatment. Many EPA Region III sewage treatment plants are located on first or second order streams. Unless these plants are closely regulated, these pathogens, routinely found in human sewage, can show up in finished tap water.[FN114] More generally, EPA estimated in 2006 that the Chesapeake Bay states of New York, Pennsylvania, Delaware, Maryland, and Virginia had 3,188 individual NPDES permitted discharge facilities known to be located on start reaches (headwater streams).[FN115] The present lack of clarity regarding federal jurisdiction over such waters impairs the ability of states and the federal government to monitor and control the level of discharges to these waters, unfairly burdens downstream states like Maryland (the Susquehanna) and Virginia (the Potomac), and undermines the potential efficacy of the Draft TMDL.

Increased sediment loads from headwaters and smaller streams also adversely affect the navigability of downstream waters. Loss or lack of regulation of these important filtering areas will result in the need for more extensive and recurrent dredging.[FN118] For example, "keeping Baltimore Harbor navigable costs $10 to $11.5 million annually to dredge and dispose of sediment the Patapsco River [a Bay tributary] deposits in the harbor."[FN119]

Non-tidal wetlands throughout the Bay watershed provide essential services to finfish and shellfisheries in the Chesapeake Bay. For example, Maryland's non-tidal wetlands support numerous fish (menhaden and striped bass) and shellfish (blue crabs and oysters) species, either directly by providing habitat, or indirectly by regulating freshwater flow and filtering pollutants. Approximately 200 fish species use Chesapeake Bay waters.[FN125] Maryland's non-tidal seasonal and temporarily flooded wetlands provide spawning, feeding, and nursery habitat for some freshwater fish species during flooding periods, and some also appear to be important in supporting the invertebrate food base for Maryland's riverine fisheries.[FN126] Bay watershed nontidal wetlands and tributaries support a healthy freshwater sport fishery. In 2001, 367,000 resident and non-resident anglers fished in Maryland's fresh waters. Over 720,000 fished in Virginia's.[FN127]

The American eel is a commercially important fish species that relies on the upstream non-navigable tributaries of the Bay watershed. The eel lives most of its life in the inland reaches of these upstream waters and then goes to sea to spawn. The Bay area commercial harvest was about 700,000 pounds in 1981.[FN128] The Maryland commercial harvest was just over 192,000 pounds in 2002.[FN129] Loss of headwater streams due to unchecked development will eliminate essential eel habitat and will result in declining catch.

Bay headwaters and other non-navigable tributaries and associated wetlands provide essential water quality and

quantity functions that support the Bay's striped bass, shad, and perch fisheries, among others, by regulating freshwater flow and filtering pollutants, helping protect critical spawning and nursery habitat for these species. The upper reaches of Bay tidal waters and the upper mainstem are used as spawning and nursery grounds for striped bass, shad, perch and other fish. The importance of this use is reflected in state and federal water quality standards that assign a "migratory fish spawning and nursery" designated use to these waters.[FN130]

The major tributaries of the Bay support 70-90 percent of the striped bass spawned on the East Coast.[FN131] The 2002 commercial harvest in Maryland alone was over 1.8 million pounds.[FN132] Another important Chesapeake Bay commercial fishery is the menhaden fishery. This fishery is highlighted for protection in the Bay through the "open water and shellfish" designated use.[FN133] About 97 percent of the Bay area fish harvest is estuarine dependent.[FN134] In 2004, the Chesapeake Bay area harvest in Maryland and Virginia for all fish species was over 500 million pounds and was valued at over $209 million.[FN135]

Bay watershed headwaters and other non-navigable tributaries and adjacent wetlands support the Bay's world renowned shellfishery by reducing nitrogen and phosphorus pollution and sediment loads in downstream waters, and thereby fostering growth of submerged aquatic vegetation ("SAV") with increased water clarity and increases in dissolved oxygen from reductions in nitrogen and phosphorus pollution loads.[FN136] SAV provides essential habitat for immature and molting blue crabs.

Oyster and blue crab commercial harvests have declined since the 1970s due to the combined effects of several factors including pollution and the loss of SAV. Still, the Chesapeake Bay remains one of the world's largest producers of blue crabs. The Chesapeake region blue crab harvest in 2004 was 58.4 million pounds, worth over $44 million.[FN137] Currently, the combined value of the Chesapeake's shellfish and finfish harvests is estimated around $1 billion annually.[FN138] The Chesapeake Bay fisheries so central to the region's culture and economy are clearly placed in harm's way by the uncertainty of CWA protections upstream.

[FN113] Region III ANPRM Response at 7.

[FN114] Id. at 8, 27.

[FN115] EPA State-by-State Analysis of Individual NPDES Permits on NHD Intermittent/Ephemeral and "Start Reach" Streams (2007) (over 1,800 of these were in Pennsylvania).

[FN118] EPA Region III ANPRM Response, at 8.

[FN119] Where Rivers Are Born at 12.

[FN125] Wetlands of Maryland, at 141.

[FN126] Id. at 141-142; see also EPA Region III ANPRM Response, Appendix E at 18.

[FN127] U.S. Fish and Wildlife Service, 2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, 108 (2001), available at http://www.census.gov/prod/2002pubs/FHW01.pdf (last visited Nov. 1, 2010).

[FN128] See Chesapeake Bay Program, Fish: American Eel at http://www.chesapeakebay.net/baybio.htm (last visited January 10, 2006).

[FN129] Maryland's Commercial Fisheries Annual Landings Data Set: American Eel/Common Eel, at http://mddnr.chesapeakebay.net/mdcomfish/finfish/test2y1.cfm?Spcode=1141 (last visited Nov. 1, 2010).

[FN130] See Ambient Water Quality Criteria, supra; Chesapeake Bay Program PowerPoint Presentation at www.chesapeakebay.net/pubs/waterqualitycriteria/DOC-nspresentation.ppt at slide 28, 31. (last visited Jan. ??? 2010-site no longer available) EPA has published water quality standards for the Bay and tidal tributaries. Chesapeake Bay Program, at http://www.chesapeakebay.net/pubs/waterqualitycriteria/12022002/cover.pdf.

[FN131] Chesapeake Bay Program, Animals and Plants: Striped Bass at http://www.chesapeakebay.net/striped_bass.htm (last visited January 8, 2010).

[FN132] Maryland's Commercial Fisheries Annual Landings Data Set: Striped Bass, at http://mddnr.chesapeakebay.net/mdcomfish/mdcomfishery.html (last visited Nov. 1, 2010).

[FN133] See Chesapeake Bay Program PowerPoint Presentation, supra, at slide 34.

[FN134] See Ambient Water Quality Criteria, supra; Chesapeake Bay Program PowerPoint Presentation, supra, at slides 28, 31.

[FN135] National Marine Fisheries Service, Fisheries of the United States 2004, Current Fisheries Statistics No. 2004, Silver Spring, MD (November 2005), at U.S. Commercial Landings, available at http://www.st.nmfs.gov/st1/fus/fus04/02_commercial2004.pdf (last visited January 8, 2010).

[FN136] See Ambient Water Quality Criteria, supra; see also, Chesapeake Bay Program PowerPoint Presentation, supra, at slides 32, 36.

[FN137] Fisheries of the United States 2004, supra, at Review, available at http://www.st.nmfs.gov/st1/fus/fus04/01_intro2004.pdf (last visited Nov. 1, 2010).

[FN138] Northeast Midwest Institute, Large Scale Ecosystem Restoration Initiatives - Protecting and Restoring the Chesapeake Bay, (2005) at "Ecosystem Users," at www.nemw.org/chesapeake.htm (last visited January 7, 2006).

Response

Thank you for the comment which EPA construes as supportive. To the extent the comment is suggesting the CWA is the primary authority for EPA to establish the TMDL, including the definition of “waters of the United States,” EPA agrees. EPA agrees that protection of headwater streams and wetlands is important. EPA notes that this TMDL is not directed at pathogens or drinking water protection directly, but that efforts to reduce nutrients and sediments should have indirect benefits such as providing greater drinking water protection. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in

response to comment number 0293.1.001.014.

Comment ID 0554.1.001.024

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

EPA can and must establish categorical protection for tributaries covered under current rules. Still-applicable regulations of EPA and the Corps include tributaries of other specified regulated "waters of the United States," without qualification.[FN142] These regulations remain in effect.[FN143] Relevant Supreme Court law affirms that EPA still has ample basis to continue regulation of all tributaries in the Bay under current rules. The Supreme Court has never issued a holding limiting the jurisdictional status of tributaries. Rapanos involved water bodies that had been deemed jurisdictional under the provision of the Corps' regulations governing adjacent wetlands.[FN144] Likewise, SWANCC involved "isolated" ponds [FN145] and therefore the provision of the rules governing "other waters."[FN146] Neither case ruled on the legality of the separate regulatory provision providing for jurisdiction over tributaries.

A careful analysis of the various opinions in Rapanos reveals that a majority of the Supreme Court did not vote to limit the regulatory protection for tributaries. The dissent clearly does not call into question the regulation of tributaries. [FN147] Nor does Justice Kennedy assert categorical regulation of tributaries is no longer permissible.[FN148] Justice Kennedy only expresses concern about categorically extending jurisdiction to all wetlands that are adjacent to any waters that meet the regulatory definition of tributaries. Specifically, he writes:

[T]he breadth of this standard - which seems to leave wide room for the regulation of drains, ditches, and streams remote from any navigable-in-fact waters and carrying only minor water volumes towards it - precludes its adoption as the determinative measure of whether wetlands are likely to play an important role in the integrity of an aquatic system comprising navigable waters as traditionally understood.[FN149]

Justice Kennedy further elaborated upon his position regarding the regulation of tributaries in a discussion pertaining to the concept of "ordinary high water mark" (OHWM) as an indication of the Corps' jurisdiction:

This standard presumably provides a rough measure of the volume and regularity of flow. Assuming it is subject to reasonably consistent application, it may well provide a reasonable measure of whether specific minor tributaries bear a sufficient nexus with other regulated waters to constitute "navigable waters" under the Act.[FN150]

By contrast, Justice Kennedy said the existence of an OHWM in the tributary would not be a basis for finding a nexus for any adjacent wetland: "the breadth of this standard . . . precludes its adoption as the determinative measure of whether adjacent wetlands are likely to play an important role in the integrity of an aquatic system. . . ."[FN151] Thus, Justice Kennedy did not vote to upset the regulations' categorical protection for tributaries. As such, there is no majority decision that limits jurisdiction over such tributaries, and EPA may, and should, continue to fully regulate tributaries in the Bay watershed under the CWA.[FN152]

6. EPA Can and Must Use the Significant Nexus Test to Categorically Protect the Bay Watershed's Wetlands that are Adjacent to Non- Navigable Streams.

Justice Kennedy, in spelling out how the "significant nexus" standard should work in practice, intended for the agencies to have the ability to continue to protect wetlands when they collectively affect water quality, and to apply that protection to all similar water bodies across a significant region. His opinion says:

[W]etlands possess the requisite nexus, and thus come within the statutory phrase ‘navigable waters,' if the wetlands, either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as ‘navigable.'[FN153]

He further states that:

Through regulations or adjudication, the Corps may choose to identify categories of tributaries that, due to their volume of flow (either annually or on average), their proximity to navigable waters, or other relevant considerations, are significant enough that wetlands adjacent to them are likely, in the majority of cases, to perform important functions for an aquatic system incorporating navigable waters.[FN154]

Finally, he notes that:

Where an adequate nexus is established for a particular wetland, it may be permissible, as a matter of administrative convenience or necessity, to presume covered status for other comparable wetlands in the region.[FN155]

These important aspects of Justice Kennedy's opinion provide EPA ample basis to categorically protect headwater wetlands throughout the Bay watershed.[FN156]

Foremost, in determining whether wetlands have a "significant nexus" to traditionally navigable waters, Justice Kennedy, in his opinion in Rapanos, stressed the importance of examining the collective impacts of wetlands on traditionally navigable waters as well as the impact of an individual wetland on a traditionally navigable water. For instance, Justice Kennedy stated wetlands have a significant nexus to traditionally navigable waters when "either alone or in combination with similarly situated lands in the region" the wetlands significantly affect the chemical, physical, and biological integrity of traditionally navigable waters.[FN157] Similarly, he said it would be appropriate to presume, once a significant nexus was determined for a particular wetland, that other comparable wetlands in the region also have a "significant nexus" to traditionally navigable waters.[FN158]

Justice Kennedy's appreciation of the cumulative impacts smaller waters can have on traditionally navigable waters is apparent in a portion of his opinion where he described the hypoxia event in the Gulf of Mexico, in which the loss and degradation of countless small streams and wetlands in the Upper Mississippi basin have collectively contributed to increased nutrient levels in the Mississippi River that annually cause a dead zone in the Gulf which can approach the size of Massachusetts and New Jersey.[FN159] In that portion of his opinion, Justice Kennedy was concerned with aggregate effects on a relatively large regional scale.

While Justice Kennedy not did mention the Chesapeake Bay watershed, it would have been an equally apt example. Like the Gulf of Mexico, the Bay experiences an enormous annual dead zone caused by nutrient loading from upstream sources. In a typical year, the amount of nutrient loading entering the Chesapeake Bay and its rivers during the spring largely drives the size of the dead zone.[FN160] Nutrient loading of nitrogen and phosphorous in the spring causes

summertime algal blooms that consume oxygen during decomposition and result in severe depletion (hypoxia) or even the complete absence (anoxia) of oxygen in the water column. These hypoxic areas are commonly referred to as "dead zones" because the low levels of oxygen are not sufficient to support aquatic life. "The natural factors that make the bay susceptible to oxygen depletion include its deep central channel, which acts as a basin to contain the dense, low-oxygen waters; the bay's high ratio of watershed area to volume, leading to large nutrient exports from the watershed into a limited volume of receiving water; and high variability of freshwater flow."[FN161] Thus, nutrient loading from headwater wetlands and streams are a particularly important factor in the Chesapeake Bay dead zone. In fact, the dead zone in the Chesapeake Bay is among the worst in the nation, comprising more than of third of the entire Bay in July 2005, and is proportionately worse than that in the Gulf of Mexico based on watershed area and population.[FN162]

As explained above, science overwhelmingly demonstrates the cumulative significant impacts upper reach waters have on downstream water integrity generally and in the Bay watershed. Science shows that aggregating impacts for similarly situated wetlands demonstrates that such waters have a significant impact on the chemical, physical, and biological integrity of downstream navigable waters. As such, in accordance with Justice Kennedy's opinion, it is necessary to aggregate the impacts of such waters in the Bay to determine the true significance of their cumulative impact on downstream waters.[FN163] As importantly, doing so will show that CWA must categorically apply to these waters throughout the Bay's watershed.[FN164]

7. EPA Must Apply Current Regulatory Provisions to Protect So-Called "Isolated" Waters in the Bay.

As noted above, an estimated 35-39 percent of the wetland acreage in the U.S. Fish and Wildlife Service's Upper Delmarva Potholes (or Bays) study area was designated "isolated" (many of these wetlands were likely to have groundwater connections to streams). This figure suggests a significant percentage of Chesapeake Bay watershed wetlands could be deemed "isolated," and not subject to CWA protections, particularly if hydrological and biological connections are missed or discounted. Yet, as explained above, these so-called "isolated" wetlands play an important role in maintaining the integrity of downstream waters. As Justice Kennedy explained in Rapanos, "[g]iven the role wetlands play in pollutant filtering, flood control, and runoff storage, it may well be the absence of hydrologic connection (in the sense of interchange of waters) that shows the wetlands' significance for the aquatic system."[FN165]

EPA can and must assert jurisdiction over so-called "isolated" waters in the Bay based on existing regulations still in place that have not been overturned.[FN166] Additionally, while the Rapanos decision dealt with wetlands adjacent to certain non-navigable tributaries and there is no explicit ruling in Rapanos that would limit jurisdiction over other waters, Justice Kennedy gave strong indications that so-called "isolated" waters with a "significant nexus" to traditionally navigable waters are jurisdictional. In Rapanos, Justice Kennedy explicitly stated that it was his view that the holding of SWANCC imposed a "significant nexus" test to establish jurisdiction "under the circumstances presented" in SWANCC.[FN167] Since SWANCC concerned so-called "isolated" waters, it is logical to conclude that Justice Kennedy would find that such waters that do in fact possess a "significant nexus" to traditionally navigable waters are jurisdictional under the Act. Justice Kennedy's statement that waters may have the requisite "significant nexus" despite the lack of a hydrological connection to other waters further indicates that the significant nexus test he sets forth may apply to geographically isolated waters.

8. EPA Can Make Region-Wide Jurisdictional Determinations on a Region-wide and Categorical Basis Using Special Case Authority.

As stated above, EPA has "the final administrative authority" "to determine the reach of the term ‘navigable waters'" under the CWA.[FN168] Given EPA's ultimate authority to determine the geographic jurisdictional scope of waters of the United States, the Corps and EPA set forth an agreement in 1989 (the 1989 MOA) setting up a process by which EPA may "special case" waters, declaring them to be covered under the CWA as "waters of the United States."[FN169] This power is broad, and it can be applied on a generic and regional basis. EPA, using the legal tools available in the Rapanos decision and in the current regulations described above, should exercise its special case authority to declare that headwaters and isolated waters in the Bay's basin are categorically protected under the CWA.

Pursuant to the EPA's "ultimate authority" and the Corps' role in administering the Section 404 permitting program, the agencies agreed in the 1989 MOA that while the Corps would "perform the majority of the geographic jurisdictional determinations," the "EPA will be considered the lead agency and will make the final decision if the agencies disagree."[FN170] The 1989 MOA allows EPA to use "special case" authority "where EPA makes the final determination of the geographic jurisdictional scope of waters of the United States."[FN171]

Special case authority gives EPA near plenary power to make final decisions not just about specific jurisdictional determinations, but also about decisions related to specific guidance, interpretations of guidance or regulations, or other decisions affecting any jurisdictional question.[FN172] Special cases may be designated as "project-specific" or "generic" "where significant issues or technical difficulties are anticipated or exist, concerning the scope of waters the United States for purposes of Section 404 and, where clarifying guidance is likely to be needed."[FN173] It further allows that "[g]eneric special cases will be designated by easily identifiable political or geographic subdivisions" - like, for instance, the Chesapeake Bay watershed.[FN174] Thus, EPA can make special case determinations "generically" without a specific project, and can do so on a regional or geographic basis.

This authority neatly coincides with tools provided in Justice Kennedy's opinion to give EPA ample latitude to categorically protect certain waters throughout the Bay's watershed. Moreover, given that special case authority can be exercised generically, EPA can bring about such protections without a specific project or applicant request for a jurisdictional determination and could certainly do so in the context of the TMDL.

[FN142] 40 C.F.R. § 122.2; 33 C.F.R. § 328.3(a)(5).

[FN143] Only the Eleventh Circuit has found that non-navigable tributaries must be regulated via a case-by-case application of the significant nexus test. United States v. Robison, et al., 505 F.3d 1208 (11th Cir. 2007), cert. denied, 129 S. Ct. 627 (2008). No other circuit court - including any circuit with jurisdiction over Bay watershed states - has concluded that tributaries cannot be fully regulated under the current rules.

[FN144] See Rapanos, 547 U.S. at 730 (describing lower court decisions as upholding jurisdiction based on adjacency).

[FN145] SWANCC, 531 U.S. at 171.

[FN146] See id. at 174 ("We hold that 33 CFR § 328.3(a)(3) (1999) [the ‘other waters' provision], as clarified and applied to petitioner's balefill site pursuant to the ‘Migratory Bird Rule,' 51 Fed. Reg. 41217 (1986), exceeds the authority granted to respondents under § 404(a) of the CWA.").

[FN147] Rapanos, 547 U.S. at 788 (Stevens, J., dissenting) ("The Corps' resulting decision to treat these wetlands as encompassed within the term ‘waters of the United States' is a quintessential example of the Executive's reasonable interpretation of a statutory provision.").

[FN148] Justice Kennedy's opinion limited his basis for remand to the lower court to the question of "whether the specific wetlands at issue possess a significant nexus with navigable waters." 547 U.S. at 787. This contrasts with the plurality's broader basis for remand to determine "whether the ditches and drains near wetlands are ‘waters,'" and "whether the wetlands in question" are also jurisdictional. Id. at 757. This contrast is further indication Justice Kennedy would not require a case-by-case significant nexus determination for tributaries.

[FN149] Id.

[FN150] Id. at 781 (Kennedy, J., concurring) (citation omitted); see also U.S. v. Evans, 2006 WL 2221629, *18 (M.D. Fla. Aug. 2, 2006) (noting this aspect of Justice Kennedy's opinion).

[FN151] Rapanos, 547 U.S. at 781 (emphasis added).

[FN152] Since Rapanos was issued, some lower courts have - incorrectly we believe - applied the significant nexus to tributaries without any detailed explanation as to whether or not Justice Kennedy (or any other Justice) intended or would support such a result. See, e.g., Robison, supra, (in the context of criminal case, finding the government must demonstrate significant nexus between perennial, non-navigable stream and traditionally navigable water); Environmental Protection Information Center v. Pacific Lumber Co., 469 F. Supp. 2d 803 (N.D. Ca. 2007) (finding that for intermittent and ephemeral streams, "substantial" nexus to downstream navigable waters must be demonstrated for CWA jurisdiction to attach). However, one court found Justice Kennedy's opinion "does not denigrate or even undercut the concept that a seasonal stream could be a water of the United States." United States v. Moses, 496 F.3d 984, 990 (9th Cir. 2007). The Moses court went on to further conclude that "the Supreme Court unanimously agreed that intermittent streams (at least those that are seasonal) can be waters of the United States." Id.

[FN153] Rapanos, 547 U.S. at 780 (emphasis added).

[FN154] Id. (emphasis added).155 Id. at 782 (emphasis added).

[FN156] Justice Kennedy's opinion provides that wetlands adjacent to traditionally navigable waters are presumed to be protected without a case-by-case determination of significant nexus. Id. at 780-81. This is also EPA's position and we request that EPA maintain this correct position.

[FN157] Id. at 780 (emphasis added).

[FN158] Id. at 782.

[FN159] Id. at 777-8.

[FN160] Chesapeake Bay Foundation, 2008 State of Bay Report, available at http://www.cbf.org/Page.aspx?pid=548 (last visited Nov. 1, 2010).

[FN161] Boesch, et al., at 3.

[FN162] See Bricker, S., et al, Effects of Nutrient Enrichment In the Nation's Estuaries: A Decade of Change, NOAA Coastal Ocean Program Decision Analysis Series No. 26 (2007).

[FN163] NWF believes that EPA can protect all important tributaries in the Bay under existing regulations. However, aggregation of similarly situated tributaries in the Bay would also clearly support an EPA decision to categorically protect all important tributaries in the Bay.

[FN164] Current regulations define adjacent wetlands to mean "bordering, contiguous, or neighboring. Wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like." 33 C.F.R. § 328.3(a)(3). This regulatory definition of "adjacent" was endorsed by Justice Kennedy and not disturbed by the Rapanos decision. 547 U.S. at 775. This regulatory definition should be used by EPA in making a watershed-wide, categorical determination to protect the Bay's headwaters.

[FN165] 547 U.S. at 786 (Kennedy, J., concurring).

[FN166] 33 C.F.R. § 328.3(a)(3); 40 C.F.R. § 122.2. It should be noted that the Fourth Circuit has found regulation of waters under this regulatory provision to be impermissible. United States v. Wilson, 133 F.2d 251 (4th Cir. 1997).

[FN167] Rapanos, 547 U.S. at 759 ("In Solid Waste Agency of Northern Cook Cty. v. Army Corps of Engineers, 531 U.S. 159, 121 S. Ct. 675, 148 L.Ed.2d 576 (2001) (SWANCC), the Court held, under the circumstances presented there, that to constitute '"navigable waters"' under the Act, a water or wetland must possess a 'significant nexus' to waters that are or were navigable in fact or that could reasonably be so made.").

[FN168] 43 US Op. Atty. Gen. 197 (Sep. 5, 1979).

[FN169] Environmental Protection Agency & U.S. Army Corp of Engineers, Memorandum of Agreement between the Department of the Army and the Environmental Protection Agency Concerning the Determination of the Section 404 Program and the Application of the Exemptions Under Section 404(F) of the Clean Water Act, at § I (Jan. 19, 1989).

[FN170] Id. at § II.171 Id. at § III(A).

[FN172] Id. at § III.

[FN173] Id. at §III(A)

[FN174] Id. (emphasis added).

Response

Thank you for the comment which EPA construes as supportive. To the extent the comment is suggesting the CWA is the primary authority for EPA to establish the TMDL, including the definition of "waters of the United States," EPA agrees. EPA agrees that protection of headwater streams and wetlands is important. The TMDL does not by itself expand or otherwise modify the scope of the definition of waters of the United States or EPA's authority thereunder or represent a separate determination of how EPA uses that term. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0569.1.001.002

Author Name: Blackwood Wade

Organization: American Canoe Association

I. Interests of Commenter

The ACA is a national nonprofit membership organization for canoeing, kayaking, rafting and paddling safety. ACA's members are individual canoeists, kayakers, rafters, and the paddling clubs to which they belong. ACA has regional divisions throughout the U.S., and 40,000 members in the U.S., Canada and overseas.

II. Comments

The American Canoe Association is a part of the Choose Clean Water Coalition, which will be submitting detailed comments on the draft TMDL. ACA has joined these comments, and we urge EPA to review them carefully and adopt the recommendations contained therein.

We are writing separately to provide a few additional comments unique to the ACA and the recreational paddling community. The ACA has thousands of members in the Chesapeake Bay watershed, and we also represent many thousand others who are not members of the ACA but who enjoy paddling the waters of the Bay region. Because of the nature of our sport, we have direct contact with the waters of the Bay. Consequently, we have a strong interest in protecting and improving water quality.

Recreational paddling and other water-based activities play a prominent role in the lifestyles of the citizens of the Chesapeake Bay watershed. Many people live here because they like to paddle, fish, swim, sail and water ski in the Bay and its tributaries. Because of their connections to the water, the health of the Bay has an impact on the quality of life for the region's citizens.

In addition to the area's residents, many people travel to the region to take advantage of the Bay's recreational opportunities. Recreation-based tourism makes a significant and sustainable contribution to the region's economy. As the Bay's health deteriorates, fewer and fewer people will come here, and our economies will suffer. Strong action to improve water quality is needed if we are to continue to benefit from the economic activity generated by tourism in the Bay region.

No user group has a more intimate relationship with the waters of the Bay and its tributaries than the canoeists and

kayakers who paddling these waters. Our sport puts us right down on and often in the water, and most paddlers get at least a little wet every time they paddle. While the region's waters may seem visibly cleaner than in the past, the invisible problems also have a big impact on the user experience. Increased nutrient loads cause algal blooms and runaway growth of invasive species like Hydrilla, and in places where this occurs, the user experience for paddlers is completely destroyed. Other invisible problems can actually harm paddlers. Although no scientific data is available, we have anecdotally seen an increase in the number of paddlers who have gotten sick after contact with the Bay's waters. Unless action is taken, we expect this trend to continue.

Of course, we also know that marine life has been adversely affected. The populations of the Bay's signature species (oysters, blue crabs) have dramatically fluctuated, mostly trending downward. In addition, scientists have seen a range of illnesses and biological disruptions in fish and other species, conditions that are caused by poor water quality and the presence of complex compounds in Bay waters. This is a great tragedy, because without wildlife, the user experience on the Chesapeake loses its essential character.

The ACA's interest in improving water quality was our primary motivation for filing a lawsuit against the EPA in 1997, seeking to compel EPA to direct the state of Virginia to develop TMDLs for the state's rivers and streams, both within and outside of the Bay watershed. Our lawsuit and consent decree have brought about improvements in the state's water quality, but the job is nowhere near done.

We believe the development of a Bay-wide TMDL to be legally required by provisions of the Clean Water Act that have been in place for more than thirty years. We also believe it is required by our consent decree with EPA, combined with the consent decrees governing the waters of the District of Columbia [FN1] and Delaware, [FN2] and the Memorandum of Understanding signed by EPA and the State of Maryland in 1998. We urge the EPA to fulfill its obligations and adopt a strong TMDL for the Bay.

We were deeply disappointed to learn that some of the Watershed Implementation Plans offered by the states are flawed and unlikely to produce improvements in water quality at the pace required by the Clean Water Act, the consent decrees and the Chesapeake Bay agreements. We urge the EPA to use the authority it has to require the states to adopt meaningful and effective implementations plans that will meet or exceed water quality standards for the Bay.

[FN1 (Kingman Park Civic Association v EPA, 84 F. Supp. 2d 1 (D. DC 1999).
[FN2] American Littoral Society, et al. v. EPA, et al., No. 96-330 (D. Del.).

Response

Thank you for the comment that EPA construes as largely supportive. EPA notes that the State Final Phase I WIPs are stronger than the draft Phase I WIPs overall. Please see Section 8 of the TMDL for further discussion. For a comprehensive discussion of legal issues including the relation of the WIP to allocations see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0569.1.001.004

Author Name: Blackwood Wade

Organization: American Canoe Association

2. The Coalition's comments set forth a compelling argument that EPA has both the legal authority and a legal obligation to develop a Bay-wide TMDL. Section 303(d) of the Clean Water Act requires states to develop TMDLs that meet applicable water quality standards, and also requires EPA to step in and do so if a state is not able to satisfy this obligation. This requirement has been in place for more than thirty years. The consent decrees in the court cases confirm this obligation.

Response

Thank you for the comment that EPA construes as supportive. EPA agrees that establishment of this TMDL is in accordance with and in fulfillment of the requirements of the Consent Decree settling American Canoe Ass'n v. EPA, (Virginia TMDL program).

Comment ID 0571.1.001.002

Author Name: Rountree Glynn

Organization: National Association of Home Builders (NAHB)

The Unfunded Mandates Reform Act of 1995 (UMRA) directs agencies "unless otherwise prohibited by law [to] assess the effects of Federal regulatory actions on State, local, and tribal governments, and the private sector..."[FN 1] Section 202(a)(2) of the act directs agencies to provide a qualitative and quantitative assessment of the anticipated costs and benefits of a federal mandate resulting in annual expenditures of $100 million or more -- including the costs and benefits to state, local, and tribal governments or the private sector.[FN 2] Sections 203 and 204 also require EPA to develop a plan to notify potentially affected small governments, thus enabling them to provide meaningful and timely input on EPA's regulatory proposals having significant federal mandates.[FN 3] This allows affected small governments to develop an effective process for elected state, local, and tribal government officers to likewise provide meaningful and timely input.[FN 4] The docket confirms these inadequacies, as it contains no mention of a Section 203 plan and provides no indication that any notification has taken place. Given that the proposal will cost federal, state and local governments billions of dollars, the failure to properly notify and solicit input from these affected entities is unacceptable. EPA is strongly urged to immediately inform all affected government entities and provide them with sufficient information and time to fully understand the proposal and its EPA has failed to follow any of these steps. While the proposal's Appendix C lists numerous meetings that have been held on the Chesapeake Bay efforts, none were specific to discussing the impact of the TMDL on state and local entities. Furthermore, meetings in Appendix C date back to 2005. Meetings held years ago cannot be held forth as substitutes for timely input by affected small businesses in 2010.

The docket confirms these inadequacies, as it contains no mention of a Section 203 plan and provides no indication that any notification has taken place. Given that the proposal will cost federal, state and local governments billions of dollars, the failure to properly notify and solicit input from these affected entities is unacceptable. EPA is strongly urged to immediately inform all affected government entities and provide them with sufficient information and time to fully

understand the proposal and its implications, to develop estimates of the costs associated with administration and compliance, and to prepare and submit meaningful comments.

While EPA may have a legal obligation to develop a TMDL for the Bay, neither the court directive nor the Clean Water Act (CWA) negates the need to comply with the procedural rules set out by the UMRA or the need to adopt a rule that can be effectively implemented. EPA must correct these deficiencies and provide an opportunity for the public to review and critique its data prior to rule adoption.

[FN 1] 2.U.S.C. § 1531.

[FN 2] Id. at § 1532(a)(2).

[FN 3] Id. at §§ 1533, 1534.

[FN 4] Id. at § 1534(a).

Response

Thank you for the comment. EPA notes that a TMDL is not a rule or regulation and therefore is not subject to the requirements cited by the commenter. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0571.1.001.006

Author Name: Rountree Glynn

Organization: National Association of Home Builders (NAHB)

I. EPA Has Wrongfully and Unfairly Truncated the Rulemaking Process.

EPA and the states must follow a reasonable process to develop and finalize the TMDL and its implementation plans. A reasonable process is one that provides broad and meaningful opportunities for public input both during program development and implementation. Unfortunately, EPA has demonstrated that it has lost interest in receiving meaningful stakeholder input on its proposals. While still going through the motions of listening to stakeholder concerns, the agency has reduced the opportunities for stakeholders to comment on the agency's actions by creating increasingly short public comment periods on large, complicated, thousand-page proposals that do not allow stakeholders to study the proposals or develop meaningful input. In fact, many of the agency's new regulatory requirements are dressed up as "guidance" for MS4s, which effectively negates any opportunity for input at all. In addition to providing insufficient time for review, the agency is contemplating finalizing the rule using invalid modeling. Neither approach is appropriate or acceptable.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0571.1.001.011

Author Name: Rountree Glynn

Organization: National Association of Home Builders (NAHB)

II. EPA's TMDL Authority is Limited

EPA claims broad CWA authority as the basis for its development of the Chesapeake Bay TMDL. Contrary to this assertion, NAHB contends EPA is overstepping its authority to develop and direct the implementation of the comprehensive TMDL and to require, approve, or modify state WIPs.

a. States Retain Primary Authority To Develop TMDLs.
Under Section 303(d) of the CWA, states are responsible for developing TMDLs for all impaired waters. The TMDLs are to be set at levels that will allow the waters to meet applicable water quality standards. EPA is required to review and approve or disapprove the TMDLs and to establish TMDLs if a state fails to do so.[FN 11] However, EPA goes too far in its present actions that override the state responsibility to meet the TMDL's requirements in the best fashion for the state. EPA has overstepped its authority in assigning "backstop allocations" to the state WIPs while providing no justification for the need to do so, or justification for the very stringent requirements of the backstop allocations. EPA should judge the actions of the state against the requirements of the TMDL, not assume authority for developing "sufficient" WIPs for the states.

b. The CWA Does Not Confer Implementation Authority To EPA. Section 303(d) of the CWA does not specifically require implementation plans for TMDLs.[FN 12] Recognizing this, in 2000, EPA attempted to enact a new requirement by issuing regulations that would have required each TMDL to include an implementation plan.[FN 13] Congress subsequently blocked implementation of those regulations however, and eventually EPA withdrew them.[FN 14] As a result, implementation plans, including their approval or disapproval, remain outside the bounds of the TMDL and outside the authorities of EPA. As the Ninth Circuit noted, "States must implement TMDLs only to the extent that they seek to avoid losing federal grant money; there is no pertinent statutory provision otherwise requiring implementation of §303 plans or providing for their enforcement."[FN 15]

Under the proposed TMDL, the WIPs ultimately serve as the TMDL implementation plans for each state. Despite the directives above and EPA's admission that, "The WIPs are part of the accountability framework meant to implement the Chesapeake Bay TMDL, but they are not part of the TMDL itself,"[FN 16] the agency insists it has authority over their approval and disapproval. This interpretation is overly broad and inconsistent with the statute. In an attempt to further skirt the issue, EPA points to Section 117(g) of the CWA [FN 17] and Executive Order 13508 [FN 18] as ways to claim jurisdiction. Neither passes muster. First, when it enacted the Chesapeake Bay Restoration Act of 2000 and Section 117(g), Congress never intended to create any new regulatory powers. The legislative history reads,

"(g) Chesapeake Bay Program.-

(1) Management Strategies.-Directs EPA, in coordination with other members of the Council, to ensure that management plans are developed and implementation is begun by signatories to the Chesapeake Bay Agreement to achieve the goals of that Agreement. The Committee expects EPA to meet the requirements of this paragraph through the award of implementation grants under subsection (e). Nothing in the Chesapeake Bay Restoration Act provides EPA with any additional regulatory authorities."[FN 19]

Clearly, Congress did not grant EPA any new authority under CWA Section 117(g) to approve, disapprove, or change state TMDL implementation plans or WIPs.

Second, EPA points to the language in the Executive Order that "directs EPA and other federal agencies to build a new accountability framework that guides local, state, and federal water quality restoration efforts."[FN 20] Because the Executive Branch lacks the authority to create new obligations and only has the power to implement the laws passed by Congress, an Executive Order cannot be used to supersede the authorities granted by law. As such, EO 13508 cannot be construed to direct or allow EPA to maintain authorization oversight of the state WIPs.

Finally, because it lacks authority over the WIPs, EPA cannot require states to include specific requirements within those implementation plans or threaten action if they don't. Indeed, nothing in the CWA or EPA regulations gives EPA the authority to compel state regulatory action. EPA, however, has taken a different tack. In addition to claiming authority over WIP approval and disapproval, EPA has outlined various actions that it could take against states whose WIPs are deem unsatisfactory. The CWA is clear that, once authorized, states are responsible for implementing the various water quality programs outlined in the CWA. While EPA may provide guidance for how these programs may be administered, it cannot dictate how they will run or specify how water quality standards are to be met. Instead, if EPA does not believe that a state is properly administering a CWA program, the CWA allows the agency to withdraw that state's authority. Period. EPA retains no authority to limit funding, withhold permits, reallocate pollutant loads, or increase enforcement if it disagrees with a state WIP. EPA is strongly urged to reassess its duties pursuant to the TMDL and rely on only those conferred via the CWA.

[FN 11] 33 U.S.C. § 1313(d).

[FN 12] U.S. Environmental Protection Agency, Overview of Impaired Waters and Total Maximum Daily Loads Program, accessed at http://www.epa.gov/owow/TMDL/overviewoftmdl.html, on November 2, 2010.

[FN 13] 65 Federal Register 43,586 (July 13, 2000).

[FN 14] See P.L. 106-246 and 68 Federal Register 13,607 (March 19, 2003).

[FN 15] Pronsolino v. Nastri, 291 F.3d 1123, 1140 (9th Cir. 2002).

[FN 16] Draft TMDL, at 1-2.

[FN 17] See Draft TMDL, at 1-12 ("The accountability framework is also being established pursuant to CWA section 117(g)(1)"). Specifically, EPA is relying on language in section 117(g) that states that "the Administrator, in coordination with other members of the Chesapeake Executive Council, shall ensure that management plans are developed and implementation is begun by signatories to the Chesapeake Bay Agreement…."

[FN 18] Draft TMDL at 1-12.

[FN 19] H.R. Rept. No. 550, 106th Cong., 2d Sess., at 3 (2000) (emphasis added).

[FN 20] Draft TMDL at 1-12.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0571.1.001.015

Author Name: Rountree Glynn

Organization: National Association of Home Builders (NAHB)

IV EPA Has Failed to Provide Cost Data or Identify Funding Sources.

To be effective, the TMDL and its implementation plans must optimize costs and benefits and be designed to be implemented using available resources. To date, however, it is unclear that the proposal meets any of these goals, as EPA has included little data or information regarding how much the TMDL will cost or how its implementation will be funded. Absent this information, the public is at a loss to fully understand the overall plan or provide meaningful input. EPA should plan now to begin a Use Attainability Analysis for the Chesapeake Bay in anticipation that the TMDL that it has proposed will prove to be unaffordable given the economic condition of the affected states and the level of the national debt.

a. EPA Must Complete a Comprehensive Cost Analysis.

EPA's proposed TMDL will have large negative impacts on the home building industry, the home-buying public, construction industry jobs, and state and local governments because of the unprecedented requirements generated without consideration of the social costs on the affected states. While EPA is quick to point out that the agency is not legally obligated to do a cost analysis for a TMDL, anyone who has had a hint of the potential cost of the new requirements will agree that a cost analysis is deserved for those who must foot the bill in these difficult economic times. A full cost analysis is also necessary because of the number of unique factors associated with the proposed Chesapeake Bay TMDL, including:

o It is unprecedented in size and scope, as it extends over portions of six states and Washington, DC, an area of 64,000 square miles, a total of 92 watersheds, and 17 million inhabitants;
o EPA expects it to be held up as a model for similar nutrient reduction programs that will occur around the country;
o EPA is imposing an indisputably heavy hand in this proposal regarding state decision-making over land use, use of state finances, the stringency of state WIPs developed to meet the rule, and other matters that have traditionally been

left to the states;
o EPA intends to hold the states, municipalities, NPDES permit holders, and citizens responsible if the states do not live up to EPA's vision of complete compliance with the proposed rule; and
o The stringency of the new pollutant reduction requirements will significantly strain the already challenged state and local government budgets and may simply be unaffordable for the states and localities covered by the rule.

Obviously, the scope and the many unique features of the proposed rule alone constitute sufficient reason to conduct a comprehensive cost/benefit analysis. When coupled with EPA's stated expectation that everyone will need to do "everything" to meet the rule's provisions, the affected parties, including states, communities, industry stakeholders, and the citizens, deserve to know what the expected level of sacrifice will be required from them. A cost analysis must be done.

1. Overall Impact on Small Business

The Draft TMDL for the Chesapeake Bay is contrary to law, as EPA has failed to assess the economic impacts of the rule on small entities and publish a regulatory flexibility analysis (RFA). [FN 26] EPA's RFA omissions are troublesome considering the Bay TMDL will be the largest, most complex TMDL in the country, affecting hundreds of thousands of small entities. An economic analysis is particularly important in light of the severe financial difficulties facing small entities in the TMDL coverage area. In addition, EPA's actions are inconsistent with the Obama Administration's open government directive to federal agencies calling for specific actions to ensure the public trust and create a system of transparency, public participation and collaboration.[FN.27] Because EPA is planning to finalize the Bay TMDL by December 2010, EPA must conduct an RFA analysis and revise the TMDL appropriately or exclude small entities from its coverage.

It is anticipated that EPA will allege the Bay TMDL does not impose a burden on small entities because it sets water quality limits backed by an accountability framework but leaves the states responsible for determining how to obtain the reductions, including which entities to regulate and to what extent. NAHB rejects this position. The Bay TMDL constitutes a "rule" subject to the RFA. This is so because the Bay TMDL, which sets limits on nitrogen, phosphorous and sediment throughout a 64,000-square-mile watershed and imposes two-year commitments, close monitoring and, if necessary, federal accountability measures to spur progress, is a legal prescription of general and prospective applicability issued by EPA to implement CWA water quality standards. By authorizing modification of certain discharges, the Bay TMDL imposes obligations and legal consequences that otherwise did not apply to small businesses. For example, perceived deficiencies in the majority of draft pollution reduction plans submitted by the Bay states and District of Columbia have led EPA to replace jurisdictions' proposed point source allocations with more stringent federal "backstop allocations" covering wastewater treatment plants, stormwater permits and animal agricultural operations.[FN 28] If states fail to revise their WIPs to achieve the basin-jurisdiction allocations and provide a high level of assurance for achieving the allocations, EPA's proposed water quality standard daily load limits will take effect. Small NPDES permitted entities listed in Appendix R of the proposal, including Country View Family Farms, Armetta's Pizzeria, Inc., the Carlson Small Flow Treatment Facility and other small entities, may be held to a more stringent permitting standard as a result.[FN 29]

The RFA, as amended by the Small Business Regulatory Enforcement Fairness Act, imposes both analytical and procedural requirements on EPA including: (1) identifying the small entities that will be affected; (2) analyzing and understanding the economic impacts that will be imposed on those entities; and (3) considering alternative ways to

achieve their regulatory goals while reducing the economic burden on those entities.[FN 30] NAHB anticipates EPA will claim it is not required to engage in this process because RFA only applies to rules for which an agency publishes a notice of proposed rulemaking.[FN 31] As detailed above, however, the TMDL will have a direct economic impact on a significant number of small entities. It is inconsequential that EPA failed to issue a notice of proposed rulemaking pursuant to APA's rulemaking provision. A rule is a rule, no matter how it is dressed up. On Sept. 17, 2009, EPA published in the Federal Register (FR) a "Notice and Initial Request for public input" announcing its intent to establish a bay-wide TMDL.[FN 32] This was followed by a FR "Notice of Availability of the Draft TMDL and request for public review and comment on the Draft TMDL" on Sept. 22, 2010.[FN 33] EPA is accepting public comment on the Bay TMDL and is soliciting input from the public relevant to the development of the Final Bay TMDL. Although EPA has not issued a notice of proposed rulemaking, courts have not hesitated to consider an agency pronouncement issued without meeting every APA requirement a rule.[FN 34]

The Code of Federal Regulations at 40 CFR § 130.6 requires the state's water quality management plan ("WQMP") to include TMDLs, economic analysis, "the financial and institutional measures necessary for implementing recommending solutions", and a fiscal analysis regarding stormwater. The Bay TMDL augments the six Bay states and District of Columbia Water Quality Management Plans, yet nothing in the Bay TMDL, or any of its supporting documentation, discusses the financial and institutional measures for achieving the Bay TMDL. As noted above, the impacts will be severe and significant. As such, NAHB urges EPA to conduct a comprehensive economic assessment and RFA analysis to ensure that the final TMDL is economically workable and affordable.

2.Impact on The Residential Construction Industry and Housing

The costs of the TMDL will be borne by the construction industry in the form of land, planning, and carrying costs; installation and maintenance of BMPs; and, in affected states that have no pollutant allocation set aside for future growth, the requirement to offset all pollutant loadings from new construction activities. These will ultimately be felt in the market as a combination of higher prices and lower output for the construction industry. As output declines and jobs are lost in the construction industry, other sectors of the economy that buy from or sell to the construction industry will also contract and lose jobs. Builders and developers already are being crippled by the economic downturn and the ability of the home-buying public to absorb significant new costs and the TMDL will further exacerbate these challenges. Further, because compliance costs are incurred prior to the home sales, builders and developers will be required to pay carrying costs, which add additional cost to projects. Because the vast majority of our membership consists of small businesses, even moderate cost increases or variations between regulatory options can have dramatic and significant negative market impacts.

The costs associated with the TMDL will keep thousands of potential home buyers out of the market and is likely to lead to increased unemployment and very hard choices for the limited funds available to the affected states. We also note that if EPA proceeds with the hiring of an "Independent Evaluator" (though this initiative was completely unaddressed in the proposal) the Evaluator will have the power to punish states for not raising sufficient funds to meet the TMDL's goals for that state, but the Evaluator will have no responsibility for considering the state's other needs to ensure that the schools continue to function, police and fire protection are afforded the populace, and that the poor are fed.

This rulemaking also promises significant consequences for commercial builders, contractors, proponents of public infrastructure projects, and virtually any facility operator that is contemplating expansion. There will be serious ramifications and unintended negative consequences for state and local governments responsible for completing their

own construction projects, while also overseeing the implementation of the TMDL through the state and local permitting programs.

3. Impact on State and Local Governments

It is uncertain how much of the cost burden will fall on state and local governments, but preliminary estimates suggest compliance costs in the tens of billions of dollars [FN 35]. In addition, state and local government employee time required to implement the proposed regulation has not yet been estimated credibly by EPA. It is expected that the administrative burden to State and local governments for implementation and enforcement will approach a million hours per year, requiring the equivalent of approximately 500 new full-time staff. This significant new manpower requirement comes at a time when State and local governments are having extreme difficulty in finding funds to continue paying their current staff.

We refer you to the comments of Ms. Penelope A. Gross, submitted on Oct. 14, 2010 to the TMDL docket (comment number 0052):

For most local governments, the most direct impact is MS4 permits, combined stormwater permits where the TMDL may require retrofits, but says nothing about how local governments will pay for them. EPA needs to tell the states that they have an obligation to provide funding if they require major retrofits at the local level. For that matter, EPA says nothing about federal funding to help meet requirements of the TMDL. They do not understand the implications that local governments may, indeed will, have to raise taxes to meet the requirements, and the issues that raises with local taxpayers.

No matter how laudable the intentions behind the development of the Chesapeake Bay TMDL program, the most certain outcome will be another disappointing program failure if indifference at the federal level to economic and fiscal impacts continues. If concerns relating to costs are not analyzed and addressed at the early stages of this initiative, the entire program will fall under the weight of the economic burdens it will impose upon many local governments and businesses. Furthermore, if we don't have a firm understanding of costs and how the burdens of meeting these costs will be distributed, we don't have a true "partnership."

Ms. Gross is correct. For EPA to blindly propose such extraordinarily expensive, technically risky requirements on the Chesapeake Bay states already near the financial breaking point, EPA again risks total failure of the restoration program.

In another partnership issue, EPA is holding up government agencies as the "leaders" in the new stormwater measures required under the proposal. While these agencies have been subject to stormwater requirements at their facilities that are part of the Energy Independence and Security Act (EISA) since 2007, the TMDL proposal gives those agencies until 2011 to adopt agency policies to begin meeting the EISA provisions.[FN 36] The fact that the agencies have not met their EISA requirements for more four years does not suggest leadership. Why have federal facilities not been subject to meeting the EISA requirements? If the federal agencies are to be held up as leaders in the Chesapeake Bay watershed, will their NPDES permits and their NPDES compliance histories be made public?

b. EPA Must Identify Funding Sources.

It is obvious that neither the localities, the states, nor the federal government has billions of dollars available to throw at this proposal. EPA's entire budget should be examined for programs and funds that can be redirected to restoring the Bay. EPA's salary structure should be examined to bring it in line with what the private sector is paying for similar positions, and those freed up funds directed to the Bay. In short, EPA needs to show innovative thinking in raising funds since traditional funding sources are not available.

[FN 26] Regulatory Flexibility Act of 1980, as amended, 5 U.S.C. § 601 et.seq..

[FN 27] The While House, Office of the Press Secretary, Transparency and Open Government: Memorandum for the Heads of Executive Departments and Agencies, Jan. 21, 2009.

[FN 28] Draft Chesapeake Bay Total Maximum Daily Load, Executive Summary, Section 1-3, p. ii (Sept. 24, 2010).

[FN 29] Draft Chesapeake Bay Total Maximum Daily Load, Appendix Q-R, Table R-1 (Sept. 24, 2010).

[FN 30] 5U.S.C. § 603.

[FN 31] EPA Final Guidance for EPA Rulewriters: Regulatory Flexibility Act, November 2006.

[FN 32] Clean Water Act Section 303(d): Preliminary Notice of Total Maximum Daily Load (TMDL) Development for the Chesapeake Bay, 74 Fed. Reg. 47, 792 (Sept. 17, 2009).

[FN 33] Clean Water Act Section 303(d): Notice of the Public Review of the Draft Total Maximum Daily Load (TMDL) for the Chesapeake Bay, 75 Fed. Reg. 57, 776 (Sept. 22, 2010).

[FN 34] See Nat'l Ass'n of Home Builders v. U.S. Army Corps of Eng'rs, 417 F.3d 1272, 1284 (D.C. Cir. 2005).

[FN 35] Maryland Association of Counties estimate cited in the November 2, 2010 NAHB webinar on "Stormwater Requirements vs. Smart Growth," see www.nahb.org/stormwaterwebinar.

[FN 36] 42 U.S.C. § 17094 (requiring federal development or redevelopment projects that exceed 5,000 square feet to restore or maintain the predevelopment hydrology of the site to the maximum extent technically feasible).

Response

EPA hears the concerns of the commenter, but will not be conducting a cost analysis for reasons discussed in the response to comment 0139.1.001.017. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Federal facilities are working toward implementation of EISA requirements. The implementation process has included development of implementation guidelines, which were issued by EPA in December 2009. Executive Order 13508 has subsequently directed agencies to develop EISA 438-specific policies in 2010 with implementation beginning in 2011. In a recent

poll of federal agencies with significant land holdings in the Chesapeake watershed, 40% indicated they have EISA-specific policies in place that are now being implemented and the other 60% indicated they are developing policies and are on schedule to meet the 2010 deadline stated in the Executive Order. There is not complete certainty that EISA-438 requirements will be included in NPDES permits issued under the Clean Water Act. This issue is being discussed by legal staff at this time. NPDES permit and permit compliance histories, including federal facilities, are made available to the public through an on-line system http://www.epa-echo.gov/echo/

Please see the response to comment 0481.1.001.010 which explains that a UAA is premature at this time.

With regard to EPA's WIP backstop rational, please see the response to comment 0067.1.001.009.

EPA reminds the commenter that a TMDL is not a Federal rulemaking.

The intent of the TMDL is not to negatively impact the home building industry, the home-buying public, construction industry jobs, and state and local governments.

Comment ID 0572.1.001.005

Author Name: Robinson Steve

Organization: National Association of Conservation Districts (NACD)

The Clean Water Act (CWA) clearly requires states to establish TMDLs for impaired waters, and only in the absence of an acceptable state TMDL may EPA directly establish one. EPA is exceeding its authority by proposing to establish a TMDL without first waiting for state action, and is encroaching on state authority by doing so. EPA has asserted it has the authority to issue a TMDL over the objections of a state. However, the CWA requires EPA to go through a formal process to disapprove a state's TMDL, and EPA has failed to do this.

Nothing in the CWA gives EPA the authority to approve, disprove or change state watershed implementation plans (WIPs). Despite the fact that EPA does not have this authority, the agency has already rejected several Bay region states' TMDL implementation plans for failing to meet specific requirements. Through the use of backstop allocations in the Draft TMDL, the EPA attempts to force TMDL implementation measures on states by "assuming" them.

We're extremely concerned by EPA's attempts to eliminate the important role of state and local governments in the TMDL process. States - rather than the federal government - are best equipped to determine the best methods of reaching water quality standards and effectively implement TMDLs at the local level.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0587.1.001.004

Author Name: Watts George

Organization: U.S. Poultry & Egg Association, National Turkey Federation (NTF), and National Chicken Council (NCC)

Authority with Regard to Watershed Implementation Plans and Reasonable Assurance

In EPA's September 11, 2008 letter to John Griffin, Secretary of Maryland Department of Natural Resources, EPA provided a definition of "reasonable assurance" and indicated it had authority to require this. In the letter to Secretary Griffin, EPA acknowledges that neither the CWA nor the federal regulations provide a definition for "reasonable assurance." The letter then goes on to state," [t]he regulations do provide that less stringent wasteload allocations for point sources must be based on practicable load allocations for nonpoint sources and that EPA must find that TMDLs will implement water quality standards in order to approve them." The letter states the "regulations do provide", but the letter did not include a regulatory citation, rather they cite EPA guidance, which does not provide EPA this authority.

In the TMDL document, EPA continues to assert that it has authority to require the states to develop WIPs and asserts the TMDL must include "reasonable assurance." However, nowhere does EPA actually provide regulatory or statutory language to support these assertions.

In 2000, EPA issued regulations modifying the regulations at 40 CFR part 130 and 40 CFR part 122 related to the TMDL program. Those regulations never went into effect due to action by Congress to halt their implementation, and were subsequently revoked. The 2000 regulatory changes included requirements for reasonable assurance and implementation plans. If EPA already had this regulatory authority, why did it attempt this regulation change in 2000? EPA's Draft TMDL and the strategy to implement the TMDL will institute the regulations that never went into effect and provide EPA new authority over an area that Congress has clearly and expressly denied.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0590.1.001.007

Author Name: Chavez Jennifer

Organization: Earthjustice et al.

5. Legal Requirements for TMDLs: At several points, the proposed TDML document misleadingly asserts that TMDLs are primarily "informational tools." E.g., p. 1-11. EPA bases this mischaracterization on an out-of-context quotation from the decision in Pronsolino v. Nastri, 291 F.3d 1123 (9th Cir. 2002). In reality, the Pronsolino Court acknowledged that TMDLs are mandatory limits on pollution loadings:

For waters identified pursuant to § 303(d)(1)(A)(the "§ 303(d)(1) list"), the states must establish the "total maximum daily load" ("TMDL") for pollutants identified by the EPA as suitable for TMDL calculation.2 § 303(d)(1)(C). "A TMDL defines the specified maximum amount of a pollutant which can be discharged or 'loaded' into the waters at issue from all combined sources." Dioxin/Organochlorine Center v. Clarke, 57 F.3d 1517, 1520 (9th Cir. 1995). The TMDL "shall be established at a level necessary to implement the applicable water quality standards...." [33 U.S.C.] § 303(d)(1)(C).

291 F.3d at 1127-28 (emphasis added).

On page 1-13, EPA states:

[W]here impaired waters have been identified on jurisdictions' section 303(d) lists for many years, where the states in question have decided not to establish their own TMDLs for those waters, where EPA is establishing a TMDL for those waters at the direction of, and in cooperation with, the jurisdictions in question, and where those waters are part of an interrelated and interstate water system like the Chesapeake Bay that is impaired by pollutant loadings from sources in seven different jurisdictions, CWA section 303(d) authorizes EPA authority to establish that TMDL.

(emphasis added). To accurately reflect applicable law, the highlighted "and" in the above quote needs to be changed to "or." Where, for example, a state has decided not to establish TMDLs for impaired waters, EPA is obliged to adopt federal TMDLs under section 303(d) regardless of whether the other circumstances listed in the quote exist. Likewise, a failure by a state to submit TMDLs for an impaired water over a number of years warrants EPA adoption of federal TMDLs - again regardless of whether the other above-described circumstances are present. Here, EPA is plainly obligated to adopt the Bay TMDLs by the longstanding failure of the Bay states to adopt adequate TDMLs on their own. The other factors cited by EPA are additional justifications for adopting these TDMLs.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0657.1.001.002

Author Name: Murphy Robert

Organization: Town of Colonial Beach, Virginia

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that operates as if EPA's previously proposed but withdrawn reasonable assurance regulation had actually been put into effect.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0689.1.001.001

Author Name: Hann Steven

Organization: Capital Region Council of Governments TMDL Work Group

I. What is the legal basis for EPA's requirement that either or both the Bay TMDL or state submitted Watershed Implementation Plans ("WIPs") demonstrate a "reasonable assurance" that the non-point source loading reductions will be achieved, given that the term "reasonable assurance" is neither defined in the Clean Water Act nor its implementing regulations? According to the draft TMDL, the only basis for the "reasonable assurance" standard is a 1991 EPA Document entitled "Guidance for Water Quality-Based Decisions: The TMDL Process." EPA has yet to precisely define the term "reasonable assurance" (other than a 2000 TMDL rule, which was ultimately withdrawn) or provide guidance on how such standard is to be evaluated.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0689.1.001.003

Author Name: Hann Steven

Organization: Capital Region Council of Governments TMDL Work Group

(b) Section 117(g) of the Clean Water Act is self-limiting and does not provide EPA with any legal authority to require states to submit WIPs. Historically, EPA does not regularly approve or disapprove implementation plans as part of its

review of state submitted TMDLs.

(c) EPA's existing authority regarding the development of TMDLs under the Clean Water Act does not permit it to unilaterally impose the "backstop allocation" approach, which it is proposing in the draft TMDL. In fact, such an approach is wholly inconsistent with and contrary to EPA's statutory power under the Clean Water Act. EPA's unilateral decision to "punish" municipal wastewater treatment plants with new, more stringent discharge limitations because of its determination that non-point source loading reductions will not be achieved has no basis in either the Clean Water Act or its implementing regulations, which reserve loading allocation and load reduction determinations to the states.

4. The draft TMDL states that EPA may develop a TMDL in "waters at the direction of, and in cooperation with, the jurisdictions in question." (p.1-13). Where has EPA previously developed a TMDL at the direction of a state or other government entity and where in the Clean Water Act or its implementing regulations is such a process authorized?

5. In discussing EPA's settlement of a lawsuit brought in January, 2009 by the Chesapeake Bay Foundation, the draft TMDL cites to the nondiscretionary duties placed upon EPA under Clean Water Act Section 117(g) and implies that such duties include the development of the Bay TMDL. There is no support to suggest that Section 117(g) of the Clean Water Act includes a nondiscretionary duty on the part of EPA to develop the Bay TMDL.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0689.1.001.019

Author Name: Hann Steven

Organization: Capital Region Council of Governments TMDL Work Group

28. Since every jurisdiction developed WIPs, describing how they would achieve the target allocations for nitrogen, phosphorus, and sediment assigned to the jurisdictions as determined by EPA, and since EPA's decisions to use a backstop allocation approach is triggered by its review of the WIPs, these WIPs should be part of the TMDL and subject to public comment during the TMDL comment period.

29. Pennsylvania met its draft TMDL target for nitrogen, yet EPA rejected Pennsylvania's approach for reductions in nitrogen loading. There is no legal basis for applying a "reasonable assurance" analysis to Pennsylvania's WIP.

30. EPA's discretionary decision to foist all non-point source loading reductions to the point sources is without legal support. EPA's statement in its September 27,2010 Comment Document on Pennsylvania's WIP states that "load from point source reductions [will be] redistributed to forest, septic, and agriculture sources as possible... " There is no justification, legal or otherwise, for shifting the loading reduction from forest and agriculture sources onto the ratepayers of municipal wastewater treatment plants in the Commonwealth.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0705.001.003

Author Name: Cuffee-Glenn Selena

Organization: City of Suffolk, Virginia

The EPA does not have the legal authority to establish a deadline in the TMDL.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0741.001.004

Author Name: Caskey W.

Organization: Isle of Wight County

The EPA does not have the legal authority to establish a deadline in the TMDL.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0746.1.001.007

Author Name: Carl Jimmie

Organization: Southern Tier Chesapeake Bay TMDL Commenting Coalition

For the reasons discussed in section II (F) below, finalization and approval of the TMDL without significant changes in the New York allocations would be arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law. As an initial matter, the TMDL violates the plain language of the Clean Water Act and contradicts Congress' intentions regarding promulgation and implementation of TMDLs. As such, EPA must give effect to the unambiguously expressed

intent of Congress. Chevron U.S.A., Inc. v. Natural Res. Def. Council, Inc., 467 U.S. 837, 842-43, 81 L. Ed. 2d 694, 104 S. Ct. 2778 (1984). Even if EPA asserts that the TMDL is based on a permissible construction of the statute, EPA's actions are arbitrary and capricious. See 5 U.S.C. § 706(2)(A). In drafting the TMDL, EPA relied on factors that Congress did not intend it to consider, failed to consider important aspects of the problem, and has proffered explanations that run counter to the information before the agency. Moreover, the TMDL is so implausible it cannot be ascribed to a difference in view or a product of agency expertise. See Waterkeeper Alliance, Inc. v. EPA, 399 F.3d 486, 498 (2d Cir. 2005) (citing Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29,43, 103 S. Ct. 2856,77 L. Ed. 2d 443 (1983). EPA lacks a rational basis for its TMDL decision in light of the facts before the agency. See Motor Vehicle Manufacturers Ass'n v. State Farm Mutual Ins. Co., 463 U.S. 29,43, 103 S. Ct. 2856, 2866-67, 77 L. Ed. 2d 443 (1983).

[See Tables 1 and 2 on page 14 of original comment letter 0746.1]

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Comment ID 0746.1.001.013

Author Name: Carl Jimmie

Organization: Southern Tier Chesapeake Bay TMDL Commenting Coalition

The Final TMDL Must Be Adopted by Each Bay State

The CWA grants primacy to the States on issues involving Water Quality. Section 303(d)(l)(C) of the Act explicitly requires that States establish TMDLs:

Each State shall establish for the waters identified in paragraph (l)(A) of [those on the State's priority waters 303(d) list], and in accordance with the priority ranking, the total maximum daily load, for those pollutants which the Administrator identifies under section 304(a)(2) as suitable for such calculation. Such load shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality.

(Emphasis added.) Even EPA's implementing regulations make it clear that EPA is only supposed to establish TMDLs in the aftermath of its disapproval of a TMDL prepared by a State [FN24].

Because the Clean Water only allows states to promulgate TMDLs, approval of the TMDL (it itself has written) by EPA will not trigger the subsequent CWA § 303(d) (4) requirements to place TMDL point source allocations (WLAs) into S/NPDES permits. While this has not yet been litigated, we believe that a plain reading of § 303(d)(I)(C) in this situation is that, before CWA § 303(d)(4) can be triggered within each of the Bay States, either the state must first adopt the EPA-approved final TMDL draft or EPA must first disapprove the TMDL and then, in theory within 30 days, issue a

"new" draft TMDL and subject it to public comment. For the reasons summarized in Section II above, New York adoption of the TMDL without significant changes to the New York Allocations would be arbitrary, capacious and contrary to law through its CWA § 303(e)(3) Continuing Planning Process.

EPA has violated due process and the commerce clause by developing its own multi-state TMDL rather than reviewing and approving or rejecting TMDLs as proposed by states, and by doing so in an arbitrary and capricious manner which fails to utilize the best available technical information, and unduly burdens headwaters states by comparison to states surrounding the receiving waters w here the impacts are strongest and most direct.

[FN24] 40 CFR § 130.34.

Response

Thank you for the comment. For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014.

Response to Public Comments: Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

Issue Category:
5. Watershed Listings and Impairment Description

Pages 370 – 379

December 29, 2010

Docket #: EPA-R3-OW-2010-0736

5 - WATERSHED LISTINGS AND IMPAIRMENT DESCRIPTION

No Comments are Applicable to this Issue Category, and Thus No Response is Necessary.

5.1 - SCOPE OF BAY TMDL - OVERALL WATERSHED

Comment ID 0230.1.001.021

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

EPA's View of Relative Effectiveness is Incorrect

The nutrient loads of the James and York Rivers do not have a significant influence on the D.O. conditions of the main stem Chesapeake Bay. The impact of these southern tributaries is limited only to their local water quality defined by State standards. Thus, the TMDLs for these basins are fully within the purview of and are the responsibility of the Commonwealth of Virginia, not EPA.

Response

Please refer to the response for comment 0288.1.001.028.

Comment ID 0266.1.001.004

Author Name: Fagerstrom Angela

Organization: City of Binghamton, New York

WHEREAS, clean water and healthy watersheds are a priority for New York communities, and New York farmers who play a critical role in proven and successful local efforts to conserve and protect New York's natural resources; and

WHEREAS, the EPA Region 3 is implementing a Chesapeake Bay TMDL which imposes new and costly federal regulations on approximately 19 counties, 650,000 residents and 2,000 New York family farms within the NY portion of the Chesapeake Bay watershed area;

Response

Please see the response to comments 0267.1.001.006 and 0568.1.001.007 for more information on how upstream loadings of pollutants contribute to the downstream non-attainment of water quality standards.

Please refer to the response for comment 0080-cp.001.002 regarding New York allocations.

Comment ID 0267.1.001.005

Author Name: Bowman Cynthia

Organization: Cornell Law School Water Law Clinic

Assuming that EPA's TMDL allocations for Bay states such as Virginia and Maryland are based on the WQS that those respective states set, New York is disadvantaged as a tributary state. Virginia and Maryland, in formulating their Chesapeake Bay-specific WQS, had the opportunity to account for their states' unique environmental conditions as these conditions relate to the Chesapeake Bay, but the TMDL applied to New York is unrelated to any New Yorkspecific WQS. Further, without a New York-specific WQS, the state could fully meet its TMDL allocation, in fact, without any significant improvement in the overall water quality of the Chesapeake Bay, because of the substantially heavier loads downstream that would continue to impair the Bay. Because the Bay TMDL is unrelated to water quality in New York, the state could not determine, with any scientific reliability, that the Bay TMDL no longer applied to the state even when it had remedied the impairments in its New York headwaters within the Chesapeake Bay Watershed. Consequently, the spatial and temporal priorities of New York's water management program for meeting the Bay TMDL will necessarily be driven by loadings from sources determined by book values, rather than by direct and verifiable measures of water quality.

Response

Please see the response to comments 0267.1.001.006 and 0568.1.001.007 for more information on how upstream loadings of pollutants contribute to the downstream non-attainment of water quality standards.

Please refer to the response for comment 0080-cp.001.002 regarding New York allocations.

Comment ID 0267.1.001.009

Author Name: Bowman Cynthia

Organization: Cornell Law School Water Law Clinic

- EPA should explicitly recognize New York State as a voluntary partner-as recorded in the Chesapeake 2000 Agreement-and not as a signatory subject to the Bay TMDL regulations.

Response

Although not original signatories of the Chesapeake 2000 Agreement, New York, Delaware, and West Virginia signed on as partners in implementing the 2003 cap loads for nitrogen phosphorus, and sediment as described in Section 1.2.1 of the TMDL

report.

Comment ID 0479.1.001.002

Author Name: Gansler Douglas

Organization: Maryland Office of the Attorney General

As you know, Maryland has listed many of its Chesapeake Bay segments on its § 303(d) list as impaired for nitrogen, phosphorous, and sediment. Much of this impairment is attributable to upstream water pollution occurring in other states. Because the Bay receives about half of its total volume from freshwater tributaries, and about half of that fresh water enters the Bay from the Susquehanna River, Maryland's Bay segments have been adversely impacted by such upstream water pollution for over a hundred years. Maryland simply cannot ensure the attainment of its water quality standards through Maryland-only legislation, regulation, and enforcement. Instead, for the water quality of the Bay to improve in real and sustainable ways, all of the watershed states must be held accountable for their contributions to downstream pollution.

Response

Please see the response to comments 0267.1.001.006 and 0568.1.001.007 for more information on how upstream loadings of pollutants contribute to the downstream non-attainment of water quality standards.

Comment ID 0479.2.001.001

Author Name: Gansler Douglas

Organization: Maryland Office of the Attorney General

The Need for the Chesapeake Bay TMDL

The development of the Chesapeake Bay TMDL provides an historic opportunity for Bay watershed states to plan for the future of our Bay and to fully attain the "fishable and swimmable" goals of the federal Clean Water Act. 33 U.S.C. § 1251 et seq. Both tidal and non-tidal states will benefit from the restored estuarine habitat essential for protection of unique species of wildlife and from the enhanced recreational opportunities that will result from Chesapeake Bay restoration. After decades of voluntary efforts to restore the Bay to health have repeatedly failed to meet self-imposed deadlines, the Bay TMDL promises an opportunity for real accountability and progress. However, if states continue to devote time and resources to protesting EPA's legal authority to develop and implement the TMDL, instead of crafting responsible and effective watershed implementation plans, both the environment and the people will suffer in what is truly a tragedy of the commons.

Bodies of water and the pollutants that impair them do not recognize political boundaries. Nowhere is that fundamental truth better illustrated than in the Chesapeake Bay watershed. The Chesapeake watershed encompasses parts of six

States - New York, Pennsylvania, Delaware, Maryland, Virginia, and West Virginia - and the District of Columbia (collectively "Bay States"). Activities in each of the Bay States contribute to the nutrient pollution impairing the entire Bay, and each of the Bay States therefore has a concomitant duty to rigorously control sources of nutrient pollution within its borders. The multi-jurisdictional nature of the Bay means it will never attain the fishable and swimmable goals of the Clean Water Act unless all the Bay States, tidal and non-tidal, cooperate with comprehensive federal water pollution control efforts to reduce the flow of nitrogen, phosphorous, and sediment to the Bay.

Maryland's Efforts Prior to the Chesapeake Bay TMDL

Maryland has been a leader in restoring the Bay by fully participating, from the onset of the original 1983 Chesapeake Bay Agreement, in multi-jurisdictional efforts at restoration, and developing the tools necessary to evaluate accountability. For example, Maryland is a signatory to the Chesapeake 2000 Agreement,[FN1] which memorialized the participating governments' commitments to restoring the Bay by setting discrete goals and deadlines for accomplishing them. Among the responsibilities assigned the signatories was the development, with EPA's help, of improved water quality standards for the Bay and the implementation of Tributary Strategies necessary to meet them.

In 2005, Maryland adopted its new water quality standards for the Chesapeake Bay. COMAR 26.08.02.03-3.[FN2] Consisting of designated aquatic life uses and the water quality criteria necessary to support them, these standards were based on guidance developed by EPA and research and modeling performed by the Bay Program. They are the product of a collaborative process by EPA and the Bay States and represent a scientific consensus based on the best available scientific findings and technical information identifying the water quality conditions necessary to protect living resources from the effects of nutrient and sediment over-enrichment.[FN3] The Bay TMDL is being developed to ensure that Maryland's (along with Virginia's and D.C.'s) water quality standards for Chesapeake Bay segments are attained through similar action across the watershed.

[FN1] www.chesapeakebay.net/content/publications/cbp 12081.PDF.

[FN2] Maryland is currently in the process of updating certain water quality standards to establish a restoration variance for the Chester River, establish site-specific dissolved oxygen criteria for portions of the Pocomoke River, and to amend designated uses which reflect existing uses by adding the Seasonal Deep Water Fish and Shellfish Use to the South, Severn, and Magothy Rivers, among other amendments. 37 Md. Register 1309 (September 10, 2010).

[FN3] EPA announced its approval of Maryland's water quality standards for the Chesapeake Bay on August 29, 2005. See Letter from Jon Capacasa, EPA, to Kendl Philbrick, Sec'y, MDE (Aug. 29, 2005). This approval had the legal effect of rendering the standards "applicable water quality standards for purposes of the Act," which means that they are "the minimum standards which must be used when the [Clean Water Act] and regulations implementing the [Clean Water Act] refer to water quality standards, for example, in identifying impaired waters and calculating TMDLs [total maximum daily loads] under section 303(d), [and] developing NPDES permit limitations under section 301(b)(1)(C)." 40 C.F.R. § 131.21(c) & (d); see 33 U.S.C. § 1313(d).

Response

Thank you for your comment of support.

Comment ID 0479.2.001.003

Author Name: Gansler Douglas

Organization: Maryland Office of the Attorney General

Each river, tributary, and other waterbody that is part of the Chesapeake Bay TMDL is included on a jurisdiction's § 303(d) list, meaning that the jurisdiction has identified the waterbody as not meeting applicable water quality standards. For those Chesapeake Bay segments included on Maryland's § 303(d) list, the Bay TMDL represents an important step towards achievement of Maryland water quality standards. While states often develop their own TMDLs for impaired waters entirely within their borders, the multi-jurisdictional nature of the Bay, and the longstanding failure of the states to adequately address Bay pollution, makes EPA's development of this TMDL necessary and appropriate. See Dioxin/Organochlorine Center v. Clarke, 57 F.3d 1517 (9th Cir. 1995) (upholding an interstate TMDL EPA established for dioxin on the Columbia River system draining a large multi-state watershed in parts of Oregon, Washington, and Idaho); Scott v. City of Hammond, 741 F.2d 992 (7th Cir. 1984) (prolonged failure of state to submit TMDLs can constitute "constructive submission" of no TMDLs); American Canoe Ass'n. v EPA, 54 F.Supp.2d 621 (E.D.Va. 1999) (failure of state to comply with consent decree may also constitute "constructive submission" of no TMDLs). The TMDL will serve as a guide both in administering the NPDES permitting program and in dedicating resources to the reduction of nonpoint source pollution because it will set the maximum amount of pollution the Bay can receive while still meeting Maryland's water quality standards.

Response

EPA agrees with this statement.

5.2 - SEGMENTATION SCHEME

No Comments are Applicable to this Issue Category, and Thus No Response is Necessary.

5.3 - LISTINGS

Comment ID 0070.1.001.005

Author Name: Hughes Robert

Organization: Eastern PA Coalition for Abandoned Mine Reclamation (EPCAMR)

Why is there not a Phase 5.3 Watershed Model for Metal Loads to the Chesapeake Bay throughout PA?

Response

The Chesapeake Bay TMDL was developed for nitrogen, phosphorus, and sediment to address dissolved oxygen, chlorophyll a, and submerged aquatic vegetation (SAV) impairments in the Chesapeake Bay and its tributaries. Please see the response to comments 0238-cp.001.002 and 0379.1.001.006 for more information on the models utilized in the Chesapeake Bay TMDL development.

Comment ID 0169.1.001.010

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

The EPA models assume that urban development and agricultural activity caused the currently observed levels of phosphorus, nitrogen, and sediment in the Bay. Having assumed a cause, the EPA went out and found data to support the assumption.

Response

Please see the response to comments 0238-cp.001.002 and 0379.1.001.006 for more information on the models utilized in the Chesapeake Bay TMDL development.

Comment ID 0169.1.001.025

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

The TMDL on page 3-21 sets default allowances for exceeding the criteria, to be used when biological data are not available. These default values are determined to be no more than 10% of the area under the cumulative frequency diagram. This is a most curious default value, since the overages which drove the EPA to this TMDL were sediment +2.14%, nitrogen +7.28%, and phosphorous +4.43%, all below +10%. The TMDL is addressing values that fall within its own tolerance levels for uncertainty. This raises the question whether any regulation whatsoever is scientifically justified.

Response

The commenter appears to be confusing the assessment methodology for determining attainment of water quality standards as described in Section 3 with EPA's methodology for evaluating jurisdictions Watershed Implementation Plans, and in particular the plans consistency with the loading allocations assigned to the states, as described in Section 8. They are 2 completely different things. .Please refer to both Section 3 and Section 8 of the final TMDL Report for additional information.

Comment ID 0737.001.004

Author Name: Comment Anonymous

Organization: Lower Allen Township Authority

Impaired Water - EPA should identify in the TMDL when the Agency listed the Susquehanna River on the, 303d list of impaired waters and document Pennsylvania's request to EPA for develop a TMDL in support of the Agency action.

Response

To date, Pennsylvania has not included the Susquehanna River on its Section 303(d) list of impaired waters for nutrients or sediment impairments. However, please see the response to comments 0267.1.001.006 and 0568.1.001.007 for more information on how upstream loadings of pollutants contribute to the downstream non-attainment of water quality standards.

At the October 1, 2007, meeting of the Chesapeake Bay Program Principals' Staff Committee, the seven watershed jurisdictions (including Pennsylvania) and EPA reached consensus that EPA would establish the Bay TMDL on behalf of the jurisdictions with a target restoration date of 2025 (CBP PSC 2007). Table 1-2 of the TMDL report summarizes that and the other Bay TMDL-relevant consensus agreements reached by the partners during that meeting.

5.4 - GENERAL/MISCELLANEOUS

Comment ID 0210.1.001.006

Author Name: Tolbert J.R.

Organization: Virginia Chapter-Sierra Club

Despite successes in certain parts of the ecosystem and specific geographic areas, the overall health of the Chesapeake Bay remains dangerously degraded. The bay continues to have poor water quality, degraded habitats and low populations of many species of fish and shellfish. Based on these three areas the health of the bay was rated as 38 percent in 2008, out of a total possible of 100 points.

Response

Please refer to the response for comment 0137.1.001.004.

Comment ID 0271.1.001.006

Author Name: Harrison L.

Organization: South Central Wastewater Authority, Petersburg, Virginia

In addition, as the Chesapeake Bay Program has long ago determined, the James River does not influence mid-Bay water quality and any regulation of James River nutrient discharges should occur only for local water quality protection. Locally, the applicable water quality standard is the chlorophyll standard adopted by Virginia in 2005 and approved by EPA. Since adoption of this standard, the State issued the Virginia Regulations governing WWTPs and local governments designed and constructed the required new facilities with long-term debt, which now must be repaid by the public over the next 20 to 30 years.

Response

Please see the response to comments 0293.1.001.017 and 0288.1.001.028.

Comment ID 0389.1.001.004

Author Name: Iwanowicz Peter

Organization: New York State Department of Environmental Conservation

• New York Waters are Already Clean
o If the bay had the same water quality as the water leaving NY, then the Bay would not be nutrient impaired.
o NY's Clean Water Act program (CAFO, MS4, construction stormwater) already exceeds the standards established by the Federal government and many States.
o NY is a national leader in the implementation of Clean Air Act programs.
o Nitrogen air deposition from NY sources is already at minimal levels.

Response

Please refer to the response for comment 0080-cp.001.002 regarding New York allocations.

Please see the response to comments 0267.1.001.006 and 0568.1.001.007 for more information on how upstream loadings of pollutants contribute to the downstream non-attainment of water quality standards.

Comment ID 0467.1.001.024

Author Name: Williams Shannon

Organization: The Harrisburg Authority, Harrisburg, Pennsylvania

WHEREAS, the Authority owns an Advanced Wastewater Treatment Facility (AWTF) that provides service to the residents and businesses in the City of Harrisburg and surrounding municipalities.

WHEREAS, the AWTF is operated by the City of Harrisburg pursuant to an agreement with the Authority.

WHEREAS, the Authority is permitted by the Pennsylvania Department of Environmental Protection (DEP) to discharge treated wastewater from the AWTF pursuant to the terms and conditions of its NPDES permit.

WHEREAS, the Authority's current NPDES permit includes Chesapeake Bay Nutrient Requirements pertaining to limits on discharges of total nitrogen (TN) and total phosphorus (TP).

WHEREAS, the Chesapeake Bay Nutrient Requirements are based on DEP's Chesapeake Bay Tributary Strategy.

WHEREAS, the Authority's AWTF is the only major point source in Pennsylvania to rely upon nutrient credits under a program established by DEP to achieve compliance with its NPDES permitted discharge limits.

WHEREAS, the Authority completed an Act 537 Sewage Facilities Plan Update in 2009 to determine the best method to meet the requirements of its NPDES permit.

WHEREAS, the Act 537 Plan recommended an approach that is estimated to cost $35million to construct, an additional $1.8-million to operate and an additional $1-million per year for the purchase of nutrient credits.

WHEREAS, the recommended Act 537 Plan approach is estimated to increase user rates in the City of Harrisburg by approximately $90 per year, which represents a forty percent (40%) increase in such rates.

WHEREAS, the Authority has expended significant funds to develop a plan to meet the requirements of its NPDES permit, and to procure and pilot test key equipment.

WHEREAS, the Authority is in the process of selecting an entity to design the chosen technology in order to implement the Act 537 Plan recommendations.

Response

Please refer to the response for comment 0067.1.001.009. Section 8 of the final TMDL report describes the methodology by which EPA evaluated the jurisdictions' final Phase I WIPs, the process for developing the backstop allocations, the WIP evaluation findings and the resulting backstop allocations EPA established for each jurisdiction.

Please see the response to 0139.1.001.017 which discusses the issue of cost analysis and economic benefits of improved water quality and comment 0038.1.001.024 which outlines the federal effort towards the Bay.

Please see the response to comment 0501.1.001.005 for more information regarding funding to municipalities and states for updates to infrastructure such as POTWs/WWTPs and MS4/stormwater systems.

Comment ID 0497.1.001.006

Author Name: Hobbs Jack

Organization: Town of Amherst, Virginia

In addition, as the Chesapeake Bay Program has long ago determined, the James River does not influence mid-Bay water quality and any regulation of James River nutrient discharges should occur only for local water quality protection. Locally, the applicable water quality standard is chlorophyll standard adopted by Virginia in 2005 and approved by EPA. Since adoption of this standard, the State issued the Virginia Regulations governing WWTPs and other local governments have designed and constructed the required new facilities with long-term debt, which now must be repaid by the public over the next 20 to 30 years.

Response

Please see the response to comments 0293.1.001.017 and 0288.1.001.028.

Comment ID 0764.001.001

Author Name: Young Leroy

Organization: Pennsylvania Fish & Boat Commission (PFBC)

The PFBC has legal jurisdiction over fish, reptiles, amphibians and aquatic organisms in Pennsylvania. We also have authority to enforce portions of the Pennsylvania Code that pertain to pollution and disturbances to the waters of the Commonwealth. The PFBC is a conservation agency that has a strong interest in working with EPA, DEP, and other resource agencies to ensure that Pennsylvania's waterways are maintained and protected to support healthy aquatic communities. We have a heightened interest in reducing excess nutrients entering our waterways due to recent events regarding Susquehanna River water quality. Since 2005, there have been repeated outbreaks of disease in young-of-year smallmouth bass in the Susquehanna River and some of its major tributaries. These die-offs have led to weak year classes and have negatively impacted the smallmouth bass fishery. The working hypothesis is that high nutrient loading in combination with low river flows, high summer water temperatures, and increased algal growth have created reduced dissolved oxygen conditions, particularly in near-shore areas that serve as the primary habitat for young-of-year smallmouth bass. We believe that these stressful conditions may be leading these fish to succumb to bacterial infections. The PFBC has partnered with the Pennsylvania Department of Environmental Protection (DEP), U.S. Geological Survey, the Susquehanna River Basin Commission and others to study this issue. While this is still being investigated, it underscores the importance of addressing nutrient loading to the Susquehanna River and ultimately the Chesapeake Bay. Therefore, we fully support, in concept, EPA's and DEP's desire to implement measures to reduce and limit nutrient loading to the Bay.

Response

EPA thanks you for your support.

Response to Public Comments: Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

Issue Category: 6. Water Quality Standards

Pages 380 – 435

December 29, 2010

Docket #: EPA-R3-OW-2010-0736

6 - WATER QUALITY STANDARDS

Comment ID 0198.1.001.005

Author Name: Covington Roy

Organization: Chesterfield County, Virginia

In addition, as the Chesapeake Bay Program has long ago determined, the James River does not influence mid-Bay water quality and any regulation of James River nutrient discharges should occur only for local water quality protection. Locally, the applicable water quality standard is chlorophyll standard adopted by Virginia in 2005 and approved by EPA. Since adoption of this standard, the State issued the Virginia Regulations governing WWTPs and local governments designed and constructed the required new facilities with long-term debt, which now must be repaid by the public over the next 20 to 30 years.

Response

EPA agrees that "locally [for the tidal James River], the applicable water quality standard is the chlorophyll standard adopted by Virginia in 2005 and approved by EPA." That is Virginia has adopted the segment-specific numeric chlorophyll a criteria for the tidal James River listed in Table 3-10 of the draft TMDL into its WQS regulations. The criteria are based on various scientific lines of evidence with additional river-specific considerations (VADEQ 2004). EPA approved the WQS regulations on June 27, 2005.

Comment ID 0215.1.001.005

Author Name: Milo J.

Organization: Maury Service Authority (MSA)

In addition, as the Chesapeake Bay Program has long ago determined, the James River does not influence mid-Bay water quality and any regulation of James River nutrient discharges should occur only for local water quality protection. Locally, the applicable water quality standard is chlorophyll standard adopted by Virginia in 2005 and approved by EPA. Since adoption of this standard, the State issued the Virginia Regulations governing WWTPs and local governments designed and constructed the required new facilities with long-term debt, which now must be repaid by the public over the next 20 to 30 years.

Response

Please see response to comment 0198.1.001.005.

Comment ID 0226.1.001.010

Author Name: Harris, Jr. Cecil

Organization: Hanover Courthouse, Hanover County, Virginia

We support Virginia's proposal to evaluate the chlorophyll standard affecting the James River and then re-assess what, if any, actions may be necessary beginning in 2017 to meet the final target allocation for the James River basin. This approach is supported by studies that have documented that the James River has less impact on the water quality of the main stem of the Chesapeake Bay than other rivers in the Bay watershed.

Response

Please see response to comment 0230.1.001.005

Comment ID 0231.1.001.019

Author Name: Boepple Charles

Organization: Upper Occoquan Sewage Authority (dba Upper Occoquan Service Authority)

[Exhibit 3- Letter from Mr. Charles M. Murray. See Exhibit 3 in original document 0231.1]

Response

Please refer to comment 0231.1.001.001

Comment ID 0265.1.001.007

Author Name: Clark, Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Hampton, Virginia

At the Commission meeting on October 20, 2010, the HRPDC acted to endorse the following position and attached comments.

• The modeling predictions do not justify use of the chlorophyll-a criteria as the basis for the James River basin allocations.

Response

The Bay TMDL allocations are for attaining the current water quality standards (WQS) as required by the Clean Water Act (CWA). That is the TMDL is required to use the current chlorophyll-a criteria as the basis for James River allocations. If the Virgina choose

to modify their WQS for the James River, they are required to submit those modifications to EPA for approval.

Comment ID 0298.2.001.019

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC)

EPA's decision to base the James River allocations on attainment of the numeric Chlorophyll-a standards rather attainment of the Bay-wide numeric dissolved oxygen standards is flawed.

Response

Please refer to response to comment 0230.1.001.005

Comment ID 0330.1.001.007

Author Name: Krasnoff Alan

Organization: City of Chesapeake, Virginia

The City is a member of the Hampton Roads Planning District Commission (HRPDC) and the Virginia Municipal Stormwater Association (VAMSA), both of which organizations have analyzed the Draft TMDL with the assistance of scientific and environmental experts. The City fully endorses the position adopted by the member localities at the HRPDC meeting on October 20, 2010, and the position of the VAMSA, which jointly include:

• The modeling predictions used in the Draft TMDL do not justify use of the chlorophyll-a criteria as the basis for the James River basin allocations.

Response

The Bay TMDL allocations are for attaining the current water quality standards (WQS) as required by the Clean Water Act (CWA). That is the TMDL is required to use the current chlorophyll-a criteria as the basis for James River allocations. If the Virgina choose to modify their WQS for the James River, they are required to submit those modifications to EPA for approval.

Comment ID 0436.1.001.007

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Chesapeake, Virginia

At the Commission meeting on October 20, 2010, the HRPDC acted to endorse the following position and attached comments.

• The modeling predictions do not justify use of the chlorophyll-a criteria as the basis for the James River basin allocations.

Response

The Bay TMDL allocations are for attaining the current water quality standards (WQS) as required by the Clean Water Act (CWA). That is the TMDL is required to use the current chlorophyll-a criteria as the basis for James River allocations. If the Virgina choose to modify their WQS for the James River, they are required to submit those modifications to EPA for approval.

Comment ID 0481.1.001.009

Author Name: Andes Fredric

Organization: Federal Water Quality Coalition

One basis for changing water quality standards is a demonstration that meeting the standards would cause substantial and widespread economic and social impacts. 40 C.F.R. 131.1(g)(6). EPA should determine whether meeting water quality standards in the Chesapeake Bay would have this result.

In fact, we believe that EPA has already acknowledged that controls needed to implement the backstop allocations in section 8 would result in such impacts. These allocations rely in part on an "E3" level of effort. E3 is a theoretical scenario based on implementation of "everything, by everyone, everywhere." EPA itself has said E3 is not a realistic scenario. "There are no cost and few physical limitations to implementing BMPs for point and nonpoint sources in the E3 scenario." Draft TMDL, App. J, at J-4. "Generally, E3 implementation levels and their associated reductions in nutrients and sediment could not be achieved for many practices, programs and control technologies when considering physical limitations and required participation levels." Id. at J-4 to J-5 (emphasis added).

We believe that it is likely that a UAA would demonstrate that the economic and social impacts of meeting Chesapeake Bay water quality standards will be substantial and widespread. EPA itself has estimated the cost of retrofitting developed areas to capture stormwater runoff to be $7.9 billion a year. See The Next Generation of Tools and Actions to Restore Water Quality in the Chesapeake Bay: A Revised Report Fulfilling Section 202a of Executive Order 13508, at 24. The Hampton Roads Planning District Commission estimates that meeting the retrofitting requirements in the Draft TMDL would cost the ratepayers of the Hampton Roads MS4 alone $679 million annually. See http://www.dailypress.com/news/military/dp-nws-chesapeake-bayreport- 20101030,0,7533311.story. The New York State Department of Environmental Conservation estimates that meeting EPA's backstop allocations in the part of the Chesapeake Bay watershed that lies within New York State will cost between $3 billion and $6 billion. See http://www.newschannel34.com/news/ local/story/DEC-on-Proposed-EPA-Regulations/Xl7f-E5ImUODw2tn3MhaYQ.cspx. Officials from the panhandle of West Virginia estimate the cost of wastewater treatment plant upgrades in their communities required under EPA's Draft TMDL to be between $180 million and $240 million.

See http://www.journal-news.net (accessed Nov. 5, 2010).

EPA should consider all of the economic and social impacts of the Draft TMDL before establishing a final TMDL. Further, the Agency should be transparent about the incremental costs and benefits of meeting water quality standards in every reach of every water body all the time. An analysis of those costs may demonstrate that there is a point where the costs of achieving those last few days of attainment outweigh the benefits (typically referred to as the "knee of the curve"). In fact, it may be possible to meet most of the water quality goals for the Chesapeake Bay most of the time, without resulting in significant and widespread impacts. However, EPA has not provided policy makers or the public with information to support such an analysis or even evaluate the benefits and costs of the reductions proposed in the Draft TMDL. It should do so before establishing a final TMDL.

Response

Please see the response to comment 0481.1.001.010 which explains that a UAA is premature at this time. A cost benefit analysis is beyond the scope of the TMDL, as discussed in the response to comment 0139.1.001.017. EPA reminds the commenter that there is a court ordered deadline of December 31, 2010 to establish a TMDL that meets water quality standards.

Comment ID 0481.1.001.010

Author Name: Andes Fredric

Organization: Federal Water Quality Coalition

We agree with EPA's support for adaptive management in the TMDL process and EPA's recognition that changes will have to be made to the TMDL. However, we remain concerned that the standards that the Draft TMDL is intended to meet are unattainable (or, at the very least, not demonstrated in the record to be attainable). Assuming those standards are unattainable from a socio-economic perspective, then no amount of adaptive management will be sufficient to overcome the core need for a UAA for the watershed. We recommend that EPA employ adaptive management in the Chesapeake Bay by focusing on attaining water quality in individual impaired segments, as contemplated by the CWA. Further course corrections can be made if meeting standards in those segments fails to achieve water quality standards in the Bay itself. This approach would allow EPA to first identify the immediate, near-term reductions that will improve water quality in individual segments, and then project improvements to the Bay's water quality based on additional data collection and modeling refinements, as those continue to be developed. Such an approach would allow for reasonable forward progress in the face of uncertainty.

Response

In recognition that it may be difficult to meet water quality standards in the Chesapeake Bay, EPA considered whether a use attainability analysis (UAA) should be conducted. EPA determined that a UAA at this time is premature given that that Bay restoration will involve long term (15 year) implementation. Instead, energy should be focused on developing a Bay TMDL to achieve current standards and thereafter implementing that TMDL. In particular, with a 15 year implementation horizon, EPA believes likely advancements in technology will improve our ability to reduce nutrients and sediment and at a lower cost. A UAA

at this time would not be able to anticipate those potential advancements in technology.

Comment ID 0482.1.001.019

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

3. EPA Should Withdraw the Draft TMDL Pending Consideration of the Substantial and Widespread Economic and Social Impact of Implementation.

Even if the applicable Chesapeake Bay water quality standards could be attained in theory, they are not attainable in reality due to the substantial and widespread economic and social impact that would occur. One basis for changing a water body's designated use is a demonstration that controls necessary to attain the use would cause substantial and widespread economic and social impacts. 40 C.F.R. 131.10(g)(6). Conversely, existing law precludes the elimination of a current designated use if the use "will be attained by implementing [water quality based effluent limits on point sources] and by implementing cost-effective and reasonable best management practices for nonpoint source control." 40 C.F.R. 131.10(h)(2). EPA should determine whether the current designated uses in the Chesapeake Bay are, in fact, attainable under these standards.

We believe that it is likely that a UAA would demonstrate the substantial and widespread economic and social impacts of meeting Chesapeake Bay water quality standards will be substantial and widespread. EPA itself has estimated the cost of retrofitting developed areas to capture stormwater runoff to be $7.9 billion a year. See The Next Generation of Tools and Actions to Restore Water Quality in the Chesapeake Bay: A Revised Report Fulfilling Section 202a of Executive Order 13508, at 24. The Hampton Roads Planning District Commission estimates that meeting the retrofitting requirements in the Draft TMDL would cost the ratepayers of the Hampton Roads MS4 alone $679 million annually. See http://www.dailypress.com/news/military/dp-nws-chesapeake-bay-report- 20101030,0,7533311.story. The New York State Department of Environmental Conservation estimates that meeting EPA's backstop allocations in the part of the Chesapeake Bay watershed that lies within New York State will cost between $3 billion and $6 billion. See http://www.newschannel34.com/news/ local/story/DEC-on-Proposed-EPA-Regulations/Xl7f-E5ImUODw2tn3MhaYQ.cspx. Officials from the panhandle of West Virginia estimate the cost of wastewater treatment plant upgrades under EPA's Draft TMDL to be between $180 million and $240 million. See http://www.journal-news.net (accessed Nov. 5, 2010). Officials from the State of Virginia predict that installing BMPs on 90 percent of cropland and hay land will require the state and landowners to expend over $890 million during the period of TMDL implementation. See Report Prepared by the Virginia Department of Conservation and Recreation, Annual Funding Needs for Effective Implementation of Agricultural Best Management Practices (BMPs), To the Chairmen of the House Appropriations and Senate Finance Committees (Oct. 2009), at 7 (adding the state and landowner cost shares together).

The undersigned agricultural representatives request EPA to consider all impacts before establishing the Chesapeake Bay TMDL. Specifically, we request EPA to consider the impacts of its proposed actions on our nation's continued ability to produce safe and affordable food, fiber and fuel. U.S. agriculture feeds not only the United States, but the world. Food security has become a national security issue in the face of projections from the Food and Agriculture Organization that the world population will increase from 6.8 billion people to 9.1 billion people by 2050. To feed these additional 2.3 billion people, the world will need to produce at least 70 percent more food, and some authorities place

that number at closer to 100 percent. The State Department recently issued a report [FN29] on food security, which stated, "Agriculture-including crops, livestock and aquaculture-is a powerful poverty reduction tool. According to the World Bank, for every one percent growth in agriculture, poverty declines by as much as two percent." Thus, EPA should consider the comprehensive and global public health implications of the actions they are taking.

While experts use the year 2050 to help define the critical growth needed in crop production, demand is growing every year, and the problems this creates are immediate and urgent. Every year the world will have to be prepared to deal with food insecurity crises. This is readily apparent this fall, with the sharp and major increases in grain, oilseed and fiber prices stemming directly from a weather disruption in a region with only about 10 percent of the world's wheat production-the Russian wheat belt. This event demonstrates that worldwide food security is highly and directly dependent on the size and reliability of the crops produced in the U.S. and the rest of the developed world.

The State Department report further state:

Investments in the agricultural sector also contribute to overall economic growth by increasing efficiency in the marketing chain, reducing the share of poor people's income spent on food, and enabling them to purchase other goods and services, like education, health care, and housing… Unleashing the potential of small-scale farmers and agribusinesses to produce and sell food will substantially reduce hunger and create a more resilient global food supply for everyone.[FN30]

Given the reality of the growing world demand for food and the serious challenges it creates, the United States, as a major exporter, will have to continue a leadership role in helping the world meet its food security goals. While such challenges in no way mean that agriculture in the United States cannot or will not meet its environmental responsibilities, they do mean that policy making must proceed carefully, with sound analysis and the best science available, as well as taking fully into account food security and other critically important policy objectives and needs.

EPA has failed to quantify any costs and benefits associated with this proposed action but we believe that the Chesapeake Bay TMDL has the potential to impose very burdensome costs on agriculture in the 64,000 square mile Chesapeake Bay watershed. In fact, the Chesapeake Bay TMDL could drive significant portions of the region's agriculture out of the watershed altogether, adversely impacting food production.[FN31]

EPA should consider all of the economic and social impacts of the Draft TMDL before establishing a final TMDL. Further, the Agency should be transparent about the incremental costs and benefits of meeting water quality standards in every reach of every water body all the time. An analysis of those costs may demonstrate that there is a point where the costs of achieving those last few days of attainment outweigh the benefits, particularly if one consequence of attainment is to drive agriculture from the Chesapeake Bay watershed.

[FN29] United States. Dept. of State. Global Hunger and Food Security Initiative: Consultation Document. United States. Dept. of State. Global Hunger and Food Security Initiative: Consultation Document N .p., 28 Sept. 2009. Web. 13 Oct. 2010. <http://www.state.gov/documents/organization/130164.pdf
[FN30] Ibid.
[FN31] In the case of the regulatory controls that EPA is contemplating, these concerns are not speculative. We expect that meeting the allocations in the Draft TMDL would require very aggressive efforts like those that would be

necessary to meet EPA's proposed numeric nutrient criteria for Florida lakes and flowing waters. It is estimated that the controls needed to meet those criteria will cost agriculture in Florida between $855 million and $3 billion dollars in capital costs and between $902 million and $1.6 billion in annual costs. These costs are being imposed to achieve benefits that EPA estimates are only between $2.3 and $2.6 million a year. These cost increases will invariably be absorbed by the produce or, in some cases, passed on to consumers of Florida's fresh and processed fruits, vegetables and animal proteins, both nationwide and local.

Response

Thank you for your comments. EPA will not be identifying the total federal, state, local and private cost burden in the TMDL for reasons discussed in the response to comment 0139.1.001.017.

In recognition that it may be difficult to meet water quality standards in the Chesapeake Bay, EPA considered whether a use attainability analysis (UAA) should be conducted. EPA determined that a UAA at this time is premature given that that Bay restoration will involve long term (15 year) implementation. Instead, energy should be focused on developing a Bay TMDL to achieve current standards and thereafter implementing that TMDL. In particular, with a 15 year implementation horizon, EPA believes likely advancements in technology will improve our ability to reduce nutrients and sediment and at a lower cost. A UAA at this time would not be able to anticipate those potential advancements in technology.

Comment ID 0689.1.001.022

Author Name: Hann Steven

Organization: Capital Region Council of Governments TMDL Work Group

33. EPA has presented a moving target in loading reductions, (see Tables 8-8 and 8-9) because it is uncertain which of the WQS will be applicable to this TMDL. EPA should defer issuance of the TMDL until this matter is resolved.

Response

The Bay TMDL is written to the applicable water quality standard that are adopted by the Bay jurisdictions and approved by EPA.

6.1 - CURRENT WQS

Comment ID 0230.1.001.005

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

In addition, as the Chesapeake Bay Program has long ago determined, the James and York Rivers do not significantly

influence mid-Bay water quality and any regulation of James and York River nutrient discharges should occur only for local water quality protection. For about a decade, Virginia has been operating under James and York River Tributary Strategies (and others) for this purpose. To this end, the State issued the Virginia Regulations governing WWTPs.

At this extremely late point in time, EPA has unilaterally changed the computer model it uses to judge the adequacy of Virginia's actions. Virginia, however, has determined in its WIP (September 2010) at pages 14-15 that the James River chlorophyll standard is faulty and that "additional scientific study is needed to provide a more precise and scientifically defensible basis for setting final nutrient allocations." We agree with this finding and determination by Virginia, and we also support Virginia's "Four Part James River Strategy" at pages 15-17 of the WIP to address these major technical problems. We strongly support the WIP with regard to its wastewater elements at pages 11-12 (Source Sector Strategy for Wastewater), at pages 14-17 (James River), and pages 38-50 (Section 5: Wastewater).

Response

The EPA has not unilaterally changed the computer model. The phase 5.3 watershed model has been built through collaboration with federal, state, academic, and private partners. Development teams at CBPO and USGS include EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium. The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the Draft TMDL. In addition, there have been 2 major independent reviews of the Phase 5 model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board. In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the draft TMDL. The draft TMDL document has lists of additional TMDL-related meetings in Appendix V.

The Commonwealth Virgina has expressed their concerns to the EPA for the proposed James River nutrient allocation to serve as the basis for the Bay TMDL allocations and WIPs. In July 2010, EPA assigned the Commonwealth final nutrient allocations for all major river basins. These allocations are the basis for the draft Phase I Watershed Implementation Plan and the draft TMDL issued on September 24, 2010. The nutrient allocations for the James River are unique in that they are based not only upon compliance with dissolved oxygen (DO) water quality criteria, but also numeric chlorophyll a criteria for 5 sections in the tidal portion of the river. These Bay TMDL allocations are for attaining the current water quality standards (WQS) as required by the Clean Water Act (CWA). That is the TMDL is required to use the current chlorophyll-a criteria as the basis for James River allocations. If Virginia chooses to modify their WQS for the James River, they are required to submit those modifications to EPA for approval.

The TMDL for the Chesapeake Bay contains nitrogen, phosphorous, and sediment loadings necessary to attain current WQS in the Bay and tidal tributaries including the James River. Virginia has indicated an interest in evaluating the science behind the chlorophyll a WQS in the James and has proposed a plan of study. EPA is willing to work with Virginia on this effort. If the WQS are changed, the TMDL may be revised to reflect the new standards. Until that time, the current standards are in effect and the

TMDL is based on those standards and the provisions of the TMDL will need to be implemented until and unless the TMDL is modified.

Comment ID 0253.1.001.011

Author Name: Hazelett Virgil

Organization: County of Henrico, Virginia

As the Chesapeake Bay Program long ago determined, the James River does not meaningfully influence mid-Bay water quality and any regulation of James River nutrient discharges should occur only for local water quality protection. Locally, the applicable water quality standard is chlorophyll standard adopted by Virginia in 2005 and approved by EPA.

However, the appropriateness of that standard is questioned in part due to EPA's unilateral changes to the computer model it uses to judge the adequacy of Virginia's actions.

In fact, Virginia has determined in its WIP (September 2010) at pages 14-15 that the chlorophyll standard is faulty and that "additional scientific study is needed to provide a more precise and scientifically defensible basis for setting final nutrient allocations." The County agrees with this finding and determination by Virginia, and it also supports Virginia's "Four Part James River Strategy" at pages 15-17 of the WIP to address these major technical problems.

EPA's decision to base the James River allocations on attainment of the numeric chlorophyll-a standards rather than attainment of the Bay-wide numeric dissolved oxygen standards is flawed. An analysis of the data shows that the Water Quality Model is poorly calibrated against the chlorophyll-a standard. Consequently, the model results used to derive the James River allocations do not accurately predict the load reductions needed to attain compliance with the James River chlorophyll-a standards. EPA compounded the consequences of using a poorly calibrated model when it used a one percent chlorophyll-a standard attainment rate to derive the James River allocations. The model results show that attainment rates between 96 and 99 percent result in changes to in-stream Chlorophyll-a concentrations of between 1 and 2 ug/l, which is well within the 1-4 ug/l margin of error in the EPA-approved Chlorophyll-a test method. The one percent attainment rate used in this case is inconsistent with attainment rates used or approved by EPA in other TMDLs. EPA has failed to offer any justification for its use of a one percent attainment rate in this case, particularly in light of its use of a poorly calibrated model and the high error margin of the relevant testing protocol. EPA has a certain amount of discretion in determining when models are sufficiently calibrated and in establishing attainment rates. However, EPA abused its discretion when it used a poorly calibrated model and an unreasonably low attainment rate to establish allocations designed to achieve changes in instream Chlorophyll-a concentrations that have significant economic consequences and no quantifiable water quality benefit. Analysis shows that EPA's James River allocations would impose billions of dollars of additional costs within the James watershed while achieving reductions in in-stream Chlorophyll-a concentrations that are within the margin of error of the testing method.

EPA's own calculations and charts show that the James River has a minimal affect on Bay water quality. Thus, the most rigid of the TMDLs is placed on the body of water that has the least impact on the bay. The James River TMDLs are an example of arbitrary decisionmaking and the EPA overreaching its authority as to the Bay clean-up project.

Response

EPA agrees that "locally [for the tidal James River], the applicable water quality standard is the chlorophyll standard adopted by Virginia in 2005 and approved by EPA." That is Virginia has adopted the segment-specific numeric chlorophyll a criteria for the tidal James River listed in Table 3-10 of the draft TMDL into its WQS regulations. The criteria are based on various scientific lines of evidence with additional river-specific considerations (VADEQ 2004). EPA approved the WQS regulations on June 27, 2005.

The EPA has not unilaterally changed the computer model. The phase 5.3 watershed model has been built through collaboration with federal, state, academic, and private partners. Development teams at CBPO and USGS include EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium. The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the Draft TMDL. In addition, there have been 2 major independent reviews of the Phase 5 model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board. In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the draft TMDL. The draft TMDL document has lists of additional TMDL-related meetings in Appendix V.

The Commonwealth of Virginia has expressed their concerns to the EPA for the proposed James River nutrient allocation to serve as the basis for the Bay TMDL allocations and WIPs. In July 2010, EPA assigned the Commonwealth final nutrient allocations for all major river basins. These allocations are the basis for the draft Phase I Watershed Implementation Plan and the final TMDL. The nutrient allocations for the James River are unique in that they are based not only upon compliance with dissolved oxygen (DO) water quality criteria, but also numeric chlorophyll a criteria for 5 sections in the tidal portion of the river. These Bay TMDL allocations are for attaining the current water quality standards (WQS) as required by the Clean Water Act (CWA). That is the TMDL is required to use the current chlorophyll-a criteria as the basis for James River allocations. If the Virginia chooses to modify their WQS for the James River, they are required to submit those modifications to EPA for approval.

Also, please see response to comment # 0293.1.001.017.

Comment ID 0265.1.001.024

Author Name: Clark, Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Hampton, Virginia

VI. THE MODELING PREDICTIONS DO NOT JUSTIFY USE OF THE CHLOROPHYLL-a CRITERIA AS THE BASIS FOR THE JAMES RIVER BASIN ALLOCATIONS

Subsection 303(d)(1)(C) of the Clean Water Act requires that TMDLs be established at a level necessary to implement the applicable water quality standards. Here, EPA is proposing to establish the TMDL at a level that it asserts is necessary to implement the tidal James River seasonal chlorophyll-a criteria. In so doing, it is proposing to establish the TMDL at a level for the James River basin that will require significantly greater load reductions and costs than would be required to implement the dissolved oxygen and water clarity criteria for the James River and main-stem of the Bay. [FN 13] EPA may have acted within the scope of its authority in considering the chlorophyll-a criteria as the "applicable water quality standards" for the James River. However, it has failed to offer a reasoned justification for using the chlorophyll-a criteria as the basis for the James River allocations in light of significant unresolved issues related to the accuracy of the chlorophyll-a modeling predictions and resulting absence of any quantifiable water quality benefit from the billions of dollars in additional expenditures that will be required to meet the proposed chlorophyll-a criteria-based allocations.

[FN 13] As discussed below, the Localities maintain that EPA should replace the allocations proposed in the TMDL for the James and York river basins with the allocations in the 2005 James River and York River Tributary Strategies. The Tributary Strategies reflected the Chesapeake Bay Program's determination that nutrient loadings from these basins have little impact on dissolved oxygen levels in the main-stem of the Bay and that the additional nutrient controls called for in the Tributary Strategies were required for local water quality needs only. Studies conducted since 2005 confirm that this is still the case. Hence, in the absence of a stable, calibrated chlorophyll-a model for the James River, the Tributary Strategies' allocations continue to reflect the best science available for establishing allocations for the James and York river basins. Comments on the TMDL submitted by the Virginia Association of Municipal Stormwater Agencies (VAMSA) contain a more extensive and detailed analysis of this issue. In the interest of brevity, the Localities adopt and incorporate VAMSA's comments and attached exhibits and appendices by reference rather than repeating them here.

Response

The Commonwealth Virgina has expressed their concerns to the EPA for the proposed James River nutrient allocation to serve as the basis for the Bay TMDL allocations and WIPs. In July 2010, EPA assigned the Commonwealth final nutrient allocations for all major river basins. These allocations are the basis for the draft Phase I Watershed Implementation Plan and the draft TMDL issued on September 24, 2010. The nutrient allocations for the James River are unique in that they are based not only upon compliance with dissolved oxygen (DO) water quality criteria, but also numeric chlorophyll a criteria for 5 sections in the tidal portion of the river. These Bay TMDL allocations are for attaining the current water quality standards (WQS) as required by the Clean Water Act (CWA). That is the TMDL is required to use the current chlorophyll-a criteria as the basis for James River allocations. If the Virginia choose to modify their WQS for the James River, they are required to submit those modifications to EPA for approval. Also, please see response to comment # 0293.1.001.017.

Comment ID 0267.1.001.006

Author Name: Bowman Cynthia

Organization: Cornell Law School Water Law Clinic

Moreover, EPA's September 24 Draft Chesapeake Bay TMDL purports to discuss the WQS applicable to the "jurisdictions." Unfortunately, EPA only discusses the WQS for Maryland, Virginia, Delaware, and the District of Columbia, notably leaving out New York. Accordingly, the Clinic is concerned that EPA's draft TMDL for its waters is based on a WQS that does not account for New York's extant water quality or the environmental issues unique to the state.

Response

By regulation, the TMDLs are to be established at levels necessary to attain and maintain the applicable water quality standards (WQS). And, these applicable WQS apply to the waters (the Chesapeake Bay and its tidal tributaries and embayments) within the jurisdictions (Maryland, Virginia, Delaware, and the District of Columbia). To account for New York's "extant water quality or the environmental issues unique to the state." The SPARROW (SPAtially Referenced Regression On Watershed attributes) model integrates monitoring data with landscape information and uses statistical methods to relate water-quality monitoring data to upstream sources and watershed characteristics that affect the fate and transport of constituents to streams, estuaries, and other receiving water bodies. A set of spatially referenced regression models were developed by USGS to provide additional spatial detail on nutrient sources and transport processes in the Bay watershed. In general, the scope of Chesapeake Bay TMDL includes nutrient and sediment loads delivered to the Chesapeake Bay from all sources (including New York) within and outside the watershed. Although not original signatories of the Chesapeake 2000 Agreement, New York, signed on as partners in implementing the cap loads. New York participates as a full partner on issues related to water quality.

The comment does not recognize a basic premise of this TMDL…That upstream LOADINGS of pollutants contribute to the downstream non-attainment of water quality standards. Thus this and other TMDLs recognize that the downstream waters (the Bay and tidal tributaries) are impaired, that loadings of nitrogen, phosphorous and sediment cause those impairments, and New York and other bay jurisdictions contribute loadings of these pollutants and therefore are subject to the Bay TMDL.

Comment ID 0271.1.001.008

Author Name: Harrison L.

Organization: South Central Wastewater Authority, Petersburg, Virginia

Virginia, however, has determined in its WIP (September 2010) at pages 14-15 that the chlorophyll standard is faulty and that "additional scientific study is needed to provide a more precise and scientifically defensible basis for setting final nutrient allocations." We agree with this finding and determination by Virginia, and we also support Virginia's "Four Part James River Strategy" at pages 15-17 of the WIP to address these major technical problems. We strongly support the WIP with regard to its wastewater elements at pages 11-12 (Source Sector Strategy for Wastewater), at pages 14-17 (James River), and pages 38-50 (Section 5: Wastewater).

Response

Please refer to response to comment # 0230.1.001.005

Comment ID 0288.1.001.015

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

EPA'S APPROACH TO JAMES RIVER IS UNREASONABLE

In the Draft TMDL, EPA has proposed drastic cuts to the James River allocations. This is the result of a remarkable confluence of technical and policy problems: an unstable, poorly-calibrated model forcibly applied to a scientifically dubious standard, itself partially based on prior model predictions of attainment under a completely different loading scenario. EPA has failed to offer a reasoned explanation for using the chlorophyll-a criteria as the basis for James River allocations in light of these unresolved issues. EPA‘s Draft TMDL is also missing evidence that there would be any quantifiable water quality benefit from the billions of dollars that would be required to comply with the allocations. The Draft TMDL validates and confirms VAMWA‘s long-held concern that the chlorophyll-a standard could result in mismanagement of the estuary. EPA‘s determinations on this issue are unreasonable and arbitrary and capricious. The following comments summarize the major problems with the chlorophyll-a standard and TMDL-related modeling:

A. The James River chlorophyll-a standards are scientifically flawed

The stringent nutrient allocations proposed by EPA are based on a standard that lacks a sound scientific foundation. VAMWA has been actively participating in discussions regarding chlorophyll-a since EPA‘s initially attempted to derive Bay wide criteria in 2000. Over this time, VAMWA scientists served on technical committees, contributed independent data analyses, and provided numerous sets of technical comments on chlorophyll-a. During the development of the Bay TMDL, VAMWA clearly communicated its concerns about the James River specific chlorophyll-a standards to the EPA.[FN41] The key points in that document are summarized as follows.

1. EPA-led technical efforts concluded that numeric chlorophyll-a criteria were not technically supported (2000-2003): An EPA process to develop Bay-wide chlorophyll-a standards pre-dated Virginia‘s adoption of the James River chlorophyll-a standard. Despite considerable efforts (including supporting technical work by VAMWA), the process ultimately showed that chlorophyll-a could not be quantitatively linked to designated use attainment at that time. The EPA ultimately recognized these deficiencies and made the appropriate decision not to publish Bay-wide chlorophyll-a criteria as part of the 2003 criteria document.[FN42] EPA eventually published a compilation of multiple lines of inquiry and encouraged States to use this information to develop site specific chlorophyll-a criteria where needed. VAMWA expressed concerns that the document did not sufficiently recognize the limitations and offered substitute language.[FN43]

2. Virginia's derivation of chlorophyll-a criteria suffered from the same issues experienced by EPA (2003-2005): After the publication of the EPA criteria document, the Commonwealth of Virginia initiated a rulemaking process to establish chlorophyll-a criteria for the tidal portions of the James River. During this process, the VADEQ relied heavily on EPA‘s 2003 criteria document, and suffered the problems associated with it. Due to our familiarity with the deficiencies of the 2000-2003 EPA effort, we recommended that Virginia adopt an adaptive management approach that used monitoring and research to strengthen the understanding of relationships between chlorophyll-a and potentially harmful algal

blooms.[FN44] When this course of action was not followed, VAMWA commented extensively on the subsequent criteria proposals [FN45] supported by literature reviews and data analysis. These technical issues associated with the numerical criteria were never satisfactorily resolved. Legislation was drafted by a member of the General Assembly that would require justification of tangible benefits to the environment and to the public. This was held in abeyance to encourage all parties to achieve a solution to the problem. That solution consisted of conducting a James River "Alternatives Analysis".

3. The criteria ultimately adopted were a compromise partially based on model predictions of attainment under a specific set of loading assumptions: During 2005, VADEQ (with EPA‘s assistance) performed a series of modeling analyses to evaluate chlorophyll-a reductions relative to various point source loading scenarios. The results from the Alternatives Analysis [FN46] were used to both adjust the proposed criteria adopted by the SWCB in 2005 (significantly in some cases) and establish point source nutrient allocations now contained in the Water Quality Management Regulation. These circumstances demonstrate that the existing chlorophyll-a standards represent a negotiated result contingent on (a) expectations of attainment under a specific set of loading assumptions, (b) the status of the modeling framework at the time, and (c) other critical interpretation assumptions that were employed.

4. The new EPA model does not address attainment or previous model assumptions: During 2009-2010, as part of the TMDL process, the EPA‘s Chesapeake Bay Program Office revised the modeling framework and the other critical assumptions and re-evaluated chlorophyll-a attainment. The modeling results now predict much higher non-attainment rates for chlorophyll for the same given loading scenario agreed to in 2005. These results are now driving the EPA‘s present proposal for steep nutrient loading reductions for the James River. The key factors responsible for the increasing stringency are listed below:

a. The watershed model (WSM) and its calibration were revised from WSM version 4.3 to WSM version 5. The watershed model is still presently undergoing modification at the time of this writing. WSM version 4.3 was calibrated to 1985-1991 hydrology while WSM 5 was calibrated to 1990-2000 hydrology. The newer hydrologic period tends to have higher loading rates as this period is wetter. The effectiveness of certain BMPs were also revised downward (achieve less nutrient reduction for each BMP).

b. EPA changed its method for predicting attainment from direct use of the model results to a method that uses scenario results to transform observed data.

c. Model output was evaluated for 3 year periods individually (8 in total) instead of a single 10 year period during the 2005 Alternatives Analysis.

d. A rule was implemented to require non-attainment to be less than or equal to 1%. In the 2005 Alternatives Analysis, there was no stated rule and non-attainment rates of 4% were judged to be within the uncertainty band of the model, which EPA accepted as sufficient.

As previously stated, the James River chlorophyll-a criteria and associated load allocations are inherently linked to the model framework and analysis assumptions of 2005. EPA has essentially changed the rules of the game after the fact. It is likely that Virginia would have adopted different chlorophyll-a criteria, or may not have adopted any chlorophyll-a criteria, if EPA had demanded the interpretation rules described above during the 2005 time period.

B. VADEQ (and apparently EPA) recognized that the existing chlorophyll-a standards are imprecise and would require revision

The 2005 time period record is replete with statements that recognized the unreliability of the chlorophyll-a criteria and the need for future adjustment by both the VADEQ and EPA. As part of the public comments regarding the James River Alternatives Analysis, the VADEQ and EPA commented as follows regarding the state of the science regarding the chlorophyll standards:

EPA…requests the [sic] Virginia fully consider new scientific findings and enhanced information on attainability in future triennial reviews of the Commonwealth's water quality standards regulations…DEQ acknowledges that the current state of the science for deriving numerical chlorophyll a criteria to protect these designated uses is not as quantitatively precise as that supporting other published criteria in terms of the exact concentrations at which adverse impairments to aquatic life are certain to occur. We believe that attainability can be factored into the final criteria to help us focus in on a number that is protective of aquatic life uses in these segments and reasonable. ….[FN47]

EPA's present insistence that the chlorophyll model results be interpreted in a strict and rigid manner is inconsistent with limitations of the standard acknowledged by EPA.

[FN41] See August 16, 2010 letter and attachments from VAMWA to EPA staff (attached hereto as Appendix 22). [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A22]

[FN42] Attached hereto as Appendix 23. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A23]

[FN43] Comments attached hereto as Appendix 24. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A24]

[FN44] Comments Attached hereto as Appendix 25. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A25]

[FN45] Comments Attached hereto as Appendix 26. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A26]

[FN46] Attached hereto as Appendix 27. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A27]

[FN47] Materials from Final Regulation Agency Background Document (Nov. 21, 2005).

Response

Please see response to comment 0230.1.001.030

Comment ID 0329.1.001.003

Author Name: Harrington Marilou

Organization: Town of Caroline, New York

Whereas, New York's water discharge current already meets swimming and fishing quality thresholds; and

Response

Please refer to response to comment 0080-cp.001.002

Comment ID 0431.1.001.008

Author Name: Tolbert James

Organization: City of Charlottesville, Virginia

In addition, as the Chesapeake Bay Program has long ago determined, the James River does not influence mid-Bay water quality and any regulation of James River nutrient discharges should occur only for local water quality protection. Locally, the applicable water quality standard is a chlorophyll standard adopted by Virginia in 2005 and approved by EPA. However, the appropriateness of that standard is in question in part due to EPA's unilateral changes to the computer model it uses to judge the adequacy of Virginia's actions. In fact, Virginia has determined in its WIP (September 2010) at pages 14-15 that the chlorophyll standard is faulty and that "additional scientific study is needed to provide a more precise and scientifically defensible basis for setting final nutrient allocations." We agree with this finding and determination by Virginia, and we also support Virginia's "Four Part James River Strategy" at pages 15-17 of the WIP to address these major technical problems.

Response

Please refer to response to comment 0230.1.001.005

Comment ID 0436.1.001.024

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Chesapeake, Virginia

VI. THE MODELING PREDICTIONS DO NOT JUSTIFY USE OF THE CHLOROPHYLL-a CRITERIA AS THE BASIS FOR THE JAMES RIVER BASIN ALLOCATIONS

Subsection 303(d)(1)(C) of the Clean Water Act requires that TMDLs be established at a level necessary to implement

the applicable water quality standards. Here, EPA is proposing to establish the TMDL at a level that it asserts is necessary to implement the tidal James River seasonal chlorophyll-a criteria. In so doing, it is proposing to establish the TMDL at a level for the James River basin that will require significantly greater load reductions and costs than would be required to implement the dissolved oxygen and water clarity criteria for the James River and main-stem of the Bay.[FN 13] EPA may have acted within the scope of its authority in considering the chlorophyll-a criteria as the "applicable water quality standards" for the James River. However, it has failed to offer a reasoned justification for using the chlorophyll-a criteria as the basis for the James River allocations in light of significant unresolved issues related to the accuracy of the chlorophyll-a modeling predictions and resulting absence of any quantifiable water quality benefit from the billions of dollars in additional expenditures that will be required to meet the proposed chlorophyll-a criteria-based allocations.

[FN 13] As discussed below, the Localities maintain that EPA should replace the allocations proposed in the TMDL for the James and York river basins with the allocations in the 2005 James River and York River Tributary Strategies. The Tributary Strategies reflected the Chesapeake Bay Program's determination that nutrient loadings from these basins have little impact on dissolved oxygen levels in the main-stem of the Bay and that the additional nutrient controls called for in the Tributary Strategies were required for local water quality needs only. Studies conducted since 2005 confirm that this is still the case. Hence, in the absence of a stable, calibrated chlorophyll-a model for the James River, the Tributary Strategies' allocations continue to reflect the best science available for establishing allocations for the James and York river basins. Comments on the TMDL submitted by the Virginia Association of Municipal Stormwater Agencies (VAMSA) contain a more extensive and detailed analysis of this issue. In the interest of brevity, the Localities adopt and incorporate VAMSA's comments and attached exhibits and appendices by reference rather than repeating them here.

Response

The Commonwealth Virgina has expressed their concerns to the EPA for the proposed James River nutrient allocation to serve as the basis for the Bay TMDL allocations and WIPs. In July 2010, EPA assigned the Commonwealth final nutrient allocations for all major river basins. These allocations are the basis for the draft Phase I Watershed Implementation Plan and the draft TMDL issued on September 24, 2010. The nutrient allocations for the James River are unique in that they are based not only upon compliance with dissolved oxygen (DO) water quality criteria, but also numeric chlorophyll a criteria for 5 sections in the tidal portion of the river. These Bay TMDL allocations are for attaining the current water quality standards (WQS) as required by the Clean Water Act (CWA). That is the TMDL is required to use the current chlorophyll-a criteria as the basis for James River allocations. If the Virgina choose to modify their WQS for the James River, they are required to submit those modifications to EPA for approval.

Comment ID 0445.1.001.003

Author Name: Lerch Joe

Organization: Virginia Municipal League (VML)

We oppose EPA's cuts to the James River allocation and support Virginia's inclusion of the James River chlorophyll study within the TMDL.

Citing concerns from both the Virginia Association of Municipal Wastewater Agencies (VAMWA) and the Virginia Municipal Stormwater Association (VAMSA), VML is opposed to the proposed allocations for the James River based upon what we understand to be a problematic standard for chlorophyll-a. In addressing this issue we conclude that the approach to determine the appropriate standard, as set forth by the Virginia Department of Environmental Quality, to be reasonable, financially prudent, and adequate for meeting dissolved oxygen standards for the main stem of the bay by the 2017 interim target load.

Response

Please refer to response to comment 0230.1.001.005

Comment ID 0481.1.001.008

Author Name: Andes Fredric

Organization: Federal Water Quality Coalition

EPA's model shows persistent 1% nonattainment of water quality standards, no matter what assumptions are made. In fact, EPA admits there are 11 segments that cannot meet water quality standards. Draft TMDL, at 6-36. EPA also admits that it cannot determine if the current criteria for dissolved oxygen are sufficiently protective of water quality.

It is difficult to comprehensively evaluate the protectiveness of the assessed criteria strictly based on monitoring data, because the unassessed criteria cannot be directly evaluated due to insufficient data or lack of published assessment protocols. A multi-partner effort is underway to develop criteria assessment protocols based on the available data, but those protocols will not be complete, peer reviewed and published until 2011 at the earliest. Draft TMDL, App. D, at 1.

It follows a priori that if EPA is unable to evaluate the adequacy of dissolved oxygen criteria "due to insufficient data or lack of published assessment protocols" then the Draft TMDL is flawed because it cannot meet water quality standards. Indeed, EPA admits that it cannot demonstrate attainment under any scenarios for some water bodies. Draft TMDL, at 6-53. Despite this admission, in section 9 EPA proposes a TMDL based on those unattainable standards. Such a TMDL does not meet the requirements of the CWA.

It is particularly important for EPA to determine whether the dissolved oxygen criteria for the Bay are appropriate and achievable because it appears that many of the reductions required by the Draft TMDL are being driven by dissolved oxygen levels in 4 deep channel segments. Draft TMDL, at 6-13. For dissolved oxygen, all of the other 88 segments would achieve water quality standards with higher loadings. A UAA could establish a basis for determining whether meeting these dissolved oxygen standards is appropriate, or if the standards should be changed.

Response

Please see response to comment 0481.1.001.007

Comment ID 0496.1.001.021

Author Name: Allsbrook Lynn

Organization: City of Hampton, Virginia, Department of Public Works

Subsection 303(d)(1)(C) of the Clean Water Act requires that TMDLs be established at a level necessary to implement the applicable water quality standards. Here, EPA is proposing to establish the TMDL at a level that it asserts is necessary to implement the tidal James River seasonal chlorophyll-a criteria. In so doing, it is proposing to establish the TMDL at a level for the James River basin that will require significantly greater load reductions and costs than would be required to implement the dissolved oxygen and water clarity criteria for the James River and main-stem of the Bay.[FN13] EPA may have acted within the scope of its authority in considering the chlorophyll-a criteria as the "applicable water quality standards" for the James River. However, it has failed to offer a reasoned justification for using the chlorophyll-a criteria as the basis for the James River allocations in light of significant unresolved issues related to the accuracy of the chlorophyll-a modeling predictions and resulting absence of any quantifiable water quality benefit from the billions of dollars in additional expenditures that will be required to meet the proposed chlorophyll-a criteria-based allocations.

[FN 13] As discussed below, the Localities maintain that EPA should replace the allocations proposed in the TMDL for the James and York river basins with the allocations in the 2005 James River and York River Tributary Strategies. The Tributary Strategies reflected the Chesapeake Bay Program's determination that nutrient loadings from these basins have little impact on dissolved oxygen levels in the main-stem of the Bay and that the additional nutrient controls called for in the Tributary Strategies were required for local water quality needs only. Studies conducted since 2005 confirm that this is still the case. Hence, in the absence of a stable, calibrated chlorophyll-a model for the James River, the Tributary Strategies' allocations continue to reflect the best science available for establishing allocations for the James and York river basins. Comments on the TMDL submitted by the Virginia Association of Municipal Stormwater Agencies (VAMSA) contain a more extensive and detailed analysis of this issue. In the interest of brevity, the Localities adopt and incorporate VAMSA's comments and attached exhibits and appendices by reference rather than repeating them here.

Response

Please see response to comment # 0293.1.001.017.

Comment ID 0497.1.001.008

Author Name: Hobbs Jack

Organization: Town of Amherst, Virginia

Virginia, however, has determined in its WIP (September 2010) at pages 14-15 that the chlorophyll standard is faulty and that "additional scientific study is needed to provide a more precise and scientifically defensible basis for setting final nutrient allocations." We agree with this finding and determination by Virginia, and we also support Virginia's "Four Part James River Strategy" at pages 15-17 of the WIP to address these major technical problems. We strongly support

the WIP with regard to its wastewater elements at pages 11-12 (Source Sector Strategy for Wastewater), at pages 14-17 (James River), and pages 38-50 (Section 5: Wastewater).

Response

Please refer to response to comment 0230.1.001.005

Comment ID 0498.1.001.004

Author Name: Walls Brent

Organization: Potomac Riverkeeper

The Clean Water Act delegates the authority to the States in developing a Pollution Permit system (NPDES) and to establish pollution loadings to all impaired streams (TMDL). Unfortunately the CWA and the EPA do not have a specific enough guidance for the States in how to develop these TMDLs. When it comes to nutrients, each State in the Bay Watershed has different processes for estimating waterbody impairment and therefore different TMDL development strategies. Maryland develops nutrient (nitrogen, phosphorous, sediment) TMDLs with an estimated cap for each of the sources. Pennsylvania has been developing nutrient TMDLs for phosphorous and sediment, but not nitrogen. Virginia has developed phosphorous and sediment TMDLs, but are just now starting TMDLs that include Nitrogen. West Virginia has Biological Impairment TMDLs that looks at nutrients as a function of the impairment, but does not have caps for Nitrogen or phosphorous and relies on the reduction of fecal coliform from point sources to reduce nutrients. Basically, all four States in the Potomac watershed are not on the same page. Each State is developing TMDLs differently and West Virginia is severely lagging behind. The standards by which all four States assess a shared watershed, should be the same, otherwise, the Potomac will suffer and continue to be plagued by nutrient pollution. West Virginia needs to develop nutrient TMDLs that set caps for nitrogen and phosphorus for both point source and non-point sources.

Response

The Bay Water Quality Standard (WQS) are applied, where appropriate, consistently across Maryland, Virginia, Delaware, and the District of Columbia‘s portions of the Chesapeake Bay and its tidal tributary and embayment waters. The Bay WQS are spelled out and clearly quantified within U.S. Environmental Protection Agency, Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and its Tidal Tributaries (EPA 903-R-03-002) document. Available online at http://www.chesapeakebay.net/publication.aspx?publicationid=13142. Also, please see Table 3-1 within the final Chesapeake Bay TMDL document for references to nine additional supporting EPA published documents detailing the scientific basis for the criteria and their designated uses and assessment procedures, each of which are accessible on-line through http://www.chesapeakebay.net. These published guidances provide EPA’s recommended WQS for the Chesapeake Bay jurisdiction for use in establishing their WQS consistent with Section 303(c) of the Clean Water Act. Guided by those efforts, Delaware, the District of Columbia, Maryland, and Virginia adopted jurisdiction-specific Chesapeake Bay WQS regulations in 2004–2005 consistent with the EPA published guidance. EPA then reviewed and approved the four tidal Bay jurisdictions WQS submissions pursuant to CWA section 303(c).

Comment ID 0528.1.001.001

Author Name: Barnes C.

Organization: County of Spotsylvania, Virginia

However, while the motivations and goals behind the EPA's development of the draft TMDLs are worthy and legitimate goals, the methodologies utilized by EPA to develop the draft TMDLs "pollution diet" are too restrictive in approach and focus on arbitrary numbers instead of documented impact to nutrient levels. Water quality is a field which is constantly striving to develop new innovations and ways to approach old problems. The pollutant problem requires inventive analysis and "out of the box" thinking. While the methods advanced in the draft TMDLs may be one viable option, the EPA cannot be certain that there do not exist other approaches that achieve the same or greater objectives with less of a financial burden to localities. The EPA has not adequately demonstrated what levels constitute a "healthy" Chesapeake Bay, nor what the normal variability in these levels is, nor what are healthy levels in similar estuaries. In basing the "health" of a waterway on numbers which are scientifically unsound because they are constantly changing (and in many cases no longer current), and evaluating the success of a water quality management program on achieving those distorted numbers, the draft TMDLs limit the ability of innovators in the field to continue to strive to find new, creative, and more cost effective pollution control methods to address stormwater and wastewater impacts to the Chesapeake Bay.

Response

Water quality conditions that define a healthy Chesapeake Bay are spelled out and clearly quantified within EPA Chesapeake Bay Water Quality Criteria documents

Please see the extensive documentation of the scientific basis for each of the Chesapeake Bay dissolved oxygen, water clarity, underwater bay grasses, and chlorophyll a water quality criteria within: U.S. Environmental Protection Agency. 2003. Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries. EPA 903-R-03-002. Region III Chesapeake Bay Program Office, Annapolis, Maryland, available online at http://www.chesapeakebay.net/publication.aspx?publicationid=13142 Please see Table 3-1 within the final Chesapeake Bay TMDL document for references to nine additional supporting EPA published documents detailing the scientific basis for the criteria and their designated uses and assessment procedures, each of which are accessible on-line through http://www.chesapeakebay.net.

Each individual Chesapeake Bay water quality criterion is supported by decades of published Chesapeake Bay scientific findings as well as scientific findings from research conducted from similar estuarine environments and laboratories across the country and around the world. References to the published scientific findings are all documented within the above referenced ten EPA published documents. These criteria were derived to be protective of aquatic life within the Chesapeake Bay as defined through five designated uses. The Bay water quality criteria were derived following methods consistent with published EPA criteria guidelines.

Since 1985, there has been extensive collection of nitrogen, phosphorus and sediment ambient concentration data at over 150 stations through the Chesapeake Bay Water Quality Monitoring Program, with collections occurring 12-20 times per year at various

depths through the water column. Historically, nutrient and sediment concentration data for Chesapeake Bay are available since the 1950s, with some measurements dating back to the 1930s, providing one of the richest long term water quality data records for any estuary in the world. All these current and historical water quality data, totaling millions and millions of individual data points, are available online at
http://www.chesapeakebay.net/dataandtools.aspx?menuitem=14872

6.2 - PROPOSED WQS

Comment ID 0087-cp.001.002

Author Name: Phillips D. H.

Organization:

My only concern is that the targets for pollution reduction may be too low to achieve the goal of a restored healthy Bay.

Response

Starting in 1986, EPA and its Chesapeake Bay partners embarked on a process to synthesize scientific evidence on the water quality requirements the protection of Chesapeake Bay. Guided by those efforts, Delaware, the District of Columbia, Maryland, and Virginia adopted jurisdiction-specific Chesapeake Bay WQS regulations consistent with the EPA published guidance. EPA then reviewed and approved the four tidal Bay jurisdictions‘ WQS submissions pursuant to CWA section 303(c). To then end EPA, when water quality criteria are met, water quality is expected to achieve the goal of a restored healthy Bay. (Draft Chesapeake Bay Total Maximum Daily Load, September 2010). Of course, EPA and the states will continue to monitor the water quality and the living resources of the Chesapeake Bay to verify that the expected improvements are realized.

Comment ID 0199.1.001.006

Author Name: Frederick Thomas

Organization: Rivanna Water & Sewer Authority

At this extremely late point in time, EPA has unilaterally changed the computer model it uses to judge the adequacy of Virginia's actions. Virginia, however, has determined in its WIP (September 2010) at pages 14-15 that the chlorophyll standard is faulty and that "additional scientific study is needed to provide a more precise and scientifically defensible basis for setting final nutrient allocations." We agree with this finding and determination by Virginia, and we also support Virginia's "Four Part James River Strategy" at pages 15-17 of the WIP to address these major technical problems.

Response

The EPA has not unilaterally changed the computer model. The phase 5.3 watershed model has been built through collaboration with federal, state, academic, and private partners. Development teams at CBPO and USGS include EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the Draft TMDL.

In addition, there have been 2 major independent reviews of the Phase 5 model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board.

In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the draft TMDL. The draft TMDL document has lists of additional TMDL-related meetings in Appendix V.

The Commonwealth Virginia has expressed their concerns to the EPA for the proposed James River nutrient allocation to serve as the basis for the Bay TMDL allocations and WIPs. In July 2010, EPA assigned the Commonwealth final nutrient allocations for all major river basins. These allocations are the basis for the draft Phase I Watershed Implementation Plan and the draft TMDL issued on September 24, 2010. The nutrient allocations for the James River are unique in that they are based not only upon compliance with dissolved oxygen (DO) water quality criteria, but also numeric chlorophyll a criteria for 5 sections in the tidal portion of the river. These Bay TMDL allocations are for attaining the current water quality standards (WQS) as required by the Clean Water Act (CWA). That is the TMDL is required to use the current chlorophyll-a criteria as the basis for James River allocations. If the Virginia choose to modify their WQS for the James River, they are required to submit those modifications to EPA for approval.

EPA has not been provided information by this commenter to support the assertion that the existing chlorophyll a standard is 'faulty'. The standard is the result of the best science that was available at the time it was adopted by Virginia and was endorsed by Virginia and EPA based on this science. Virginia has included in their WIP an interest in updating this science and if necessary, revise the state standard. Until the standard is revised the TMDL must be based on the applicable standard, in this case the existing chlorophyll a standard, for the James River.

Comment ID 0227.1.001.018

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

Finally, we reviewed carefully the discussion and rationale for basing the TMDL on proposed revisions to the water

quality standards which have not yet been finalized in all jurisdictions. If these standards can be duly established by the states and approved by EPA before the TMDL is published in December 2010, we agree that the TMDL should be so based. This is, in fact, continuing evidence of the commitment of EPA and the states to evaluate the attainability of the tidal water standards, while continuing to ensure that they are protective of aquatic life uses.

Response

The Bay TMDL is written to the applicable water quality standards as adopted by the Bay jurisdictions and approved by EPA.

Comment ID 0376.1.001.020

Author Name: Smith Brooks

Organization: Virginia Manufacturers Association VMA

Virginia's Strategy for Revising Chlorophyll-a Water Quality Criteria for the James River is Sensible, Consistent with the TMDL Implementation Process, and Protective of Water Quality.

As noted in the Virginia WIP and acknowledged by EPA during our October 6,2010 meeting, there is a need to amend the James River Site-Specific Numeric Chlorophyll-a Criteria. Unless and until the criteria are amended, any allocations designed to achieve them will be premature and, more likely than not, overprotective. Under Section 303(d)(l)(C) of the Clean Water Act, a TMDL cannot be overprotective. Rather, it must be set at the level necessary to implement the applicable water quality standard. In this case, EPA has acknowledged that the applicable standard needs to be changed, and Virginia has proposed a sensible plan for making near-term reductions while the regulatory process plays out. Virginia's plan does not abdicate responsibility for reductions in the James River and does not otherwise violate the schedule established by EPA. We strongly support Virginia's step-wise approach and urge EPA not to impose reductions in the TMDL that prove to be overprotective once the criteria are amended.

Response

EPA agrees with the minor modifications of the standards that has been adopted by Virginia to be compatible with EPAs recently published criteria. However, EPA has not made a determination on any future modifications to the chlorophyll a standard. For further information, please refer to response to comment 0230.1.001.005

Comment ID 0480.1.001.011

Author Name: Falk Hilary

Organization: Choose Clean Water Coalition

Finally, we reviewed carefully the discussion and rationale for basing the TMDL on proposed revisions to the water quality standards which have not yet been finalized in all jurisdictions. If these standards can be duly established by the states and approved by EPA before the TMDL is published in December 2010, we agree that the TMDL should be so based. This is, in fact, continuing evidence of the commitment of EPA and the states to evaluate the attainability of the tidal water standards, while continuing to ensure that they are protective of aquatic life uses.

Response

The Bay TMDL is written to the applicable water quality standard that are adopted by the Bay jurisdictions and approved by EPA.

Comment ID 0590.1.001.002

Author Name: Chavez Jennifer

Organization: Earthjustice et al.

1. Loads Based on Proposed Standards: The proposed TMDLs are based on proposed state water quality standards. The Act requires TMDLs to implement the "applicable" water quality standards, which are those adopted and in effect for each state. 33 U.S.C. 1313(d). Accordingly, the final TMDLs must reflect loads that are sufficiently stringent to implement the EPA-approved water quality standards that are in effect for each state at the time the TMDLs are finalized.

Response

The Final Bay TMDL is written to the applicable water quality standard that are adopted by the Bay jurisdictions and approved by EPA.

Comment ID 0590.1.001.009

Author Name: Chavez Jennifer

Organization: Earthjustice et al.

7. Proposal to Weaken Water Quality Standards: On pages 6-4 to -5 of the TMDL document EPA attempts to justify weaker water quality standards and TMDLs than called for by modeling as necessary to meet current standards. At least part of the justification proffered is that weaker standards are needed because otherwise substantially greater load reductions would be required. Such a rationale is not a lawful or rational basis for relaxing water quality standards. Under EPA's water quality standards rules, 40 CFR Part 130, standards must be sufficiently stringent to protect designated uses, regardless of the ease or difficulty of achieving such standards. Further, a downgrading of designated uses is not allowed unless the state prepares a sufficient use attainability demonstration showing that one or more uses is not an existing use and cannot be attained based on the one of the showings required in EPA's rules. The TMDL

proposal makes no such showing, and in its absence, EPA cannot approve relaxed water quality standards as proposed.

Response

EPA did not recommend weakening of the jurisdictions' Chesapeake Bay water quality standards. There were no changes proposed (or even considered) in terms of changes to the EPA published Chesapeake Bay water quality criteria for dissolved oxygen, water clarity, underwater bay grasses and chlorophyll a. There were no change proposed (or even considered) in terms of changes to the EPA published Chesapeake Bay's five tidal water designated uses. As presented in Table 3-1 in Section 3 of the final Bay TMDL, EPA, working with its partner jurisdictions, has published a series of seven addenda to the original EPA published 2003 Bay criteria, 2003 Bay designated uses, and 2004 Bay segmentation reports. EPA has continued to commit to publishing addenda to its Bay criteria and designated use document as new scientific findings provide better insights into ensuring protection of the Bay's living resources including better, more accurate assessments of Bay criteria attainment. In turn, the four Bay jurisdictions have committed to the adoption of the recommendations within those addenda documents into their respective water quality standards regulations. That is actually the process that is described more clearly and accurately within the final Bay TMDL.

All the changes that were proposed by the jurisdictions were based on a better understanding of the Chesapeake Bay ecosystem. The specific changes were directed towards ensuring the application of right criteria for protection of the applicable tidal water designated use and applying better criteria assessment procedures for determining attainment or impairment of the designated use. As the partnership continues to gather more monitoring data, receive new scientific findings, develop more refined and geographic specific allocations, EPA is actively working to build those new scientific insights and understanding into further strengthening of the jurisdictions' water quality standards regulations to ensure protection of the different components of the Bay ecosystem, continue to improve the jurisdictions' biennial 303(d) listings to reflect this better understanding, and more clearly communicate to the public on the health of the Chesapeake Bay ecosystem.

The commenter is correct that the draft Bay TMDL document could have more clearly described the changes to their respective water quality standards regulations being proposed by the three Bay jurisdictions. EPA has edited the referenced text within Section 6 to accurately reflect the jurisdicitons' Chesapeake Bay water quality standards.

Comment ID 0740.001.006

Author Name: Hanmer R.

Organization:

EPA's draft TMDL report outlines continuing work by EPA and the states to refine the criteria, use designations and methodologies for judging attainment. Specifically, EPA states its intention to base the TMDL allocations it will be adopting on revisions to the tidal water quality standards that have been proposed but not yet finalized in all

jurisdictions. Knowing the good science and evaluation which underlies these revisions, I support this position and urge EPA and the states to do everything they can to assure that the proper, standards are in place in time to support allocations based on them.

Response

Thank you for your support. The revisions to the standards are important and based on the latest science. States have done a good job in promptly making the needed modifications.

6.3 - GENERAL/MISCELLANEOUS

Comment ID 0040-cp.001.002

Author Name: Emswiler Samantha

Organization:

Some of the consequences of a failure of the EPA to uphold these mandates include rapid decline in the populations of oyster, dead zones, algal blooms, bacteria from factory farming (animal waste), loss of important animal aquatic habitat and other serious problems for all of the life in the Bay. The water in the Bay should not be judged by the instrumental value (whether it is "swimmable or fishable" waters) but rather if it is livable for those who depend on it not being impaired in order to live.

Response

The Clean Water Act (CWA) "fishable/swimmable" goal is meant for the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water, as articulated in EPA's regulations, which say that these uses should be designated for all waters, unless it is demonstrated that it is impractical to meet them. For the Bay, EPA and its partner Bay jurisdictions agreed on five refined designated uses reflecting the habitats of an array of recreationally, commercially, and ecologically important species and biological communities. The five designated uses are applied, where appropriate, consistently across Maryland, Virginia, Delaware, and the District of Columbia’s portions of the Chesapeake Bay and its tidal tributary and embayment waters. The vertical and horizontal breadth of the designated use boundaries are based on a combination of natural factors, historical records, physical features, hydrology, bathymetry, and other scientific considerations. These Uses are described in the draft TMDL as follows: Migratory fish spawning and nursery (Migratory and resident tidal freshwater finfish during the late winter/spring spawning and nursery season in tidal freshwater to low-salinity habitats.); Shallow water (Underwater bay grasses and fish and crab species that depend on the shallow-water habitat provided by underwater bay grass beds.); Open-water fish and shellfish (Diverse populations of sport fish, including striped bass, bluefish, mackerel and sea trout, as well as important bait fish such as menhaden and silversides in surface water habitats within tidal creeks, rivers, embayments and the mainstem Chesapeake Bay year-round.); Deep-water seasonal fish and Shellfish (Animals inhabiting the deeper transitional water column and bottom habitats between the well-mixed surface

waters and the very deep channels during the summer months (e.g., bottom-feeding fish, crabs and oysters, as well as other important species, including the bay anchovy).); and Deep-channel seasonal refuge (Bottom-sediment-dwelling worms and small clams that serve as food for bottom-feeding fish and crabs in the very deep channel in summer.)

The CWA requires states and the District of Columbia establish water quality standards to measure the health of water bodies relative to these primary environmental goals. The CWA also requires jurisdictions to develop a list of waterways that are impaired by pollutants and do not meet water quality standards. A TMDL must be developed for certain waterways on the impaired list. A TMDL is essentially a "pollution diet" that identifies the maximum amount of a pollutant the waterway can receive and still meet water quality standards. It is this CWA goal that will help ensure that all pollution control measures to fully restore the Bay and its tidal rivers. To this end, the benefits from restoring the Bay's aquatic life uses includes restoring the Bay's world-renowned waterfowl hunting, trophy sport fishing, and the tradition of watermen who harvest fish, crabs and oysters. Seafood, tourism and Marine transportation also help to make the Chesapeake Bay a multi-billion dollar economic driver for the mid-Atlantic.

Comment ID 0061.1.001.003

Author Name: Haterius Stephen

Organization: National Association of State Departments of Agriculture (NASDA)

Withdrawing the Draft TMDL will not only allow EPA to correct deficiencies in its modeling, it also will allow EPA to take action on changes to water quality standards proposed by the State of Maryland and the Commonwealth of Virginia. In the Draft TMDL, EPA is presenting two sets of allocations, one based on current water quality standards and another based on anticipated changes to Maryland and Virginia standards. In addition, in 2011 EPA anticipates that it will have sufficient data to evaluate whether the dissolved oxygen criteria it is using are protective. See Draft TMDL, App. D, at 1.

Response

Regarding questions on modeling, see Section 5 of the TMDL. Regarding the comment on withdrawal of the TMDL, after consideration of this and other comments, EPA is finalizing Chesapeake Bay TMDL as planned on or before December 31, 2010. Rather, the Chesapeake Bay TMDL provides allocations for attaining the current water quality standards along with the loadings allocated to the states to achieve the proposed state standards. EPA is finalizing the TMDL based on the currently applicable water quality standards .That said, EPA will modify the TMDL, if necessary based on the updates to the Watershed model that are planned for 2011.

Comment ID 0062.1.001.006

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

Withdrawing the Draft TMDL will not only allow EPA to gather more data, correct deficiencies in its modeling, and perform a peer review, it also will it also will allow EPA to take action on changes to water quality standards proposed by the State of Maryland and the Commonwealth of Virginia. In the Draft TMDL, EPA is presenting two sets of allocations, one based on current water quality standards and another based on anticipated changes to Maryland and Virginia standards.

Response

The Bay TMDL is written to the applicable water quality standards as adopted by the Bay jurisdictions and approved by EPA. Also please refer to response to comment # 0061.1.001.003

Comment ID 0110.001.003

Author Name: Siewick C.

Organization:

I believe the EPA should improve pollution standards; pollution is bad!!

Response

EPA largely agrees with the comment. Under the Clean Water Act, Water Quality Standards are the foundation of the water quality-based pollution control program mandated by the Clean Water Act. The Chesapeake Bay Water Quality Standards define the goals for the Chesapeake Bay and are designed to protect it from pollutants. Consistent with EPA guidance, the states with Bay tidal water have adopted water quality standards protective of aquatic life in the Bay. These standards are based on extensive scientific research on protective levels of water quality in the Chesapeake Bay. EPA has approved those standards and they are the basis of the Bay TMDL.

Comment ID 0117.001.003

Author Name: Erwin L.

Organization:

For years we have heard promises that our government leaders would act to save the Bay, yet dead zones, fish kills and closed beaches persist. We need a healthy Bay and rivers for jobs, food and recreation.

Response

As stated the draft Chesapeake Bay Total Maximum Daily Load (TMDL), The U.S. Environmental Protection Agency has released

the draft Chesapeake Bay (TMDL), a "pollution diet" that will compel sweeping actions to restore the Chesapeake Bay and its vast network of streams, creeks and rivers. The TMDL was prompted by insufficient restoration progress over the last several decades in the Bay. The TMDL is required under federal law and responds to consent decrees in Virginia and D.C. dating back to the late 1990s. It is also a keystone commitment of a federal strategy to meet President Obama‘s Executive Order to restore and protect the Bay. The Bay TMDL – the largest ever developed by EPA – includes pollution limits to meet water quality standards in the Bay and its tidal rivers. The TMDL is designed to ensure that all pollution control measures to fully restore the Bay and its tidal rivers are in place by 2025, with 60 percent of the actions completed by 2017. The final TMDL will be established December 31.

Comment ID 0126.1.001.001

Author Name: Craun Ed

Organization: Augusta County Farm Bureau

All of the uses and benefits of our entire natural resources within this valley will be subordinate to the objective of reducing nutrients and sediment for the benefit of the waterways.

This plan is structured to redefine the traditional priority of uses and benefits of our natural resources. The plan establishes nutrient and sediment reduction goals in order to achieve "fishable and swimmable" waterways. These stated goal reductions are mandated to be accomplished regardless of the unintended consequences to our environmental health, environmental safety, and food security.

Response

The Bay TMDL is structured not to “redefine the traditional priority of uses and benefits of our natural resources” as the commenter suggests. Rather the Bay water quality goals are structured to “refine” the Clean Water Act (CWA) "fishable/swimmable" goal to Bay specific designated uses. For the Bay, EPA and its partner Bay jurisdictions agreed on five refined designated uses reflecting the habitats of an array of recreationally, commercially, and ecologically important species and biological communities. The five designated uses are applied, where appropriate, consistently across Maryland, Virginia, Delaware, and the District of Columbia’s portions of the Chesapeake Bay and its tidal tributary and embayment waters. The breadth of the designated use boundaries are based on a combination of natural factors, historical records, physical features, hydrology, bathymetry, and other scientific considerations. (See RTC Comment 0040-cp.001.002 for a list of the Bay uses as described in the draft TMDL).

Nor are “[t]hese stated goal reductions mandated regardless of the unintended consequences to our environmental health, environmental safety, and food security” as the commenter suggests. Rather as with all WQS, States adopts water quality standards to protect public health or welfare, enhance the quality of water, and serve the purposes of the CWA. That means " water quality standards are to wherever attainable, achieve a level of water quality that provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water, and take into consideration the use and value of public water supplies, and agricultural, industrial, and other purposes, including navigation (sections 101(a)(2) and 303(c) of the Act); and restore and maintain the chemical, physical, and biological integrity of the Nation's waters (section 101(a)). The Bay criteria are based on

scientific research in accordance with Sections 117(b) and 303 of the CWA to derive water quality criteria specifically for addressing the critical nutrient and sediment enrichment parameters necessary to protect designated uses in the Bay.

When controls are put in place to restore the Chesapeake Bay, there is the co-benefit of these same controls also protecting local water quality. And in many cases the improved water quality is not limited to nutrients and sediment. These controls often remove other pollutants that impair local water quality.

Comment ID 0126.1.001.027

Author Name: Craun Ed

Organization: Augusta County Farm Bureau

Agriculture is not included as an appropriate use of the EPA directed designated uses of the watersheds in Virginia. The approved designated uses include aquatic life, fish consumption, public water supplies, shellfish consumption, swimming and wildlife.[FN 8]

[FN 8]Virginia Department of Environmental Quality

Response

EPA does not direct that Agriculture be included as designated use in any State, as the commenter suggested. Rather the Clean Water Act (CWA) goals for water quality standards are to wherever attainable, achieve a level of water quality that provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water, and take into consideration the use and value of public water supplies, and agricultural, industrial, and other purposes, including navigation [emphases added] (Sections 101(a)(2) and 303(c) of the CWA).

Comment ID 0169.1.001.001

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

Although styled as an effort to "restore" the Bay, the Chesapeake Bay TMDLs are not tied to any historical level of nutrient levels, nor do the TMDLs explain how the levels to which the Bay should be "restored" were determined.

Response

EPA disagrees; historical data has been used to help derive the TMDL (SAV) restoration acreage and water clarity goals. Specifically historical data was used for addressing the critical nutrient and sediment enrichment parameters necessary to protect designated uses in the Bay. Detailed analyses using that data—including historical aerial photographs—were undertaken to map the

distribution and depth of historical Submerged Aquatic Vegetation (SAV) beds in the Chesapeake Bay and its tidal tributaries.

The Chesapeake Bay TMDLs identifies the maximum amount of a pollutant the waterway can receive and still meet water quality standards (WQS) - levels to which the Bay should be "restored." These WQS are not just tied to historical level of nutrient levels but are based on scientific evidence on the water quality requirements of hundreds of aquatic species and biological communities. This science is briefly described in Section 3 of the TMDL document. For a more detailed review of these Bay criteria, please refer to the criteria documents listed in Table 3-1 of the TMDL document. Furthermore, please refer to response to comment 0169.1.001.022

Comment ID 0169.1.001.022

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

EPA lacks solid data to support a baseline to which the Bay can be "restored." There simply are no historical data on phosphorus, nitrogen, or sediment levels in the Bay except some very limited data over the past few years. Although the TMDLs reference oyster levels in 1900, for example, there are no data on phosphorus, nitrogen, or sediment levels in that era. Without reliable data , even the best science has no idea whatsoever of the causes of current conditions. The EPA has no idea as to what pollutant levels constitute a "healthy" Bay, and but scant data as to the normal variability in these levels.

If the EPA has any data regarding comparable estuaries, it has failed to present it in support of its TMDLs. Contemporary data from elsewhere in the world could provide at least some scientific basis for the standards that EPA proposes to impose. No such data are, however, offered.

Response

The scientific underpinnings for the EPA published Chesapeake Bay-specific water quality criteria has been under way for decades. Please see the extensive documentation of the scientific basis for each of the Chesapeake Bay dissolved oxygen, water clarity, underwater bay grasses, and chlorophyll a water quality criteria within: U.S. Environmental Protection Agency. 2003. Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries. EPA 903-R-03-002. Region III Chesapeake Bay Program Office, Annapolis, Maryland, available online at http://www.chesapeakebay.net/publication.aspx?publicationid=13142. Please see Table 3-1 within the final Chesapeake Bay TMDL document for references to nine additional supporting EPA published documents detailing the scientific basis for the criteria and their designated uses and assessment procedures, each of which are accessible on-line through http://www.chesapeakebay.net.

Water quality conditions that define a healthy Chesapeake Bay are spelled out clearly quantified within the 2003 EPA Chesapeake Bay Water Quality Criteria document referenced above in terms of concentrations of dissolved oxygen and chlorophyll a, levels of water clarity, and acreages of underwater bay grasses. Concentrations of nitrogen and phosphorus are not used as water quality

criteria for defining a healthy Chesapeake Bay. Instead, these nitrogen and phosphorus concentration data are used by scientists and resource managers to assess water quality trends over time, diagnosis reasons behind non-attainment of the Bay water quality criteria described above, and to calibrate environmental models of the Bay, like those used in developing the Bay TMDL.

Each individual Chesapeake Bay water quality criterion is supported by decades of published Chesapeake Bay scientific findings as well as scientific findings from research conducted from similar estuarine environments and laboratories across the country and around the world. References to the published scientific findings are all documented within the above referenced ten EPA published documents. These criteria were derived to be protective of aquatic life within the Chesapeake Bay as defined through five designated uses. The Bay water quality criteria were derived following methods consistent with published EPA criteria guidelines.

Since 1985, there has been extensive collection of nitrogen, phosphorus and sediment ambient concentration data at over 150 stations through the Chesapeake Bay Water Quality Monitoring Program, with collections occurring 12-20 times per year at various depths through the water column. Historically, nutrient and sediment concentration data for
Chesapeake Bay are available since the 1950s, with some measurements dating back to the 1930s, providing one of the richest long term water quality data records for any estuary in the world. All these current and historical water quality data, totaling millions and millions of individual data points, are available online at http://www.chesapeakebay.net/dataandtools.aspx?menuitem=14872

Comment ID 0230.1.001.017

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

EPA's Approach to the James River Is Unreasonable EPA has proposed drastic cuts to James River allocations on the basis of a highly arbitrary application of a problematic modeling framework to a scientifically-dubious chlorophyll-a standard. The predicted shifts in chlorophyll-a are statistically insignificant and non-detectable in monitoring data. However, the cuts would result in huge ($20 billion) public expenditures. Moreover, the Draft TMDL document appears to disallow Virginia's thoughtful, science-based process to remedy the technical problems associated with the standard and the model.

Response

The Commonwealth Virgina has expressed their concerns to the EPA for the proposed James River nutrient allocation to serve as the basis for the Bay TMDL allocations and WIPs. In July 2010, EPA assigned the Commonwealth final nutrient allocations for all major river basins. These allocations are the basis for the draft Phase I Watershed Implementation Plan and the draft TMDL issued on September 24, 2010. The nutrient allocations for the James River are unique in that they are based not only upon compliance with dissolved oxygen (DO) water quality criteria, but also numeric chlorophyll a criteria for 5 sections in the tidal portion of the river. These Bay TMDL allocations are for attaining the current water quality standards (WQS) as required by the Clean Water Act (CWA). That is the TMDL is required to use the current chlorophyll-a criteria as the basis for James River allocations. If the

Virgina choose to modify their WQS for the James River, they are required to submit those modifications to EPA for approval.

Comment ID 0230.1.001.030

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

VI. EPA'S APPROACH TO JAMES RIVER IS UNREASONABLE

In the Draft TMDL, EPA has proposed drastic cuts to the James River allocations. This is the result of a remarkable confluence of technical and policy problems: an unstable, poorly-calibrated model forcibly applied to a scientifically dubious standard, itself partially based on prior model predictions of attainment under a completely different loading scenario. EPA has failed to offer a reasoned explanation for using the chlorophyll-a criteria as the basis for James River allocations in light of these unresolved issues. EPA's Draft TMDL is also missing evidence that there would be any quantifiable water quality benefit from the billions of dollars that would be required to comply with the allocations. The Draft TMDL validates and confirms HRSD's long-held concern that the chlorophyll-a standard could result in mismanagement of the estuary. EPA's determinations on this issue are unreasonable and arbitrary and capricious. The following comments summarize the major problems with the chlorophyll-a standard and TMDL-related modeling:

A. The James River chlorophyll-a standards are scientifically flawed

The stringent nutrient allocations proposed by EPA are based on a standard that lacks a sound scientific foundation. VAMWA and HRSD have been actively participating in discussions regarding chlorophyll-a since EPA's initially attempted to derive Bay wide criteria in 2000. Over this time, VAMWA and HRSD scientists served on technical committees, contributed independent data analyses, and provided numerous sets of technical comments on chlorophyll-a. During the development of the Bay TMDL, VAMWA clearly communicated its concerns about the James River specific chlorophyll-a standards to the EPA. [FN41] The key points in that document are summarized as follows.

1. EPA-led technical efforts concluded that numeric chlorophyll-a criteria were not technically supported (2000-2003): An EPA process to develop Bay-wide chlorophyll-a standards pre-dated Virginia's adoption of the James River chlorophyll-a standard. Despite considerable efforts (including supporting technical work by VAMWA), the process ultimately showed that chlorophyll-a could not be quantitatively linked to designated use attainment at that time. The EPA ultimately recognized these deficiencies and made the appropriate decision not to publish Bay-wide chlorophyll-a criteria as part of the 2003 criteria document. [FN42] EPA eventually published a compilation of multiple lines of inquiry and encouraged States to use this information to develop site specific chlorophyll-a criteria where needed. VAMWA expressed concerns that the document did not sufficiently recognize the limitations and offered substitute language. [FN43]

2. Virginia's derivation of chlorophyll-a criteria suffered from the same issues experienced by EPA (2003-2005): After the publication of the EPA criteria document, the Commonwealth of Virginia initiated a rulemaking process to establish chlorophyll-a criteria for the tidal portions of the James River. During this process, the VADEQ relied heavily on EPA's 2003 criteria document, and suffered the problems associated with it. Due to our familiarity with the deficiencies of the 2000-2003 EPA effort, we recommended that Virginia adopt an adaptive management approach that used monitoring

and research to strengthen the understanding of relationships between chlorophyll-a and potentially harmful algal blooms. [FN44] When this course of action was not followed, VAMWA commented extensively on the subsequent criteria proposals [FN45] supported by literature reviews and data analysis. These technical issues associated with the numerical criteria were never satisfactorily resolved. Legislation was drafted by a member of the General Assembly that would require justification of tangible benefits to the environment and to the public. This was held in abeyance to encourage all parties to achieve a solution to the problem. That solution consisted of conducting a James River "Alternatives Analysis".

3. The criteria ultimately adopted were a compromise partially based on model predictions of attainment under a specific set of loading assumptions: During 2005, VADEQ (with EPA's assistance) performed a series of modeling analyses to evaluate chlorophyll-a reductions relative to various point source loading scenarios. The results from the Alternatives Analysis [FN46] were used to both adjust the proposed criteria adopted by the SWCB in 2005 (significantly in some cases) and establish point source nutrient allocations now contained in the Water Quality Management Regulation. These circumstances demonstrate that the existing chlorophyll-a standards represent a negotiated result contingent on (a) expectations of attainment under a specific set of critical interpretation assumptions that were employed.

4. The new EPA model does not address attainment or previous model assumptions: During 2009-2010, as part of the TMDL process, the EPA's Chesapeake Bay Program Office revised the modeling framework and the other critical assumptions and re-evaluated chlorophyll-a attainment. The modeling results now predict much higher non-attainment rates for chlorophyll for the same given loading scenario agreed to in 2005. These results are now driving the EPA's present proposal for steep nutrient loading reductions for the James River. The key factors responsible for the increasing stringency are listed below:

a. The watershed model (WSM) and its calibration were revised from WSM version 4.3 to WSM version 5. The watershed model is still presently undergoing modification at the time of this writing. WSM version 4.3 was calibrated to 1985- 1991 hydrology while WSM 5 was calibrated to 1990-2000 hydrology. The newer hydrologic period tends to have higher loading rates as this period is wetter. The effectiveness of certain BMPs were also revised downward (achieve less nutrient reduction for each BMP).

b. EPA changed its method for predicting attainment from direct use of the model results to a method that uses scenario results to transform observed data.

c. Model output was evaluated for 3 year periods individually (8 in total) instead of a single 10 year period during the 2005 Alternatives Analysis.

d. A rule was implemented to require non-attainment to be less than or equal to 1%. In the 2005 Alternatives Analysis, there was no stated rule and non-attainment rates of 4% were judged to be within the uncertainty band of the model, which EPA accepted as sufficient.

As previously stated, the James River chlorophyll-a criteria and associated load allocations are inherently linked to the model framework and analysis assumptions of 2005. EPA has essentially changed the rules of the game after the fact. It is likely that Virginia would have adopted different chlorophyll-a criteria, or may not have adopted any chlorophyll-a criteria, if EPA had demanded the interpretation rules described above during the 2005 time period.

B. VADEQ (and apparently EPA) recognized that the existing chlorophyll-a standards are imprecise and would require revision

The 2005 time period record is replete with statements that recognized the unreliability of the chlorophyll-a criteria and the need for future adjustment by both the VADEQ and EPA. As part of the public comments regarding the James River Alternatives Analysis, the VADEQ and EPA commented as follows regarding the state of the science regarding the chlorophyll standards:

EPA…requests the [sic] Virginia fully consider new scientific findings and enhanced information on attainability in future triennial reviews of the Commonwealth's water quality standards regulations…DEQ acknowledges that the current state of the science for deriving numerical chlorophyll a criteria to protect these designated uses is not as quantitatively precise as that supporting other published criteria in terms of the exact concentrations at which adverse impairments to aquatic life are certain to occur. We believe that attainability can be factored into the final criteria to help us focus in on a number that is protective of aquatic life uses in these segments and reasonable. …. [FN47]

EPA's present insistence that the chlorophyll model results be interpreted in a strict and rigid manner is inconsistent with limitations of the standard acknowledged by EPA.

[FN41] See August 16, 2010 letter and attachments from VAMWA to EPA staff (attached hereto as Appendix 22).

[FN42] Attached hereto as Appendix 23.

[FN43] Comments attached hereto as Appendix 24.

[FN44] Comments Attached hereto as Appendix 25.

[FN45] Comments Attached hereto as Appendix 26.

[FN46] Attached hereto as Appendix 27.

[FN47] Materials from Final Regulation Agency Background Document (Nov. 21, 2005).

Response

Please see response to comment # 0293.1.001.017.

Also, EPA’s Narrative and Numerical Chlorophyll a Criteria: In April 2003, EPA published the Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries on behalf of the seven watershed jurisdictions. The criteria and the criteria assessment procedures, along with a parallel effort to develop designated uses for the Bay tidal waters, were developed through a collaborative process involving the contributions of over a 100 individuals acknowledged in the front of the document. Individual criteria teams drew on a vast array of scientific findings and data. Decisions on all aspects of the criteria and assessment procedures proceeded from the three criteria teams through the Water Quality Standards

Coordinators Team, and then up through the Water Quality Steering Committee, where representatives from all six watershed states, the District of Columbia, and EPA made the final decisions for the partnership. The criteria and the criteria assessment procedures published within the April 2003 document all underwent independent scientific peer review overseen the Chesapeake Bay Program's Scientific and Technical Advisory Committee and a public review process. All independent peer review and public comments were responded to individually and reflected in the final set of published criteria and assessment procedures.

Within the April 2003 Bay criteria document, EPA published its recommended narrative chlorophyll a criteria, along with supporting numeric concentrations and methodological approaches to addressing nutrient-enrichment impairments related to the overabundance of algal biomass measured as chlorophyll a. The EPA clearly stated its expectation that Delaware, Maryland, Virginia, and the District of Columbia adopt narrative chlorophyll a criteria into their water quality standards for all Chesapeake Bay and tidal tributary waters. The EPA strongly encouraged the four jurisdictions to develop and adopt site specific numerical chlorophyll a criteria for tidal waters where algal-related impairments are expected to persist even after the Chesapeake Bay dissolved oxygen and water clarity criteria have been attained.

EPA published the best available findings from the available scientific literature and data within the 2003 Bay criteria document in support of individual states development their own site-specific numerical chlorophyll a criteria.

In October 2004, EPA published guidance for the tidal water jurisdictions on how to best determine where numerical chlorophyll a criteria should apply to local Chesapeake Bay and tidal tributary waters.

In October 2007, EPA published Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries. 2007 Chlorophyll Criteria Addendum in response to requests from the jurisdictions for additional guidance on addressing elevated levels of algae within the Bay's tidal waters.

Throughtout all the criteria development, peer and public review processes described and referenced above, EPA followed the Agency's guidelines for derivation of aquatic life criteria.

Virginia's Adoption of Numerical Chlorophyll a Criteria into their Water Quality Standards Regulations: Over a more than two year process, Virginia used a technical advisory committee process for involving an array of technical experts and stakeholders in the derivation of a set of tidal James River specific numerical chlorophyll a criteria. EPA directly participated and actively contributed to the process. Virginia published its recommended criteria prior to the formal public review and comment process. At the completion of the public review and comment process, Virginia adopted its tidal James River numerical chlorophyll a water quality standards and EPA approved them on June 27, 2005.

Over the two plus year process, Virginia closely followed its required regulation adoption process, even building in more time to enable further stakeholder evaluations. Until otherwise amended, again, following Virginia's required public review and comment process and with EPA's approval, the existing James River chlorophyll a criteria remain part of Virginia's water quality standards regulations.

2005 James River Target Loads vs. 2010 James River Bay TMDL Allocations: EPA disagrees with the commenter's statement that "these circumstances demonstrate that the existing chlorophyll-a standards represent a negotiated result contingent on (a)

expectations of attainment under a specific set of critical interpretation assumptions that were employed." EPA acknowledges that Virginia factored in consideration of attainability of achieving their proposed chlorophyll a criteria as part of the development of their WQ standards. However, once the tidal James River chlorophyll a water quality criteria and the supporting criteria assessment procedures became part of Virginia's water quality standards regulations, the numbers within the regulations became the definition of what was considered a healthly aquatic ecosystem for the tidal James River, period.

There are clearly differences between the circumstances in which the 2005 James River target loads were derived and when the 2010 James River Bay TMDL allocations were set.

Criteria Assessment Procedures
• During the development of the 2005 James River target loads, allocations developed and adopted for the James River basin in the 2005 timeframe were based on a simplified set assessment procedures, including allowance of certain percentages (e.g., 4%) of non-attainment to be considered in attainment for purposed of setting target loads.
• In the development of the James River Bay TMDL allocations, attainment of the James River chlorophyll a criteria were based strictly on application of Virginia's water quality standards, including the referenced criteria assessment procedures.
• EPA did determine that persistent 1% non-attainment of the chlorophyll a criteria in the tidal James River could be considered in attainment for reasons documented within Appendix I of the final Bay TMDL.
• During development of the 2005 James River target loads, average chlorophyll a concentrations were the metric for direct comparison with the criteria concentrations.
• In development of the James River Bay TMDL allocations, chlorophyll a criteria attainment was assessed as seasonal means of ln-transformed chlorophyll a concentrations through the cumulative frequency distribution approach using 3-years of data followed by comparison with the default reference curve, consistent with Virginia's Water Quality Standards regulations (and EPA's published 2010 Bay criteria addendum).

Comment ID 0267.1.001.007

Author Name: Bowman Cynthia

Organization: Cornell Law School Water Law Clinic

Recommendation:

- While EPA can and must establish TMDLs for the Chesapeake Bay and its tributaries, the agency must first establish New York-specific water quality standards to which the TMDLs for New York State can be directly related.

Response

The comment is partially correct, by regulation, the TMDLs are to be established at levels necessary to attain and maintain the applicable water quality standards (WQS). And, these applicable WQS apply to the waters (the Chesapeake Bay and its tidal tributaries and embayments) within the jurisdictions (Maryland, Virginia, Delaware, and the District of Columbia). EPA does not need to first establish New York-specific WQS to which the TMDLs for New York State apply. Rather the scope of Chesapeake

Bay TMDL includes nutrient and sediment loads delivered to the Chesapeake Bay from all sources (including New York). New York has signed on as partners in implementing the cap loads and is a full partner on issues related to water quality.

Comment ID 0331.1.001.018

Author Name: Wilson B.

Organization: City of Virginia Beach, Virginia

THE FLAWS AND UNCERTAINTY IN EPA'S MODELED PREDICTIONS DO NOT JUSTIFY JAMES RIVER ALLOCATIONS MORE STRINGENT THAN THOSE ESTABLISHED IN THE 2005 TRIBUTARY STRATEGY

B. EPA‘s decision to base the James River allocations on attainment of the numeric chlorophyll-a standards rather than attainment of the Bay-wide numeric dissolved oxygen standards is flawed.

1. An analysis of the data shows that the Water Quality Model is poorly calibrated against the chlorophyll-a standard. Consequently, the model results used to derive the James River allocations do not accurately predict the load reductions needed to attain compliance with the James River chlorophyll-a standards.

2. EPA compounded the consequences of using a poorly calibrated model when it used a one percent chlorophyll-a standard attainment rate to derive the James River allocations.

3. The model results show that attainment rates between 96 and 99 percent result in changes to in-stream chlorophyll-a concentrations of between 1 and 2 ug/l, which is well within the 1-4 ug/l margin of error in the EPA-approved chlorophyll-a test method.

4. The one percent attainment rate used in this case is inconsistent with attainment rates used or approved by EPA in other TMDLs.

5. EPA has failed to offer any justification for its use of a one percent attainment rate in this case, particularly in light its use of a poorly calibrated model.

6. EPA has a certain amount of discretion in determining when models are sufficiently calibrated and in establishing attainment rates. However, EPA abused its discretion when it used a poorly calibrated model and an attainment rate to establish allocations designed to achieve changes in in-stream chlorophyll-a concentrations that have significant economic consequences and no quantifiable water quality benefit.

Response

Please refer to comment 0230.1.001.030

Comment ID 0374-cp.001.005

Author Name: Hartgrove Charles

Organization: Town of Ashland, Virginia

The Chesapeake Bay Program has determined the James River does not influence mid-Bay water quality and any regulation of James River nutrient discharges should occur only for local water quality protection. Locally, applicable water quality standard is chlorophyll standard adopted by Virginia in 2005 and approved by EPA. Appropriateness of that standard is questioned in part due to EPA's unilateral changes to the computer model it uses to judge the adequacy of Virginia's actions. VA determined in its WIP that the chlorophyll standard is faulty and that "additional scientific study is needed to provide a more precise and scientifically defensible basis for setting final nutrient allocations." We agree with this finding and determination by VA, and we also support VA's "Four ParPart James River Strategy".

Response

Please refer to response to comment 0230.1.001.005

Comment ID 0374.1.001.006

Author Name: Hartgrove Charles

Organization: Town of Ashland, Virginia

In addition, as the Chesapeake Bay Program has long ago determined, the James River does not influence the mid-Bay water quality and any regulation of James River nutrient discharges should occur only for local water quality protection. Locally, the applicable water quality standard is chlorophyll standard adopted by Virginia in 2005 and approved by EPA. However, the appropriateness of that standard is questioned in part due to EPA's unilateral changes to the computer model it uses to judge the adequacy of Virginia's actions. In fact, Virginia has determined in its WIP (September 2010) at pages 14-15 that the chlorophyll standard is faulty and that "additional scientific study is needed to provide a more precise and scientifically defensible basis for setting final nutrient allocations." We agree with this finding and determination by Virginia, and we also support Virginia's "Four Part James River Strategy" at pages 15-17 of the WIP to address these major technical problems.

For further information, please contact Ingrid Stenbjorn at 804-798-9219.

Response

Please refer to response to comment 0230.1.001.005

Comment ID 0376.1.001.018

Author Name: Smith Brooks

Organization: Virginia Manufacturers Association VMA

Moreover, EPA ignores its own statutory and regulatory provisions authorizing consideration of cost and achievability in determining the appropriate designated uses for a water body. EPA has acknowledged that "[o]ne way to achieve efficiency in the process of assigning attainable designated uses is to better synchronize UAA analyses with the TMDL process. In practice, UAAs may be conducted prior to, concurrently with, or after the development and implementation of a TMDL. In many cases, the data generated during a TMDL could well serve as the foundation for deciding whether a change in a use is warranted." EPA, Basic Information: Introduction to UAAs, http://water.epa.gov/scitech/swguidance/waterquality/stadnards/uses/uaa/info.cfm.

EPA's regulations provide that a change to a designated use may be appropriate where "controls more stringent than those required by sections 301 (b) and 306 of the Act would result in substantial and widespread economic and social impact." 40 CFR § 131.10. For this reason, the National Research Council has recommended that states conduct use attainability analyses for a waterbody before a TMDL is developed. See Assessing the TMDL Approach to Water Quality Management, Committee to Assess the Scientific Basis of the Total Maximum Daily Load Approach to Water Pollution Reduction, National Research Council, 2001.

This is consistent with Virginia's statutory provisions, which provide a process for conducting a use attainability analysis ("UAA") based on presentation of "reasonable grounds indicating that the attainment of the designated use for a water is not feasible." See Va. Code § 62.1-44.19:7.E. EPA's proposal fails to consider cost and achievabiJity in its proposed TMDL, despite its own UAA regulations and Virginia's implementation planning statute.

Response

In developing the Bay TMDL, EPA is implementing requirements of the Clean Water Act. The Clean Water Act is the federal law that governs how to protect the nation's waters. There is no cost-benefit analysis required with the development of a TMDL; it may be appropriate for Bay states and the District of Columbia to address this issue during the development of the WIPs.

In recognition that it may be difficult to meet water quality standards in the Chesapeake Bay, EPA considered whether a use attainability analysis (UAA) should be conducted. EPA determined that a UAA at this time is premature given that that Bay restoration will involve long term (15 year) implementation. Instead, energy should be focused on developing a Bay TMDL to achieve current standards and thereafter implementing that TMDL. In particular, with a 15 year implementation horizon, EPA believes likely advancements in technology will improve our ability to reduce nutrients and sediment and at a lower cost. A UAA at this time would not be able to anticipate those potential advancements in technology.

Comment ID 0387.1.001.003

Author Name: Crabtree Carol

Organization: Eastern Panhandle Regional Planning and Development Council, Region 9 (RPDC)

The following are comments submitted to me from Jefferson County Commissioner, Lyn Widmer, Region 9

Chesapeake Bay Committee Chair:

We suggest the goal of fishable and swimmable waters can be attained with the 5/.5 standards and urge EPA to use those standards.

Response

The Clean Water Act (CWA) "fishable/swimmable" goal is meant for the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water, as articulated in EPA's regulations and further refined for the Bay. That is, EPA and its partner Bay jurisdictions agreed on five refined designated uses reflecting the habitats of an array of recreationally, commercially, and ecologically important species and biological communities.

It is unclear what the commentor means by "5/.5 standards."

Comment ID 0410.1.001.022

Author Name: Pujara Karuna

Organization: Maryland State Highway Administration (SHA)

According to Section 6, the TMDL load allocations based on the current WQS would require the E3 scenario for nutrients. For the sediment loads, most of the basins would be set at allocations below the E3 level, but the entire Eastern Shore of Maryland would be set at the 'All Forest' level load allocation. WQS are proposed to be changed for Delaware, DC and Maryland and these proposed changes result in the allocation loads being brought to a level that is deemed reasonable because they are not E3 or All Forest.

Response

The Chesapeake Bay TMDL provides allocations for attaining the appropriate water quality standards along with the loadings allocated to the states to achieve the proposed state standards. With the recent modifications to the state WQS in all bay states, the final TMDL has allocations similar to the ones in the draft TMDL document for the proposed WQS. And yes these allocations are more attainable than the control levels referred to in this comment. For the final allocations to the states, please refer to Section 6.

Comment ID 0463.1.001.013

Author Name: Sharma Lalit

Organization: City of Alexandria, Virginia

10. Allocations for Proposed not Current Water Quality Standards

Loads in Appendices Q, Q-2 and R, are given for Proposed Water Quality Standards (WQS), not the Current WQS. Section 9.2 Tables provide some Current WQS, but only to the segment-shed resolution. Permit allocations beyond the segment-shed are based on proposed WQS. While we understand that changes are proposed for Virginia with respect to Chesapeake Bay WQS, the TMDL should be based on current water quality standards. Basing the TMDL (and the WIP) on proposed WQS may invite challenge or void the entire documents if the proposed WQS are not passed before December 31st.

Response

The Bay TMDL is written to the applicable water quality standard that are adopted by the Bay jurisdictions and approved by EPA.

Comment ID 0481.1.001.006

Author Name: Andes Fredric

Organization: Federal Water Quality Coalition

Under the CWA, states are directed to establish TMDLs for impaired waters at a level necessary to meet applicable water quality standards. 33 U.S.C. § 1313(d)(1)(C). Even if EPA had the authority to establish a TMDL for the entire Chesapeake Bay, EPA cannot establish a TMDL that cannot attain water quality standards. For some water body segments, standards cannot be met even if EPA assumes that the Chesapeake Bay Watershed returns to pre-development conditions. For other water body segments, meeting water quality standards would result in substantial and widespread economic and social impacts. For these reasons, EPA should complete a use attainability analysis (UAA) for the Chesapeake Bay before establishing a final Chesapeake Bay TMDL.

Response

In recognition that it may be difficult to meet water quality standards in the Chesapeake Bay, EPA considered whether a use attainability analysis (UAA) should be conducted. EPA determined that a UAA at this time is premature given that that Bay restoration will involve long term (15 year) implementation. Instead, energy should be focused on developing a Bay TMDL to achieve current standards and thereafter implementing that TMDL. In particular, with a 15 year implementation horizon, EPA believes likely advancements in technology will improve our ability to reduce nutrients and sediment and at a lower cost. A UAA at this time would not be able to anticipate those potential advancements in technology. EPA notes that several restoration variances have been adopted in the Bay.

Comment ID 0481.1.001.007

Author Name: Andes Fredric

Organization: Federal Water Quality Coalition

The Clean Water Act does not require control measures to achieve water quality standards that are not technically or economically feasible. For this reason, EPA's water quality standards regulations provide a relief valve: a use attainability analysis or UAA. 40 C.F.R. § 131.10(g). If the designated use of a water body cannot be attained due to reasons such as human caused conditions that cannot be remedied (40 C.F.R. § 131.10(g)(3)), hydrologic modifications such as dredging or dams (40 C.F.R. § 131.10(g)(4)), natural conditions such as depth (40 C.F.R. § 131.10(g)(5)), or the need for controls that would result in substantial and widespread economic and social impact (40 C.F.R. § 131.10(g)(6)), then a designated use may be changed.

In 2003, EPA provided technical support for a Maryland UAA based on natural conditions in certain deep channels in the Chesapeake Bay. Maryland also developed a UAA for a federal navigation channel based on hydrologic modifications. In 2009, EPA began a UAA for the Chesapeake Bay to determine what water quality standards were feasible based on human caused conditions, natural conditions, and economic and social impacts. EPA's original intent was to complete that UAA before issuing the Draft TMDL. The purpose of the planned UAA was two-fold. One purpose was to determine if EPA could develop a TMDL for the Chesapeake Bay that would, in fact, meet water quality standards. The second purpose was to determine if those standards needed to be changed based on the factors set forth in EPA regulations, including economic factors. See Chesapeake Bay Program, Water Quality Steering Committee, January 12, 2009, Conference Call, Summary of Decisions, Actions, and Issues, at 4; Chesapeake Bay Program, Water Quality Steering Committee, Advance Briefing Materials for the January 12, 2009, Conference Call, Attachment C, Proposed Gameplan for Preparing for the Bay UAA, at 2. The decision to include an economic analysis of affordability as part of a UAA was reiterated at the February 9, 2009, conference call among Water Quality Steering Committee members. See Chesapeake Bay Program, Water Quality Steering Committee, February 9, 2009, Conference Call, Summary of Decisions, Actions, and Issues, at 5. As part of this effort, the Chesapeake Bay Program sought to develop a scenario called "Maximum Extent Feasible" or MEF. The MEF scenario was intended to aid a UAA and was defined as an effort to quantify the "doability" of achieving various nutrient controls in the Chesapeake Bay, taking into account technical achievability, operational achievability, and financial achievability. See Chesapeake Bay Program, Water Quality Steering Committee, March 9, 2009, Conference Call, Summary of Decisions, Actions, and Issues, at 1.

Inexplicably, at the April 15-16, 2009, meeting of the Chesapeake Bay Water Quality Standards Steering Committee, EPA announced that it had reversed its position and now believed that Chesapeake Bay water quality standards should remain unchanged and that no UAA was needed. EPA asserted that it would look at the need for a UAA at some point around ten years in the future, well after the TMDL is established. See Chesapeake Bay Program, Water Quality Steering Committee, April 15-16, 2009, Meeting, Summary of Decisions, Actions, and Issues, at 2-3. EPA's decision ignores the fact that one purpose of the UAA was to determine if water quality standards were achievable, because the statute requires that a TMDL achieve standards. In fact, as discussed below, it is clear that the TMDL cannot achieve Chesapeake Bay water quality standards.

Response

In recognition that it may be difficult to meet water quality standards in the Chesapeake Bay, EPA considered whether a use attainability analysis (UAA) should be conducted. EPA determined that a UAA at this time is premature given that that Bay

restoration will involve long term (15 year) implementation. Instead, energy should be focused on developing a Bay TMDL to achieve current standards and thereafter implementing that TMDL. In particular, with a 15 year implementation horizon, EPA believes likely advancements in technology will improve our ability to reduce nutrients and sediment and at a lower cost. A UAA at this time would not be able to anticipate those potential advancements in technology.

Comment ID 0482.1.001.018

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

F. Before Issuing the Final TMDL, EPA Should Complete a Use Attainability Analysis for The Chesapeake Bay to Demonstrate that Applicable Water Quality Standards are Achievable.

Under the CWA, states are directed to establish TMDLs for impaired waters at a level necessary to meet applicable water quality standards. 33 U.S.C. § 1313(d)(1)(C). For any loading level to be "necessary" to achieve standards, it also must be able to achieve standards.[FN28] Thus, even if EPA had the authority to establish a TMDL for the Chesapeake Bay, it cannot establish a TMDL that fails to attain water quality standards. For some water body segments, EPA cannot rationally predict attainment of the applicable water quality standards even if EPA assumes that the Chesapeake Bay Watershed returns to pre-development conditions. For other water body segments, meeting water quality standards would result in substantial and widespread economic and social impacts. For these reasons, EPA should complete a use attainability analysis (UAA) for the Chesapeake Bay before establishing a final Chesapeake Bay TMDL.

1. The Clean Water Act Does Not Require Meeting Water Quality Standards That Are Technically or Economically Infeasible

The CWA does not require water bodies to achieve water quality standards that are not technically or economically feasible. For this reason, EPA's water quality standards regulations provide a relief valve: a use attainability analysis or UAA. 40 C.F.R. § 131.10(g). If the designated use of a water body cannot be attained due to reasons such as human caused conditions (40 C.F.R. § 131.10(g)(3)), hydrologic modifications such as dredging or dams (40 C.F.R. § 131.10(g)(4)), natural conditions such as depth (40 C.F.R. § 131.10(g)(5)), or the need for controls that would result in substantial and widespread economic and social impact (40 C.F.R. § 131.10(g)(6)), then a designated use may be changed.

In 2003, EPA provided technical support for a Maryland UAA based on natural conditions in certain deep channels in the Chesapeake Bay. Maryland also developed a UAA for a federal navigation channel based on hydrologic modifications. In 2009, EPA began a UAA for the Chesapeake Bay to determine what water quality standards were feasible based on human caused conditions, natural conditions, and economic and social impacts. EPA's original intent was to complete that UAA before issuing the Draft TMDL. The purpose of the planned UAA was twofold. One purpose was to determine if EPA could develop a TMDL for the Chesapeake Bay that would, in fact, meet water quality standards. The second purpose was to determine if those standards needed to be changed based on the factors set forth in EPA regulations, including economic factors. See Chesapeake Bay Program, Water Quality Steering Committee, Jan. 12, 2009, Conference Call, Summary of Decisions, Actions, and Issues, at 4; Chesapeake Bay

Program, Water Quality Steering Committee, Advance Briefing Materials for the Jan. 12, 2009, Conference Call, Attachment C, Proposed Gameplan for Preparing for the Bay UAA, at 2. The decision to include an economic analysis of affordability as part of a UAA was reiterated at the Feb. 9, 2009, conference call among Water Quality Steering Committee members. See Chesapeake Bay Program, Water Quality Steering Committee, Feb. 9, 2009, Conference Call, Summary of Decisions, Actions, and Issues, at 5. As part of this effort, the Chesapeake Bay Program sought to develop a scenario called "Maximum Extent Feasible" or MEF. The MEF scenario was intended to aid a UAA and was defined as an effort to quantify the "do-ability" of achieving various nutrient controls in the Chesapeake Bay, taking into account technical achievability, operational achievability, and financial achievability. See Chesapeake Bay Program, Water Quality Steering Committee, Mar. 9, 2009, Conference Call, Summary of Decisions, Actions, and Issues, at 1.

Inexplicably, at the April 15-16, 2009, meeting of the Chesapeake Bay Water Quality Standards Steering Committee, EPA announced that it had reversed its position and now believed that Chesapeake Bay water quality standards should remain unchanged and that no UAA was needed. EPA asserted that it would look at the need for a UAA at some point around ten years after establishing the TMDL. See Chesapeake Bay Program, Water Quality Steering Committee, April 15-16, 2009, Meeting, Summary of Decisions, Actions, and Issues, at 2-3. However, EPA's decision ignores the fact that one purpose of the UAA was to determine if water quality standards were achievable, because the statute requires that a TMDL achieve standards. As a result, EPA's TMDL will not meet the requirement of the CWA that a TMDL be established at a level "necessary" to meet applicable water quality standards. Moreover, the Sisyphean effort to meet those unattainable standards would cause substantial economic and social disruption.

2. Meeting Water Quality Standards for the Chesapeake Bay is not Technically Feasible.

EPA's model shows persistent 1% nonattainment of water quality standards, no matter what assumptions are made. In fact, EPA admits there are 11 segments that cannot meet water quality standards. Draft TMDL, at 6-36. EPA also admits that it cannot determine if the current criteria for dissolved oxygen are sufficiently protective of water quality.

It is difficult to comprehensively evaluate the protectiveness of the assessed criteria strictly based on monitoring data, because the unassessed criteria cannot be directly evaluated due to insufficient data or lack of published assessment protocols. A multi-partner effort is underway to develop criteria assessment protocols based on the available data, but those protocols will not be complete, peer reviewed and published until 2011 at the earliest. Draft TMDL, App. D, at 1.

If EPA is unable to evaluate the adequacy of dissolved oxygen criteria "due to insufficient data or lack of published assessment protocols" then the Draft TMDL is flawed because it cannot meet water quality standards. Indeed, EPA admits that it cannot demonstrate attainment under any scenarios for some water bodies. Draft TMDL, at 6-53. Despite this admission, in section 9 EPA proposes a TMDL based on those unattainable standards. Such a TMDL does not meet the requirements of the Act.

It is particularly important for EPA to determine whether the dissolved oxygen criteria for the Bay are appropriate and achievable because it appears that many of the reductions required by the Draft TMDL are being driven by dissolved oxygen levels in 4 deep channel segments. Draft TMDL, at 6-13. For dissolved oxygen, all of the other 88 segments would achieve water quality standards with higher loadings.

In fact, we believe that EPA has already acknowledged that the backstop allocations in section 8 cannot be achieved. These allocations rely in part on an "E3" level of effort. E3 is a theoretical scenario based on implementation of

"everything, by everyone, everywhere." EPA itself has said is not a realistic scenario. "There are no cost and few physical limitations to implementing BMPs for point and nonpoint sources in the E3 scenario." Draft TMDL, App. J, at J-4. "Generally, E3 implementation levels and their associated reductions in nutrients and sediment could not be achieved for many practices, programs and control technologies when considering physical limitations and required participation levels." Id. at J-4 to J-5 (emphasis added).

A UAA could establish a basis for determining whether Chesapeake Bay water quality standards can be achieved, or if the standards should be changed.

[FN28] The definition of "necessary" includes: "Needed to achieve a certain result or effect." http://www.thefreedictionary.com. If an action will not achieve a result or effect, then that action cannot be considered necessary.

Response

In recognition that it may be difficult to meet water quality standards in the Chesapeake Bay, EPA considered whether a use attainability analysis (UAA) should be conducted. EPA determined that a UAA at this time is premature given that that Bay restoration will involve long term (15 year) implementation. Instead, energy should be focused on developing a Bay TMDL to achieve current standards and thereafter implementing that TMDL. In particular, with a 15 year implementation horizon, EPA believes likely advancements in technology will improve our ability to reduce nutrients and sediment and at a lower cost. A UAA at this time would not be able to anticipate those potential advancements in technology.

Comment ID 0483.1.001.003

Author Name: Wood Heather

Organization: Virginia Port Authority (VPA), Norfolk, Virginia

Maintain the tributary strategy level of nutrient allocations for the James River basin pending resolution of chlorophyll-a technical issues:
The USEPA should recognize the technical problems with the James River chlorophyll-a criteria and modeling framework. James River basin allocation should not be cut 15-30% until and unless these problems are resolved. USEPA should support Virginia's plan to reevaluate the James River basin standards, model, and allocations by 2017.

Response

Please refer to response to comment 0230.1.001.005

Comment ID 0522.1.001.002

Author Name: Steidel Robert

Organization: City of Richmond, Virginia

The City of Richmond (COR) strongly supports the primary use standard of the James River and that the applicable water quality standards should be based on sound scientific and engineering principles protective of that use.

Response

The Bay TMDL allocations are for attaining the applicable water quality standards (WQS) as required by the Clean Water Act (CWA). For the tidal James River, the applicable WQS is the chlorophyll a criteria listed in Table 3-10 of the draft TMDL. This criterion, adopted by Virginia in 2005 and approved by EPA, is based on various scientific lines of evidence with additional river-specific considerations.

Comment ID 0523.1.001.005

Author Name: Steidel Robert

Organization: City of Richmond, Virginia

In addition, as the Chesapeake Bay Program has long ago determined, the James River does not influence mid-Bay water quality and any regulation of James River nutrient discharges should occur only for local water quality protection. Locally, the applicable water quality standard is chlorophyll standard adopted by Virginia in 2005 and approved by EPA. Since adoption of this standard, the State issued the Virginia Regulations governing WWTPs and local governments designed and constructed the required new facilities with long-term debt, which now must be repaid by the public over the next 20 to 30 years.

Response

EPA agrees that "locally [for the tidal James River], the applicable water quality standard is the chlorophyll standard adopted by Virginia in 2005 and approved by EPA." That is Virginia has adopted the segment-specific numeric chlorophyll a criteria for the tidal James River listed in Table 3-10 of the draft TMDL into its WQS regulations. The criteria are based on various scientific lines of evidence with additional river-specific considerations (VADEQ 2004). EPA approved the WQS regulations on June 27, 2005. Most of the major WWTPs in the James basin are undergoing major upgrades to achieve the state regulations. The TMDL must be based on existing water quality standards.

Comment ID 0523.1.001.009

Author Name: Steidel Robert

Organization: City of Richmond, Virginia

The City of Richmond (COR) strongly supports the primary use standard of the James River and that the applicable water quality standards should be based on sound scientific and engineering principles protective of that use.

Response

The Bay TMDL allocations are for attaining the applicable water quality standards (WQS) as required by the Clean Water Act (CWA). For the tidal James River, the applicable WQS is the chlorophyll a criteria listed in Table 3-10 of the draft TMDL. This criterion, adopted by Virginia in 2005 and approved by EPA, is based on various scientific lines of evidence with additional river-specific considerations.

Comment ID 0528.1.001.012

Author Name: Barnes C.

Organization: County of Spotsylvania, Virginia

VI. DISCONNECT BETWEEN THE AVAILABLE FACTS AND THE PROPOSED STANDARDS

A. Lack of data

EPA lacks solid data to support a baseline to which the Chesapeake Bay can be "restored." There simply are no historical data on phosphorus, nitrogen, or sediment levels in the Chesapeake Bay except some very limited data over the past few years. For example, although the TMDLs reference oyster levels in 1900 there is no data on phosphorus, nitrogen, or sediment levels in that era. Without reliable data, the causes of current conditions cannot be determined, even using the best scientific methodologies. This scant data as to the normal variability in these levels makes it impossible for the EPA to determine what pollutant levels constitute a "healthy" Chesapeake Bay.

If the EPA has any data regarding comparable estuaries within the continental United States, as well as, contemporary data from elsewhere in the world, it could provide at least some scientific basis for the standards that EPA proposes to impose.

Response

The scientific underpinnings for the EPA published Chesapeake Bay-specific water quality criteria has been under way for decades. Please see the extensive documentation of the scientific basis for each of the Chesapeake Bay dissolved oxygen, water clarity, underwater bay grasses, and chlorophyll a water quality criteria within: U.S. Environmental Protection Agency. 2003. Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries. EPA 903-R-03-002. Region III Chesapeake Bay Program Office, Annapolis, Maryland, available online at http://www.chesapeakebay.net/publication.aspx?publicationid=13142 Please see Table 3-1 within the final Chesapeake

Bay TMDL document for references to nine additional supporting EPA published documents detailing the scientific basis for the criteria and their designated uses and assessment procedures, each of which are accessible on-line through http://www.chesapeakebay.net.

Water quality conditions that define a healthy Chesapeake Bay are spelled out and clearly quantified within the 2003 EPA Chesapeake Bay Water Quality Criteria document referenced above in terms of concentrations of dissolved oxygen and chlorophyll a, levels of water clarity, and acreages of underwater bay grasses. Concentrations of nitrogen and phosphorus are not used as water quality criteria for defining a healthy Chesapeake Bay. Instead, these nitrogen and phosphorus concentration data are used by scientists and resource managers to assess water quality trends over time, diagnosis reasons behind non-attainment of the Bay water quality criteria described above, and to calibrate environmental models of the Bay, like those used in developing the Bay TMDL.

Each individual Chesapeake Bay water quality criterion is supported by decades of published Chesapeake Bay scientific findings as well as scientific findings from research conducted from similar estuarine environments and laboratories across the country and around the world. References to the published scientific findings are all documented within the above referenced ten EPA published documents. These criteria were derived to be protective of aquatic life within the Chesapeake Bay as defined through five designated uses. The Bay water quality criteria were derived following methods consistent with published EPA criteria guidelines.

Since 1985, there has been extensive collection of nitrogen, phosphorus and sediment ambient concentration data at over 150 stations through the Chesapeake Bay Water Quality Monitoring Program, with collections occurring 12-20 times per year at various depths through the water column. Historically, nutrient and sediment concentration data for Chesapeake Bay are available since the 1950s, with some measurements dating back to the 1930s, providing one of the richest long term water quality data records for any estuary in the world. All these current and historical water quality data, totaling millions and millions of individual data points, are available online at http://www.chesapeakebay.net/dataandtools.aspx?menuitem=14872

Comment ID 0552.1.001.006

Author Name: Steidel Robert

Organization: City of Richmond, Virginia

1. The City of Richmond (COR) strongly supports the primary use standard of the James River and that the applicable water quality standards should be based on sound scientific and engineering principles protective of that use.

Response

The Bay TMDL allocations are for attaining the applicable water quality standards (WQS) as required by the Clean Water Act (CWA). For the tidal James River, the applicable WQS is the chlorophyll a criteria listed in Table 3-10 of the draft TMDL. This criterion, adopted by Virginia in 2005 and approved by EPA, is based on various scientific lines of evidence with additional river-specific considerations.

Comment ID 0575.1.001.001

Author Name: Pomeroy Christopher

Organization: Virginia Municipal Stormwater Association, Inc. (VAMSA)

I. EPA'S APPROACH TO THE JAMES RIVER (CHLOROPHYLL-A) IS UNREASONABLE

A. The James River chlorophyll-a standards are scientifically flawed

The stringent nutrient allocations proposed by EPA are based on a standard that lacks a sound scientific foundation. VAMSA's sister association, VAMWA, has been actively participating in discussions regarding chlorophyll-a since EPA's initially attempted to derive Bay-wide criteria in 2000. Over this time, VAMWA scientists served on technical committees, contributed independent data analyses, and provided numerous sets of technical comments on chlorophyll-a. During the development of the Bay TMDL, VAMWA clearly communicated its concerns about the James River specific chlorophyll-a standards to the EPA,[FN 1] The key points in that document are summarized as follows.

1. EPA-led technical efforts concluded that numeric chlorophyll-a criteria were not (technically supported (2000-2003): An EPA process to develop Bay-wide chlorophyll-a standards pre-dated Virginia's adoption of the James River chlorophyll-a standard. Despite considerable eff01ls (including supp01ling technical work by VAMWA), the process ultimately showed that chlorophyll-a could not be quantitatively linked to designated use attainment at that time. The EPA ultimately recognized these deficiencies and made the appropriate decision not to publish Bay-wide chlorophyll-a criteria as part of the 2003 criteria document.[FN 2] EPA eventually published a compilation of multiple lines of inquiry and encouraged States to use this information to develop site specific chlorophyll-a criteria where needed. VAMWA expressed concerns that the document did not sufficiently recognize the limitations and offered substitute language[FN 3]

2. Virginia's derivation ofchlorophyll-a criteria sufferedji'om the same issues experienced by EPA (2003-2005): After the publication of the EPA criteria document, the Commonwealth of Virginia initiated a mlemaking process to establish chlorophyll-a criteria for the tidal p01lions of the James River. During this process, the Virginia Depmlment of Environmental Quality ("VADEQ") relied heavily on EPA's 2003 criteria document, and suffered from the problems associated with it. Due to VAMWA's familiarity with the deficiencies of the 2000-2003 EPA eff01l, VAMWA recommended that Virginia adopt an adaptive management approach that used monitoring and research to strengthen the understanding of relationships between chlorophyll-a and potentially hmmful algal blooms.[FN 4] When this course of action was not followed, VAMWA commented extensively on the subsequent criteria proposals [FN 5] supported by literature (reviews and data analysis. These technical issues associated with the numerical criteria were never satisfactorily resolved. Legislation was drafted by a member of the General Assembly that would require justification of tangible benefits to the environment and to the public. This was held in abeyance to encourage all parties to achieve a solution to the problem. That solution consisted of conducting a James River "Altematives Analysis".

3. The criteria ultimately adopted were a compromise partially based on model predictions ofattainment under a specific set ofloading assumptions: During 2005, VADEQ (with EPA's assistance) performed a series of modeling analyses to evaluate chlorophyll-a reductions relative to various point source loading scenarios. The results from the Alternatives Analysis [FN 6] were used to both adjust the proposed criteria adopted by the SWCB in 2005 (significantly in some

cases) and establish point source nutrient allocations now contained in the Water Quality Management Regulation. These circumstances demonstrate that the existing chlorophyll-a standards represent a negotiated result contingent on (a) expectations of attainment under a specific set of loading assumptions, (b) the status of the modeling framework at the time, and (c) other critical interpretation assumptions that were employed.

4. The new EPA model does not address' attainment or previous model assumptions: During 2009-2010, as pati of the TMDL process, the EPA's Chesapeake Bay Program Office revised the modeling fi'amework and the other critical assumptions and re-evaluated chlorophyll-a attainment. The modeling results now predict much higher non-attainment rates for chlorophyll-a for the same given loading scenario agreed to in 2005. These results are now driving the EPA's present proposal for steep nutrient loading reductions for the James River. The key factors responsible for the increasing stringency are listed below:

a. The watershed model (WSM) and its calibration were revised from WSM version 4.3 to WSM version 5. The watershed model is still undergoing modification at the time ofthis writing. WSM version 4.3 was calibrated to 1985-1991 hydrology while WSM 5 was calibrated to 1990-2000 hydrology. The newer hydrologic period tends to have higher loading rates as this period is wetter. The effectiveness of celiain BMPs were also revised downward (achieve less nutrient reduction for each BMP).

b. EPA changed its method for predicting attainment from direct use of the model results to a method that uses scenario results to transfOlm observed data.

c. Model output was evaluated for 3 year periods individually (8 in total) instead of a single 10 year period during the 2005 Alternatives Analysis.

d. A rule was implemented to require non-attainment to be less than or equal to 1%. In the 2005 Alternatives Analysis, there was no stated rule and non-attainment rates of 4% were judged to be within the uncertainty band of the model, which EPA accepted as sufficient. As previously stated, the James River chlorophyll-a criteria and associated load allocations are inherently linked to the model framework and analysis assumptions of 2005. EPA has essentially changed the rules of the game after the fact. It is likely that Virginia would have adopted different chlorophyll-a criteria, or may not have adopted any chlorophyll-a criteria, if EPA had demanded the interpretation rules described above during the 2005 time period.

B. VADEQ (and apparently EPA) recognized that the existing chlorophyll-a standards are imprecise and would require revision

The 2005 time period record is replete with statements that recognized the unreliability of the chlorophyll-a criteria and the need for future adjustment by both the VADEQ and EPA. As part of the public comments regarding the James River Alternatives Analysis, the VADEQ and EPA commented as follows regarding the state ofthe science regarding the chlorophyll standards:EPA. ..requests the [sic] Virginia fully consider new scientific findings and enhanced information on attainability in future triennial reviews of the Commonwealth's water quality standards regulations....DEQ acknowledges that the current state of the science for deriving numerical chlorophyll a criteria to protect these designated uses is not as quantitatively precise as that suppot1ing other published criteria in terms of the exact concentrations at which adverse impairments to aquatic life are cet1ain to occur. We believe that attainability can be factored into the final criteria to help us focus in on a number that is protective of aquatic life uses in these segments

and reasonable.[FN 7]

EPA's present insistence that the chlorophyll model results be interpreted in a strict and rigid manner is inconsistent with limitations ofthe standard acknowledged by EPA.

[FN 1] See August 16, 2010 letter and attachments from VAMwA to EPA staff (Attachment A to this Appendix).

[FN 2] Attachment B to this Appendix. EPA Chesapeake Bay Program. 2003. Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries: 2007. 219 p. plus appendices.

[FN 3] Attaclunent C to this Appendix.

[FN 4] Attachment D to this Appendix.

[FN 5] Attachment E to this Appendix.

[FN 6] Attaclunent F to this Appendix.

[FN 7] Materials from Final Regulation Agency Background Document (Nov. 21, 2005).

Response

Please refer to response to comment 0230.1.001.030

Comment ID 0587.1.001.002

Author Name: Watts George

Organization: U.S. Poultry & Egg Association, National Turkey Federation (NTF), and National Chicken Council (NCC)

1. Issues Regarding Historical Background of the TMDL

Early in 2009, EPA made it clear there was the intent to conduct a use attainability analysis (UAA) because the water quality standards were not attainable. In a discussion paper prepared for a March 9, 2009 conference call, EPA stated,

While it will be admittedly difficult to separate the financial achievability from the rest of this analysis, the MEF [maximum extent feasible] analysis underway is to only address the first two levels of do-ability. Recognizing that the cost component of this issue is important, it will be addressed as part of the Use Attainability Assessment at a later date.

(USEPA 2009)

Because EPA recognized that the water quality standards for the Bay were not able to be achieved, the Agency began a process to determine what might be achievable given current resource constraints. This process was designed to assess the maximum levels of control that could be achieved and this level would determine what was the "maximum extent feasible" (MEF) for load reductions.

During conference calls designed to discuss the process that would be used to determine what constituted the MEF for controlling point and nonpoint source loads, Rich Batiuk and Bob Koroncai of EPA both indicated that EPA recognized the current water quality standards could not be attained and a UAA would be necessary. The data collected during the MEF process would be used to conduct the UAA. Given the status of development in the watershed, it is unlikely the reductions can be achieved. This is particularly true because urban and suburban loads of nutrients and sediments are increasing even though total loads from agriculture and wastewater treatment plants are decreasing. In approximately June to July 2009 the development of a UAA was tabled which was the same time that the meeting minutes for the Water Quality Steering Committee also stopped. At a minimum, EPA should clearly explain why it stated that a UAA was needed but then abandoned the UAA with no explanation for the change.

Response

In recognition that it may be difficult to meet water quality standards in the Chesapeake Bay, EPA considered whether a use attainability analysis (UAA) should be conducted. EPA determined that a UAA at this time is premature given that that Bay restoration will involve long term (15 year) implementation. Instead, energy should be focused on developing a Bay TMDL to achieve current standards and thereafter implementing that TMDL. In particular, with a 15 year implementation horizon, EPA believes likely advancements in technology will improve our ability to reduce nutrients and sediment and at a lower cost. A UAA at this time would not be able to anticipate those potential advancements in technology.

Comment ID 0605.2.001.005

Author Name: Payne L.

Organization: City of Lynchburg, Virginia

In addition, as the Chesapeake Bay Program has long ago determined, the James River does not influence mid-Bay water quality and any regulation of James River nutrient discharges should occur only for local water quality protection. Locally, the applicable water quality standard is the chlorophyll standard adopted by Virginia in 2005 and approved by EPA. Since adoption of this standard, the State issued the Virginia Regulations governing WWTPs and local governments have designed and constructed the required new facilities with long-term debt, which now must be repaid by the public over the next 20 to 30 years.

Response

It is not accurate that the James River does not influence mid bay water quality. Available modeling results indicates that the James River has less impact (on a pound for pound comparison) than other Rivers in the Bay on mid bay water quality but it does have an

impact.

When pollutant sources affect local and downstream water quality standards and separate TMDLs are developed to address local and downstream standards. The more stringent of the 2 TMDLs drives the allocations for the local watershed. In the case of the James River, the local chlorophyll a standards drive more stringent controls than the Bay standards. So EPA agrees that "locally [for the tidal James River], the applicable water quality standard is the chlorophyll standard adopted by Virginia in 2005 and approved by EPA." That is Virginia has adopted the segment-specific numeric chlorophyll a criteria for the tidal James River listed in Table 3-10 of the draft TMDL into its WQS regulations. The criteria are based on various scientific lines of evidence with additional river-specific considerations (VADEQ 2004). EPA approved the WQS regulations on June 27, 2005.

Comment ID 0681.1.001.012

Author Name: Baxter Russ

Organization: VA Department of Environmental Quality

As described in Virginia's draft WIP (submitted September 3, 2010), it is clear that the draft nutrient allocations for the James River basin published by EPA on July 1, 2010 are significantly more stringent than the levels supported by EPA in 2005 when the Virginia State Water Control Board adopted both the chlorophyll standards for the tidal James River and the nutrient allocations for the significant wastewater dischargers needed to meet those new standards. The Code of Virginia calls upon the Board to give due consideration to the economic and social costs and benefits which can reasonably be expected as a result of the standards they adopt. Given this development, reconsideration of these standards is warranted to ensure they reflect the most recent scientific information, monitoring data and modeling procedures.

Recommendation: The final TMDL needs to allow for re-evaluation of the chlorophyll standards prior to full regulatory application of the nutrient allocations associated with EPA's chlorophyll-based James River basin allocations.

Response

Please refer to the response for comment 0293.1.001.017.

Response to Public Comments: Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

Issue Category:
7. Sources of Nutrients and Sediments

Pages 436 – 598

December 29, 2010

Docket #: EPA-R3-OW-2010-0736

7 - SOURCES OF NUTRIENTS AND SEDIMENTS

Comment ID 0251.1.001.004

Author Name: Duckett Robert

Organization: Peninsula Housing & Builders Association (PHBA)

Perhaps this rush would be understood if Virginia had not accomplished major reductions in pollutants. But yet it has been well documented, and the EPA has acknowledged that, at tremendous expense, Virginia has made enormous progress in reducing nitrogen, phosphorous, and sediment discharges into the Chesapeake Bay and its tributaries from all source sectors since 1985. Virginia nitrogen loads have been reduced from almost 90 million pounds per year to just above 60 million pounds per year.

Phosphorous loads have been reduced from almost 12 million pounds per year to just over 6 million pounds per year. And, the Commonwealth and its citizens have made a big public commitment to continue the state's own pollution diet. Virginia does not need, nor should the EPA demand additional draconian clean up actions at this time, especially with no regard to the economic impact and costs of their demands.

Response

Significant progress has been made in implementation of management practices to reduce nitrogen, phosphorus, and sediment over the past 2-3 decades and this has resulted in observed decreases in nitrogen, phosphorus, and sediment concentration independent of flow in many areas of the watershed.
http://www.chesapeakebay.net/status_flowadjustednitrogen.aspx?menuitem=50308
http://www.chesapeakebay.net/status_flowadjustedphosphorus.aspx?menuitem=50309
http://www.chesapeakebay.net/status_flowadjustedsediment.aspx?menuitem=50310

However, the water quality standards in the Chesapeake have not been met and the TMDL is a requirement under federal law and responds to consent decrees in Virginia and Washington D.C. dating back to the late 1990s.

Comment ID 0257.1.001.002

Author Name: Christian Stephen

Organization: Berkeley County Development Authority, Berkeley County, Martinsburg, West Virginia

Pollutant sources for which reductions must be harvested include agriculture, forest, developed land (urban runoff), septic systems (all, collectively, "non-point sources") and wastewater treatment plants ("point sources"). Of these sources, West Virginia treatment plants are estimated by EPA to contribute 1% of the nitrogen and 3% of the phosphorus into the Bay. Agriculture is the single largest source of pollutants into the Bay, estimated to contribute 44% of the total nitrogen and phosphorus loads into the Bay. Municipal wastewater facilities (throughout the Bay watershed)

are estimated to contribute 17% of the total nitrogen and 16% of the total phosphorus into the Bay.

Response

The analysis tools that are used in the TMDL consider all sectors: waste water, forest, agriculture, runoff from developed areas, and atmospheric deposition. The restoration of the Bay requires reductions from all sectors including both agriculture and urban lands. EPA has based the TMDL allocations on achieving those reductions.

7.1 - AGRICULTURE

Comment ID 0038.1.001.035

Author Name: Eisen Professor Joel

Organization: University of Richmond Environmental Law and Policy

One area in which I believe this cannot afford to happen - and in which the EPA needs to seriously consider revising its stipulated provisions - is the area of source sector strategies, with a particular concentration non-point sources and specifically, agriculture. As Ann Jennings specified in her presentation, agriculture accounts for 34% of Virginia's nitrogen pollution to the Chesapeake Bay system - the largest source of nitrogen pollution (though wastewater, at 30%, is a close second). Consequently, this area presents the most significant opportunity for improvement. Suggestions to reduce pollution levels such as "implement nutrient management plans on most crop and hay acres" and "achieve near total stream exclusion of livestock overtime" simply cannot do (VA WIP, p. 13). The EPA needs to address how farms should implement nutrient management or provide significant incentives or mandates to encourage farms to adopt these practices; indeed, the WIP devotes only a few lines to the discussion of the tax credit incentive provided to farmers who implement nutrient management plans (VA WIP, p. 55). The EPA needs to set a timeline or designate incremental, percentage goals for excluding livestock from streams in order to reduce animal waste-polluted water, rather than simply state that this must be achieved "overtime" which could mean decades or centuries!

Response

EPA has articulated its expectations for what level of detail should be included in the Watershed Implementation Plans through several memoranda to the states. Specifically, in the November 9, 2009 memorandum to the states, EPA called for specific details on how key strategies will be achieved in the WIPs including how funding and technical resources will be garners to support the activity, how producers will be motivated/incentivized to reach the implementation levels, and timeframes for when implementation levels and reduction targets will be achieved. This level of detail is necessary to build EPA’s reasonable assurance that agricultural reduction targets will be met. Reference: http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/tmdl_implementation_letter_110409.pdf

Comment ID 0041-cp.001.001

Author Name: Comment Anonymous

Organization:

While most farms are exempt from having to comply with Clean Water Act rules that apply to the other pollution sources, many have voluntarily installed conservation practices with the help of hundreds of millions of state and federal cost-share dollars over the years. Unfortunately, farmers that refuse to install adequate conservation practices endanger their downstream neighbors' health, livelihood, and quality of life. The conservation community recognizes the value of family farms and does not want to unfairly burden the farmers who grow our food and enrich our communities. Such an approach would be short-sighted because well-operated farms are far preferable to sprawling urban development. Conservation groups have worked hand-in-hand with farmers' representatives in Richmond and Washington to seek increased and sustainable funding for conservation practices.

Response

EPA appreciates the voluntary efforts made by the conservation community and farmers over the past several decades to restore the Chesapeake Bay. Please see response to comment 0586.1.001.006.

Comment ID 0058-cp.001.001

Author Name: Smith J. S.

Organization:

I am not a member of any government agency or specific organization. I am a Virginia taxpayer in two Virginia localities highly impacted by the TMDL. I live in Rockingham County, Virginia and own Chesapeake Bayside property in Northampton County on the Eastern Shore of Virginia. I am an Eastern Shore native. I am 59 years old and have seen the degradation of water qualilty in the Bay in my lifetime as I have spent time in a bayside beach cottage community all my life.

I am also a landowner who leases land to farmers who have cattle on my farm. We spent money (and received grant money) ten years ago to put a well in so that cattle could be kept out of a pond which drained into a local creek. Other local farmers continue to allow their cattle to wade and defecate etc. into the local creek. So part of the pollution in the Bay is due to farmers nearby who don't keep cattle out of local creeks and rivers.

Response

EPA agrees that cattle with unlimited access to local creeks and rivers contribute to the pollution in the Bay, and are working with Virginia government officials to develop compliance assurance programs that disincentivize this practice. The Chesapeake Bay is a national treasure and the watermen that make their living off the resources in the Bay are important to our national heritage and economy. Through the TMDL, EPA seeks to create a level playing field in the agricultural community by ensuring that each Chesapeake Bay jurisdictions' Watershed Implementation Plan (WIP) includes compliance assurance and enforcement response

programs that address those farm operations that are discharging pollutants into the Bay and its tributaries.

Comment ID 0060.1.001.002

Author Name: Bredwell III Paul

Organization: U.S. Poultry & Egg Association, National Turkey Federation (NTF), and National Chicken Council (NCC)

The poultry industry has taken significant steps in recent years to advance nutrient management practices and minimize water quality impacts in the Chesapeake Bay watershed.

Response

EPA is fully aware of many of the advances that the poultry industry has helped support as part of the nutrient management planning process throughout the Chesapeake Bay watershed. We often have had meetings and discussions with the Delmarva Poultry Industry and the Virginia Poultry Industry and have appreciated the opportunity to share developing technologies and other on farm practices.

Nutrient management plans as you know represents all of the important technical components that address improvements to water quality. Some of the newer technical practices that have been supported by USDA's Natural Resources Conservation Service can also address air quality concerns in minimizing the transfer of nitrogen from poultry houses.

Over the past several months the Chesapeake Bay program has been presented with a number of new practices and have been asked to accept them to be included in the Bay model crediting nutrient reductions. Some have been accepted on an interim basis while others were rejected based on not have water quality documentation and related nutrient efficiency data. EPA has suggested to State agricultural agencies and other agriculture organizations to plan to undertake the appropriate levels of research on management practices that either are being implemented or are planned to be implemented as EPA would look forward to working with these agencies and organizations to achieve a greater number of practices that ultimately be part of the Chesapeake Bay model.

EPA looks forward to continuing to having discussions with the poultry industry and appreciates the support you have provided.

Comment ID 0062.1.001.003

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

Joining this request are: Agricultural Retailers Association, American Farm Bureau Federation; American Meat Institute; Michigan Agri-Business Association; Missouri Agribusiness Association; Mosaic Fertilizer; National Alliance of Forest Owners; National Association of Wheat Growers; National Cattlemen's Beef Association; National Corn Growers Association, National Council of Farmer Cooperatives; National Milk Producers Federation; National Pork Producers

Council; PotashCorp; South East Dairy Farmers Association; The Fertilizer Institute; United Egg Producers; USA Rice Federation; Virginia Agribusiness Council; Virginia Grain Producers Association.

These organizations - or their members - own and operate lands and facilities that produce or contribute to the production of the row crops, livestock, and poultry that provide safe and affordable food, fiber, and fuel to Americans all across the United States. Some of these operations are located on or near waters of the United States, and some fall within the 64,000 square mile Chesapeake Bay watershed. These operations include those that hold individual and/or general permits for the discharge of pollutants into water; operations that are participants in nutrient management programs supported by state departments of agriculture or by the U.S. Department of Agriculture; and operations that undertake voluntary action to control runoff of nutrients and sediments without participating in or reporting to a formal state or federal program. Members with operations located in the Chesapeake Bay watershed would be directly affected by EPA's Draft TMDL. In addition, the undersigned have a direct interest in any precedents that EPA may establish that may have national implications with respect to federal control over TMDLs and TMDL implementation.

Response

The Chesapeake Bay TMDL only establishes the waste load allocations (WLAs) and the load allocations (LAs) for each of the 92 Bay segments and the watersheds directly contributing to each of those segments based largely, and in many cases, entirely on the respective jurisdictions' final Phase I watershed implementation plan. In those cases where the jurisdictions' watershed implementation plan fully achieved its assigned nitrogen, phosphorus and sediment allocations and provided reasonable assurance for achieving those allocations, EPA used the jurisdictions' recommended WLAs and LAs within the final Bay TMDL.

All six watershed states have delegated authority to carry out implementation of permitting program addressing the discharge of pollutants into receiving waters. Those jurisdictions have the responsibility for ensuring all future permits are consistent with the final Bay TMDL.

The Chesapeake Bay TMDL was developed in close partnership with the state watershed states and the District of Columbia, following and fully consistent with EPA's existing TMDL regulations and guidelines. EPA has not changes its regulations or guidelines during the development of the Bay TMDL.

In developing the Chesapeake Bay TMDL, EPA did recognize and factor in the very unique circumstances of this TMDL: state-federal partnership in place for 27 years; decades of monitoring, modeling and scientific research focused on the Chesapeake Bay and its surrounding watershed and airshed; long history of agreements, directives, comments, strategies developed by the partnership based on mix of voluntary approaches, consensus building and regulatory programs; subject of a Presidential Executive Order; multi-jurisdictional TMDL addressing pollutant loads generated by the activities and actions of 17 million watershed residents; actions and activities within multiple upstream, up-tide jurisdictions effecting the ability of downstream/down-tide jursidictions' to achieve their respective water quality standards; multiple court-ordered consent decrees and lawsuit settlements; and the watershed states and the District of Columbia requesting EPA develop the Bay TMDL on their behalf and with their active participation given the multi-jurisidictional nature of the watershed and the multi-jurisdictional contributions of pollutants to impairment of Chesapeake Bay water quality.

Publication of the Chesapeake Bay TMDL will not change the existing TMDL regulations nor will it change federal control over

TMDLs and/or TMDL implementation. The unique circumstances listed upon do not exist widely across the country for the many thousands of impaired waterbodies for which TMDL have yet to be developed.

Comment ID 0075.1.001.002

Author Name: Downes Paul

Organization: Mountaire Farms Inc.

The poultry industry has taken significant steps in recent years to advance nutrient management practices and minimize water quality impacts in the Chesapeake Bay watershed.

Response

Please see response to comment 0060.1.001.002.

Comment ID 0089.1.001.008

Author Name: Hunter J. And M.

Organization:

WV farmland is being alarmingly lost to urbanization in the Eastern Panhandle. Based upon WV's Phase 1 WIP, the land area for agriculture production in WV has been reduced by thousands of acres between 1997 and 2007.

Response

The Chesapeake Bay Program utilizes several sources of information regarding land uses within the Bay watershed to periodically provide updates. An important source of agricultural land use data is provided by the USDA National Agricultural Statistics Service (NASS) through the Agricultural Census. The Census is conducted nationally every five years, with the latest originating from 2007. The Chesapeake Bay Program currently utilizes six Census reports spanning from 1982 to 2007 to inform the models of agricultural land use changes.

Comment ID 0094-cp.001.005

Author Name: Holland L.

Organization: W.T. Holland & Son's, Inc.

We knew early there was not going to any assistance for 2010 in our county for us for cover crop and we already planted more than ever-without assistance. Does that tell you anything?

You computer model is flawed and has been from the beginning, how can we have faith in people doing what is right, when after 15 years you couldn't get this model correct. Because of your methods of receiving reports on cover crops, these vetch and other cover crop acres we have planted this year will not be reported or recorded in your model. How can you base sound judgments with information you know is incorrect, you wouldn't like your reputation to be in jeopardy becaue of some cheap gossip.

We do not need more regulation, you are going to drive us out of business,PLEASE DO NOT REGULATE US ANYMORE. AS AN ACCOMACK COUNTY VA. AND WORCESTER COUNTY MD. FARMER I URGE YOU TO USE GOOD AND SOUND JUDGEMENT. PLEASE REMEMBER WE FEED YOU

Response

Cover crops are one of the best BMPs because they're good for the farmer and they're good for the Bay. Verified “voluntary” practices, such as the cover crops you've implemented, can be accepted in the model, but historically have not been included to a great extent because the information has not been made available to the state to provide to the Chesapeake Bay Program. Voluntary practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These voluntary practices are typically funded by farmers alone. EPA is committed to working with USDA, NACD, state environmental and agricultural agencies, conservation districts, and agricultural community at large to credit nutrient and sediment reductions from voluntary practices. As committed to in the Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to “By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented.”

Comment ID 0108.001.001

Author Name: Kerstetter Donald

Organization: Trappe Landing Farm and Native Sanctuary

Trappe Landing Farm & Native Sanctuary is located at the headwaters of LaTrappe Creek in the Choptank watershed. Our location is important to our perspective. Due to the high farm acreage to Creek water volume we see every day the way the Chesapeake Bay water quality will look in the future . The future picture is very bleak with dramatic loss of water species in the last several years and noticeable increases in water turbidity. The Cove that bisects our property has had zero oxygen at the bottom two feet in the summer for 10 years. Other coves off the mainstem down to the mouth of the Creek are increasingly oxygen deficient and losing their ability to sustain species life in the summertime. We have not had underwater grasses which were prolific 40 years ago since 1980. After yesterdays meeting I am not encouraged about the future. The Choptank issues which are reflective of short cuts in soil management and overuse of farm chemicals nationwide are summed up in USGS circular 1228 page 6 which quantifies the affect of farm field fertilizer and farm animal manure at 59% and 35% of Delmarva nitrogen pollution. USDA SARE handbook #10 pg 118, Sustainable Soil Management, states the minimum sustainable crop rotation which is blatantly violated by every grain farmer in the Chesapeake Bay watershed but even more so in the Midwest where monocropping without cover crops is prevalent.

Response

The Chesapeake Bay TMDL will be released by December 31, 2010 due to the continuing impairment of tidal waters of the Bay. Agricultural land uses within the Chesapeake Bay watershed represent the largest managed land use as well as the largest single source of nutrients and sediments according to an analysis of available data by the Chesapeake Bay Program models. Improving the conservation of agricultural nutrients and sediments potentially lost to the environment has been a priority by the Bay state partners since the mid-1980's, and continues to be a critical priority as the Chesapeake Bay TMDL and supporting state Watershed Implementation Plans (WIPs) are developed. The Bay TMDL will guide the Bay states to fully implement their WIPs and achieve water quality standards. The potential of federal consequences exist if the state-developed WIPs are not fully implemented and/or water quality standards are not met.

Comment ID 0108.001.005

Author Name: Kerstetter Donald

Organization: Trappe Landing Farm and Native Sanctuary

As aquifers become more saturated with nitrogen and soils become more saturated with phosphorous nationwide the reduction need will accelerate exponentially. The US must start now with a minimum nationwide mandated 5% per year nutrient decrease for an unknown number of years and minimal criteria for soil management. American's are innovative and will most likely overcome the challenge of nutrient reduction with increased uptake efficiency for very inefficient corn but increased cost of animal protein and processed food and lower consumption would be a positive result for the nations health. In short there is no downside only upside in moving toward sustainable agriculture as recognized by a growing number of nutritionists, agronomists, and soil scientist. Many of these are identified in our website references.

Response

Thank you for your comments. As part of its review of each state's final watershed implementation plan (WIP), EPA will be evaluating their programs to address the build up of phosphorus in soils in relation to the 502 guidance recommendations for federal land management. EPA developed technical program guidance under the Chesapeake Bay Executive Order outlining recommendations for actions on federal lands to reduce nutrient runoff. In that guidance, EPA recommends that P fertilizer not be applied to soils that are above 20 percent where P desorption and loss as runoff can occur. In addition, it is important for the nutrient management plan to address the slope and movement patterns for water as runoff in a field by implementing cropland in-field controls, because P-sat percentage does not dictate the probability of P in runoff to move to a ditch or local waterbody.

Comment ID 0139.1.001.005

Author Name: Horn Charles

Organization: Headwaters Soil and Water Conservation District

We endorse the continued use of the Phosphorus Index and 1 times P crop removal up to 65% base saturation. Proposed phosphorus limits rumored to be as low as 20% base saturation are ignoring the fact that erosion is still the leading factor in phosphorus loss. A conservation plan using field buffers and conservation tillage is the best way to reduce phosphorus loss. The phosphorus index brings together the conservation plan and the nutrient management plan. If the phosphorus is applied with the correct amount of carbon the soil will retain it. There is 1350 pounds of carbon/organic matter in a ton of litter. There is no organic matter in commercial fertilizer. Organic matter is the key to sustainability and creates the cation exchange points available to hold the phosphorus.

Response

Please see response to comment 0586.1.001.006

Comment ID 0139.1.001.013

Author Name: Horn Charles

Organization: Headwaters Soil and Water Conservation District

4. The Phosphorus index and P based crop removal application is critical

Response

Please see response to comment 0586.1.001.006.

Comment ID 0158-cp.001.001

Author Name: Holland Fred

Organization: W.T. Holland & Son's, Inc.

I am a third generation of a farm family. Since I can remember starting with my Grandfather our family has tried to be good stewards of the land. We do not use excessive fertilizer to start with not only because it is not good for the enviroment but it would only cost us money. We notill 90% of the land we till and would be 100% if not for vegetables. We have used and still use filter stips in our operation. We have and still plant cover crops even on land that will be conventionally tilled the following year, and even when the funds for cost share are not available we still plant a cover. This year we are trying a new cover that Virginia does not even cost share on. We are trying this because it is supposed to take up 100% of any nitrogen that is left over from the previous crop and returns the nitrogen back to the spring cash crop the following year. Please do not regulate us.

Response

Please see response to comment # 0197.1.001.002.

Comment ID 0159.001.003

Author Name: Farasy Tom

Organization: Maryland State Builders Association

We in the development business believe that too many people think we are contributing far more to Bay problems than the science supports.

Response

The Chesapeake Bay Program partnership has made significant past progress towards addressing the loss of nutrients and sediments to the tidal Chesapeake Bay. The agriculture and point source sectors, including municipal waste water treatment plants, have achieved the majority of the pollution reductions to date. Another important point source sector where much more progress needs to occur is pollution from urban areas. As you can appreciate implementing urban point source nutrient reductions will continue to be a challenge yet many States have put forward reasonable pollution reduction programs so that all sectors involved in the cleanup of the Chesapeake Bay provide appropriate levels of actions. As States develop Phase 2 Watershed Implementation Plans more detailed basin by basin discussions will occur in the agriculture community, municipalities and of course very important discussions centered around urban/development sectors. Our goal collectively is to strike a balanced approach so that all sectors contribute their fair share of nutrient reductions as we all work together to continue to restore the Chesapeake Bay. Lately, it is difficult to respond to the question the commenter raised on the science of the TMDL when the commenter provides no science to support their concern.

Comment ID 0166.001.002

Author Name: Marhugh D.

Organization:

The Best Management practices we have utilized include no till farming, cover crops, fencing livestock out of streams, nutrient management plans. and buffer zones along creeks and streams. I hear over and over how agriculture is to blame for dumping excess nitrogen and phosphorous into the bay and I fear that more regulations will be coming that may very well put me out of business. We are an easy target because there are too few of us left in production agriculture . You must remember that many farms have improved water quality through BMP's in the last 25 years while overall population growth in the Chesapeake Bay watershed has diminished water quality in the Bay, I urge you to consider this as we all strive for a cleaner Chesapeake Bay.

Response

The TMDL will require every sector -- waste water treatment plants; municipal stormwater from streets, parking lots, and other public areas; and, agriculture -- to reduce the amount of nutrients and sediments being delivered to the Chesapeake Bay. Please see response to comment 0648-cp.001.002 regarding voluntary BMPs.

Comment ID 0181.1.001.004

Author Name: Ranck Rebecca

Organization: Wenger's Feed Mill, Inc.

There are much smaller operations that are unregulated that are not required to implement Best Management Practices (BMPs) or required to keep documentation of daily operations or production for verification.

Response

The record for this action includes detailed data showing that agriculture is the largest single source of nutrients and sediment to the Bay. EPA has documented that significant opportunities still exist to implement improved nutrient management practices for CAFOs as well as smaller animal feeding operations. Non-CAFO operations, for example, can be designated or defined as CAFOs where necessary to achieve nutrient reductions for impaired water bodies. As part of its commitments under the President's May 12, 2009 Executive Order and May 10, 2010 settlement agreement in EPA vs CBF, the Agency has committed to regulatory actions including potentially including more animal feeding operations as CAFOs – making them potentially subject to NPDES permits and nutrient management plan requirements.

Comment ID 0191.1.001.005

Author Name: Smith Robert

Organization: Farm Credit East, ACA

New York farmers have practiced environmental stewardship and have made significant environmental achievements.

Response

Please see response to comment # 0197.1.001.002.

Comment ID 0197.1.001.002

Author Name: Vickers Bradd

Organization: Chenango County Farm Bureau

As a member of the Susquehanna River Basin Commission (SRBC) Agriculture Committee, I'm well aware how New York Farmers have been leaders in protecting and improving water quality. For over a decade our larger livestock farmers have been actively involved in the most comprehensive water quality protection program in the nation. All farms that are defined as medium or large animal feeding operations (AFO) under federal regulations apply manure and other nutrients in accordance with a nutrient management plan that exceeds federal standards and that is completed by a trained and certified nutrient management planner. Beyond this requirement our small farms have also been focused on improving water quality through participation in New York Agricultural Environmental Management (AEM) program. This is a model initiative that clearly demonstrates the most effective way to improve farm environmental efforts is through a voluntary, incentive-based approach.

These efforts are clearly effective in reducing nutrient loads to not only the Susquehanna and Chenango rivers and their tributaries, but ultimately the Chesapeake Bay. This is demonstrated by New York's strong record of water quality, which continues to improve.

Response

The Chesapeake Bay Program partnership, including New York and the agricultural community, have made significant past progress towards addressing the loss of nutrients and sediments to the tidal Chesapeake Bay. The agriculture and point source sectors, including municipal waste water treatment plants, have achieved the majority of the pollution reductions to date. Agriculture continues to represent the largest managed land use within the Chesapeake Bay watershed, as well as the largest single source of nutrients and sediment entering the Bay. Consequently, the Bay states are seeking additional nutrient and sediment reductions from the agricultural sector to assist with achieving the water quality requirements of the Chesapeake Bay TMDL to be released by December 31, 2010 through their supporting Watershed Implementation Plans (WIPs). A portion of this continued reliance by the Bay states to achieve future nutrient and sediment reductions is based on improving the tracking and reporting of both cost-shared and non-cost shared agricultural practices to more clearly document implementation of conservation practices by the agricultural community.

Comment ID 0245-cp.001.001

Author Name: Coulter Laurie

Organization: Virginia Crop Production Association, Inc. (VACPA)

VACPA, Virginia Crop Production Association, is committed to environmental stewardship. VACPA membership consists of all major retailers, distributors, and basic manufacturers that supply and service the farming community in Virginia and the surrounding states. Clean water and good soil are fundamental to our businesses. VACPA has been doing our part and will continue to do so in order to help create a healthy Chesapeake Bay and local waters. Specifically agriculture has met 52% of reduction goals for Nitrogen and 50% for Phosphorus and Sediment-all through a voluntary, incentive based program in Virginia. This doesn't even count the actions farmers have taken on their own without

funding.
VACPA members have been willing partners in making environmental progress-and have proven it with our actions, time and time again. Virginia has put over $80 million into Agricultural Best Management Practice (Ag BMP) Cost-Share program since 2006. Farmers have matched this spending with $0.60 of every dollar. Even without cost-share funding, agriculture is taking action. Virginia farmers fence cattle from streams, practice conservation tillage, use proper nutrient management practices, and install buffers along waterways without federal or state funds and without being "counted" by EPA.

Response

Please see response to comment # 0197.1.001.002.

Comment ID 0246.1.001.002

Author Name: Kelble Jeff

Organization: Potomac Riverkeeper Inc. (Shenandoah and Potomac Riverkeeper)

These comments are focused on agricultural pollution in the Shenandoah Valley. Agriculture is a major contributor of pollution to the Chesapeake Bay and the largest contributor of pollution leading to stream impairment in the Shenandoah Valley. For this reason, Shenandoah Riverkeeper supports any and all efforts that drive pollution reductions from agricultural sources in the Valley and recognizes that they will benefit the bay as well. As EPA points out in the draft TMDL, "[a]griculture is the largest single source of nitrogen, phosphorus, and sediment loading to the Bay through applying fertilizers, tilling croplands, and applying animal manure."[FN 1] Empirically, agricultural sources are among the largest contributors to nitrogen, phosphorous, and sediment pollution from Virginia sources.[FN 2] Therefore, reducing pollution from agriculture is necessary to successfully restore the Chesapeake Bay. Doing so will also significantly benefit the Shenandoah and Potomac rivers.

[FN 1] ENVTL. PROT. AGENCY, DRAFT CHESAPEAKE BAY TMDL: SECTION 4: SOURCES OF NUTRIENTS AND SEDIMENT TO THE CHESAPEAKE BAY 30 (Sept. 24, 2010).
[FN 2] ENVTL. PROT. AGENCY, DRAFT CHESAPEAKE BAY TMDL: SECTION 4: SOURCES OF NUTRIENTS AND SEDIMENT TO THE CHESAPEAKE BAY 6 (Sept. 24, 2010).

Response

Please see response to comment 0228.1.001.002.

Comment ID 0246.1.001.008

Author Name: Kelble Jeff

Organization: Potomac Riverkeeper Inc. (Shenandoah and Potomac Riverkeeper)

II. On the Ground Analysis of Agricultural Practices in the Shenandoah Valley

Over the past four years, Shenandoah Riverkeeper has visually surveyed thousands of farms in the Shenandoah Valley by road and by airplane. We have thoroughly evaluated 660 AFOs in the Shenandoah Valley. Twenty-seven of the farms had high levels of BMP implementation, which we evaluated in our survey. The other 633 farms revealed pollution-causing problems, almost always because farmers neglected to implement required BMPs and did not take advantage of voluntary incentive programs. Therefore, it is impossible for us not to conclude that the current voluntary incentive programs and permit-based programs have proven inadequate to control pollution from these Virginia AFOs.

In cataloguing the 660 farms, Shenandoah Riverkeeper divided each farm by type of animal operation or crop system and then assigned each farm a letter grade between A and F, corresponding to the quantity and quality of visual pollution generated by the farming practices. Farms earning a grade of A or B exhibited few visible problems and showed signs of implementing BMPs aimed at improving water quality, such as cattle exclusion from streams, cross fencing, off-stream watering, vegetated buffers, and good winter-feeding practices. Shenandoah Riverkeeper scored an AFO at a C-level when we found livestock had regular access to a stream or farm pond. We downgraded these C farms to a D when we observed that the animals were being concentrated in or next to the stream, for example by placement of feeding troughs or fencing. Most of the other AFOs that earned a grade of D showed visible signs of chronic or seasonal problems. In addition, some farms received a D grade when there was evidence that the operator farmed or row-cropped directly through headwater streams and intermittent springs or channels. A grade of F was assigned to farms having confinement areas with perennial or intermittent streamflows running through them or animals being fed for long periods adjacent to a stream. Finally, farms that had inadequate manure storage mechanisms were given grades of D or F depending on severity of the condition and our judgment as to the manure storage's contribution to water quality impairment. As further evidence of the damaging nature of these practices, in the appendices [Comment Letter contains additional information in the form of an attachment. See original comment letter 0246.1], we have included a graph of the correlation between farms exhibiting poor practices (those scoring a D or F), and degraded water quality as measured by average nitrate concentration. The appendix [Comment Letter contains additional information in the form of an attachment. See original comment letter 0246.1] discusses the methodology and conclusions in more detail, but Shenandoah Riverkeeper found an extremely strong positive correlation between the number of ag. sites graded D or F in a watershed and the average nitrate concentration over the past three years. We felt this helped to both corroborate the value of our visual observations and grading system, and also made an argument that the there is a relationship between the number of severe farming practices and the corresponding degradation of the nearest stream.

Figure 1: Cattle have caused bank destruction and loss of riparian vegetation [Please see page 8 of the original letter (Docket ID .0246.1).]

Our four year survey revealed that the most widespread problematic practices include streamside feeding, cattle congregating/loafing in streams and rivers, locating barns near streams, inadequate manure storage, planting and cultivating hay or row crops right through spring seeps and intermittent streams, and inappropriate winter manure application. In fact, over seventy-eight percent of all farms observed showed livestock intrusion into streams in places visible from public roads, nineteen percent engaged in streamside feeding, fifteen percent exhibited poorly sited confinement or animal concentration areas publicly visible, and fifteen percent exhibited visibly problematic manure storage, despite the fact that we only captured severe and obvious problems. The high rate of cattle in streams is particularly illustrative for the work that has to be done to achieve the WIP's goals and the inadequacy of the tools the

state has proposed, as the WIP has a goal of achieving a 95 percent implementation rate for cattle exclusion on farms in the Bay watershed.

The results of the survey are set out more fully in the specific sections below and in the Appendices [Comment Letter contains additional information in the form of an attachment. See original comment letter 0246.1]. All of the poor practices would be reduced significantly if farms had better voluntary incentive programs, better financial support, or if these can't be reasonably assured, then better regulations.

A. Animal Access to and Loafing in Streams and Rivers

A tremendous amount of sediment and animal waste enter Chesapeake Bay tributaries in the Shenandoah Valley because of cattle access to streams and rivers. Of the farms that Shenandoah Riverkeeper has surveyed, 78 percent had areas or entire valley stream sections where cattle congregated and wallowed. Cattle physically damage stream banks as they enter and exit the streams or walk on stream banks, due to their sheer size and the sharpness of their hoofs. Damaged areas then become highly prone to erosion and discharge sediment downstream. The erosion caused by cattle results in unnaturally wide and shallow streams, damages important riparian tree and root structures, and prevents the establishment of undergrowth and vegetated buffers. Furthermore, when cattle have access to streams, they deposit manure and urine directly into or adjacent to the streams, which directly increases nitrogen and phosphorus levels in local streams and the Chesapeake Bay system. The organic material on the bottom of the streams all but destroys the natural balance of the stream and desirable insects and fish. All of these effects combine to cause tremendous damage to local water quality in the Valley. Cattle access to streams is now widely recognized by far to be the greatest contributor to stream impairment. In fact, animal access to streams is often listed as the primary cause of benthic stress and bacteria loadings in streams.

Figure 2: Typical daily cattle congregation in stream [Please see page 9 of the original letter (Docket ID .0246.1).]

Response

Fencing cattle out of stream is one of the Best Management Practices that EPA advocates for reducing pollutant loads. Stream fencing prevents physical damage caused by cattle and reduces sediment loads to the Chesapeake Bay. Stream fencing also prevents the direct deposit of manure, urine, and their associated nutrient loads into the stream.

Comment ID 0246.1.001.011

Author Name: Kelble Jeff

Organization: Potomac Riverkeeper Inc. (Shenandoah and Potomac Riverkeeper)

B. Streamside Feeding and Concentration Near Streams and Intermittent Channels

Shenandoah Riverkeeper observed 127 farms where feeding stations were located next to or near a stream so that runoff and discharge of cattle waste and sediment were inevitable. Streamside feeding relates to cattle stream intrusion and the herd's reliance on stream access for watering. When pastures are producing sufficiently, cattle graze over wide

areas and waste is naturally deposited in the same areas that the animals graze and nutrients are largely used up by the grass stand. However, during a significant portion of the year when pasture does not produce sufficient feed, many cattlemen rely on hay and grain supplemental feeding next to streams, which is also where the animals obtain their water. This can mean that the animals spend virtually twenty-four hours a day, seven days a week next to the stream. This practice increases pollution in three ways: (1) areas adjacent to streams become denuded, resulting in increased runoff during rain events; (2) waste accumulations are not used agronomically so excess nitrogen leeches into shallow groundwater and ends up in the nearest stream; and (3) the majority of nitrogen is volatilized as urea ammonia, which is widely known to create an ammonia and nitrogen load in nearby watersheds.

Figure 4: Production area intermingled with stream. [Please see page 11 of the original letter (Docket ID .0246.1).]

At some farms, the problems are exacerbated by the practice of confining animals near a stream or spring. Shenandoah Riverkeeper observed animals confined or concentrated near streams or springheads at 100 farms in the Valley. These areas include loafing lots, exercise lots, sacrifice lots, feedlots, salt/mineral licks and watering areas, among other uses. Animal confinement near streams leads to the same type of degradation that is caused by feedlots located near streams. The common historical practice of locating barns near streams means in many cases it is intrinsically difficult to relocate livestock away from streams. Therefore, it will be necessary to prescribe short-term BMP's to mitigate the existing conditions, while planning for long-term improvements such as barnyard relocations. The Commonwealth has a duty to support the landowner in making difficult, but necessary, long-term transitions, but it has not properly addressed that duty in the draft WIP.

Figure 5: Stream runs through confinement area. [Please see page 11 of the original letter (Docket ID .0246.1).]

Response

Please see response to comment 0228.1.001.002

Comment ID 0246.1.001.014

Author Name: Kelble Jeff

Organization: Potomac Riverkeeper Inc. (Shenandoah and Potomac Riverkeeper)

Figure 6: Manure pile saturated and leachate flowing downhill toward nearby stream. [Please see page 12 of original letter (Docket ID .0246.1).]

C. Manure Storage

Manure storage continues to be a problem in the Shenandoah Valley. The Riverkeeper has observed problems in both dairy and poultry manure storage at 102 farms. Poultry manure frequently becomes a problem when deliveries to enduser farms are deposited in high runoff and leaching risk areas.

For facilities permitted under the poultry VPA program, the care taken to locate temporary pile storage is correlated to

the likelihood that the farm will be inspected. Poultry operation inspections have fallen into a general seasonal routine. As a result, when the risk of inspection is low, the litter piles are more likely to be sited poorly, where the risk of leaching or runoff is higher.

On dairy farms, storage capacity is one of the biggest problems affecting manure management. For example, during the winter months, Shenandoah Riverkeeper has witnessed the application of dairy slurry to frozen and/or snow-covered fields on a number of occasions. This occurs not only when manure storage space runs out, but also during double cropping scenarios, such as farms growing small grain or corn, where multiple annual manure applications take place. It is not uncommon for farms to engage in these harmful practices because they have expanded the number of animals without a corresponding increase in manure storage capacity. All winter application of manure is environmentally risky and the Commonwealth needs to take serious steps toward eliminating the practice. Application onto snow covered and/or frozen ground creates a critically dangerous situation where runoff is virtually guaranteed during snow melt and ground thaw. Moreover, nitrogen leaching during precipitation events further pollutes the watershed.

Figure 7: Liquid dairy sprayed on snow because of lack of storage. [Please see page 13 of original letter (Docket ID .0246.1).]

Response

On May 12 2010, the EPA published guidance for federal land management in the Chesapeake Bay watershed under Section 502 of the Chesapeake Bay Executive Order. EPA's objective in developing the guidance is to provide the information that will allow federal agencies to lead by their example. The guidance provides information and data on appropriate proven and cost-effective tools and practices for implementation on federal lands and at federal facilities. EPA's 502 technical guidance addresses these concerns. First, EPA recommends minimizing stockpile footprint and providing grass filter strip to protect downslope areas by setting total (whole-house) clean-out schedules that ensure no poultry litter stockpiling during times of the year with the greatest environmental losses (i.e. winter). Second, EPA asserts that the winter application of manure is a waste disposal method. Continued winter spreading will not meet the objectives of optimizing yields and protect streams, rivers, ponds, and groundwater. Furthermore, the application of manure on cover crops negates the nutrient removal benefit derived from their application according to the Chesapeake Bay Program as it relates to nutrient reductions calculated by the Watershed Model. Applying manure to land where there are no growing crops (only residue) is not a long term solution to manure management.

Comment ID 0246.1.001.016

Author Name: Kelble Jeff

Organization: Potomac Riverkeeper Inc. (Shenandoah and Potomac Riverkeeper)

Figure 9: Stream in upper right corner has been plowed and farmed through, continues to discharge pollutants into main Creek. [Please see page 14 of original letter (Docket ID .0246.1).]

D. Farming over Streams and Spring Seeps in Crop Fields

As part of its survey, Shenandoah Riverkeeper has noted that many farms disregard small tributaries when applying fertilizer, pesticides, and herbicides. These farms do not allow for a buffer between the application of these products and these small waterways, thereby directly increasing the level of harmful chemicals, phosphorous, and nitrogen in the Chesapeake Bay tributaries.

Farmers also adversely affect small streams by simply ignoring them in planning and working their fields. Farmers will often till and seed directly through the small streams, or directly adjacent to them when it is not possible to drive straight through them. Consequently, the stream's natural structure is compromised and the streams are subject to all of the amendments used on the field. The Riverkeeper has also noted that intermittent and small streams have been omitted from Nutrient Management Plans. Consequently, current mechanisms are not adequately addressing the sensitive waterways. In total, Shenandoah Riverkeeper has counted fifty-two farms that farm through small or intermittent streams.

Figure 10: Herbicide sprayer with boom out over stream. Brown vegetation from previous herbicide application overlaps stream in several places- doesn't nearly meet buffer requirments. [Please see page 15 of original letter (Docket ID .0246.1).]

Response

Please see response to comment 0184.1.001.005

Comment ID 0250-cp.001.001

Author Name: Eberly C.

Organization:

I, Charles W. Eberly 2634 Amberly Rd Harrisonburg,VA am a Self-Employed Farmer in the Shenandoah Valley of VA. I, as a farmer have been doing many conservation practices for the past many years, and following BMP's. I care about Clean water and it is vital to my farm for drinking as it is to many people in the Bay watershed. We farmers have implemented many BMP's in the State and continue to do so. I value Conservation and feel the Valley Farmers have done a great job in reducing the TMDL for the Bay over the past 25 years. Great reductions in Nitrogen, Phosphorus, and sediment have been met.

Response

Thank you for your comments and the effort you have made to improve both your local water quality and that of the Chesapeake Bay. The best management practices (BMPs) you chose to install on your farm are practices the EPA believes are necessary for most farmers to implement to restore the Chesapeake Bay. Farmers have done a great job in reducing nutrient pollution from their lands over the past 25 years and the computer model used to determine that reduction includes the implementation of nutrient management plans. The model also tracks the implementation of BMPs as reported by each state, commonwealth or jurisdiction in the watershed. Virginia submits a list of BMPs implemented throughout its portion of the watershed each year and that information

is added to the model. In regards to the length of the comment period, the date for completing the TMDL, December 31, 2010, was agreed upon by Virginia's Governor Bob McDonnell in June 2008, and is required under President Obama's Executive Order 13508. It was not feasible to extend the 45-day public comment period past November 8, 2010, and therefore delay finalization of the TMDL by December 31, 2010. In regards to the TMDL limiting economic growth in Virginia well beyond the farmer and the Agriculture community, the pollution in the Chesapeake Bay has been impacting Virginia's economy for decades. According to a recent report, the decline of the Chesapeake oyster alone has cost Virginia and Maryland more than $4 billion over the past 30 years.

EPA understands the need to balance food production and protecting the environment. Agricultural activities are responsible for approximately 44 percent of Nitrogen and Phosphorus loads delivered to the Bay and about 65 percent of sediment loads delivered to the Bay. While progress has been made, more reductions are needed to meet water quality goals, which will improve fish, crab and oyster habitat thereby improving the economic situation of those people who rely on those resources to make a living.

Comment ID 0267.1.001.018

Author Name: Bowman Cynthia

Organization: Cornell Law School Water Law Clinic

In working with local farmers, the Clinic has had the opportunity to observe how New York has been able to make significant progress in reducing nutrient loading from agricultural non-point sources by investing in the highly successful New York State Agricultural Environmental Management Program (AEM). Using an incentive-based approach, AEM taps into the technical expertise and local relationships of the state's Soil and Water Conservation Districts (SWCDs) to assist farmers in implementing agricultural conservation practices and complying with CAFO regulations. New York solidified its commitment to reducing agricultural nutrient loading by codifying AEM into law in 2000. [FN7]

[FN 7] N.Y.S DEP'T. OF ENVTL. CONSERVATION, NEW YORK STATE TRIBUTARY STRATEGY FOR RESTORATION OF THE CHESAPEAKE BAY 24 (Sept. 2007) (hereinafter "TRIBUTARY STRATEGY").

Response

Please refer t response to comment # 0197.1.001.002

Comment ID 0273-cp.001.001

Author Name: Townsend L.

Organization:

Limits on application of nutrients for farmers is not the way to go if we want to improve the State's waters. Farmers do not apply more fertilizer than is necessary to produce the best crop possible on the given soil type that it is grown on. If they did it would be a waste of money. Furthermore, if a person is in business as a farmer today, then that person

cannot waste money, they would be out of business.
A + B = C . It's as simple as that.

Response

Mr. Townsend: Thank you for your comments. According to the U.S. Department of Agriculture, the majority of nutrients applied to farmland in the Chesapeake Bay watershed are from animal manures not chemical fertilizer. The Chesapeake Bay Program partnership has done extensive studies on the amount of manure generated in the watershed vs. the amount of cropland available to absorb those nutrients. There is a significant imbalance such that there is more manure produced then crops grown in the watershed. Those farmers that do not use nutrient management planning to determine the amount of manure necessary to produce the best crop are over-applying manure on their land, which is contributing to the nutrient pollution in the Chesapeake Bay. The TMDL provides a "pollution diet" for the Chesapeake Bay and puts a limit on the amount of Nitrogen, Phosphorus and sediment that each state in the watershed can send to the Bay. Each state through their Watershed Implementation Plan determines how they will limit the amounts from waste water treatment plants, municipal stormwater, septic tanks and agriculture. Agricultural operations determine for themselves how to manage the excess manure so that it does not runoff and pollute the Bay.

Comment ID 0282-cp.001.007

Author Name: Tabb Lyle

Organization: Lyle C. Tabb & Sons, Inc.

My biggest concern is that the ag community is being blamed for something with nothing more than superstitions and estimates but no facts.

Response

Thank you for your comment. Here are some facts about the Chesapeake Bay for your consideration:

* The Bay is surprisingly shallow. Its average depth, including all tidal tributaries, is about 21 feet. A person who is 6 feet tall could wade through over 700,000 acres of the Bay and never get his or her hat wet.
* The Bay supports more than 3,600 species of plants, fish and animals, including 348 species of finfish, 173 species of shellfish and over 2,700 plant species.
* Everyone in the watershed lives just a few minutes from one of the more than 100,000 streams and rivers that drain into the Bay. Each of these tributaries can be considered a pipeline from communities to the Bay.
* Everything we do on the land—including the use of automobiles, fertilizers, pesticides, toilets, water and electricity—affects our streams, rivers and the Bay.
* Decades of data show that the Bay is impaired by nitrogen, phosphorus and sediment and the fish, crabs, and oysters are well below historic levels.
*Decades of data and numerous national and international scientists have contributed to the analysis that these nutrients are coming from many sources, including agriculture.

* To restore the Bay, everyone has to make changes in the way we live in our own communities, homes and backyards.

Comment ID 0285.1.001.003

Author Name: Rebecca Sutton and Craig Cox

Organization: Environmental Working Group

Phosphorus-saturated soils are the norm for counties found in all six states

Agriculture is the dominant source of the sediment, nitrogen and phosphorus pollution affecting the Bay. It is disturbing, therefore, that a draft USDA report released a few weeks ago concluded that "complete and consistent use of nutrient management (proper rate, form, timing, and method of application) is generally lacking throughout the region. About 81 percent of the cultivated cropland acres require additional nutrient management to reduce the loss of nitrogen or phosphorus from fields" (USDA 2010).

Response

Please see response to comment 0228.1.001.002.

Comment ID 0285.1.001.006

Author Name: Rebecca Sutton and Craig Cox

Organization: Environmental Working Group

States must craft policies that limit phosphorus application on overloaded lands

Based on its findings, EWG is making policy recommendations that include setting strict limits to phosphorus application to soils that already contain high levels. It is essential to develop and use region-wide, science-based soil test levels to guide phosphorus application. The watershed states must also fill a crucial data gap by undertaking basic data collection and analysis of existing levels in soils if plans to restore the Chesapeake Bay are to succeed.

Response

Thank you for your comments. On May 12 2010, the EPA published guidance for federal land management in the Chesapeake Bay watershed under Section 502 of the Chesapeake Bay Executive Order. EPA's objective in developing the guidance is to provide the information that will allow federal agencies to lead by their example. The guidance provides information and data on appropriate proven and cost-effective tools and practices for implementation on federal lands and at federal facilities. From the perspective of land management and water quality restoration/protection, this set of "proven cost-effective tools and practices that reduce water pollution" is also useful for nonfederal land managers to restore and protect the Chesapeake Bay. To that end, the most effective

practices to reduce pollution inputs of nutrients to the Chesapeake Bay focus around controlling the rate, timing, method and form of nutrient application. In regards to the application of Phosphorus, EPA recommends that P fertilizer not be applied to soils that are above 20 percent where P desorption and loss as runoff can occur. In addition, it is important for the nutrient management plan to address the slope and movement patterns for water as runoff in a field by implementing cropland in-field controls, because P-sat percentage does not dictate the probability of P in runoff to move to a ditch or local waterbody.

Comment ID 0350-cp.001.001

Author Name: Seibel A.

Organization:

As a farmer the last thing I want to do is damage the enviroment. Please understand that agriculture is not the only problem with the bay and that many of us are already doing all we can to protect our watersheds

Response

EPA understands that agriculture is not the only problem. The TMDL being proposed by EPA to address the nutrient pollution in the Bay will set reduction goals for every type of nutrient and sediment source including waste water treatment plants; stormwater from developed lands; septic systems; and, agriculture.

Comment ID 0352.001.001

Author Name: Gardner E.

Organization:

Dear Folks:

My family works at making a living raising and milking dairy cows, feeding steers, beef cows, raising turkeys, and growing corn, hay and pasture to feed them.

We are very concerned about Docket ID #: EPA-R03-OW-2010-0736.

We as farmers are excellent stewards of the environment. We are 100 percent no til, do no apply more plant food than crop takes up and use farming practices that pretty much eliminate any nutrients leaving our ground. We have little to no erosion due to Good or Best practices.

You could see by looking that we have done a good job without heavy handed regulations. Farmers who do it wrong cannot survive financially.

Response

Thank you for your comments and the effort you and your family have made to improve both your local water quality and that of the Chesapeake Bay. The best management practices (BMPs) you chose to install on your farm are among the top practices EPA believes are necessary for most farmers to implement to restore the Chesapeake Bay. However, many farmers have not done so. Maybe you know some farmers down the road that do not manage their animals and land as well as you do. EPA has surely observed poor conservation practices on some farms. You've expended your time and money putting in best management practices, but maybe your neighbors haven't. But all of you are getting approximately the same price for your milk. EPA seeks to create a level playing field so that those farmers that are getting an economic benefit by not installing BMPs are held accountable for polluting the water.

Comment ID 0394.001.008

Author Name: Heavner Brad

Organization: Environment America et al.

Give Credit for Restoring Phosphorus Balance in Soils. Many scientists are concluding that too much soil in the Chesapeake Bay watershed is "P-saturated," i.e., saturated with phosphorus, due to years of over-application of manure. The problem is that when farmers apply even more manure to P-saturated soils, it becomes much easier for the phosphorus to flow into the groundwater or nearby streams. P-saturated soil is like a wet sponge that can no longer soak up more phosphorus. So to limit phosphorus runoff from farm fields and help restore the Chesapeake Bay, farmers should stop applying manure to P-saturated land. Farmers should therefore use a manure application test that adequately accounts for whether the soil is P-saturated.

Response

Please see response to comment 0228.1.001.002

Comment ID 0394.001.010

Author Name: Heavner Brad

Organization: Environment America et al.

State Solution to P-Saturation Problem: Replace the Manure Application Test. Any state that uses the Phosphorus Site Index (P-Index) should replace it with a phosphorus saturation test (P-Sat) to determine when it is permissible to apply manure and sludge to cropland.

The P-Index was never intended to be the long-term solution for managing phosphorus, particularly in areas with intensive animal operations. The P-Index seeks to determine the areas that have the highest risk of P loss to water so that more P will not be applied in those areas. While such an objective has some value, it is inappropriate to use the

index universally. All farmland has significant risk of P loss to water. The P-Index is also an overly complex formula that is easy to tweak to achieve a desired result.

Those two factors - that it is the wrong test in the first place and uses a formula that is too easy to manipulate - lead to over-application of P to crops that don't need it, causing P buildup in soils which results in loads to the bay. The state should shift to a test that is more straightforward and can be applied consistently across the state and its watersheds.

Even supporters of the P-Index acknowledge its shortcomings. SERA-17, the group of land grant university researchers who developed the P-Index, wrote a white paper on the P-Index that discussed its limitations. They specifically state that the P-Index is "unsustainable over the long term when soil test P reaches unacceptable levels across the farm." They explain that this is particularly a problem where manure is concentrated: "In areas of intensive animal production, the long term goal must be to match manure P production with local crop P requirements, or to find alternative uses for the manures outside the farm boundary." They stress that "the implementation of the P-Index based management only addresses short-term P loss issues. For long-term sustainability, applications of P must approach a balance with crop removal."[FN 5] In other words, even if you believe that manure application is being effectively shifted to the most appropriate areas, those areas will get saturated over time and the P-Index will lead to excessive water pollution.

As evidenced by University of Maryland data, the P-Index clearly is not working. The university formerly performed soil analysis as a service for farmers and compiled the data into a master database. Analyzing that data for soil saturation of P yields startling results. When the phosphorus saturation rate of soil is above 18%, additional P is likely to flush away with rain. [FN 6] Like a wet sponge, soil cannot absorb more P when it is already saturated. University of Maryland data shows that a large majority of soil samples from the four Maryland counties with the most intensive poultry production have excessive P saturation, ranging from 63% in Somerset County to 80% in Worcester County.[FN 7] (See Table)

This should come as no surprise, given the excess of manure in those counties. Comparing the amount of P that all the crops grown in a county are expected to use with the amount of P in manure produced in the county shows that there is far more manure than local crops can be expected to utilize. Excess manure is between 115 million pounds and 129 million pounds for each of the state's poultry-intensive counties, for a total of 488 million pounds. This translates into approximately 6.6 million pounds of excess phosphorus. This includes an estimate of the amount of manure transported out of the counties by the Manure Transport Program. (See Table)

[Table 1: Please see page 5 of the original letter]

A much better alternative to the P-Index is the P Saturation Test (P-Sat), which is comparatively easy and cheap to use. The 11-page guide to calculating the P-Index is complicated and confusing. Farmers need to hire consultants to perform the calculation. The P-Sat, in contrast, can be derived from soil tests that are already performed. Farmers are currently required to perform soil tests as part of their Nutrient Management Plans. Those same test results could include a P-Sat calculation.

A manure application policy based on P-Sat would be straightforward. If P-Sat is above a certain level, more manure or sludge cannot be applied. Many experts are recommending a threshold of 20%, and the U.S. EPA used that level in its recently issued "502 Guidance."

[FN 5] R.O. Maguire et al, "Phosphorus Indices to Predict Risk for Phosphorus Loss," Organization to Minimize

Phosphorus Losses from Agriculture (SERA-17).

[FN 6] The phosphorus saturation rate is the ratio of phosphorus to other elements that are able to bind phosphorus.

[FN 7] All phosphorus saturation data and excess manure data is from: Caitlin Kovzelove, Tom Simpson, and Ron Korcak, "Quantification and Implications of Surplus Phosphorus and Manure in Major Animal Production Regions of Maryland, Pennsylvania, and Virginia," February 2010.

Response

Thank you for your comments and your support of EPA's recommendation in the "502 guidance" to limit manure application on P saturated soils.

Comment ID 0401.001.001

Author Name: Rohrer L.

Organization:

I am writing this letter as a dairy farmer in Rockingham County, VA with grave concerns about recently proposed regulations by the EPA for the Chesapeake Bay watershed.

We farmers are committed to environmental stewardship. Clean water and good soil are fundamental to our businesses. We have been doing out part on our own and will continue to do so. Agriculture has met 52% of reduction goals for nitrogen and 50% for phisphorus and sediment, all coluntarily. This does not include the many actions farmers take every day to try to reduce runoff - again on our own. Without cost-share funding Virginia farmers are fencing streams, practice conservative tillage, use proper nutrient management practices, and install buffers along waterways - without ferderal or state funds - and without being "counted" by EPA.

Response

Please see response to comment 0648-cp.001.002

Comment ID 0402.001.001

Author Name: Campaign Mass

Organization:

I am a farmer in Rockingham County, Virginia. I am also a member of the Mennonite faith. I'm concerned that several issues being discussed will affect my lifestyle and potentially my ability to farm. Please understand I choose not to participate in the legislative process or government programs for my personal financial benefit in accordance with my

religious beliefs. That said I sincerely hope the following information will be considered when developing and implementing both the TMDL and the Watershed Improvement Plan for the State of Virginia.

First : Many of us have voluntarily implemented numerous Best Management Practices on our farms with no financial help from government agencies . No-till farming, fencing livestock out streams, nutrient management plan based fertilization, building manure management structures and riparian buffers are a few specific examples. We sincerely hope the plan will consider all of the practices we already have in place . We are willing to make additional improvements that are financially feasible .

Response

Please see response to comment 0648-cp.001.002 regarding voluntary water quality improvements and comment 0228.1.001.002 regarding EPA evaluation of Watershed Implementation Plans.

Comment ID 0432.1.001.002

Author Name: William Neilson John Bell and

Organization: Pennsylvania Farm Bureau

We must also note that Pennsylvania agriculture has a strong history of progress in effective environmental improvement of agricultural operations, even without the nature of federal intervention that EPA has recently attempted. As pointed out in Pennsylvania's draft WIP, during the past 15 years, Pennsylvania has 28 percent of nitrogen reductions, 46 percent of phosphorus reductions and 38 to 46 percent of sediment reductions needed to reach EPA's projected allocations for 2025. Conservation improvements in agricultural practices account for 80 percent of Pennsylvania's nitrogen reductions and 41 percent of nitrogen reductions made by agriculture in the multi-state watershed.

Response

The Chesapeake Bay Program partnership, including Pennsylvania and the agricultural community, have made significant past progress towards addressing the loss of nutrients and sediments to the tidal Chesapeake Bay. The agriculture and point source sectors, including municipal waste water treatment plants, have achieved the majority of the pollution reductions to date. Agriculture continues to represent the largest managed land use within the Chesapeake Bay watershed, as well as the largest single source of nutrients and sediment entering the Bay. Consequently, Pennsylvania and the Bay states are seeking additional nutrient and sediment reductions from the agricultural sector to assist with achieving the water quality requirements of the Chesapeake Bay TMDL to be released by December 31, 2010 through their supporting Watershed Implementation Plans (WIPs). A portion of this continued reliance by the Bay states to achieve future nutrient and sediment reductions is based on improving the tracking and reporting of both cost-shared and non-cost shared agricultural practices to more clearly document implementation of conservation practices by the agricultural community. If the implementation of the state’s WIP should result in fewer nutrient and sediment reductions, potentially jeopardizing the TMDL load allocations, EPA may consider enacting additional federal actions to

supplement to the state's WIP. Two possible actions are a revision of the CAFO program requirements and designating additional operations as CAFOs that require NPDES permits.

Comment ID 0438.1.001.001

Author Name: Johnson Roger

Organization: National Farmers Union (NFU)

NFU members seek practical solutions regarding water quality regulations and encourage the EPA to carefully consider reasonable standards related to the Chesapeake Bay TMDL. Farmers and ranchers continue to be among the best stewards of the land, and we support continued emphasis on voluntary compliance and incentive-based, cost-sharing programs currently working to minimize production agriculture's impact on our nation's water quality. NFU also supports programs and policy that are supported by peer-reviewed scientific data.

Current conservation practices in the Chesapeake Bay have been effectively improving water quality, but there is no doubt that additional water quality improvements are needed for the Chesapeake Bay and that agriculture has a role to play. A recent Conservation Effects Assessment Project (CEAP) draft report found that from 2003 until 2006, conservation practices in use on cultivated cropland are responsible for reducing total loads delivered to the Chesapeake Bay by 14 percent for sediment, 15 percent for phosphorus and 15 percent for nitrogen [FN1].

While good agronomic practices to control sediment and nutrients are utilized in the watershed, opportunity exists for even greater gains in sediment and nutrient reductions. According to the draft report, 26 percent of cultivated cropland acres still have excessive sediment loss, and about 81 percent of cultivated cropland acres require additional nutrient management to reduce nitrogen and phosphorus losses. The CEAP report recommends a suite of practices that includes both soil erosion control and consistent nutrient management. According to the CEAP report, both practices are required simultaneously to most effectively address soil erosion and nutrient loss [FN2].

[FN 1] U.S. Department of Agriculture, Natural Resources Conservation Service. 2010. "Assessment of the Effects of Conservation Practices on Cultivated Cropland in the Chesapeake Bay Region." Washington, D.C., p. 7.

[FN 2] U.S. Department of Agriculture, Natural Resources Conservation Service. 2010. "Assessment of the Effects of Conservation Practices on Cultivated Cropland in the Chesapeake Bay Region." Washington, D.C., p. 7.

Response

Thank you for your comments. EPA appreciates the voluntary efforts made by the conservation community and farmers over the past several decades to restore the Chesapeake Bay. However, these voluntary efforts have not achieved the goals originally set and agreed upon by the Chesapeake Bay Program. Through the TMDL, EPA seeks to create a level playing field in the agricultural community by ensuring that each Chesapeake Bay jurisdictions' Watershed Implementation Plan (WIP) includes compliance

assurance and enforcement response programs that address those farm operations that are discharging pollutants into the Bay and its tributaries. If the WIPs do not provide the necessary reasonable assurance to achieve the TMDL allocations, including outlining reliable sources of funding, EPA is prepared to take several steps including tightening requirements on sources it has direct authority to regulate.

Comment ID 0438.1.001.006

Author Name: Johnson Roger

Organization: National Farmers Union (NFU)

Farmers and ranchers in the Chesapeake Bay watershed can be part of the solution to the Bay's water quality issues but, in order to be effective, policy must provide the correct combination of voluntary incentives and regulation. EPA is to be commended for grappling with the difficult policy questions associated with Chesapeake Bay restoration; however, I feel that more careful analysis should be done to avoid unintended consequences of improperly regulating agriculture in the watershed.

NFU continues to seek environmental solutions that are pragmatic and workable for agriculture, and that provide meaningful environmental benefits. NFU understands that protection of our rural environment is critically important to maintaining safe, livable communities. At the same time, we need to maintain a robust, viable agriculture sector which is the livelihood of rural America. I encourage EPA to seek balanced environmental solutions that can simultaneously promote both.

Response

Nutrient and sediment loads from agriculture, across the watershed, have been reduced, but not enough to achieve the reduction goals to restore water quality in the Chesapeake Bay. In addition, voluntary efforts, over the past 25 years, have not incentivized the widespread adoption of conservation practices across the agricultural landscape. Farmers who were willing to implement conservation practices on their lands under this voluntary system, for the most part, have done so. Hence, the nutrient and sediment reductions attributed to conservation practices on agricultural lands to date. The goal with the TMDL is to improve federal, state and local regulatory frameworks to provide new types of incentives for the adoption of these cost-effective BMPs to further reduce the pollutants running off of agricultural lands.

Comment ID 0454-cp.001.001

Author Name: Hargrave T.

Organization: Cameron Committee for a Safe Environment (CCSE)

As a member of the Cameron Committee for a Safe Environment (CCSE), I would like to call attention to NY's largest private biosolids disposal company, Leo Dickson and Sons. Recent soil tests from this "farm" indicate phosphorus levels as high as 16,000 lbs/acre,(according to guidelines from Cornell University 45 lbs/acre is considered very

high).We have documented with video, erosion from these phosphorus laden fields.

Response

Thank you for your comments. On May 12 2010, the EPA published guidance for federal land management in the Chesapeake Bay watershed under Section 502 of the Chesapeake Bay Executive Order. EPA's objective in developing the guidance is to provide the information that will allow federal agencies to lead by their example. The guidance provides information and data on appropriate proven and cost-effective tools and practices for implementation on federal lands and at federal facilities. From the perspective of land management and water quality restoration/protection, this set of "proven cost-effective tools and practices that reduce water pollution" is also useful for nonfederal land managers to restore and protect the Chesapeake Bay. To that end, the most effective practices to reduce pollution inputs of nutrients to the Chesapeake Bay focus around controlling the rate, timing, method and form of nutrient application. In regards to the application of Phosphorus, EPA recommends that P fertilizer not be applied to soils that are above 20 percent where P desorption and loss as runoff can occur. In addition, it is important for the nutrient management plan to address the slope and movement patterns for water as runoff in a field by implementing cropland in-field controls, because P-sat percentage does not dictate the probability of P in runoff to move to a ditch or local waterbody.

Comment ID 0462-cp.001.004

Author Name: Blair C.

Organization:

4. The agricultural community in this area and those who farm my land near the Nansemond River in particular have implemented many procedures in the previous years to improve water quality. These actions have been taken with voluntary initiative and spending. The list is extensive and reviewed each year in light of new scientific data and discoveries.

Response

EPA recognizes that agricultural operations in the Bay watershed have made significant progress in implementing management practices to reduce nitrogen, phosphorus, and sediment loadings in many areas of the Bay watershed. Many operations have implemented innovative approaches to reducing nutrient runoff from cropland and animal agriculture areas.

Comment ID 0466.1.001.003

Author Name: Suarez Julie

Organization: New York Farm Bureau (NYFB)

Clean water is a priority of New York farmers, who have worked for many years to protect the state's water resources under the most progressive water quality standards in the country. For over a decade our larger livestock farms have

implemented one of the most comprehensive water quality protection programs in the nation. These efforts were moved forward by the agricultural industry. In fact, it was New York farmers that first requested the development of a CAFO general permit by the DEC. Today these efforts continue forward with farmers spending significant resources to install and establish environmental best management practices (BMPs). These efforts have not just been undertaken by large livestock farms, but also by smaller farms as well. Under New York's Agricultural Environmental Management (AEM) programs, thousands of smaller farms within the Chesapeake Bay Watershed and across the state are implementing important environmental BMPs to improve water quality. Indeed New York farms of all sizes continually request more funding than is made available from federal and state grants to install water quality protection BMPs.

Response

EPA applauds NY's farmer-led effort to continually reduce nutrient and sediment loads to the Chesapeake Bay. EPA will continue to provide financial assistance to supplement state and USDA federal Farm Bill funding through grant programs such as the Chesapeake Bay implementation grants, the Chesapeake Bay Regulatory and Accountability Program, and the 319 nonpoint source program.

Comment ID 0466.1.001.006

Author Name: Suarez Julie

Organization: New York Farm Bureau (NYFB)

Similarly, New York's TMDL does not adequately recognize the substantial investment of time, staff, funding and business practices that are dedicated exclusively to environmental conservation efforts in the Bay watershed over the past decade. New York's farm families are proud caretakers of their land and natural resources and pass on these ideals of conservation and stewardship along with their love for agriculture when transitioning their farm businesses from one generation to the next.

Response

Agriculture has achieved very significant nutrient and sediment reductions since the 1980's and remains a key part of the solution to the Bay restoration. Many of the decisions that producers make for their economic bottomlines can also significantly reduce nutrients/sediment to the Bay (for example, livestock exclusion, no-till, nutrient use efficiency, etc.). Reports like the recent draft USDA CEAP report conducted on cropland in the Chesapeake Bay watershed have demonstrated that conservation works and there is tremendous opportunity for additional conservation efforts to further reduce nutrient and sediment loads to the Chesapeake Bay.

Comment ID 0473.1.001.015

Author Name: Pechart Michael

Organization: Pennsylvania Department of Environmental Protection and Department of Agriculture

--Pennsylvania disagrees with requirements for predetermined list of specific BMPs on all types of farming operations as a baseline to meet the TMDL.

Response

Thank you for your comments. The Chesapeake Bay Program partnership, over the past 30 years of developing the science and consensus on what is needed to restore the Chesapeake Bay, has determined that the implementation of the following BMPs on agricultural lands across the watershed will dramatically improve water quality in the most cost effective manner:

- Agronomic Manure Application through Nutrient Management Planning
- Cover Crops
- Riparian Forest Buffers
- Animal Exclusion and Streambank Fencing
- Clean Water Diversions
- Properly Sized, Operated and Maintained Manure Storages

In a recent report, NRCS concluded that conservation practices applied on cropland are, for the most part, synergistic. The benefits accumulate as more practices are added to the designed systems, which is why the adoption of a suite of practices by all farmers is preferred.

Nutrient and sediment loads from agriculture in Pa. have reduced steadily for the past decade, but not enough to achieve the reduction goals set by the Chesapeake Bay Program. In addition, voluntary efforts, over the past 25 years, have not incentivized the widespread adoption of conservation practices across the agricultural landscape. Farmers who were willing to implement conservation practices on their lands under this voluntary system, for the most part, have done so. Hence, the nutrient and sediment reductions attributed to conservation practices on agricultural lands in Pa. to date. The goal with the TMDL is to improve federal, state and local regulatory frameworks to provide new types of incentives for the adoption of these cost-effective BMPs.

Comment ID 0475.1.001.002

Author Name: Frazier Katie

Organization: Virginia Agribusiness Council

A) Environmental Progress Made by Agribusinesses

Our agribusiness industry, comprised of farmers, foresters, green industry, agribusiness suppliers, and processors, is committed to environmental stewardship. Clean water and productive soil are fundamental to our businesses. We have been doing our part- and will continue to do so in order to help create a healthy Chesapeake Bay and local waters. Specifically:

- Agriculture has met 52% of reduction goals for Nitrogen and 50% for Phosphorus and Sediment-all through a

voluntary, incentive based program in Virginia. This doesn't even count the actions farmers are taking on their own without funding.

- According to the Virginia Department of Forestry, 83% of logging jobs use the proper combination of best management practices.

- University studies have shown that turfgrass, when maintained properly, serves as an excellent filter for stormwater runoff, can be a carbon sink, and captures sediment.

The agribusiness industry has been a willing partner in making environmental progress, and has proven so with our actions, time and time again.

Virginia has invested over $80 million into the Agricultural Best Management Practice (Ag BMP) Cost-Share program since 2006. Farmers have matched this spending with $48 million of their own funds (approximately $0.60 of every dollar) and are lined up at the door to do more. While these amounts are significant, this voluntary program has been extremely underfunded by the state and federal government. Annually, willing participants are turned away due to lack of adequate funds at the state and federal level. Even without cost-share funding, agriculture is still taking action. Virginia farmers fence cattle from streams, practice conservation tillage, use proper nutrient management practices, and install buffers along waterways- without federal or state funds- and without being "counted" by EPA in the Bay Model. Substantial progress is, without a doubt, being made.

Without regulatory pressure, the turfgrass/green industry requested that the state create an Urban Nutrient Management Program so that their professionals can have plans specifically tailored for their businesses. Lawn care operators have supported and signed Voluntary Water Quality Agreements with the state. Major home lawn fertilizer companies have signed agreements to reduce and/or eliminate phosphorus from turf maintenance fertilizers by 2012. Virginia's golf industry, through an industry-led initiative, is developing a Best Management Handbook covering water quality, pesticide use, and water supply issues for their industry to implement. These actions clearly demonstrate this sector's positive commitment to nutrient reductions.

Response

Please see response to comment # 0197.1.001.002.

Comment ID 0482.1.001.001

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

Modern agricultural and forestry practices have significantly reduced agriculture's and forestry's environmental footprint. Agriculture has improved our overall environmental efficiencies and the use of crop inputs is declining. No-till farming has lessened soil erosion and stored carbon in the soil. Farmers produce more milk today from far fewer cows. Farmers

are also producing more meat on less feed from the same number or fewer animals. Nitrogen use efficiencies have consistently improved. Agriculture and forestry best management practices (BMPs) are reducing runoff. In state after state, our track record is one everyone should be proud of.

The Natural Resources Conservation Service (NRCS) of the US Department of Agriculture recently released a review draft of a report evaluating agriculture's conservation and natural resource performance in the Chesapeake Bay. See "Assessment of the Effects of Conservation Practices on Cultivated Cropland in the Chesapeake Bay Region," October 2010, NRCS (hereinafter NRCS 2010) (attachment 1) [Comment Letter contains additional information in the form of an attachment. See original comment letter 0482.2]. The report offers an abundance of data and analysis about agriculture and the Bay. It found that farmers have adopted a wealth of conservation practices on the region's 4.6 million acres of cropland and, as a result, have reduced dramatically the nitrogen, phosphorous and sediment loads to the rivers and streams in the watershed and the Bay itself.

For example, NRCS found that farmers were actively implementing erosion control and nutrient management practices on about 96 percent of the cropland acres in production over the 2003 to 2006 period. These practices included various forms of erosion control involving no-till or minimum tillage, and structural and vegetative management practices like contour farming, grass waterways and filter strips. Nutrient use is being actively managed by farmers who are complying with important elements of standard nutrient management planning. As a result of these practices being used on 96 percent of the cropland acres in production, the NRCS found that sediment pollution of the region's rivers and streams is being reduced by 64 percent, nitrogen pollution by 36 percent, and phosphorous by 43 percent. The resultant loadings to the Bay were being reduced by 14 percent for sediment, 15 percent for phosphorus, and 15 percent for nitrogen. NRCS 2010, at 9.

The region's farmers are to be applauded for this enormous, proactive effort largely undertaken through voluntary, incentive-based programs and their own initiatives. This does not mean, however, that more work is not needed; it clearly is, as the NRCS report indicates. But the fact is that farmers have made an enormous commitment to adopting proper practices on farmland and as a result have made a major contribution to protecting the Bay. There is every reason to expect these efforts will continue and grow with or without the Draft TMDL.

For example, New York livestock farms are at the forefront of water quality protection. For over a decade larger livestock farms have implemented one of the most comprehensive water quality protection programs in the nation. These efforts have moved forward on the initiative of the agricultural industry. In fact, it was New York farmers that first requested the development of a concentrated animal feeding operation (CAFO) general permit by the New York State Department of Environmental Conservation (DEC). Today these efforts continue forward with farmers spending significant resources to install and establish BMPs. These efforts have not just been undertaken by large livestock farms but also by smaller farms as well. Under New York's Agricultural Environmental Management programs, thousands of smaller farms within the Chesapeake Bay Watershed and across the state are implementing important environmental BMPs to improve water quality. Indeed New York farms of all sizes continually request more funding than is made available from federal and state grants to install water quality protection BMPs. New York state recognizes the tremendous progress that agriculture and forestry have made in improving the water quality of the Chesapeake Bay. As noted in the Draft New York Watershed Implementation Plan: "The DEC has been working with both environmental and farming stakeholders in New York State for over a decade to achieve environmental compliance for all of New York State agriculture" and "[t]he success of the New York Program is clear." Draft New York WIP, at 13.

Similarly, Virginia's poultry industry has been a responsible and proactive environmental steward on a voluntary basis and through compliance with existing government regulations. Virtually all of the state's poultry farms implement nutrient management plans. At least 80 percent of poultry producers in the Shenandoah Valley have constructed sheds for storing poultry litter before it is utilized and those with or without sheds must store litter according to state regulatory criteria. The use of phytase in poultry feed has resulted in a more than 25 percent, on average, reduction in phosphorus in Virginia poultry litter. In its Draft WIP, the Commonwealth of Virginia recognizes the progress made by all agriculture and forestry organizations in Virginia. "Significant progress has been achieved to date through a variety of programs detailed in section 6.1 and specific initiatives." Draft Virginia WIP, at 57.

The state of Delaware also acknowledges the progress made by the agriculture and forestry communities. As noted in the Draft Delaware WIP: "Since the baseline period, the agriculture community in Delaware has reduced a significant amount of nonpoint source nitrogen and phosphorus loading, leading the efforts to curtail nonpoint source nutrient loadings." Draft Delaware WIP, at 76.

Pennsylvania's Draft WIP is replete with examples of actions that the agricultural and forestry communities are undertaking to protect water quality. Draft Pennsylvania WIP, at section 8.

Maryland also recognizes the tremendous progress that agriculture and forestry have made in improving the water quality of the Chesapeake Bay. As noted in the Draft Maryland WIP: "Maryland agriculture loads to the Bay have been reduced significantly over the last 15 years. Implementation progress through 2009 shows a 50% decline in agricultural loads for nitrogen and a 34% decline in phosphorus loads…." Draft Maryland WIP, at 5-33.

Finally, in its Draft WIP West Virginia notes that the agriculture industry has a significant incentive to reduce runoff:

Unseen to most observers is the intimate linkage that exists between on farm natural resources and a farmer's need to conserve and recycle resources on the farm to maintain sustainability. The agricultural producer has the most to lose by allowing nutrients, sediment, and other resources on the farm to leave the farm in runoff, thus changing on-farm resources or assets, to pollutants, or liabilities that affect the waters of the state. On the obverse, the farmer has the most to gain by keeping nutrient and soil resources on the farm and cycling through his production process, which will ultimately affect his bottom line and the sustainability of his or her operation. Draft West Virginia WIP, at 56.

As a result, "An impressive voluntary, incentive-based, agriculture nutrient management program has been underway in West Virginia for many years and should be encouraged to continue." Draft West Virginia WIP, at 48.

Forestry activities in the United States also are now conducted under a comprehensive program of BMPs. Since the enactment of the CWA, all states with significant forest management activities have developed either regulatory or non-regulatory BMP programs under sections 208, 319, and 404 of the CWA to achieve water quality goals.

Studies have shown that nationally, the overall BMP implementation rate is 89 percent, and has been increasing steadily.[FN2] There are literally hundreds of paired watershed studies and other controlled experiments that have tested or are testing the effectiveness of contemporary forest practices and BMPs.[FN3] Some of these, such the Piedmont Watershed Studies,[FN4] the Alto Watershed Study in East Texas,[FN5] and the Alsea Watershed Study and Watersheds Research Cooperative in Oregon,[FN6] have measured or are measuring improvements in water quality from managed forests for contemporary practices compared to historic impacts.

Today the greatest threat of deforestation comes from the conversion of forests to non-forest uses that produce a higher economic value. The families, businesses and individuals that own nearly 60 percent of our nation's forests depend on the returns they get from the products their forests produce to make additional investments in sound, long-term forest management. When existing markets for their products are strong, or when new markets like energy emerge, they provide forest owners the means to keep their land forested by keeping their forests economically competitive with other uses. However, when regulatory costs are imposed, this reduces the ability to maintain the land as forested and at some point will tip the balance in favor of the nonforest use.

As partners with agriculture and forestry, all the states in the Chesapeake Bay watershed acknowledge the contributions of these communities improving water quality in the Chesapeake Bay. Even EPA's data show that since 1985 the agriculture community has reduced phosphorus loadings by over 21 percent, nitrogen loadings by over 27 percent and sediment loadings by over 24 percent from 1985.[FN7] Based on that information, EPA believes that the agriculture community has achieved half of the reductions it needs to make to allow the Chesapeake Bay to meet water quality standards.

Unfortunately, the Draft TMDL does not acknowledge or accurately account for contributions of agriculture and forestry to water quality. As discussed below, many of the agriculture and forestry programs discussed in the state WIPs are not accounted for in the models that led to the development of EPA's Draft TMDL. Thus, the Draft TMDL does not give agriculture and forestry credit for the reductions they have achieved. EPA also fails to acknowledge that agriculture and forestry reductions have been achieved largely through state regulatory and voluntary programs, without federal regulation.

[FN2] Ice, G.G., E.B. Schilling, and J. Vowell. 2010. Trends for forestry best management practices implementation. Journal of Forestry 108(6):267-273.
[FN3] Ice, G. 2004. History of innovative Best Management Practice development and its role in addressing water quality limited waterbodies. Journal of Environmental Engineering 130(6):684-689; Ice, G.G. and J.D. Stednick. 2004. A century of forest and wildland watershed lessons. Bethesda, MD: Society of American Foresters; Ice, G.G., E.B. Schilling, and J. Vowell. 2010. Trends for forestry best management practices implementation. Journal of Forestry 108(6):267-273.
[FN4] Williams, T.M., Hook, D.D., Lipscomb, D.J., Zeng, X., and Albiston, J.W. 1999. Effectiveness of best management practices to protect water quality in the South Carolina Piedmont. 271-276 in Haywood, J.D. (ed.). Proceedings of the Tenth Biennial Southern Silvicultural Research Conference, Shreveport, LA, February 16-18, 1999. General Technical Report SRS-30. Asheville, NC: USDA Forest Service, Southern Research Station. 618 p.
[FN5] McBroom, M.W., R.S. Beasley, and M. Chang. 2008. Water quality effects of clearcut harvesting and forest fertilization with best management practices. Journal of Environmental Quality 37:114-124.
[FN6] Oregon Forest Resources Institute (OFRI). 2009. Watershed science at work in Oregon's forests. Special report. Portland, OR: Oregon Forest Resources Institute. http://library.state.or.us/repository/2009/200906251557084/.
[FN7] See EPA Presentation at the September 29, 2010 public meeting on the Draft TMDL in the District of Columbia, at
23-25 (available at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/dcpublicmeetingrakmods.pdf).

Response

Please see response to comment # 0709.001.001

Additionally in your correspondence you suggest that the draft TMDL does not acknowledge nutrient reductions coming from the agriculture and forestry sectors. EPA in reviewing State Watershed Implementation Plans have seen these two important sectors given a fair mount of the nutrient reductions up through 2025 to help meet load allocations. Many agricultural and forestry best management practices are included in State WIPs and will play a critical role in restoring the Chesapeake Bay.

Comment ID 0489-cp.001.002

Author Name: Comment Anonymous

Organization:

The more farms that are sold the more subdivisions that are built out here in rural areas. The more subdivisions that are built the more runoff we have going into the Chesapeake Bay. Farmers care more about the land and how it is cared for than developers who are making money by selling off small plots and cramming as many houses onto it as they can. Farmers have already implemented conservation BMP's to help with the Chesapeake Bay clean up. More time is needed to allow these practices to show they are working. Washington is rushing this through so they can say they are doing something, but they need to slow down and think about what they are doing. More testing needs to be done to show exactly where the pollution is coming from. My guess would be a lot more comes out of Northern Virginia subdivisions with their chemically treated lawns than comes from the Shenandoah Valley farm lands! SLOW DOWN AND THINK THINGS THROUGH. A LOT OF PEOPLE ARE GOING TO BE HURT BY THIS LEGISLATION - FARMERS AND CONSUMERS ALIKE!

Response

The TMDL is based on extensive evaluation of loading data from all sectors - wastewater, storm water runoff, forests, atmospheric deposition, and agriculture – and restoration of the Bay will necessitate reductions in loadings from each of these sectors. In the TMDL EPA has apportioned wasteload allocations and load allocations to achieve the reductions in all sectors that will be necessary to attain water quality standards in the Bay. These allocations reflect the impacts of the various land uses in the watershed.

EPA notes that despite their progress in controlling pollutant loadings, agricultural operations remain the largest single contributors of nutrients and sediment to the Bay. EPA has documented that significant opportunities still exist to implement improved nutrient management practices for both cropland agriculture and animal agriculture, including more widespread adoption of innovative or "next-generation" practices.

The TMDL reflects the need to reduce loadings to the Bay from all sources – not just agriculture – through a variety of regulatory and non-regulatory practices that are equitable, reflect different sectors' contributions to impairment and opportunities for further progress, and the best possible science.

Comment ID 0513.1.001.004

Author Name: Hoot Lynne

Organization: Maryland Grain Producers Association (MGPA)

The agricultural community has long asked that EPA use the annual NASS data to account for agricultural yields and acreage, without better input data the model continues to be flawed.

Response

EPA continues to work with the state agricultural agencies and agricultural community to continually refine the Chesapeake Bay Watershed Model inputs to ensure the most accurate accounting of agriculture operations and nutrient/sediment reduction activities in the watershed. The Chesapeake Bay Program's Agricultural Workgroup is the venue in which all agricultural data and modeling issues are first discussed and recommendations are proposed. Depending on the issue, many of these recommendations are then vetted by other relevant groups such as the Modeling Subcommittee before getting final approval by the Water Quality Goal Implementation Team.

Comment ID 0542.1.001.003

Author Name: Hooker Patrick

Organization: New York State Department of Agriculture and Markets

Through the New York State Agricultural Environmental Management (AEM) program conservation partnership (Soil and Water Conservation Districts, USDA-NRCS, NYS DEC, Cornell Cooperative Extension, and the Department) New York has the track record, vision, and people on the- ground to achieve improved water quality for the Chesapeake Bay. New York has, and will continue to advance many important elements of a successful Bay strategy. It is important for EPA to understand how and why agricultural stewardship works in New York. Unlike many other states the fundamental resource elements that define our agricultural landscape are unique.

• All but a few New York livestock farms rely heavily on homegrown forages and because of this they tend to have a larger land base and a much lower stocking density (0.43 Animal Units/Acre) relative to other portions of the Watershed. This is supported by recent nitrogen and phosphorus balance studies for the New York portion of the Watershed that show that agricultural land is actually short of nitrogen and roughly in balance for phosphorus relative to crop demand.[Fn1] It is in stark contrast to other portions of the Bay Watershed where nitrogen in manure and phosphorus in soil and manure are at high enough levels beyond crop need that losses to the environment are inevitable and great. To add to the problem, other Bay states have Phosphorus Indices and nutrient guidelines that allow excessive nitrogen and phosphorus applications on these fields. New York's more conservative Phosphorus Index and nutrient guidelines have eliminated phosphorus additions and minimized nitrogen applications in such conditions ten years ago.

• The amount of phosphorus fertilizer used on farms statewide has decreased from 35.1 million pounds in 1997 to 23.2 million pounds in 2006.[Fn1] the cropland P balance for the New York portion of the Watershed was 1.5 lbs P/acre as last determined in 2006. New York farms are advancing phosphorus and nitrogen conservation management strategies

at an aggressive pace absent addition regulation.

• Almost half of all the dairy cows in the New York portion of the Chesapeake Bay Watershed are CAFO permitted and nearly 100% of the remaining livestock are participating in New York's voluntary AEM program. These programs both have formal quality assurance elements and rely on verification procedures.

Farmers and the State of New York are committed to advancing the watershed goals and resulting improvements to the Chesapeake Bay. In the last decade, New York State has provided -$25 million dollars toward the implementation of Best Management Practices to improve water quality in the Chesapeake Bay Watershed. The current New York State Agricultural Environmental Management (AEM) and USDA-NRCS cost-share programs are estimated to eclipse all previous totals delivering -$ 125 million in conservation funding over the next 15 years. We hope that the EPA will enhance its understanding by backing these efforts and incorporating New York agriculture into its modeling efforts.

[Fn1] "NY Phosphorus index may not be perfect, but has served state well" Chesapeake Bay Journal, November 2010 http://www.bayjournal.com/article.cfm?article=3973

Response

Please see response to comment # 0197.1.001.002

Comment ID 0553.1.001.001

Author Name: Uzupis John

Organization: Synagro Technologies, Inc.

The latest report shows that conservation practices in the Chesapeake Bay are working. Partnerships with local landowners have made progress in reducing sediment, nutrient and pesticide losses from farm fields by implementing a variety of conservation approaches. Many farmers have voluntarily participated in non-mandatory conservation programs, such as no-till farming, buffer enhancement, nutrient management plan use and rotational grazing. Farmers feel they are not receiving sufficient credit for prior conservation efforts and now must do even more. Additionally, many in agriculture contend that agriculture is not the source of the vast majority of the nitrogen and phosphorous pollution.

• Conservation practices in use on cultivated cropland within the watershed have reduced total loads delivered to the Bay by 14 percent for sediment, 15 percent for phosphorus and 15 percent for nitrogen.
• Monitoring of the Chesapeake Bay water quality has shown consistent improvement. Susquehanna River Basin Commission monitoring stations show reductions in nitrogen, phosphorus and/or sediment.

Response

Please see response to comment # 0197.1.001.002

Comment ID 0553.1.001.005

Author Name: Uzupis John

Organization: Synagro Technologies, Inc.

EPA's 40 CFR Part 503 sets out the requirements for safe recycling of biosolids - a by-product of our nation's clean water, on land as a fertilizer. Yet, there is a totally inaccurate statement in the DRAFT Chesapeake Bay TMDL (page 4-34) which states that, "…biosolids…represents another significant source of nutrients to the Bay." To those familiar with the biosolids recycling program, that statement is appallingly inaccurate.

• Only biosolids meeting mandatory quality guidelines are applied to the land as a fertilizer. • Biosolids must be applied to the land according to Federal, 40 CFR Part 503, AND state regulations. These regulations are designed to ensure the protection of the environment, water quality, public health, soil productivity and animal health.
• Biosolids are land applied using mandatory buffers from surface and ground water. These buffers are significantly expanded within the Chesapeake Bay "critical area," which is defined as the area within 1000 feet of the Bay's mean high water.
• Biosolids are applied to the land at an agronomic rate, meaning that only the amount of nutrients the plant can absorb are applied, no more.
• In some states biosolids are actually applied according to nutrient management plans (NMP) that are developed by certified nutrient management planners, who are typically certified by a state department of agriculture.
• Also in many states these NMPs and/or agronomic rates are reviewed and approved by the state environmental authority prior to actual application of the biosolids to the land.

Response

Thank you for providing comments on the draft Chesapeake Bay TMDL.

According to the Scenario Builder documentation:
"Land-applied biosolids can be a significant source of nutrients on farm land. The Chesapeake Bay Program requested that each state submit data on the use of biosolids used as a fertilizer. Virginia submitted such data for the modeled period of 1982-2009. These data were in units of dry tons/year. Some data were received from Maryland, but these data were in wet tons. Maryland was unable to provide information on how to convert from wet to dry tons for each biosolids provider. A general assumption of moisture content was unacceptable to Maryland, so this data could not be used."

Biosolids are then handled just like manure and fertilizer. The nutrients are applied to the land according to nutrient uptake and Ag Census yield values. BMPs, reported by the state reporting agency, are applied to the land to minimize the environmental impact. BMPs reported by VA include nutrient management and forest and grass buffers. BMPs associated with regulations are encouraged to be reported and are fully credited in the suite of models.

Comment ID 0560-cp.001.001

Author Name: Trissel Cory

Organization: Trissel Farms Inc.

I am a third generation dairy/poultry farmer in the beautiful Shenandoah Valley of Virginia. I am thirty two years old with a wife and three children, and I am deeply concerned with the inpact future regulations will have on my ability to survive as a farmer. I recently met with a representive of the Chesapeake Bay Foundation and he told me that they did not want regulations that would put farmers out of business; they want to work with us to continue improving agricultue in the valley and keeping the environment healthy. I am willing to follow their sugustions to fence out our livestock from our farm pond improving water quality.

Response

Thank you for your comments. The Chesapeake Bay TMDL will determine how much pollutant loads from agriculture need to be reduced. Once the reductions are known, farmers will be able to determine what practices, such as fencing livestock out of streams and ponds, need to be implemented in order to achieve the necessary reductions.

Comment ID 0560-cp.001.003

Author Name: Trissel Cory

Organization: Trissel Farms Inc.

Another concern that I have is with any phorphorus (manure) application bans. My grandfather, father, and I have worked hard over the years to increase the fertility of our limited soils through natural manure applications instead of chemical fertilizers. I would hate to think that our hard work would end up a major liability.

I only ask that the EPA have enough respect for the farming community, that it not let my future be decided by lawers and politicans, but rather trusted and respected ag representatives.

Response

EPA, as you may know, is very concerned about the increased levels of phosphorus in soils in a number of counties that we refer to as geographic areas of concern. In these areas there are elevated levels of phosphorus that has been building based on over application of poultry litter. We have been working with USDA and have announce that as part of the Chesapeake Bay Executive Order's Technical Guidance concentrations above the 20% mark for soil phosphorus should signal to the agricultural community that other forms of commercial fertilizer is appropriate as compared to using traditional organic fertilizer coming from the poultry industry. We are making these strong recommendations in consideration of some farmers that are understanding the long term consequences of continued land application of poultry litter in amounts that may be too excessive for the environment.

Comment ID 0561-cp.001.003

Author Name: Flathers George

Organization: Meadowdean Farm

I would like to register my strong opposition to the referenced EPA initiatives to establish federally-mandated TMDL backstop limits, because ... state- and county-level incentive and cooperative Best Management Practice (BMP) programs already encourage widespread improvements in proper water, land and nutrient management, at a level that would far-exceed the level of compliance that heavy-handy, bureaucrat-managed, federal oversight and regulation would achieve;

Response

Please refer to the response for comment 0067.1.001.009.

Comment ID 0564-cp.001.001

Author Name: Morrow William

Organization: Whitmore Farm

I am a farmer in Frederick County, Maryland. I have an approved nutrient management plan that I implement. I have all the drainage swales & creeks fenced off from the livestock. Tom's Creek, a tributary to the Monocacy borders my property. I planted buffer strips, trees and shrubs along the drainage swales and creeks. I implement all the best management practices (BMPs) to prevent any nutrients from leaving my farm. Yet, my creek, Tom's Creek will never meet its water quality standards for nutrients and sediments because other farms in the watershed are not implementing their BMPs. It makes my efforts all seem meaningless when I see farms that border the very same creek continue to let their cows in the creek, still don't plant cover crops, and continue to spread manure on frozen ground in the winter.

Response

Mr. Morrow: Thank you for your comments and the effort you have made to improve both your local water quality and that of the Chesapeake Bay. The best management practices (BMPs) you chose to install on your farm are practices the EPA believes are necessary for most farmers to implement to restore the Chesapeake Bay. EPA understands the need to balance keeping production agriculture viable and protecting the environment. However, there’s also the need to ensure that there is a level playing field so that those farmers, unlike you, who have not installed these best management practices do not receive an economic benefit from polluting the water.

Comment ID 0572.1.001.001

Author Name: Robinson Steve

Organization: National Association of Conservation Districts (NACD)

As conservationists, we fully support the common goal of a cleaner, healthier Chesapeake Bay watershed. We are working with landowners at the ground level to prevent pollutants from reaching waterways. Landowners have already implemented many environmental best management practices (BMPs), which have significantly reduced nutrient and sediment loadings in the Chesapeake Bay watershed over the past 25 years. These conservation and agronomic measures have enabled farmers to responsibly manage nutrients from fertilizer and manure and minimize soil loss from farmland.

NACD is concerned that the Draft TMDL fails to acknowledge this success. In order to encourage continued progress in the Bay, the TMDL should accurately reflect agriculture's contribution to conservation in the Bay. To encourage continued progress, watershed jurisdictions should work closely with producers and landowners to ensure they have the resources necessary for success - rather than imposing federal mandates.

USDA's recent draft report, "Assessment of the Effects of Conservation Practices on Cultivated Cropland in the Chesapeake Bay Region," underscores the fact that producers are indeed making good progress. Out of the region's actively-cropped 4.3 million acres, it found that farmers were actively implementing erosion control and nutrient management practices on more than 4.1 million acres, or 96 percent of the total. As a result, the region's rivers and streams have seen a 64 percent reduction in sediment pollution, a 36 percent reduction in nitrogen pollution and a 43 percent reduction in phosphorus pollution.

The draft report also indicated that work remains to be done to reduce nonpoint sources of pollution and improve water quality in the Bay. Landowners are eager to work with the Bay states, the Environmental Protection Agency (EPA), conservation districts and other stakeholders to continue improving management of all nutrient sources. To encourage additional best management practices, these efforts should be voluntary, locally-led and incentive-based.

The fact that more conservation practices are needed to achieve their full potential is a reflection of the unique challenges of farming in the region - challenges that are quite similar to those the Bay faces as a result of its 16.6 million and growing population. This does not reflect a lack of commitment and conservation effort on the part of farmers.

Response

Please see response to comment # 0197.1.001.002

Comment ID 0573-cp.001.005

Author Name: Tabb B.

Organization:

The farmers of West Virginia are willing to continue to be Good Stewards of our land and water, but we will not stand idle and be Scapegoats for those who blame Agriculture for the decline in the Bay water quality.
In the last 50 years the population has doubled,the amount of Ag land has declinded, the number of oysters in the Bay has diminished .... and the EPA wants to blame Agriculture.
The EPA needs to see where the other fingers are pointing when they point a finger at Agriculture!
I sincerely hope the EPA will listen to the farming community that supplies the most abundant,safest,and most economical food supply in the world. Thank You for the opportunity to voice my opinion and concerns about the future of Agriculture in the Bay watershed.

Response

Please see response to comment 0139.1.001.017

Comment ID 0586.1.001.003

Author Name: Fischer Micaela

Organization: The Pew Environment Group

As all those involved in the decades-long effort to restore the Bay know, partial reductions from many of these sources have been achieved and further reductions from some sectors and in some jurisdictions will be increasingly difficult. The only path to Bay restoration is one in which each sector does all that is reasonably doable in terms of pollution reduction.

For that reason, we remind the Agency and the states that agriculture has long been and remains a major source of nutrients and sediment to the Bay.

Response

The Chesapeake Bay Program partnership and the agricultural community, have made significant progress towards addressing the loss of nutrients and sediments to the tidal Chesapeake Bay. The agriculture and point source sectors, including municipal waste water treatment plants, have achieved the majority of the pollution reductions to date. Another important point source sector where much more progress needs to occur is pollution from urban areas. As you indicate the agriculture represents the largest managed land use within the Chesapeake Bay watershed, as well as the largest single source of nutrients and sediment entering the Bay. Consequently, the Bay states are seeking additional nutrient and sediment reductions from the agricultural sector to assist with achieving the water quality requirements of the Chesapeake Bay TMDL to be released by December 31, 2010 through their supporting Watershed Implementation Plans (WIPs). A portion of this continued reliance by the Bay states to achieve future nutrient and sediment reductions is based on developing more stringent nutrient management plans and innovative technical practices, supporting the development of advanced manure technologies, new policies and regulations that reduce nutrient runoff and improving the tracking and reporting of both cost-shared and non-cost shared agricultural practices to more clearly document implementation of conservation practices by the agricultural community. Many of the more stringent BMPs are included in the

Chesapeake Bay Executive Order Technical Guidance , Section 502.

Comment ID 0586.1.001.006

Author Name: Fischer Micaela

Organization: The Pew Environment Group

The Case for Action
Over the past two decades, dozens of studies have laid out the case for reducing nutrient pollution to the Bay and made it clear that agriculture has been and remains a significant source of nitrogen, phosphorus and sediment entering the Bay. The following are among the most recent affirmations.

-In 2004, the Bay Program's Scientific & Technical Advisory Committee cautioned that, despite past programs, an estimated 41% of nutrients entering the Bay were associated with agriculture and that "additional major reductions" would be necessary. The scientific advisors noted that in-the-field results did not live up to predictions made by the Bay model and that the actual performance of best management practices was "widely considered to be the principle cause of the model's inability to reproduce observed conditions." Their recommendations included, among others, new efforts to verify results and an admonition that best management practices alone cannot address the "major nutrient imbalances" created by intensive animal production in the region.[FN1]

-In 2006, EPA's Inspector General, along with the Inspector General for USDA, cautioned that few of the recommended best management practices for agriculture were actually being implemented and that while less pollution was associated with agriculture than in previous years, the reductions to that point were not sufficient to meet water quality goals.[FN2]

-In 2008, the EPA Inspector General repeated those cautions and noted that the agricultural sector remained "the single largest contributor of the pollutants harming the Bay." That report noted that in 2007, the Bay jurisdictions were only 21 percent of the way toward meeting the water quality goals, a drop from 23 percent in 2006. Again, the IG pressed for efforts to address "limited implementation of agricultural conservation practices."[FN3]

-In 2009, yet another report, this one covering the national problem of nutrient pollution, offered similar conclusions on the need for action on agricultural and other non-point sources of pollution. According to the report prepared by the State-EPA Nutrient Innovations Task Group, ongoing programs, including collaborative efforts and financial incentives, would "fail…without a common framework of responsibility and accountability for all point and nonpoint sources." The Task Group bluntly stated that such a framework does not presently exist and offered specific recommendations for additional action, including action related to livestock operations and the use of manure to fertilize cropland. The report, entitled "Urgent Call to Action," held up the Bay and its large scale hypoxic zone as a "cautionary example," noting that past investments have achieved only about 27 percent of desired water quality standards. [FN4]

-The Interagency Working Group on Harmful Algal Blooms, Hypoxia, and Human Health reached a similar conclusion in 2010, calling for "a concerted and sustained effort to address nonpoint sources of nutrients." That report noted that in large areas, such as the Chesapeake Bay watershed, intense management of point sources has not resulted in desired improvements, because control of nonpoint pollution lags.[FN5]

These reports, in and of themselves, offer clear backing for a strong TMDL and for aggressive state and federal action on agricultural pollution releases. We believe that a more recent report from the Department of Agriculture makes an even more compelling case for action.

We understand that EPA is familiar with all of these reports, but in light of the arguments that some commenters have made urging a slower pace in dealing with agricultural pollution and continued reliance on voluntary programs alone, we include these references and a perspective on this most recent report.

The CEAP Report

In late October, the USDA's Natural Resources Conservation Service (NRCS) released a draft report that underscores the difficulty of the restoration task and the magnitude of continuing releases from agriculture. The Conservation Effects Assessment Project's "Assessment of the Effects of Conservation Practices on Cultivated Cropland in the Chesapeake Bay Watershed" offers a stark and troubling picture of pollution control efforts to date. The report concludes that "cultivated cropland delivers a disproportionate amount of sediment and nutrients to rivers and streams and ultimately to the Bay."[FN6]

As with a similar, earlier report on conservation efforts in the Upper Mississippi River Basin,[FN7] this report, backed by an extensive, science-based investigation involving data collection, large-size farmer surveys and a field-scale model of agricultural practices effects, offers both good and bad news. The good news is that adoption of a suite of conservation practices that are generally well understood and can be readily implemented would achieve major reductions in the loads of nitrogen and phosphorus delivered to the Bay. The bad news is that despite nearly three decades of discussion about the importance of reducing nutrients to the Bay, this suite of practices has not been implemented across the cultivated cropland in the Bay watershed.

More specifically and strikingly, the report notes that nearly 81% or roughly 3.5 million acres of cropland in the Bay watershed need some level of additional nutrient control, and about half of cropped acres are "critically under-treated." According to the data collected by USDA directly from farmers, deficiencies are found in each of the four Bay sub-basins and on nearly all of the roughly 1.7 million acres of cropland that is treated with manure. Deficiencies involve inappropriate rates, timing, forms and methods of fertilizer and manure application.

These findings are even more troubling in light of the study's approach and limitations. USDA notes, for example, that the fundamental criteria used in the report to judge the adequacy of actual practices "do not necessarily represent the best possible or even the best practical set of nutrient management practices." The report's baseline practices, then, must be viewed as fundamental, rather than emerging or "next generation" practices such as precision farming and water control management, and it is deeply disturbing that USDA found that this essential suite of practices is not being widely implemented across the watershed. Even more disturbing, the report notes that not all current nutrient management plans meet this basic level of water quality management.

In addition, USDA notes that the study did not evaluate the extent to which manure application meets criteria for a stricter phosphorus-based application. Although the report states that it is "common practice to use a nitrogen basis for manure application" and that such an approach "usually results in over-application of phosphorus," researchers did not evaluate this aspect of cropland management. Given the heavy concentration of livestock in certain areas within the region and the other report findings, it would appear likely that additional deficiencies with manure application exist.

Another troubling finding of the report involves the extent to which manure and fertilizer applications deliver nutrients to groundwater that, in turn, reaches the Bay. According to the report, "[t]he most critical conservation concern in the region is loss of nitrogen through subsurface loss pathways," and subsurface flows are the "dominant nitrogen loss pathway" for most cropped areas in the watershed. "[N]itrogen leaching losses," says the report, "are pervasive throughout most of the region." For phosphorus, the report concludes that the primary routes of release from cropland are through waterborne sediment and surface water runoff, as opposed to percolation. However, to the extent that nitrogen-based application practices lead to over-application of phosphorus, as discussed above, phosphorus surface discharge problems could worsen and groundwater release problems develop.

In our view, all of these reports and a larger body of scientific study of the Bay make a case for vigorous and innovative action to reduce agricultural related pollution-action we do not see in the current draft WIPs.

[FN1] Scientific & Technical Advisory Committee, Chesapeake Bay Program, Innovation in Agricultural Conservation for the Chesapeake Bay: Evaluating Progress & Addressing Future Challenges (US EPA, Chesapeake Bay Program, February 2004), http://www.chesapeakebay.net/content/publications/cbp_13325.pdf.

[FN2] US EPA Office of Inspector General and USDA Office of Inspector General, Saving the Chesapeake Bay Watershed Requires Better Coordination of Environmental and Agricultural Resources, Evaluation Report (US EPA, USDA, November 20, 2006), http://www.epa.gov/oig/reports/2007/20061120-2007-P-00004.pdf.

[FN3] US EPA Office of Inspector General, EPA Needs to Better Report Chesapeake Bay Challenges: A Summary Report, Evaluation Report (US EPA, Office of Inspector General, July 14, 2008), http://www.epa.gov/oig/reports/2008/20080714-08-P-0199_glance.pdf.

[FN4] State-EPA Nutrient Innovations Task Group, An Urgent Call to Action: Report of the State-EPA Nutrient Innovations Task Group, August 2009, http://www.epa.gov/waterscience/criteria/nutrient/nitgreport.pdf.

[FN5] Interagency Working Group on Harmful Algal Blooms, Hypoxia, and Human Health, Scientific Assessment of Hypoxia in U.S. Coastal Waters (Washington, DC: Joint Subcommittee on Ocean Science and Technology, Committee on Environment and Natural Resources, September 2010), http://www.whitehouse.gov/sites/default/files/microsites/ostp/hypoxia-report.pdf.

[FN6] Conservation Effects Assessment Project, Assessment of the Effects of Conservation Practices on Cultivated Cropland in the Chesapeake Bay Region, Draft (USDA, Natural Resources Conservation Service, October 2010), http://www.livablefutureblog.com/wp-content/uploads/2010/10/ceap_chesapeake_bay_report.pdf.

[FN7] Conservation Effects Assessment Project, Assessment of the Effects of Conservation Practices on Cultivated Cropland in the Upper Mississippi River Basin, Draft, (USDA, Natural Resources Conservation Service, June 2010), ftp://ftp-fc.sc.egov.usda.gov/NHQ/nri/ceap/UMRB_final_draft_061410.pdf.

Response

The Chesapeake Bay TMDL will be released by December 31, 2010 due to the continuing impairment of tidal waters of the Bay. Agricultural land uses within the Chesapeake Bay watershed represent the largest managed land use as well as the largest single source of nutrients and sediments according to an analysis of available data by the Chesapeake Bay Program models. Improving the conservation of agricultural nutrients and sediments potentially lost to the environment has been a priority by the Bay state partners since the mid-1980's, and continues to be a critical priority as the Chesapeake Bay TMDL and supporting state Watershed Implementation Plans (WIPs) are developed. The Bay TMDL will direct the Bay states to fully implement their WIPs and achieve water quality standards. The potential of federal consequences exist if the state-developed WIPs are not fully implemented and/or water quality standards are not met.

The Chesapeake Bay Program partnership and the agricultural community, have made significant past progress towards addressing the loss of nutrients and sediments to the tidal Chesapeake Bay. The agriculture and point source sectors, including municipal waste water treatment plants, have achieved the majority of the pollution reductions to date. Agriculture continues to represent the largest managed land use within the Chesapeake Bay watershed, as well as the largest single source of nutrients and sediment entering the Bay. Consequently, the Bay states are seeking additional nutrient and sediment reductions from the agricultural sector to assist with achieving the water quality requirements of the Chesapeake Bay TMDL through State Watershed Implementation Plans (WIPs). A portion of this continued reliance by the Bay states to achieve future nutrient and sediment reductions is based on developing more stringent BMPs, promoting innovative BMPs that once implemented have a greater degree of water quality improvement as a result, and improving the tracking and reporting of both cost-shared and non-cost shared agricultural practices to more clearly document implementation of conservation practices by the agricultural community

We would anticipate that, because of increasing levels of soil phosphorus levels in a number of counties throughout the Chesapeake Bay, States would commit to developing a science based comprehensive plan that address P imbalances over time with the ultimate goal of reaching P agronomic rates for maximum crop yield. Plan components could include:

• Commitment to develop approaches for P management beyond the P index that are consistent with EPA's 502 guidance in order to reach ultimate goal of P agronomic rates.

SERA-17 national phosphorus scientists have been very clear that the P index is an interim step and won't solve the P imbalances in high density animal areas. Furthermore, the USDA CEAP study indicates weaknesses in the current nutrient management approach resulting in 81% of cropland requiring additional nutrient management. Therefore, the P management approach should go beyond the P index and include interim goals that continually move you closer to reaching agronomic P rates such as:
o Revising P index, followed by
o Capping manure application at P saturation levels of 35% or greater by date certain, followed by
o Capping manure application at P saturations of 20% or greater by date certain.

• Commit to developing a plan for targeted education/outreach to producers to explain the need to phase out manure application on high-P soils.

• Commit to work with USDA to secure federal funding to help with this transition. For the poultry sector this could be a commitment to work with NRCS, Conservation Districts, Poultry integrators, and the private sector to encourage producers to sign up for the NRCS EQIP Alternative Manure Use program. For dairy, this could be a commitment to work with USDA to fund dairy

manure storage facilities were needed to help with transition.

• Commitment to explore alternative uses for manure.

• Commit to date by when this new P management approach will be incorporated into the revised Nutrient Management Plans

Comment ID 0586.1.001.008

Author Name: Fischer Micaela

Organization: The Pew Environment Group

- Set Priorities
As diversified, nutrient-balanced farming has declined in the Bay region and livestock operations have grown in scale and clustered geographically, the challenge of manure management has become more and more difficult. The Bay TMDL will not succeed if it does not recognize and address this challenge of excess manure, particularly in the hotspot areas in the Susquehanna watershed, the Shenandoah Valley and the Delmarva Peninsula. These regions should be treated as top priorities for regulatory efforts and for cost-share and assistance programs.

- Issue More Individual Clean Water Act Permits
Clean Water Act permits are a reasonable means of clarifying expectations and obligations and maintaining accountability. Permit review and issuance provides an opportunity for thoughtful evaluation of the best options for protecting water quality, and permit record-keeping and reporting can set fair and objective measurements for judging performance. The TMDL should require individual permits for all large and most medium CAFOs generally and all but the smallest CAFOs in the Bay's hotspot areas. Permits should cover all livestock operations, without exclusions for dry manure handling.

- Recognize that All CAFOs Discharge
The current EPA regulations adhere to the legal construct that some CAFOs are not required to hold Clean Water Act permits because they do not "propose to discharge," but this does not mean that such facilities do not adversely impact the Bay. In reality, all CAFOs discharge, either from the production and waste management areas or from associated cropland receiving CAFO-generated manure. A large body of scientific evidence underscores this point, and the impact on the Bay is the same whether pollutants are classified as "subject to permitting" or "agricultural stormwater." The Bay states derive their authorities to act not only from delegation under the Clean Water Act but also from various state laws and authorities, such as the Pennsylvania Clean Streams Law and Maryland's Water Quality Improvement Act. These authorities and the TMDL's mandate to address stormwater should be used to control all CAFO discharges, including those from manured cropland. Some states are currently using their authorities to require permits of CAFOs that do not specifically "propose to discharge." All states should do so.

- Require Co-Permitting for Integrators
Many livestock farmers today operate under contract to corporations who own the animals and dictate critical management terms, including housing requirements and feeding regimes. They generally control the timing of animal deliveries and set dates for completing a growing cycle. These decisions have a substantial impact on the volume,

nature and timing of manure generated. Contractors, then, should be treated as would any other entity exercising significant control of an operation governed by the Clean Water Act. They should be treated as responsible parties and co-permitees along with the growers who implement contract terms on a day-to-day basis. We believe that by clarifying the contracting companies' responsibilities for manure management, the states and EPA will better leverage the resources of these corporations on behalf of water quality management.

- Address Accountability for Off-Site Manure Management
Many CAFOs generate excess manure, but Clean Water Act permits currently incorporate the terms of nutrient management plans only for the acreage under the control of the permittee. This approach imposes some minimal record-keeping requirements on the manure generator but generally removes the CAFO permittee from obligations to assure that the transferred manure is managed properly. Several of the Bay states have attempted to address this regulatory gap by requiring nutrient management plans for manure application on other farms, but we believe that the states and EPA should also amend their programs to assure that contractors remain accountable and assist with this effort. In those cases where integrators own the cropland or contract with crop growers to produce grain for their livestock operations, the benefits of co-permitting as noted above would also apply.

Response

Set Priorities

The Chesapeake Bay Program partnership have made significant past progress towards addressing geographic hot spots where excess quantities of manure and litter have been identified. These areas include: Delmarva- Eastern Shore, Shenandoah Valley in Virginia and Lancaster County, Pennsylvania. In all three of these areas EPA’s NPDES Permit and Compliance team have spent a tremendous amount of time to work with poultry growers and dairy farmers, local conservation districts, and state agencies to discuss alternatives and to support the development of markets (i.e., nutrient trading opportunities) that are needed to reduce areas having excess quantities of manure and litter. EPA supports the development of comprehensive manure strategies to provide the impetus for alternative manure technologies, and markets to be used to reduce traditional land application where a steady buildup of phosphorus hs been documented.

Individual Permits/CAFO Discharges

The new 2008 CAFO regulation requires NPDES permits for livestock and poultry operations provide states and EPA with the opportunity to issue permits under a general permitting approach or on an individual basis depending on the complexity of the operation and/or a number of other factors that warrant that a much greater level of public review prior to the operation starting its operations.

Co-Permitting

Several years ago EPA did include in its draft CAFO regulation the concept of co-permitting particularly as it would apply to the poultry industry. EPA expressed at that time that due to the business practices required by the integrator for its contract growers that a shared level of responsibility as chickens were grown occurred. During the public comment period for the draft EPA CAFO regulation a number of comments were received that raised a number of questions about EPA’s ability to require a co-permit and as

a result the draft provision was removed. As more information becomes available and as poultry integrators become more environmentally progressive there could be future opportunities for integrators to more effectively manage litter especially as alternative technology facilities are constructed.

OnSite Manure Management

Currently in the 2008 CAFO regulation there is a limited level of accountability as manure is transferred off site to be used for a variety of purposes. EPA is aware of the potential of water quality problems to occur from these outside activities and will consider addressing this gap in the new CAFO Chesapeake Bay regulation.

Comment ID 0602-cp.001.001

Author Name: Comment Anonymous

Organization: Hill Top View Farm

Farmers care about water qualiity and have already implemented thousands of conservation BMPs in the Commonwealth. Farmers are willing to implement reasonable cost-effective BMPs economically.

Response

Please see response to comment # 0197.1.001.002

Comment ID 0607.1.001.001

Author Name: Bauhan Hobey

Organization: Virginia Poultry Federation (VPF)

Poultry Industry Environmental Stewardship

VPF believes that the Chesapeake Bay is indeed a tremendous natural resource. It deserves our stewardship - but not in the heavy-handed, federally driven, regulatory manner outlined Executive Order 13508, various EPA communications, and the draft TMDL.

Virginia's poultry industry has been a responsible and proactive environmental steward on a voluntary basis and through compliance with existing government regulations. The industry has long been part of the solution to a cleaner Bay and local waterways. Please consider the following:

In 1995, Virginia's poultry industry received a "Friend of the Bay" award from the Commonwealth of Virginia for its voluntary initiative to implement nutrient management plans (NMPs) on all Valley poultry farms by the year 2000, a goal largely achieved.

VPF estimates at least 80 percent of poultry producers in the Shenandoah Valley have constructed sheds for storing poultry litter before it is utilized. (Those with or without sheds must store litter according to state regulatory criteria.)

Feed management:

- Phytase phosphorus reduction enzyme incorporated in poultry feed mills, resulting in a more than 25 percent, on average, reduction in phosphorus in Virginia poultry litter.

Collaboration:

- VPF participates in the Virginia Waste Solutions Forum, a collaboration of agriculture, environmental groups, academia, government agencies, and others that have worked since 2004 to identify economically viable solutions for surplus animal manure.

- VPF was a founding member of the Shenandoah Valley Pure Water Forum, another group of diverse interests working collaboratively toward improved water quality.

- VPF participated in a coalition of agricultural and conservation groups that worked successfully together to obtain increased funding for the Virginia Agricultural BMP cost-share program.

Aside from the above voluntary efforts, Virginia's poultry industry is already heavily regulated. In 1999, the Virginia General Assembly enacted the Poultry Waste Management Program (House Bill 1207). This law charged the State Water Control Board with developing a regulatory program requiring a general permit, incorporating a state-approved, phosphorus-based, nutrient management plan and mandating adequate waste storage, for growers. The program requires tracking and accounting of litter transferred off poultry farms. Growers with 20,000 or more broilers or laying hens or 11,000 or more turkeys were required to obtain a state-approved nutrient management plan and file for the general permit by October 1, 2001. This is far below the threshold at which federal regulations define a "Large" CAFO and captures the vast majority of poultry farms in Virginia.

Furthermore, the State Water Control Board recently adopted amendments to the Virginia Poultry Waste Management Program to impose additional regulatory requirements upon litter transporters and non-poultry farmers that receive poultry litter for use on their farm. The regulation now imposes enforceable requirements governing "end-users'" land-application and storage of poultry litter.

In addition, poultry processors are being required, with no cost-share, to spend millions of dollars on wastewater treatment plant and storm water upgrades. New permits must meet close to "limits of technology" reductions for total nitrogen, in some cases reducing nitrogen by 95-99 percent at a cost of up to $3 million per plant. This is on top of previous reductions in phosphorus to limits as low as 0.1 mg/liter that cost upwards of $2 million for some plants.

As you can see, Virginia's poultry industry has been a responsible and proactive environmental steward on a voluntary basis and through compliance with government regulations. It is important that these activities and programs are considered in Bay modeling and given full credit in Virginia's Bay cleanup strategies.

Response

EPA is fully aware of many of the advances that the poultry industry has helped support as part of the nutrient management planning process throughout the Chesapeake Bay watershed. We often have had meetings and discussions with the Delmarva Poultry Industry and the Virginia Poultry Industry and have appreciated the opportunity to share developing technologies and other on farm practices.

Nutrient management plans as you know represents all of the important technical components that address improvements to water quality. Some of the newer technical practices that have been supported by USDA's Natural Resources Conservation Service can also address air quality concerns in minimizing the transfer of nitrogen from poultry houses.

Over the past several months the Chesapeake Bay program has been presented with a number of new practices and have been asked to accept them to be included in the Bay model crediting nutrient reductions. Some have been accepted on an interim basis while others were rejected based on not have water quality documentation and related nutrient efficiency data. EPA has suggested to State agricultural agencies and other agriculture organizations to plan to undertake the appropriate levels of research on management practices that either are being implemented or are planned to be implemented as EPA would look forward to working with these agencies and organizations to achieve a greater number of practices that ultimately be part of the Chesapeake Bay model.

EPA looks forward to continuing to having discussions with the poultry industry and appreciates the support you have provided.

Comment ID 0617-cp.001.001

Author Name: Comment Anonymous

Organization:

I am a farmer in the Chesapeake Bay watershed. We are doing many things to prevent runoff and protect the Bay. We have nutrient management plans, that tell us how much and when to spread manure. To follow these stipulations and keep the required records takes a major amount of time. I have a permit with annual inspections from the VA Department of Environmental Quality. What do we get as thanks for producing quality food to feed our fellow men? More regulations that will make it almost if not entirely impossible to continue to farm are on the horizon. Please be reasonable and base your regulations on sound scientific research. The Chesapeake Bay TMDL makes agriculture look worse than it is and will place an inequitable burden on the farm community. Even a wise dog doesn't bite the hand that feeds it. Can't American politicians wiser than the dogs? EPA is moving far too fast with measures that will have a major impact on millions of people.
I am a loyal taxpaying and one the very necessary 1.8 percent of the American population, a food producing AMERICAN FARMER.

Response

Please see response to comment # 0489-cp.001.002

Comment ID 0622-cp.001.003

Author Name: Bruce D.

Organization: Rainbow Hill Farm

On our farm alone, we have, with the help of government monies, made advances to protect and preserve the quality of the Smith Creek, part of the Chesapeake Bay Watershed. The TMDL amounts to a "Cap and Trade" system to break the few farms out here who have survived to date. When we decided to make a life in farming, there were about 4% of the nations people feeding the multitudes. That was in the 1970s. Now the number of farmers is 1.8%. Farmers are not the enemy of the Chesapeake Bay. We take pride in our beautiful land and water. Don't make villians of us. Look up the Smith Creek Restoration Project on YouTube.

Response

Nutrient and sediment loads from agriculture, across the watershed, have been reduced, but not enough to achieve the reduction goals to restore water quality in the Chesapeake Bay. In addition, voluntary efforts, over the past 25 years, have not incentivized the widespread adoption of conservation practices across the agricultural landscape. Farmers, like yourself, who were willing to implement conservation practices on their lands under this voluntary system, for the most part, have done so. Hence, the nutrient and sediment reductions attributed to conservation practices on agricultural lands to date. The goal with the TMDL is to improve federal, state and local regulatory frameworks to provide new types of incentives for the adoption of these cost-effective BMPs to further reduce the pollutants running off of agricultural lands. Through the TMDL, EPA seeks to create a level playing field in the agricultural community by ensuring that each Chesapeake Bay jurisdictions' Watershed Implementation Plan (WIP) includes compliance assurance and enforcement response programs that address those farm operations as well as other source sectors that are discharging pollutants into the Bay and its tributaries.

Comment ID 0661.001.002

Author Name: Schneider H.

Organization:

I had a section of my land poisoned by agriculture, so I know from my own experience.

Response

EPA acknowledges the comment.

Comment ID 0663-cp.001.002

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

My note: This problem has been going on for years. Chemical fertilizers have been contaminating the Chesapeake Bay, creating red algi which takes all the oxygen out of the wate...killing the marine wildlife. Farmers in Pennsylvania and Maryland must be stopped from letting their fertilzers drain into streams and rivers which then reach the Chesapeake Bay. I know that some progress has been made, but if that progress is so minimal, then what, and or who is NOT doing their political job to do an effective job resolving this problem. Someone needs to kick butt.

Response

EPA acknowledges the comment. The TMDL is based on extensive evaluation of loading data from all sectors - wastewater, storm water runoff, forests, atmospheric deposition, and agriculture – and restoration of the Bay will necessitate reductions in loadings from each of these sectors. In the TMDL EPA has apportioned wasteload allocations and load allocations to achieve the reductions in all sectors that will be necessary to attain water quality standards in the Bay.
Under the TMDL, EPA expects that cropland and animal agricultural operations will implement additional controls to control nutrient loadings to the Bay. EPA is considering rulemaking options to reduce nutrient and sediment loadings from animal operations, such as including more animal feeding operations as concentrated animal feeding operations, or CAFOs (and therefore potentially subject to NPDES permits and nutrient management plan requirements) and strengthening permit requirements for nutrient management at CAFOs.

Comment ID 0666-cp.001.001

Author Name: Hazel, Jr. John

Organization: Huntley Farm LLC

My brother and I own and operate over 4000 acres of cattle farm in Fauquier County, Virginia. Since commencing our operation in 1950 we have implemented many Best Management Practices including:

--No till for over thirty years,
--Grass waterways,
--Detention and sediment basins on several of our major streams and feedlot discharge,
--Fertilizer uses in accord with strict soil tests,
--Cover crops and rotation practices as appropriate.

We strongly oppose implementation of the proposed regulations for agriculture. The major asset of a cattle farm is the opportunity for cattle to have free access to natural running water. Such access is a major element of the valuation of farm land. The proposed requirement of fencing cattle out of streams, the introduction of the federal bureaucracy in the management of our farm, and the restrictions of fertilization will force abandonment of our farm operations. If required to follow federal mandates, it is abundantly clear that we could not continue our current operation despite the fact that we are committed to and have implemented Best Management Practices for many years.

Response

Please see response to comment # 0197.1.001.002.

Additionally in your correspondence you include a number of important best management practices that are included in Virginia's Watershed Implementation Plan. These best management practices and an array of other important agriculture and forestry practices will play a critical role in restoring the Chesapeake Bay.

Comment ID 0667.001.001

Author Name: Comment Anonymous

Organization:

As a dairy, beef, and poultry farmer I am committed to environmental stewardship. Clean water and good soil are fundamental to our business. We have been doing our part and will continue to do so in order to help the Chesapeake Bay and local waters. Agricultural has met 52% ofreduction goals for nitrogen, and 50% for phosphate all through a voluntary incentive based program in Virginia.

We will be willing partners in making environmental progress and have proven that with our actions time and time again. Even without cost share funding we practice conservation tillage and use proper nutrient management practices.

Response

Please see response to comment # 0489-cp.001.002

Comment ID 0667.001.005

Author Name: Comment Anonymous

Organization:

As livestock producers, we struggle with extremely high feed prices, and we ask questions of, WHY? Is America running out of productive farmland? We have genetic based seeds that can produce 300 bushel corn and 100 bushel soybeans; with EPA's goals can American farmers achieve this and continue to feed America?

My main question is why farmers feel so pressured when there are so few ofus versus residential home owner's who outnumber us and create such problem on their half acre as a farmer does on their 100's of acres.

Response

Thank you for your comments. Good progress has been made on reducing sediment, nutrient, and pesticide losses from farm fields through conservation practice implementation in the Chesapeake Bay region, but a significant amount of conservation treatment remains to be done to reduce nonpoint agricultural sources of pollution. The greatest concern in regards to nutrient and sediment loads from CAFOs and AFOs is from the lack of implementation of nutrient management on the cropland under their control as well as the lack of assurance and verification that nutrient management planning tools are actually being implemented by CAFOs and AFOs on their cropland. According to a recent NRCS study, cultivated cropland represents only about 10 percent of the land base in the Chesapeake Bay watershed. With the current level of conservation treatment, cultivated cropland delivers a disproportionate amount of sediment and nutrients to rivers and streams and ultimately to the Bay. Of the total loads delivered to rivers and streams from all sources, cultivated cropland is the source for 25 percent of the sediment, 27.5 percent of the phosphorus, and 32 percent of the nitrogen. There is significant room for improvement in reducing the amount of nutrients and sediments from agricultural lands.

But the issue raised in this comment is real. A significant loading of nitrogen and phosphorous is from residential land. The practice of fertilizing (often over-fertilizing) lawns does add significant loading to the Bay. So it is apparent that not only should the controls measures deal with more controls from agriculture but also address the loadings from residential land sources.

Comment ID 0669.001.001

Author Name: Burkholder J.

Organization:

I am a farmer in Rockingham County, Virginia. I am also a member of the Mennonite faith. I'm concerned that several issues being discussed will affect my lifestyle and potentially my ability to farm. Please understand I choose not to participate in the legislative process or government programs for my personal financial benefit in accordance with my religious beliefs. That said I sincerely hope the following information will be considered when developing and implementing both the TMDL and the Watershed Improvement Plan for the State of Virginia.

First: Many of us have voluntarily implemented numerous Best Management Practices on our farms with no financial help from government agencies. No-till farming, fencing livestock out streams, nutrient management plan based fertilization, building manure management structures and riparian buffers area few specific examples. We sincerely hope the plan will consider all of the practices we already have in place. We are willing to make additional improvements that are financially feasible.

Response

Please see response to comment # 0197.1.001.002.

Comment ID 0673-cp.001.002

Author Name: Tutman F.

Organization:

Likewise, we have identified four wastewater treatment plants that discharge to the Patuxent River which serve mobile homes courts and whch have been operating since the 1960's. These plants do not meet "BNR" standards, do not monitor for phosphorous or nitrogen, have no caps for these constituents in their state issued permits, and are presently under no compulsion to upgrade even after some forty years of continuous operation using obsolete technology. It is hard to imagine how the State could ever contemplate a meaningfull TMDL when on record, the State has failed to identify the contribution of these four facilities (and perhaps others?) to the impairment of our river. Additional diligence is clearly needed to regulate these plants that while perhaps small on some aggregate level, can have a huge impact cumulatively on the outcome of any efforts to restore water quality.

Response

Thank you for your comments. The TMDL will require every sector -- waste water treatment plants; municipal stormwater from streets, parking lots, and other public areas; and, agriculture -- to reduce the amount of nutrients and sediments being delivered to the Chesapeake Bay. Each state will identify how those reductions will occur in the watershed implementation plan (WIP). If a state's WIP does not meet the TMDL reduction goals, EPA is prepared to require additional upgrades at all waste water treatment plants including the ones identified in your comment.

EPA understands the need to balance keeping production agriculture viable and protecting the environment. However, there's also the need to ensure that there is a level playing field so that those farmers who have not installed best management practices do not receive an economic benefit from polluting the water. Every sector will have to make changes in the way they manage the runoff coming from their land if we are to restore the Chesapeake Bay.

Comment ID 0701.001.004

Author Name: Barnes Walter

Organization: Jackson Township, Tioga County, PA and Partner, Maple Knoll Farm

With limited funding, especially dairy farm income, farms have cut nitrogen and phosphorus applications and have been able to limit the sediment from entering our waterways and moving into the Chesapeake Bay. We began playing a role in reducing fertilizer and sediment erosion over 37 years ago on our farm with common practices such as minimum tillage and cover crop planting. We cut our Urea usage 50% per acre of corn by changing our farming practices. We leave corn stalks in the field, after the grain is combined, to prevent runoff of sediment. We utilize contour strip cropping, systematic rotation ofcrops and now no-till planting to further control runoff of sediment. Our fertilizer is mechanically placed 2" below the soil surface in the seed row during planting which limits the amount of surface fertilizer that could potentially runoff in the event ofa rainstorm. With no-till practices, the soil is not disturbed and nitrogen does not volatilize after planting. Our sidedress application of nitrogen is done when the corn is 12" tall and applied in the late evening when the corn plant is actively growing and the roots are able to uptake the fertilizer more rapidly. This limits the amount of nitrogen that is able to move from placement in the soil.

Response

Please see response to comment # 0197.1.001.002

Comment ID 0702.001.001

Author Name: Eberly N.

Organization:

I am a farmer in Rockingham County, Virginia. I am also a member of the Mennonite faith. I'm concerned that several issues being discussed will affect my lifestyle and potentially my ability to farm. Please understand I choose not to participate in the legislative process or government programs for my personal financial benefit in accordance with my religious beliefs. That said I sincerely hope the following information will be considered when developing and implementing both the TMDL and the Watershed Improvement Plan for the State of Virginia.

First: Many of us have voluntarily implemented numerous Best Management Practices on our farms with no financial help from government agencies. No-till farming, fencing livestock out streams, nutrient management plan based fertilization, building manure management structures and riparian buffers are a few specific examples. We sincerely hope the plan will consider all of the practices we already have in place. We are willing to make additional improvements that are financially feasible.

Response

Mr. Eberly: Thank you for you comments and the effort you and your faith-based community have made to improve both your local water quality and that of the Chesapeake Bay. The best management practices (BMPs) you chose to install on your farm are among the top practices EPA believes are necessary for most farmers to implement to restore the Chesapeake Bay. Each Bay jurisdiction submitted a Watershed Implementation Plan (WIP) outlining the "cures" they intend to implement to achieve the TMDL by 2025. Progress will be measured every two years through the achievement of milestones including achieving 60% of the TMDL goals by 2017 and 100% by 2025. At this time, Virginia's WIP is being evaluated. However, if Virginia does not meet these milestones, it will demonstrate to EPA that its plans and regulations are not adequate. At that time, EPA will determine what measures it must take to ensure that the TMDL is achieved. In regards to your concerns about our nation's food security, EPA understands the need to balance viable farms with protecting the environment. The Chesapeake Bay watershed is very diverse in regards to the economic base on which people and communities thrive. The pollution in the Chesapeake Bay has been impacting Virginia's economy for decades. Oysters, crabs and rockfish, also part of the region's food supply and economic base, have been severely impacted. According to a recent report, the decline of the Chesapeake oyster alone has cost Virginia and Maryland more than $4 billion over the past 30 years. Finally, agriculture is not in this alone. The TMDL outlines nutrient and sediment reductions every sector -- wastewater treatment plants, industrial facilities, municipal stormwater systems, etc. -- will be required to achieve to restore the Chesapeake Bay.

Comment ID 0709.001.001

Author Name: Schneider Richard

Organization: Southern States Cooperative, Inc.

Southern States as well as our Virginia Cooperative members are committed to environmental stewardship. Clean water and good soil are fundamental to our businesses. We have been doing our part - and will continue to do so in order to help create a healthy Chesapeake Bay and local waters. Specifically:

- Agriculture has met 52% of reduction goals for Nitrogen and 50% for Phosphorus and Sediment-all through a voluntary, incentive based program in Virginia. This doesn't even count the actions farmers are taking on their own without funding.

- Southern States has also educated and trained certified crop advisors (CCA) to assist producers in providing only the "needed" nutrients for their crops. CCA's perform soil and tissue analysis again to be sure of the proper application of nutrients.

- According to the Virginia Department of Forestry, 83% of logging jobs use the proper combination of best management practices.

- University studies have shown that turfgrass, when maintained properly, serves as an excellent filter for stormwater runoff, can be a carbon sink, and captures sediment.

We have been willing partners in making environmental progress-and have proven it with our actions, time and time again.

- Virginia has put over $80 million into Agricultural Best Management Practice (Ag BMP) Cost-Share program since 2006. Farmers have matched this spending with $0.60 of every dollar, and are lined up at the door to do more. Annually, willing participants are turned away due to lack of adequate funds at the state and federal level.

- Even without cost-share funding, agriculture is taking action. Virginia farmers fence cattle from streams, practice conservation tillage, use proper nutrient management practices, and install buffers along waterways - without federal or state funds - and without being "counted" by EPA.

- Without regulatory pressure, the turfgrass/green industry requested that the state create an Urban Nutrient Management Program so that their professionals can have plans specifically tailored for their businesses.

- Lawncare operators have supported and signed Voluntary Water Quality Agreements with the state. Major home lawn fertilizer companies have signed agreements to reduce and/or eliminate phosphorus from maintenance fertilizers by 2012.

- Virginia's golf industry is developing a Best Management Handbook covering water quality, pesticide use, and water supply issues for their industry to implement.

Response

The Chesapeake Bay Program partnership and the agricultural community, have made significant past progress towards addressing the loss of nutrients and sediments to the tidal Chesapeake Bay. The agriculture and point source sectors, including municipal waste water treatment plants, have achieved the majority of the pollution reductions to date. Another important point source sector where much more progress needs to occur is pollution from developed and urban areas including lawns and gold courses. As you may know agriculture represents the largest managed land use within the Chesapeake Bay watershed, as well as the largest single source of nutrients and sediment entering the Bay. Consequently, the Bay states are seeking additional nutrient and sediment reductions from the agricultural sector to assist with achieving the water quality requirements of the Chesapeake Bay TMDL to be released by December 31, 2010 through their supporting Watershed Implementation Plans (WIPs). A portion of this continued reliance by the Bay states to achieve future nutrient and sediment reductions is based on developing more stringent nutrient management plans and innovative technical practices, new policies and regulations that reduce nutrient runoff and improving the tracking and reporting of both cost-shared and non-cost shared agricultural practices to more clearly document implementation of conservation practices by the agricultural community.

Comment ID 0716-cp.001.001

Author Name: Harris D.

Organization:

FArmers have been commited envinronmentalist for years. I have fenced off streams, put in manure handling systems. We have made great strides. Gove is asking us to do so much more, with little funding for little benefits

Response

Thank you for your comments. EPA recognizes that significant pollutant reductions that have been previously attained by the agricultural community. Further reductions from the agricultural community are necessary in order to meet the Chesapeake Bay TMDL allocations, similar to the additional reductions that are required from other sectors.

Comment ID 0721.001.001

Author Name: Knicely K.

Organization:

I have been a dairy farmer in Rockingham County for 36 years. I have seen many changes in farming during that time. I have made many changes myself during that time. I became concerned in the 80's about losing soil off my farm. I have also since that time been concerned about high phosphorus levels in the soil. I am concerned that the proposed EPA mandates do not take into account all that has been done in the prior twenty years. I know from my experience how hard it is to reduce phosphorus levels on a dairy farm. I feel this is something that cannot be done in a short time.

Response

Thank you for your comments. EPA recognizes that significant pollutant reductions that have been previously attained by the agricultural community. Further reductions from the agricultural community are necessary in order to meet the Chesapeake Bay TMDL allocations, similar to the additional reductions that are required from other sectors.

Comment ID 0730.001.001

Author Name: Horst R.

Organization:

I am a farmer in Rockingham County, Virginia. I am also a member of the Mennonite faith. I'm concerned that several issues being discussed will affect my lifestyle and potentially my ability to farm. Please understand I choose not to participate in the legislative process or government programs for my personal financial benefit in accordance with my religious beliefs. That said I sincerely hope the following information will be considered when developing and Implementing both the TMDL and the Watershed Improvement Plan for the State of Virginia.

First: Many of us have voluntarily implemented numerous Best Management Practices on our farms with no financial help from government agencies. No-till farming, fencing livestock out streams, nutrient management plan based fertilization, building manure management structures and riparian buffers are a few specific examples. We sincerely hope the plan will consider all of the practices we already have in place. We are willing to make additional improvements that are financially feasible.

Response

Please see response to comment 0648-cp.001.002

Comment ID 0743.001.005

Author Name: Declue Robert

Organization: Water Quality Coordinating Committee (WQCC)

Please do not misconstrue these comments as obstruction in making further improvements in water quality for the Bay. However, we strongly feel obligations for such future gains should be plausibly attainable and balanced in light of progress made prior to the TMDL.

Response

Please see response to comment # 0197.1.001.002

Comment ID 0744.001.001

Author Name: Gray Bob

Organization: Agri-Mark, Inc.

The undersigned agricultural organizations would like to request that the proposed comment period for the draft Chesapeake Bay TMDL for nutrients and sediment be extended from the current 45 days to 120 days minimum.

We have based this request on a number of critically important concerns that the agriculture community has regarding the potential impact the Draft TMDL will have on production agriculture in the Bay region. Given the complexity and far-reaching implications that these new standards will have on individual farming operations and the overall economic health of the rural communities in the region we believe it is imperative that the comment period be extended to at least 120 days.

Agriculture has been one of the leading sectors in the Bay Region in the implementation of conservation practices aimed at reducing both nitrogen and phosphorus run-off and sediment . Millions of dollars have been spent in cost-share funds from both USDA's NRCS and State Departments of Agriculture in applying conservation practices on individual farms and in modifying cropping and livestock and poultry operations to reduce nutrient and sediment run-off . At the same time farmers have implemented voluntary conservation practices on their own which have made a significant contribution to the Bay's water quality .

The proposed TMDL requirements need to be analyzed very closely to determine both the environmental and economic effects they will have on agriculture . The 45 day comment period does not provide a sufficient time frame to accomplish this . Therefore we respectfully request the comment period be extended to 120 days.

Response

With regard to the public comment period, please see response to comment 0060.1.001.001. Agricultural activities are responsible for approximately 44 percent of Nitrogen and Phosphorus loads delivered to the Bay and about 65 percent of sediment loads delivered to the Bay. While progress has been made, more reductions are needed to meet water quality goals.

7.2 - ATMOSPHERIC DEPOSITION

Comment ID 0146.1.001.005

Author Name: Isenberg W.

Organization: Virginia Commonwealth University Center for Environmental Studies. Class: ENVS 601, Professor: P.L. deFur

Moving to the issue of the airshed and atmospheric deposition of nutrients, the fact that the Chesapeake Bay TMDL addresses this issue with EPA plans to exercise Clean Air Act regulations seems inadequate. I have read that car

exhaust onto roads when oxidized, washed with storm water, and or microbially converted become biologically available as nutrients and therefore act as point source nutrient pollution. These point sources, at least within Virginia, are already inspected annually. If the annual inspections could regulate nitrogen oxide in the exhaust, then that would cut down on a direct source. While the general public already complains about safety inspections and may not favorably view this, there could be a small fine that is paid when standards aren't met. The money from that fine could be used to subsidize pollution control devices on resident cars. Similarly, there are many coal power plants and other industrial smoke stacks in and around the Chesapeake Bay watershed, well within the airshed. Determining the power plant and industrial smoke stacks that atmospherically deposit in the watershed most of the year, regardless of which way the wind is blowing, would zero in on the most responsible large scale atmospheric depositors of nutrients. It would be very sensible to follow that because of their proximity to the Bay waters, they are directly related to the atmospheric deposition of nutrients into the Bay waters. Therefore, the same regulations that apply to point source dischargers of water should apply to them, treating the smoke stacks themselves as end-of-pipe discharges of nutrients. While the technology may be lacking, the same programs that take place in Virginia with regards to nutrient trading among point source water dischargers could be applied to the point source industrial and power plant smoke stacks, just under an immediate airshed basis instead of watershed basis.

Response

Thank you for your ideas on how to reduce atmospheric deposition loads of nitrogen. As you point out, both mobile and point source emissions of nitrogen are important to control. The Chesapeake Bay TMDL accounts for significant reductions of atmospheric deposition from both these sources and others. Over the last 30 years reduction in NOx deposition in the Chesapeake watershed have declined by more than 30%. Further reductions in atmospheric deposition are expected from ongoing implementation of management practices to achieve the current air quality standards, as well as additional reductions that may be required by the new ozone standard to be set by July 2011.

The air reductions assumed in the Chesapeake TMDL include emission reductions due to regulations implemented through the Clean Air Act authority to meet National Ambient Air Quality standards for criteria pollutants in 2020. These are:
On-Road mobile sources: For On-Road Light Duty Mobile Sources this includes Tier 2 vehicle emissions standards and the Gasoline Sulfur Program which affects SUV's pickups, and vans which are now subject to same national emission standards as cars.
On-Road Heavy Duty Diesel Rule – Tier 4: New emission standards on diesel engines starting with the 2010 model year for NOx, plus some diesel engine retrofits.
Clean Air Non-Road Diesel Rule: Off-road diesel engine vehicle rule, commercial marine diesels, and locomotive diesels (phased in by 2014) require controls on new engines.
Off-road large spark ignition engine rules affect recreational vehicles (marine and land based).
EGUs: CAIR second phase in place (in coordination with earlier NOx SIP call); Regional Haze Rule and guidelines for Best Available retrofit Technology (BART) for reducing regional haze; Clean Air Mercury Rule (CAMR) all in place.
Non-EGUs: Solid Waste Rules (Hospital/Medical Waste Incinerator Regulations).

Comment ID 0159.001.004

Author Name: Farasy Tom

Organization: Maryland State Builders Association

Any fair view of the science shows that new construction is not a major contributor to Bay problems. The 5.3 BayShed Model breaks down the pollution contribution sources as:

Nitrogen
- Agriculture (40.9%)
- Wastewater treatment facilities (27.4%)
- Existing urban and suburban development (10.8%)
- Forests (12.2%)
- Septic Systems (7.1%)

These sectors account for more than 97% of the total NITROGEN load into the Chesapeake Bay. New construction accounts for just 0.3% of the total NITROGEN sources into the Bay.

Phosphorous
• Agriculture (46.5%)
• Existing urban and suburban development (17.8%)
• Wastewater treatment facilities (24.5%)
• Forests (8.8%)

These sectors account for nearly 98% of the total PHOSPHORUS load into the Chesapeake Bay. New construction accounts for just 1.4% of the total PHOSPHORUS sources into the Bay.

Sediment
• Agriculture (62.7%)
• Existing urban and suburban development (21.0%)
• Forests (11 %)

These sectors account for 94.7% of the total SEDIMENT load into the Chesapeake Bay in comparison to new construction, which accounts for just 4.7% of the total SEDIMENT sources into the Bay.

Response

All loads must be taken into account in the Chesapeake TMDL no matter how small. Controls are on all sources including (for nitrogen) Agriculture (40.9%) Wastewater treatment facilities (27.4%), Existing urban and suburban development (10.8%), Forests (12.2%) and Septic Systems (7.1%).

New construction is no different. New construction contributes an estimated 0.3%, 1.4%, and 4.7% of nitrogen, phosphorus, and sediment respectively of delivered loads to the Bay. All source loads in the Chesapeake TMDL need to control their fair share of pollutant loads delivered to the Bay.

Furthermore, what is of much concern is the legacy that new construction leaves. That is, the developed land often has a significant impact, and in the case of the bay, is the only increasing source sector. For this reason, more needs to be done to construct these developments so that they minimize their nitrogen, phosphorous and sediment footprint during construction but also after construction. There are many techniques to designing and constructing new developments that would support this goal.

Comment ID 0202.1.001.014

Author Name: Carl Jimmie

Organization: Southern Tier New York WWTP

In closing, we would like to comment upon the impacts of atmospheric deposition/airborne pollution from sources outside of New York State on New York's nitrogen loading to the Chesapeake Bay. It is estimated that approximately 20 to 25 percent of the total nitrogen delivered to the Bay from New York State originates from airborne pollution from outside of the State. Furthermore, in addition to increasing nutrient loadings, these same airborne pollution sources are causing the acid lakes within the Adirondack Park and the deposition of mercury within our streams and lakes. Many of the fish consumption advisories within New York State pertain to this mercury pollution.

Response

The Chesapeake Bay Program estimates that 25% of the atmospheric deposition of nitrogen is from outside the Chesapeake airshed, 25% is from states close to the Chesapeake watershed and within its airshed, and 50% of the nitrogen deposited in the watershed is from Bay States. In the atmospheric deposition nitrogen loads we are all upwind emitters of load, as well as downwind receivers of atmospheric deposition. That's why controls of atmospheric deposition loads need to be from national programs, just as they are in the Chesapeake TMDL accounting of atmospheric deposition loads.

The Federal and State programs that administer the regulations of the Clean Air Act have reduced acid rain deposition by about 56% since 1980 (http://www.epa.gov/airmarkets/progress/ARP_4.html). Overall U.S. mercury air emissions have been reduced by 45 percent since 1990 (http://www.epa.gov/hg/executivesummary.htm).

In addition the Chesapeake Bay TMDL accounts for significant reductions of atmospheric deposition of nitrogen. Most of the reduced nitrogen loads is credited to the States which reduces the nitrogen load reductions needed in the State WIPs. Over the last 30 years reduction in NOx deposition in the Chesapeake watershed have declined by more than 30%. Further reductions in atmospheric deposition are expected from ongoing implementation of management practices to achieve the current air quality standards, as well as additional reductions that may be required by the new ozone standard to be set by July 2011.

Comment ID 0202.1.001.017

Author Name: Carl Jimmie

Organization: Southern Tier New York WWTP

We would like to emphasize that we believe New York State has been a good upstream neighbor to the Bay states. Furthermore, we continue to remain committed to protecting and improving our water quality. That is what we do as WWTP owners and managers. What we are asking of you, our elected federal representatives, is to;

- Understand that airborne pollution from out of New York's boundaries is a significant source of nitrogen reaching the Bay from New York State, and this same pollution source is having other serious environmental detriments.

Response

Plee see response to Comment number 0202.1.001.014.

Comment ID 0211.1.001.004

Author Name: McCarthy R.

Organization: Town of Erwin, New York

atmospheric deposition was listed as a major source for nutrients found within Susquehanna River Basin waterbodies and New York State is the recipient of significant air deposition from many states located to the south and west including Michigan, Ohio, Indiana and Pennsylvania; and
WHEREAS, New York State deposition in the Bay represents 0.7% of the delivered total nitrogen to the Bay and 1.1% of the delivered total phosphorus to the Bay,

Response

Please see response to Comment number 0314.001.004.

Comment ID 0253.1.001.002

Author Name: Hazelett Virgil

Organization: County of Henrico, Virginia

Henrico County is a 245 square mile county located near Richmond, Virginia. The County owns and operates a municipal wastewater treatment plant ("WWTP") that cleans and discharges highly-treated wastewater within the Chesapeake Bay watershed pursuant to a stateissued National Pollutant Discharge Elimination System ("NPDES") permit. Henrico's WWTP discharges into the James River. The County also owns and operates a municipal separate storm sewer system ("MS4") within the Chesapeake Bay watershed. This drainage system conveys and discharges

stormwater pursuant to a state-issued National Pollutant Discharge Elimination System ("NPDES") permit. To the extent that our MS4 conveys nutrients and sediments covered by the Draft TMDL, those pollutants originate predominantly from air deposition, fertilizer use or other third party sources, and the MS4 is simply a conduit.

Response

The Chesapeake Bay TMDL accounts for significant reductions of atmospheric deposition. Most of the reduced nitrogen loads is credited to the States which reduces the nitrogen load reductions needed in the State WIPs particularly for MS4 systems with high imperviousness and little attenuation of atmospheric deposition loads. Over the last 30 years reduction in NOx deposition in the Chesapeake watershed have declined by more than 30%. Further reductions in atmospheric deposition are expected from ongoing implementation of management practices to achieve the current air quality standards, as well as additional reductions that may be required by the new ozone standard to be set by July 2011.

The air reductions assumed in the Chesapeake TMDL include emission reductions due to regulations implemented through the Clean Air Act authority to meet National Ambient Air Quality standards for criteria pollutants in 2020. These are:
On-Road mobile sources: For On-Road Light Duty Mobile Sources this includes Tier 2 vehicle emissions standards and the Gasoline Sulfur Program which affects SUV's pickups, and vans which are now subject to same national emission standards as cars.
On-Road Heavy Duty Diesel Rule – Tier 4: New emission standards on diesel engines starting with the 2010 model year for NOx, plus some diesel engine retrofits.
Clean Air Non-Road Diesel Rule: Off-road diesel engine vehicle rule, commercial marine diesels, and locomotive diesels (phased in by 2014) require controls on new engines.
Off-road large spark ignition engine rules affect recreational vehicles (marine and land based).
EGUs: CAIR second phase in place (in coordination with earlier NOx SIP call); Regional Haze Rule and guidelines for Best Available retrofit Technology (BART) for reducing regional haze; Clean Air Mercury Rule (CAMR) all in place.
Non-EGUs: Solid Waste Rules (Hospital/Medical Waste Incinerator Regulations).

So it is the fact that the storm system is the 'carrier' of these pollutant loadings. The simple fact remains that these pipes bring these pollutants from their source to the stream. So it is EPAs expectation that the municipality work with the landowners to reduce the loadings at the source or otherwise intercept and treat these loading on the way from the source to the stream.

Comment ID 0399.001.006

Author Name: Comment Anonymous

Organization: Town of Erwin, New York

WHEREAS, atmospheric deposition was listed as a major source for nutrients found within Susquehanna River Basin waterbodies and New York State is the recipient of significant air deposition from many states located to the south and west including Michigan, Ohio, Indiana and Pennsylvania ; and

WHEREAS, New York State deposition in the Bay represents 0.7% of the delivered total nitrogen to the Bay and 1 .1% of the delivered total phosphorus to the Bay

Response

All nutrient loads in the watershed must be taken into account in the Chesapeake TMDL and all must do their fair share of nutrient reduction of their loads.

For atmospheric deposition, the Chesapeake Bay Program estimates that 25% of the atmospheric deposition of nitrogen is from outside the Chesapeake airshed, 25% is from states close to the Chesapeake watershed and within its airshed, and 50% of the nitrogen deposited in the watershed is from Bay States. In the atmospheric deposition nitrogen loads we are all upwind emitters of load, as well as downwind receivers of atmospheric deposition. That's why controls of atmospheric deposition loads need to be from national programs, just as they are in the Chesapeake TMDL accounting of atmospheric deposition loads.

Comment ID 0399.001.009

Author Name: Comment Anonymous

Organization: Town of Erwin, New York

WHEREAS, the EPA has failed to incorporate a sufficient system of checks and balances to ensure a significant reduction of airborne nutrients deposition originating from areas outside of the Chesapeake Bay watershed

Response

The Chesapeake Bay TMDL accounts for significant reductions of atmospheric deposition. Most of the reduced nitrogen loads is credited to the States which reduces the nitrogen load reductions needed in the State WIPs. Over the last 30 years reduction in NOx deposition in the Chesapeake watershed have declined by more than 30%. Further reductions in atmospheric deposition are expected from ongoing implementation of management practices to achieve the current air quality standards, as well as additional reductions that may be required by the new ozone standard to be set by July 2011.

The air reductions assumed in the Chesapeake TMDL include emission reductions due to regulations implemented through the Clean Air Act authority to meet National Ambient Air Quality standards for criteria pollutants in 2020. These are:
On-Road mobile sources: For On-Road Light Duty Mobile Sources this includes Tier 2 vehicle emissions standards and the Gasoline Sulfur Program which affects SUV's pickups, and vans which are now subject to same national emission standards as cars.
On-Road Heavy Duty Diesel Rule – Tier 4: New emission standards on diesel engines starting with the 2010 model year for NOx, plus some diesel engine retrofits.
Clean Air Non-Road Diesel Rule: Off-road diesel engine vehicle rule, commercial marine diesels, and locomotive diesels (phased

in by 2014) require controls on new engines.
Off-road large spark ignition engine rules affect recreational vehicles (marine and land based).
EGUs: CAIR second phase in place (in coordination with earlier NOx SIP call); Regional Haze Rule and guidelines for Best Available retrofit Technology (BART) for reducing regional haze; Clean Air Mercury Rule (CAMR) all in place.
Non-EGUs: Solid Waste Rules (Hospital/Medical Waste Incinerator Regulations).

Comment ID 0473.1.001.004

Author Name: Pechart Michael

Organization: Pennsylvania Department of Environmental Protection and Department of Agriculture

Pennsylvania has concerns about this nitrogen source and its inability to address this load because a significant amount of this is generated outside the borders of Pennsylvania.

Response

Same response as 0340.1.001.006 plus response below:

Some BMPs can be placed on the same acre and this is typically the case. For example a farm plan, conservation tillage, cover crop, and nutrient management can all be on the same simulated model acre, and frequently this is the case in the Phase 5.3 simulation. In some cases though, BMPs are logically excluded from an acre that already has another BMP in place that would specifically exclude the other. For example the continuous no-till BMP cannot be on the same acre as cover crops because the effectiveness estimate was supposed to account for the effectiveness of cover crops implicitly.

Comment ID 0494-cp.001.001

Author Name: Comment Anonymous

Organization:

In hearing about and reading the Virginia plan for addressing the long-delayed cleanup of the Chesapeake Bay, I note that many small and medium-sized sources of pollution were addressed in the EPA/Virginia hearing in Richmond on October 6, 2010, and in writing, but that one of our major pollution sources was completely overlooked. Coal-fired power plants contribute enormous amounts of diverse contaminants to the Bay through at least three vectors:
1 deposition of particles and chemicals carried by air, such as nitrogen oxides, sulfur compounds and mercury;
2 chronic effluents from coal combustion waste storage sites such as impoundment ponds, dry storage, and the recycled ash used in road-building, construction, golf courses etc.
3 The risks, proven real and severe, of catastrophic coal combustion waste escapes, which were displayed for all of us in the Christmas 2008 disaster at TVA's Kingston plant.

Even the most ardent climate science denier can hardly deny these large and long-lasting sources of both standard

TMDL chemicals like nitrogen in the Chesapeake Bay and its watershed, and the numerous coal combustion byproduct chemicals with more serious toxic effects on the Bay ecology.

While the science is newer and much less settled, analysis of detrimental inputs to the Bay should not overlook the effects of ultra-fine particles, which apparently cause even more serious damage, as evidenced by their apparent ability to pass through the human blood-brain barrier and damage the very well- protected brain chemistry, as well as, presumably, other Bay life forms that have not yet been investigated.

In a technological coincidence, our coal-fired power plants need enormous amounts of water for cooling, so they are almost all located on rivers or other large bodies of water. In Virginia, most of these flow directly or indirectly into the Bay.

It seems impossible to present a serious plan for clean-up of the Chesapeake Bay without considering coal power plants

Response

The Chesapeake TMDL controls nitrogen loads, which includes NOx emissions from all power plants including coal fueled plants. NOx is a precursor to ozone and a contributor to PM2.5 particulates and are controlled by the CAA, but also are involved with nitrogen deposition in the Chesapeake watershed and ultimately, the delivery of nitrogen loads to the Chesapeake. The CAA ozone and PM2.5 standards are fixed air quality standards that must be met. The State Implementation Plans (SIPs) created by the States in order to control NOx emissions are a significant control for Chesapeake nitrogen loads. Atmospheric deposition from all sources is estimated to contribute about an third of the nitrogen load to the Chesapeake.
DONE.

Comment ID 0515.1.001.017

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

G. EPA Must Consider Pollution Sources in the TMDL as well as Where Benefits from Clean-Up Result

As a matter of public policy, it seems fairest that those Bay shoreline jurisdictions which pollute more must "do more" to restore the Bay. We do not accept or agree with the proposition - stated by an EPA representative at the October 26, 2010 WWTP Stakeholder's meeting in Elmira, New York - that "it's too big of a 'lift'" for Maryland and Virginia to remove at the same EOS percentages as the TMDL requires of New York.

Further, because New York receives no direct economic benefit from the Bay, and in light of its lower Delivery Coefficients, New York's required contribution to Bay restoration should be proportionally less provided, of course, that New York's WQ is maintained. Alternatively, Bay shoreline jurisdictions such as Maryland and Virginia should provide compensatory payments to New York and other upstream jurisdictions which are required by the TMDL to proportionately "over control" local WQ for the benefit of the Bay. After all, given the direct economic benefit to the Bay

shoreline jurisdictions cited in the TMDL (as well as the absence of any description of such benefits for the remote headwater Bay watershed jurisdictions), shouldn't the shoreline jurisdictions pay for the bulk of restoral costs? As discussed above, it is projected that our Facilities' service area will experience a decrease in real property values as a result of the TMDL.

New York's required contribution to TN reduction should be adjusted downward (or its overall allocations correspondingly increased) to the extent of aerial deposition from Canada unless the federal government negotiates a treaty that actually makes meaningful reductions in this source of nutrient loading to the Bay.

Response

Please see the response to comment 0080-cp.001.002.

The Chesapeake Bay TMDL accounts for significant reductions of atmospheric deposition from both these sources and others measured to date. Over the last 30 years reduction in NOx deposition in the Chesapeake watershed have declined by more than 30%. Further reductions in atmospheric deposition are expected from ongoing implementation of management practices to achieve the current air quality standards, as well as additional reductions that may be required by the new ozone standard to be set by July 2011.

In the atmospheric deposition nitrogen loads we are all upwind emitters of load, as well as downwind receivers of atmospheric deposition. That’s why controls of atmospheric deposition loads need to be from national programs, just as they are in the Chesapeake TMDL accounting of atmospheric deposition loads.

The air reductions assumed in the Chesapeake TMDL include emission reductions due to regulations implemented through the Clean Air Act authority to meet National Ambient Air Quality standards for criteria pollutants in 2020. These are:
On-Road mobile sources: For On-Road Light Duty Mobile Sources this includes Tier 2 vehicle emissions standards and the Gasoline Sulfur Program which affects SUV’s pickups, and vans which are now subject to same national emission standards as cars.
On-Road Heavy Duty Diesel Rule – Tier 4: New emission standards on diesel engines starting with the 2010 model year for NOx, plus some diesel engine retrofits.Clean Air Non-Road Diesel Rule:
Off-road diesel engine vehicle rule, commercial marine diesels, and locomotive diesels (phased in by 2014) require controls on new engines.
Off-road large spark ignition engine rules affect recreational vehicles (marine and land based).
EGUs: CAIR second phase in place (in coordination with earlier NOx SIP call);
Regional Haze Rule and guidelines for Best Available retrofit Technology (BART) for reducing regional haze;
Clean Air Mercury Rule (CAMR) all in place.Non-EGUs:
Solid Waste Rules (Hospital/Medical Waste Incinerator Regulations

Comment ID 0516.1.001.018

Author Name: Winegrad Gerald

Organization: Senior Bay Scientists and Policy Makers for the Bay

21) All new stationary sources of air emissions in each Bay state that contribute increased nitrogen to the Bay should be offset and each state WIP must include provisions for accomplishing this offset.

Response

Because the Clean Air Act (CAA) ozone and PM2.5 standards are fixed air quality standards that must be met, and since the air quality standards are out of attainment in many parts of the Chesapeake watershed, the State Implementation Plans (SIP plans) created by the states to control NOx emissions in effect already need to have offsets to account for growth as the CAA cap on ozone and PM2.5 cannot be exceeded.

The WIPs under the authority of the Clean Water Act are unable to require these offsets, but the SIPs under the authority of the CAA can, and do.

Comment ID 0571.1.001.019

Author Name: Rountree Glynn

Organization: National Association of Home Builders (NAHB)

b. The Contribution of International Airborne Pollutants is Not Considered.

Section 4.7.2 of the proposal fails to acknowledge the contribution of airborne emissions from sources outside the U.S., especially sources in Canada, Mexico, and from uncontrolled fires in Southeast Asia. Research done for EPA's Regional Haze Program highlights how important those sources have become to the U.S. While domestic sources are reducing their emissions through a number of national regulatory programs, foreign sources are often poorly regulated and their impact on the U.S. continues to grow. It is ironic that the Regional Haze Program, which has done much to reduce domestic sources of NOx, SOx, particulates, and other airborne pollutants through its Best Available Retrofit Technology initiative, is not mentioned. The Regional Haze Program has done an enormous amount of research on the airborne deposition of pollutants in the U.S. and has generated predictions of future airborne pollutant loads for all U.S. locations including the Chesapeake Bay area.

EPA needs to acknowledge and account for the contribution of foreign sources to the nitrogen loading to the Chesapeake Bay. While these foreign sources are now a minor portion of the airborne loading, before 2025 they may overtake the impact from domestic airborne sources on the Bay's health. EPA needs to tap the research already done by the Regional Haze Program and build on that information. Permit holders in the Chesapeake Bay area should not be unduly penalized under the Chesapeake Bay TMDL by instituting requirements for domestic sources to reduce nitrogen discharges while the deposition of nitrogen originating from uncontrolled airborne sources outside of the U.S. is not evaluated by the agency.

Response

The current loads from international sources are taken into account in the Chesapeake Bay Program models but direct U.S national or state controls of these loads are, of course, impossible. The CMAQ airshed model the CBP uses is run on a 35 km scale for the North American continent. Loads from Canada, Mexico, and Central America are estimated as input emissions in the North America CMAQ model domain. International loads are estimated as boundary conditions to CMAQ.

Reductions on nitrogen deposition in the Chesapeake watershed from Federal and State air programs are, however considerable. The estimated deposition reduction do include the reductions from regional haze programs. Over the last 30 years reduction in NOx deposition in the Chesapeake watershed have declined by more than 30%. Further reductions in atmospheric deposition are expected from ongoing implementation of management practices to achieve the current air quality standards, as well as additional reductions that may be required by the new ozone standard to be set by July 2011.

The air reductions assumed in the Chesapeake TMDL include emission reductions due to regulations implemented through the Clean Air Act authority to meet National Ambient Air Quality standards for criteria pollutants in 2020. These are:
On-Road mobile sources: For On-Road Light Duty Mobile Sources this includes Tier 2 vehicle emissions standards and the Gasoline Sulfur Program which affects SUV's pickups, and vans which are now subject to same national emission standards as cars.
On-Road Heavy Duty Diesel Rule – Tier 4: New emission standards on diesel engines starting with the 2010 model year for NOx, plus some diesel engine retrofits.
Clean Air Non-Road Diesel Rule: Off-road diesel engine vehicle rule, commercial marine diesels, and locomotive diesels (phased in by 2014) require controls on new engines.
Off-road large spark ignition engine rules affect recreational vehicles (marine and land based).
EGUs: CAIR second phase in place (in coordination with earlier NOx SIP call); Regional Haze Rule and guidelines for Best Available retrofit Technology (BART) for reducing regional haze; Clean Air Mercury Rule (CAMR) all in place.
Non-EGUs: Solid Waste Rules (Hospital/Medical Waste Incinerator Regulations).

7.3 - FOREST LAND

Comment ID 0064-cp.001.002

Author Name: Hutchins Lawrence

Organization: Quail's Nest Industries

Forests are among the lowest pollution loads per acre of any land use (On natural forests, most of this load is the result of atmospheric deposition). But the vast number of acres in the Bay watershed - more than 70% of PA's Bay watershed acres are forest - means that forests are still a significant source of pollution to the Bay. Harvested forests contribute a higher pollution load per acre than natural forests, but because of the low number of acres impacted annually, it is a minor (1-2%) contributor to Pennsylvania's overall pollution load. Regardless, future years will see state actions to reduce the pollution load from harvesting, through better accounting for voluntary usage of BMPs and perhaps

additional regulation.

Response

Thank you for your comment

Comment ID 0380.1.001.001

Author Name: Lyskava Paul

Organization: Pennsylvania Forest Products Association

On behalf of Pennsylvania's forest products industry, please find the following comments regarding EPA's draft TMDL for the Chesapeake Bay. Pennsylvania's forest landowners, forestry professionals, timber harvesters and wood processors have taken steps to improve water quality while producing forest products to meet the needs of American and global consumers, generating jobs and contributing to the local economies within the Chesapeake Bay watershed. According to the Pennsylvania Integrated Water Quality Monitoring and Assessment Report prepared and submitted to EPA by the Pennsylvania Department of Environmental Protection, silivculture and logging roads were identified as the source of impairment on less than two-tenths of one percent of the state's impaired stream miles.

Response

Please see response to comment 0228.1.001.002.

Comment ID 0464.1.001.002

Author Name: Bush J.

Organization: Virginia Forest Products Association (VFPA)

First, we feel there has been significant progress already demonstrated in many environmental areas by Virginia landowners, showing significant commitment to environmental stewardship. We all depend on clean water and good soils. We have been doing our part, and will continue to do so.

Regarding forest management, statistics by the Virginia Department of Forestry show that an overwhelming percentage of timber harvesting operations use the proper combination of water pollution control practices to reduce sedimentation in our streams and rivers. This has been accomplished by industry supported legislation, including Virgina's Silvicultural Water Quality Law. This law has been amended (and again, supported by industry) to accomplish additional goals such as mandatory notification to allow state officials to easily locate harvesting operations for water quality monitoring and enforcement efforts.

Studies have shown that a robust forest industry provides significant incentives for landowners to keep their lands

forested and provide the buffers and vegetation to help control soil and nutrient runoff. We have been proud of the Commonwealth's landowners in supporting tree planting and reforestation as well as effective forest management that supports a healthy Chesapeake Bay.

Response

Thank You for your comments.

Comment ID 0514.1.001.007

Author Name: Schwartz Jerry

Organization: American Forest & Paper Association (AF&PA) and National Alliance of Forest Owners (NAFO)

TECHNICAL REVIEW
Draft Chesapeake Bay Total Maximum Daily Load
Docket Number EPA-R03-OW-2010-0736

Erik B. Schilling, George G. Ice, and T. Bently Wigley,
November 5, 2010

In the September 22, 2010 Federal Register, the U.S. Environmental Protection Agency (EPA) announced the availability of EPA's Draft Chesapeake Bay Draft Total Maximum Daily Load (TMDL) for nutrients and sediment for public review and comment (FR 75 57776-57778). In the Notice, the EPA reported that it was establishing the Draft TMDL for nutrients (nitrogen and phosphorus) and sediment for each of the 92 segments in the tidal portion of the Chesapeake Bay watershed pursuant to Sections 117(g) and 303(d) of the Clean Water Act. Thus, the Draft TMDL contains segment-specific point and non-point allocations for nitrogen, phosphorous and sediment that will assure the attainment and maintenance of all applicable water quality standards for each of the 92 segments.

The National Council for Air and Stream Improvement, Inc. (NCASI) is a non-profit organization that serves the forest products industry as a center of excellence for providing technical information and scientific research needed to achieve the industry's environmental goals and principles. NCASI (http://www.ncasi.org) has a long history of supporting research to help its member companies better manage forest and manufacturing operations to meet environmental objectives including the protection of water quality. In 1977, NCASI established a formal research program addressing watershed issues. The mission of the Forest Watershed Program is to develop, document, and communicate scientific information regarding the effects of forest practices and natural processes on aquatic resources. This includes developing or documenting solutions to undesirable watershed effects of forest practices. Because NCASI is interested in developing cost-effective measures for protecting water quality, we offer the following observations about the draft Chesapeake Bay TMDL.

1. Forestry best management practices are implemented at high rates nationally and in states within the Chesapeake Bay watershed.

Forestry activities in the United States are now conducted under a comprehensive program of best management practices (BMPs). Since enactment of the Federal Water Pollution Control Act Amendments of 1972, all states with significant forest management activities have developed either regulatory or non-regulatory BMP programs under Sections 208, 319 and 404 to achieve water quality goals. The rate at which forestry best management practices are implemented is a key factor in judging the effectiveness of state forestry nonpoint source control programs. Using weighted annual state timber harvest volumes and BMP implementation rates from state assessment reports, Ice et al. (2010) calculated an adjusted national average implementation rate of 89%. Generally, implementation rates are increasing over time (Ice et al. 2010, NCASI 2009). Specific data on harvest levels and BMP implementation rates for states in the Chesapeake Bay watershed are shown in Table 1.

[Table 1. Annual Harvest Removals and Reported BMP Implementation Rates for States in the Chesapeake Bay Watershed. Adapted from Ice et al. 2010. See original document 0514.1] [FN1]

[FN1] Annual harvest data are 2006 estimates from the USDA Forest Service Draft National Sustainable Forestry: 2010 Report. State BMP implementation data from NCASI 2009.

Response

Thank You for your comments.

Comment ID 0514.1.001.011

Author Name: Schwartz Jerry

Organization: American Forest & Paper Association (AF&PA) and National Alliance of Forest Owners (NAFO)

2. When implemented, forestry BMPs are effective at protecting water quality.

Research results overwhelmingly document that properly installed and maintained forestry BMPs effectively reduce sediment impacts as well as maintain stream water temperatures and dissolved oxygen levels. In fact, BMPs can reduce pollution loads to streams by as much as 80 to 90% (Ice et al. 2004). Ice (2004b) and Ice et al. (1997, 2004a, 2005a, 2005b) present results from studies of BMP effectiveness and summarize this body of research. Other sources of publications that document BMP effectiveness are a 2004 special issue of Water, Air, and Soil Pollution (Volume 4, Issue 1), presentations from a 2003 Workshop on Predicting Sediment from Forest Road Systems in the South (http://fri.sfasu.edu/pages/projects/alto/html/forest_roads_03.html), and proceedings of the 2006 International Conference on Hydrology and Management of Forested Wetlands (http://www.asabe.org/pubs/PubCat02/environment.html).

Response

Thank You for your comments.

7.4 - SEPTICS

Comment ID 0086-cp.001.002

Author Name: Strait Craig

Organization:

I strongly feel that on-lot septic systems (non-point source discharges) contribute more nutrients to the Bay than what is being allowed for in the calculations. The local townships do not have good data as to how many on-lot septic systems are actually present within their jurisdiction, or if they are functional or failing.

Response

EPA is using a mass-balance approach to estimate the load from septic systems. Simply put, knowing the total population and subtracting the estimated population that is on sewered systems, we arrive at a total population on septic. This figure is checked against some local data where available. The annual production of nutrients per person is well established, and we assume that there is a 60% attenuation between the system and the river which gives a good estimate of the total load.

Comment ID 0297.1.001.002

Author Name: Swailes Anna

Organization: Metal Township Municipal Authority

That would cause those 200 households to revert back to the antiquated on-lot septic systems that were causing ground water contamination in the first place.

Response

There is no requirement in the TMDL for the use of septic systems over treatment facilities.

Comment ID 0505.1.001.003

Author Name: Potter James

Organization: Maryland Chapter, American Planning Association

• Identify and encourage the improvement of septic systems. Failing, non-functional, and outdated septic systems undermine any investments in pollutant capture and reduction. Traditional septic system designs do not treat nutrients in wastewater. The TMDL plan must require and fund studies to identify areas with failing septic systems and make

recommendations for updating treatment. In addition, Maryland's septic load should be capped at the current level and all new septic systems should be required to utilize best available technology for nutrient removal.

Response

Thank you for your comment. The TMDL considers septic loads but does not require any specific technology or performance for septic systems. In the watershed implementation plans jurisdictions, including Maryland, may chose to require technologies or standards for septic systems and these reductions will be tracked through the implementation tracking systems.

7.5 - NON-REGULATED STORMWATER RUNOFF

Comment ID 0157-cp.001.001

Author Name: Bridgewater, Jr. Bennie

Organization: Bridgewater Greenhouses

As a greenhouse grower, in business for 51 years, producing bedding plants inside of greenhouses, this EPA draft is out of control. We grow flowering and vegetable plants inside of greenhouse buildings. There is no water run-off, no chemicals that go outside of the buildings. The only water run-off, is the water that falls from the sky and runs off the sides of the buildings. The water does not gather any chemicals or fertilizers, so the water is not gathering Nitrogen or Phosphorus and spreading it. This draft of the EPA needs much more discussing and study.

Response

EPA appreciates the comment.

Comment ID 0201.1.001.011

Author Name: Fawver Gary

Organization: Pennsylvania Department of Transportation

Finally, PennDOT questions the science behind the Chesapeake Bay model. PennDOT participates in the Urban Stormwater Subgroup. The group attempted to obtain feedback from the model by entering scenarios. Without dispute, stormwater BMPs are more effect in a series. However, reductions for multiple BMPs used in a series could not be accurately calculated. The model accounted for reductions in the sediment loads only for one BMP in the series. This resulted in an inaccurate load output from the model. This leads PennDOT to question EPA's evaluation of the PA WIP if the model was used. For sediment, PA was only 1% off the target. Based on PennDOT's experience with building model scenarios, PennDOT believes that the sediment loads generated by the model is higher than actual conditions given the model's flaw in calculating reductions in loads for BMPs in a series. PennDOT believes that the PA WIP

actually meets its target. In addition, PennDOT questions the load outputs from the model for the 2009 baseline. The 2009 loads used to evaluate PA's reductions may be higher than actual conditions due to the limited effectiveness of the model.

Response

The watershed model does account for BMPs in series. The default assumption is that different BMPs submitted to the same land use will be treating the same acre (series) or different acres (parallel) in relation to the relative coverage of each BMP on that land use. Certain BMPs that can not operate on the same physical acre of land are always assumed in parallel.

Additionally, a given treatment train with a demonstrated aggregate BMP efficiency can be defined as a single BMP for purposes of inclusion in the watershed model. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf

Comment ID 0339-cp.001.001

Author Name: Mcdonough Peter

Organization: Virginia Golf Council

My name is Peter McDonough and I am a board member of the Virginia Golf Council representing the golf industry in Virginia, and we are committed to environmental stewardship. Clean water and good soil are fundamental to our business. Golf courses in Virginia present many opportunities for diverse wildlife habitats and environmental enhancements. We have been doing our part and will continue to do so in order to help create a healthy Chesapeake Bay and local waters. Below are some points I wish to make for your consideration.
-According to the Virginia Department of Agriculture and Consumer Services, only 1.2% of all nitrogen fertilizer sold in Virginia is for non-farm use. Despite the very low amount of nitrogen sold for non-use, turfgrass is treated in the Bay TMDL as a major contributor to nitrogen runoff into the Bay. Science does not justify that claim.
- University studies have shown that turfgrass, when maintained properly, serves as an excellent filter for stormwater runoff, can be a carbon sink, and captures sediment.
- Without regulatory pressure, the turfgrass/green industry requested that the state create an Urban Nutrient Management Program so that their professionals can have plans specifically tailored for their businesses.
Virginia's golf industry is developing a Best Management manual covering environmental concepts and monitoring, irrigation, design and construction, pesticide management, water quality and water supply issues for the industry to implement.

Response

EPA appreciates the comment.

Comment ID 0394.001.006

Author Name: Heavner Brad

Organization: Environment America et al.

According to recent research, turf cover arguably constitutes the largest fraction of pervious area in the Chesapeake Bay watershed. The research, by the Chesapeake Stormwater Network, indicates that approximately 9.5% of the total Bay watershed area is turf cover, and approximately 75% of that is potentially devoted to home lawns. The best current estimate is that 65% of homeowners fertilize their lawns at an average rate of 87 lbs N/acre/year.[FN 4] In Maryland, for instance, the Chesapeake Stormwater Network estimates that 63 million pounds of nitrogen and as much as 5 million pounds of phosphorus are applied to Maryland lawns every year. While much of the nutrients are incorporated into turf biomass, research has shown a significant potential for nutrient export from lawns in the form of stormwater runoff or leaching into shallow groundwater.

[FN 4] Tom Schueler, Chesapeake Stormwater Network, "The Clipping Point: Turf Cover Estimates for the Chesapeake Bay Watershed and Management Implications," 1 April 2010.

Response

EPA appreciates the comment.

Comment ID 0411.1.001.008

Author Name: Moon Michael

Organization: Public Works and Utilities, City of Manassas, Virginia

7. Requirements for a nutrient management plan for localities are not necessary. Most localities currently administer landscape plans in a prudent and cost effective manner.

Response

EPA believes that improved urban nutrient management is an important element of a comprehensive strategy to meet the TMDL allocations. The Commonwealth of Virginia has committed to development of a state-wide strategy. Individual municipal nutrient management plans may or may not be elements of this program.

Comment ID 0656.001.001

Author Name: Dietrich Fredric

Organization: Town of Danby and Tompkins County, New York

The Town Board recognizes the need to manage and protect the quality of our water resources. To that purpose the Town recently adopted stormwater regulations, and established a special Task Force to consider further options. As a result the Town is exploring an enhanced program to manage runoff and stormwater in an enhanced drainage management scheme. Rural highways, through ditches and culverts, are major conduits of drainage waters from surrounding lands and the highways themselves. Research at Cornell University has established that the amount of nutrients and sediment conveyed by highway drainage accounts for the major part of the total runoff from land.

The Town is currently working with other partners in the Susquehanna River basin to create an innovative and comprehensive program to control this dominant single source of contaminants to our surface waters. These partners include the Tompkins County Soil and Water Conservation District and the Upper Susquehanna Coalition.

Response

EPA appreciates the comment.

Comment ID 0656.001.012

Author Name: Dietrich Fredric

Organization: Town of Danby and Tompkins County, New York

Because management of stormwater runoff from roads and ditches is central to reduction of nutrient levels in Danby, the town has been focusing on this area. To that purpose, the town recently adopted stormwater regulations. This is a progressive environmental initiative. The town has also established a special task force to consider further options. As a result, the town is exploring the development of a model program to manage runoff and stormwater in an enhanced drainage management scheme.

Rural highways, through ditches and culverts, are major conduits of drainage waters from surrounding lands and the highways themselves. Research at Cornell University has established that the amount of nutrients and sediment conveyed by highway drainage accounts for the major part of the total runoff from land. Danby is currently working with other partners in the Susquehanna River basin to create an innovative and comprehensive program to control this dominant single source of contaminants to our surface waters. These partners include the neighboring towns of Caroline and Newfield, the Tompkins County Soil and Water Conservation District, the Cornell Law School Water Law Clinic, and the Upper Susquehanna Coalition.

The plan is to develop sound recommendations for stormwater management within this rural area, ones based on approaches that will reduce sediment and other pollutants to the Bay while also protecting and enhancing local water resources yet not causing undue financial hardship to already strapped town budgets. We intend to consult with faculty at the Department of Natural Resources at the Cornell University College of Agriculture and Life Sciences, who have

done extensive studies on pollutant transport in ditches following routine maintenance, and with the Cornell Local Roads Program, with respect to training highway departments once appropriate practices are identified. Impervious surfaces will be identified in each town, and actions will be recommended to remediate pollutant transport from those surfaces.

The overall goal is to develop an approach that focuses on several pollution sources particular to rural areas in New York State for use as a model. The focus will be on (1) road ditching practices, especially those on the many unpaved town roads, including logging and other access and back roads, (2) the reduction of run off from impervious surfaces, and (3) a study of the effectiveness of stormwater controls in achieving significant reductions in the loads of nutrients, sediment and other pollutants delivered to streams and other waterbodies.

Rural highways tend to be an orphan in watershed management programs. We wish to remedy that serious gap by developing a model program that can be used in other rural areas in the watershed as well. Our ability to do so will obviously depend upon having adequate resources to do so. We trust that the evolution of the Chesapeake Bay Watershed Program will facilitate the ability to access needed resources to address a singly most important source of nutrients and sediment as we collectively work towards remediation of the Chesapeake Bay.

Response

EPA appreciates the comment, and looks forward to the results of this program.

7.6 - OCEAN INPUTS

No Comments are Applicable to this Issue Category, and Thus No Response is Necessary.

7.7 - STREAMBANK AND TIDAL SHORELINE EROSION

Comment ID 0072-cp.001.002

Author Name: Isenberg W.

Organization: Virginia Commonwealth University Center for Environmental Studies. Class: ENVS 601, Professor: P.L. deFur

With regards to SAV/water clarity, I understand the complications associated with modeling and that nutrient TMDLs indirectly lower sediment TMDLs, however to make the rivers hosts to the aquatic life that frequents the area, some attention needs to be directed towards legacy sediment. The tidal resuspension of sediment clouds the water, not only impeding SAV reestablishment and therefore perpetuating the cycle, but also smothers essential habitat, including that of the Atlantic Sturgeon and the Eastern Oyster. None of the TMDL allocations address reducing legacy sediments. There is strategy addressing dredging effects on sediment resuspension, which is a big issue for reasons beyond further clouding the water.

Response

Within the watershed legacy sediments and other erosion from the river system are inherently included in the calculation of sediment loads from the watershed in the Phase 5.3 Watershed Model. In simulated rivers (generally greater than 100 cubic feet per second) erosion and scour are explicitly simulated. Based on the recommendation of the Chesapeake Bay Program's Sediment Work Group, the watershed jurisdictions can get nutrient and sediment credit in their implementation plans for performing in-stream erosion control practices. Tidal resuspension of sediment is also simulated in the Chesapeake Bay Water Quality and Sediment Transport Model and there are a series of management practices the jurisdictions have taken and can continue to take to reduce sediment resuspension in tidal waters. As underwater bay grass beds continue to expand in the Bay, as they are projected to do under the TMDL nutrient and sediment reductions, more sediment will be bound by the grass beds and kept from resuspension. In addition, the beds tend to cause quiescent conditions in the water column which acts to increase the setting of suspended sediments and also dampens wave energy causing shoreline erosion. Increases in the oyster biomass of the Chesapeake, as is encouraged by recent moves by Maryland and Virginia to increase sanctuary areas and aquiculture, will also reduce resuspension in the Chesapeake.

Comment ID 0235.1.001.011

Author Name: Helsel, Jr. Gordon

Organization: City of Poquoson, Virginia

During webinar and other discussions, EPA staffers focus on "end of pipe" requirements. This type of thinking ignores coastal erosion and tide-borne pollutants. Poquoson and other coastal communities do not have an "end of pipe" separation between upland runoff and receiving waters.

Response

Estimates of the sediment and nutrient loads associated with tidal shoreline erosion are included in the inputs of the Water Quality and Sediment Transport Model of the tidal Bay. Generally, the sediment loads from shoreline erosion are equivalent to sediment loads from the watershed. Estimates of the fastland or shore recession rate, the elevation of the fastland, and the subtidal erosion rate were used to develop these shoreline erosion estimates.

Tidal shoreline erosion is actually a combination of the erosion of fastland (or shoreline) and nearshore erosion. Nearshore erosion is subtidal and usually unseen. Subtidal erosion can be accelerated when shoreline protection activities such as stone revetment are used. That practice typically cuts off fastland erosion, but the reflected wave energy continues subtidal erosion until the wave energy no longer scours the bottom to the depth of a meter or more.

Comment ID 0410.1.001.005

Author Name: Pujara Karuna

Organization: Maryland State Highway Administration (SHA)

Improper management of flood flows has been shown to increase stream erosion, rather than improve it due to timing of multiple stormwater release structures within a watershed. Also, the importance of stream restoration as a method to restore the Bay is greatly under-appreciated in this scenario.

Response

The timing and management of flood flow release is an area of management that is covered by river basin commissions and the States. Tools such as the linear programming optimization of flood releases are readily available and are in use in the Chesapeake Bay watershed. The Chesapeake Bay Program incorporates stream restoration in its tool kit of management options. Within the watershed, erosion from the river systems is included in the calculation of sediment loads from the watershed in the Phase 5.3 Chesapeake Bay Watershed Model. In simulated rivers which are generally greater than 100 cubic feet per second, erosion and scour are explicitly simulated and calibrated to about 130 sediment monitoring stations throughout the watershed. Based on the recommendation of the Chesapeake Bay Program's Sediment Work Group, jurisdictions can get nutrient and sediment credit in their implementation plans for performing in-stream erosion control practices.

Comment ID 0701.001.006

Author Name: Barnes Walter

Organization: Jackson Township, Tioga County, PA and Partner, Maple Knoll Farm

One more item that I would like to touch on is sedimentation. Drive south of our present loctaion along state route 328 and note the vast areas of the creek bank that have and are washing away into the bay. This creek has 100 year old trees that have fallen to their death and washed down stream because of the lack of attention to creek bank erosion. Repair the stream banks and maintain them and then monitor the amount of erosion and sediment going into the bay and you will find that there is a substantial decrease in sediment floating downstream. In order to clean up the bay, start looking at where the water flows and then work up stream because the problem does not start from the top down.

Response

The Chesapeake Bay Program incorporates stream restoration in its tool kit of management options. Within the watershed, erosion from the river systems is included in the calculation of sediment loads from the watershed in the Phase 5.3 Watershed Model. In simulated rivers which are generally greater than 100 cubic feet per second, erosion and scour are explicitly simulated and calibrated to about 130 sediment monitoring stations throughout the watershed. Based on the recommendation of the Sediment Work Group at the Chesapeake Bay Program, jurisdictions can get nutrient and sediment credit in their implementation plans for performing in-stream erosion control practices.

Often, the stream bank erosion is not a result of improper stream bank maintenance but is from huge pulses of stream flow from upstream developed areas after a storm event. For this reason, an important solution is to work with the communities to intercept

stormwater from these developed areas before it is carried to the stream and provide the opportunity for that water to percolate into the groundwater

7.8 - TIDAL RESUSPENSION

Comment ID 0146.1.001.002

Author Name: Isenberg W.

Organization: Virginia Commonwealth University Center for Environmental Studies. Class: ENVS 601, Professor: P.L. deFur

With regards to SAV/water clarity, I understand the complications and lack of data associated with modeling and that nutrient TMDLs indirectly lower sediment TMDLs, however to make the rivers hosts to the aquatic life that frequents the area, some attention needs to be directed towards legacy sediment. In the entire TMDL document, I found no such mention of what to do with legacy sediments that have accumulated in the river basins as the watershed lands were historically clear cut and unsustainably farmed. These legacy sediments that accumulated over the centuries since the colonial tobacco era are perpetually resuspended by the daily tides, allowing for little net discharge of total sediments. The tidal resuspension of sediment clouds the water, impeding SAV reestablishment and therefore perpetuates the cycle because of the lack of SAV roots stabilizing the substrate. Additionally the tidal resuspension smothers essential habitat, including that of the Atlantic Sturgeon and the Eastern Oyster. Even with the most ideal sediment discharge from the tributaries, this issue will persist. Therefore, with the goals of reestablishing SAV and hosting the aquatic life to levels that historically inhabited the area, the TMDL document cannot disregard this very important source of sediment pollution.

Response

Within the watershed legacy sediments and other erosion from the river system are inherently included in the calculation of sediment loads from the watershed in the Phase 5.3 Watershed Model. In simulated rivers (generally greater than 100 cubic feet per second) erosion and scour are explicitly simulated. Based on the recommendation of the Sediment Work Group at the Chesapeake Bay Program, jurisdictions can get nutrient and sediment credit in their implementation plans for performing in-stream erosion control practices.

Tidal resuspension of sediment is also simulated in the Chesapeake Bay Program (CBP) models and several CBP management actions will continue to reduce sediment resuspension in tidal waters. As underwater grass beds continue to expand in the Bay, as they are projected to do under the TMDL nutrient and sediment reductions, more sediment will be bound by the grass beds and kept from resuspension. In addition, the beds tend to cause quiescent conditions in the water column which acts to increase the setting of suspended sediments and also dampens wave energy causing shoreline erosion. Increases in the oyster biomass of the Chesapeake, as is encouraged by recent moves by Maryland and Virginia to increase sanctuary areas and aquiculture, will also reduce resuspension in the Chesapeake.

Comment ID 0146.1.001.003

Author Name: Isenberg W.

Organization: Virginia Commonwealth University Center for Environmental Studies. Class: ENVS 601, Professor: P.L. deFur

The fact that legacy sediments are long-term residents of the tributary estuaries is reinforced by the necessity for frequent channel dredging by the USACE. On the topic of dredging, I would also like to add that there is no mention of regulations for dredging in the document either. While legacy sediments are an ignored source of sediment pollution, dredging acts to exacerbate and amplify this ignored source of suspended sediment by resuspending large amounts of sediment every dredging. While it does remove sediment, there should be strict guidelines regarding when it can be done, and how frequent. If anything, winter months would be ideal given higher river discharge and the greater potential for that to flush out resuspended sediments. Additionally, during winter months, the anadromous fish with struggling or at risk populations that make the spring-fall fishing so famous and sought after will be in the ocean out of harms way. These restrictions should not only be for the USACE but also for any landowners/companies on the shores of these rivers. All dredging activities (especially private dredging activities) should be monitored by regulatory agencies to ensure proper disposal and proper attention to reducing the impact of resuspension.

Response

The Water Quality and Sediment Transport Model (WQSTM) of the Chesapeake simulates input loads of sediment from the watershed, shoreline erosion, resuspension due to wave energy, and ocean inputs. Currently total suspended sediment loads resuspended by maintenance dredging in tidal waters is absent in the WQSTM as a model input. If warranted, this input load can be considered in the next generation Bay Model that will assess the Bay Program's TMDL progress in 2017. However, the reviewer raises excellent points for judicial application of existing Sate and Feral permitting of dredging action in the Chesapeake, particularly the encouragement of dredging operations in the winter period when environmental degradation be minimized and is during the period when the SAV-clarity water quality standard in not in effect due to the absence of the SAV resource in the winter quiescent period.

7.9 - ON-SITE WASTEWATER TREATMENT SYSTEMS

Comment ID 0409.1.001.002

Author Name: Salada Ian

Organization: Penn State University

2. The Chesapeake Bay TMDL Section 4.7.4 "On-site Wastewater Treatment Systems" states that "the on-site wastewater Treatment systems (OSWTS) represented an estimated 6 percent of the total nitrogen load from the Chesapeake watershed in 2009. Information on the watershed loads from OSWTs is generally sparse. Detailed descriptions of data procedures, source information and assumptions used in estimating these loads are in Palace et al. (1998)".

a. In the referenced document (Palace, 1998), a total nitrogen concentration of about 39 mg/l is estimated at the edge of the septic field. This value is calculated using an average water flow of 75 gpd for septic tank, and a split of groundwater septic flow of 3,940 grams/person/year and surface flow of 4,240 grams/person/year. Then an assumption of a 60 percent reduction of total nitrogen is made between the edge of septic system field and the edge of river nitrate load. Given the assumption of 60 percent reduction of total nitrogen load, the total nitrogen load at the edge of river from OSWTS is calculated as 23 mg/l. These numbers are the base for the estimation of 6 percent of the total nitrogen load from OSWTS to Chesapeake watershed.

b. However, both the assumption of the 60 percent reduction and the calculation of the total nitrogen at the edge of river are problematic. First of all, even if we assume that the 60 percent reduction of total nitrogen between the edge of septic system field and the edge of river is correct, the total nitrogen at the edge of river should be 39 mg/l X (1-60%) = 15.6 mg/l, not 23 mg/l. Secondly, the assumption of a total attenuation of 60 percent lacks supporting evidence. Palace (1998) indicated that this number is primarily based on three sources: 1) nitrogen attenuation by soils - research conducted by Robertson and Cherry et al on 1991 and 1992; 2) uptake of N by plant - research conducted by Brown and Thomas in 1978 and 3) nitrogen attenuated in the primary through streams before reaching the main river. No reference on the third source, therefore it is not discussed here.

c. In the research conducted by Robertson et al, groundwater plumes in shallow, unconfined sand aquifers impacted by septic systems were monitored for nitrogen and other water quality parameters. Since the research was based on a soil type that has distinctly different hydro geologic characteristics compared to the majority of Pennsylvania soils, the conclusion, if any, should not be simply applied to Pennsylvania soil. In addition, the findings from the research did not support the assumption of 60 percent reduction. Some findings from the same research include: mobile plume solutes such as nitrate occurred at more than 50 percent of the source concentrations 130 m down-gradient from the septic tank; but almost complete nitrate attenuation was observed within the last 2 m of the plume flow path before discharge to the river.

d. Brown et al (1978) performed the research on the uptake of nitrogen from septic fields by grass. Grass uptake was equivalent to 9%, 32% and 46% of the nitrogen applied to the soils with percolation rates of 25.4, 3.8 and <0.3 cm/hour. The results indicated that the less permeable soils, the majority of Pennsylvania soils, the more nitrogen uptake from grass. The results also showed that nitrogen uptake decreased rapidly with distance from the septic line. At 60 cm from the edge of the septic line and beyond, the uptake of nitrogen by grass was essentially the same as from unfertilized native soil.

e. From both referenced research that Palace (1998) cited, we could not draw the conclusion that the reduction of nitrogen load from the edge of septic tank to the edge of river is approximately 60 percent. Therefore, the estimated 6 percent of the total nitrogen load from the Chesapeake watershed that based on this assumption is also problematic.

Response

Thank you for your comments. The 23 mg/l figure mentioned in the comment does not appear in the TMDL documentation, but in the source documents (Palace 1998). The relevant loading information as stated on page 4-40 of the TMDL document, is 4.0 kg/person/year. The figures of 75 gallons per person per day and 39 mg/l, referenced on page 4-40 support this figure.

This figure of 4.0 kg/person/year is attenuated by 60% as explained in Palace 1998. The attenuation rate was based on best professional judgment of the Modeling Subcommittee based on a reading of the literature cited. EPA agrees that other values may have validity but given the uncertainty of this figure maintains that the value arising from the stakeholder-driven process is appropriate. For more information on the stakeholder-driven development process see response to 0169.1.001.005

Comment ID 0515.1.001.003

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

A. Our Design Flow Is Incorrectly Portrayed, Leading to Incorrect Wasteload Allocations ("WLAs")

Our Facilities are mis-identified in the TMDL as the "Binghamton-Johnson City Joint Borough" WWTP and, beginning in Table 4-6 in Section 4, are mis-described as having a 20 MGD "design flow" upon which the WLAs proposed in the TMDL are based and, we suspect, EPA modeling - including the Scenario Builder program data input - is founded. An excerpt of our current Permit, as modified March 6, 2008, was attached to our October 29, 2010 letter, posted to the on-line Comment Docket as Comment Attachment #145.1, and shows that - based on our Facilities' design capacity - we have been allotted a 35 MGD maximum flow on a 12-month rolling average basis by the New York State Department of Environmental Conservation ("NYS-DEC"). This error in the TMDL must be corrected.

When this error in design flow is corrected, our Edge of Stream ("EOS") WLAs must be corrected as follows:

Total Nitrogen ("TN"):
- to 639,261 pounds/year EOS (from 182,734) in Appendix Q-1
- to 217,440 pounds/year EOS (from 182,734) in Appendix Q-2
- to 1,751.4 pounds/day EOS (from 1,478.4) in Appendix R-1

Total Phosphorus ("TP"):
- to 170,470 pounds/year EOS (from 6,091) in Appendix Q-1
- to 7,248 pounds/year EOS (from 6,091) in Appendix Q-2
- to 467.0 pounds/day EOS (from 62.03) in Appendix R-1

Total Sediment ("TSS"):
- to 2,130,870 pounds/year EOS (from 913,668) in Appendix Q-1
- to 2,130,870 pounds/year EOS (from 913,688) in Appendix Q-2

and the corresponding "delivered loads" must be corrected, as well. Without these corrections, the loadings portrayed in Appendix Q-1 compute to a 1.715 mg/L TN concentration and a 0.057 mg/L TP concentration for our Facilities at our permitted 35 MGD design flow, both of which concentrations are significantly less than what the EPA claims is the limit of technology ("LOT") to be employed at the "high" and "full" backstop levels in Section 8 of the TMDL (which LOT

claims are disputed, below).

B. Delivery Coefficients for Some WWTPs Are Higher in Comparison to Closer-to-the-Bay Point Sources

Computing from Appendix Q-1 by dividing the "delivered" annual loading by the EOS annual loading shows us that, within its Bay watershed modeling programs, the EPA has assigned our Facilities a 63.869% Total Nitrogen ("TN") Delivery Coefficient and a 45.411% Total Phosphorus ("TP") Delivery Coefficient whereas, for example, the Village of Endicott WWTP (issued SPDES Permit NY-002-7669) - which is approximately 9.5 nautical miles downstream from our outfall and, thus, closer to the Bay than we are - has been assigned a lower 61.962% TN Delivery Coefficient and a lower 45.404% TP Delivery Coefficient. Additionally, the Town of Chenango WWTP (issued SPDES Permit NY-021-3781) which is upstream from our WWTP, making the Endicott WWTP even farther downstream from it, has been assigned a higher 62.512% TN Delivery Coefficient and a higher 45.492% TP Delivery Coefficient than has been assigned to the Endicott WWTP. No basis for the assignment of the Delivery Coefficients is stated in the TMDL. Because it does not seem logical or rational that WWTPs further from the Bay could have higher Delivery Coefficients than those closer, it appears to us that errors are contained in Appendices Q-1, Q-2, and R-1 which must be corrected. Correspondingly, the loadings stated in Section 9 and these Appendices must also be corrected when the inaccurate Delivery Coefficients are replaced with the correct ones. (The comment period's shortness precludes us from a more in-depth analysis).

C. Overall Allocations for New York Must be Revised Based on Correction of the Above Errors

Because our Facilities, which contribute about 22% of the total New York discharge from WWTPs, have been assigned an incorrect design flow (understated by approximately 43%) and appear to have been assigned incorrect Delivery Coefficients, not only must our WLAs be corrected, but it is also likely the case that the entire set of allocations for New York State is erroneous and must be corrected.

Response

In the final WIP submission from New York, the design flow for the Binghamton-Johnson City was 35 MGD and the edge-of-stream and delivered loads were modified accordingly.

Comment ID 0571.1.001.023

Author Name: Rountree Glynn

Organization: National Association of Home Builders (NAHB)

e. Decentralized Wastewater Systems Must be an Acceptable Alternative for Septic Systems.

Page 4-39, Section 4.7.4 describes On-site Wastewater Treatment Systems (OSWTSs) and their contribution of nutrients to the Bay. Many of the states have initiated requirements for the use of denitrification on-site systems for all new and old, failing OSWTSs. Such systems are expensive, about $12,000 or more per system, and simply unaffordable to many. Public funds have assisted in the implementation of such systems, but ultimately the cost to

retrofit all OSWTSs will not be affordable.

NAHB understands that decentralized wastewater systems, sometimes referred to as "cluster septic systems," are not on the "EPA-approved" list of BMPs for the Chesapeake Bay TMDL. It is not certain why this is so, but NAHB submits that because decentralized wastewater systems can be an effective option for protecting public health and the environment if properly designed, installed, and managed.

For new homes, individually designed, collective, decentralized sewer systems hold promise to lower costs, increase pollutant reductions, save vast amounts of land that otherwise would have to be devoted to individual drain fields, and allow developers to cluster housing and provide protection to natural features and systems. Indeed, EPA's own Office of Water Program Strategy for Decentralized Wastewater Systems recognizes that effective implementation of these systems can protect public health and the environment.[FN 40] As such, there is no reason why states should not be allowed to take advantage of the potential for these systems' lower costs and better environmental outcomes.

[FN 40] See http://www.epa.gov/OW-OWM.html/septic/pubs/septic_program_strategy.pdf.

Response

Thank you for your comment.

EPA can accept additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here:
http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf
Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf

7.10 - WILDLIFE

Comment ID 0126.1.001.009

Author Name: Craun Ed

Organization: Augusta County Farm Bureau

The conversion of farm land to wildlife habitat will increase the amount of nutrients generated by wildlife such as deer and geese. This WIP plan needs to show greater transparency of the wildlife nutrients attributed to land converted to wildlife habitat and implementations that will control these nutrients.

Response

See section 4.7.9 of the draft TMDL on page 4-46. Wildlife are implicitly part of the overall loads from any given land use. As an example, nutrient loads from wooded areas are based on literature values and model calibration to observed stream data which also implicitly include the influence of wildlife.

7.11 - NATURAL BACKGROUND

Comment ID 0383-cp.001.002

Author Name: Alderson G.

Organization:

Pollution loads created by urban and suburban growth are part of the problem, as they raise the pollution of the bay by nitrogen and phosphorus. The growth of these loads needs to be stopped, and then they need to be rolled back so our rivers are putting less of these substances into bay waters.

Response

All key sources of nutrient and sediment loads to the Chesapeake, including developed and developing urban and suburban lands, must do their fair share in reducing nutrient loads to the Chesapeake. The Bay States in the development of their Watershed Implementation Plans (WIPs) play a major role in determining the relative level of effort from each sector, but all sectors need to play a role in order to achieve the Chesapeake water quality standards.

7.12 - MS4S

Comment ID 0235.1.001.005

Author Name: Helsel, Jr. Gordon

Organization: City of Poquoson, Virginia

Given the vast scale of the program and the EPA's schedule, localized issues that could prevent Poquoson from meeting the requirements are not being considered. The City's and this region's high groundwater, soils, flat terrain and tidal flooding must be considered if realistic requirements are going to be developed.

Response

EPA understands that stormwater management approaches and technologies must be adapted to specific regional conditions such as

soils, precipitation patterns and other variables. All solutions being considered by EPA take these factor into account.

Comment ID 0265.1.001.008

Author Name: Clark, Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Hampton, Virginia

The cities of Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, and Virginia Beach own Municipal Separate Storm Sewer Systems (MS4s) that operate under individual Phase I MS4 NPDES permits issued by the Virginia Department of Conservation and Recreation (DCR), while the cities of Poquoson, Suffolk and Williamsburg, and the counties of Isle of Wight, James City, and York own MS4s that operate under a general Phase II MS4 permit issued by DCR. At present, Gloucester and Surry are not designated as MS4s, but could be so designated in the future due to population growth or modification of the criteria used to designate MS4s. All or parts of the MS4s are identified in the James River Tributary Strategy as located within the James River watershed. Parts of the Hampton, James City County, York County, and Williamsburg MS4s are identified in the York River Tributary Strategy as located within the York River watershed as is part of Gloucester County. Exhibit A is a descriptive summary of the Localities' MS4s and their storm water control programs.

[Comment Letter contains additional information in the form of an attachment. See original comment letter 0265.1]

Response

EPA appreciates the comment, and the acknowledgment that MS4 programs will be notable players in implementation of nutrient and sediment reductions in the watershed.

Comment ID 0298.2.001.006

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC)

INFORMATION REGARDING CITY OF NEWPORT NEWS

A. The City of Newport News , Virginia, is located in the region of the state known as the Virginia Peninsula. The Virginia Peninsula is bordered on the north by the York River, on the South by the James River, and on the East by the Chesapeake Bay and Hampton Roads Harbor. Newport News is located on the south side of the Peninsula.

The City has a population per the last available census records of 193,172, and thus is a Phase I MS4. The area of the City of Newport News is 70 square miles. Some 24% of that is impervious surface, or approximately 17 square miles. Of that 17 square miles, 6 square miles is owned by the City, including streets and sidewalks. The remaining 11 square miles is private property or property owned by the state or federal governments.

B. City MS4 Program -A copy of the portion of the City‘s annual report on the MS4 is attached as Exhibit A, which delineates the MS4 Program. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0298.2]

C. Factors Affecting Storm Water Control in City - The City of Newport News is a part of Virginia‘s coastal plain, and is generally flat. The range of elevation runs from sea level to 90 feet in the extreme northern part of the City. All major outfalls are in tidal waters. The City is characterized by high clay content soils and a high water table, which renders infiltration techniques to some degree ineffective.

Response

EPA appreciates the comment, and the acknowledgment that MS4 programs will be notable players in implementation of nutrient and sediment reductions in the watershed.

Comment ID 0345-cp.001.001

Author Name: D'Ardenne Dwayne

Organization: City of Roanoke, Virginia

Greetings - My name is Dwayne D'Ardenne, Street and Landscape Superintendent for the City of Roanoke. Our turfgrass nutrient management plan has been voluntarily approved by VDCR for almost 10 years now. In addition, clean water, the soil food web, and environmental stewardship are all fundamental to City Operations. We have been doing our part and will continue to do so in order to help create a healthy Chesapeake Bay and local waters.

Response

EPA appreciates the comment.

Comment ID 0374.1.001.001

Author Name: Hartgrove Charles

Organization: Town of Ashland, Virginia

Thank you for thc opportunity to comment on EPA's Draft TMDL for the Chesapeake Bay and Virginia's WIP, The Town of Ashland owns and operates a municipal separate stann scwer system ("MS4") within the Chesapeake Bay watershed, This drainagc system conveys and discharges stormwater pursuant to a state-issucd National Pollutant Discharge Elimination System ("NPDES") permit. To the extent that our MS4 conveys nutrients and sediments covered

by the Draft TMDL, those pollutants originatc predominantly from air deposition, fertilizer usc or other third party sources, and the MS4 is simply a conduit.

Response

The MS4 NPDES program is designed to control pollutants discharging through the storm sewer system that originate from activities such as fertilizer use, construction activity and a variety of sources of nutrients, sediments and other pollutants.

Comment ID 0392-cp.001.002

Author Name: Williford Randall

Organization: Loudoun County, Virginia

I am the stormwater manager for the Loudoun County Virginia MS4. I have many questions and comments, but nearly all have been addressed in comments by VAMSA and NVRC.

In the draft TMDL, EPA has included backstop provisions for Urban Stormwater. They have responded to questions regarding those provisions by stating that they were developed by Virginia. In the TMDL, they are unclear. Under each type of land use, there are three separate bullets. If all were applied, action would be required on 100% of the land which seems an unlikely intent. The first bullet, in each land use type, is non-quantitative and indicates 100% runoff capture for reuse which also seems an unlikely intent. Following the land use breakdowns, there is an explanation that the WLA assumes that 50% of urban lands will meet this standard and 25% of non-urban lands will meet the standard.

If these end up appearing in the WIP, please clarify. If not, please help the EPA to clarify them in the TMDL. We cannot determine the impact on our MS4 without this clarification.

Response

Please see response 0067.1.001.009

Comment ID 0411.1.001.003

Author Name: Moon Michael

Organization: Public Works and Utilities, City of Manassas, Virginia

3. Flexibility in the Bay TMDL requirements is essential - MS-4 communities across the State can not all be treated the same. Some communities have already developed and implemented significant comprehensive stormwater programs based on current requirements. The pro rata programs authorized under 15.2-2243 of the State Code allow for jurisdictions to place, site, and implement various stormwater strategies on a regional watershed basis. The Bay TMDL

requirements should:

• Allow for pro rata programs
• Allow for localities to reserve, and keep stormwater nutrient offset credits for their own development as a first priority. Localities need to control this as a locally administered program for nutrients traded within a jurisdictional boundary.
• Base year for nutrient reductions should not be fixed on 2010 but on the time frame appropriate for each locality so as not to penalize those that have already taken significant steps in their stormwater programs. The City of Manassas conducted a regional stormwater study in the late 1990s and implemented approximately $10 million dollars of improvements. The City already follows the Northern Virginia Regional Commission (NVRC) "Northern Virginia Best Management Practices (BMP) Handbook" for the Occoquan Watershed that regulates both nitrogen, phosphorous, and total sediment loading associated with land development.

Response

The Bay TMDL has determined what allocations are necessary to meet water quality objectives, but individual program details, such as how nutrient offset credits may be generated, or permit compliance schedules will be determined by state agencies. Virginia is committing to improvements in the stormwater programs since the current program is not adequate to meet the TMDL allocations.

Comment ID 0436.1.001.008

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Chesapeake, Virginia

The cities of Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, and Virginia Beach own Municipal Separate Storm Sewer Systems (MS4s) that operate under individual Phase I MS4 NPDES permits issued by the Virginia Department of Conservation and Recreation (DCR), while the cities of Poquoson, Suffolk and Williamsburg, and the counties of Isle of Wight, James City, and York own MS4s that operate under a general Phase II MS4 permit issued by DCR. At present, Gloucester and Surry are not designated as MS4s, but could be so designated in the future due to population growth or modification of the criteria used to designate MS4s. All or parts of the MS4s are identified in the James River Tributary Strategy as located within the James River watershed. Parts of the Hampton, James City County, York County, and Williamsburg MS4s are identified in the York River Tributary Strategy as located within the York River watershed as is part of Gloucester County. Exhibit A is a descriptive summary of the Localities' MS4s and their storm water control programs. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0436.1]

Response

EPA appreciates the comment, and the acknowledgment that MS4 programs will be notable players in implementation of nutrient and sediment reductions in the watershed.

Comment ID 0442.1.001.005

Author Name: Drzyzgula Cathy

Organization: Metropolitan Washington Council of Governments (COG)

4. EPA and States Must Address Physical Feasibility and Other Possible Constraints

With respect to urban retrofits, there are a number of potential constraints to implementation beyond those related to funding and time. These include lack of a mechanism for requiring retrofits on private property and, in dense urban areas, a number of siting issues.

Example:
EPA should ensure that under the terms of the TMDL and the state WIPs, that operational constraints that impact the ability of wastewater

Example:
In a recently completed study of retrofit opportunities in its portion of the Little Pimmit Run watershed [FN1], a consultant for Arlington County concluded that construction of retrofits at the 40 identified sites, regardless of cost, would only provide treatment for 5 - 9 percent of the land in the watershed. The potential for nutrient and flow reductions is similarly limited. Retrofit studies currently underway in five additional subwatersheds [FN2] have identified 205 potential projects that, if feasible, would provide treatment for 2 percent to 20 percent of the land area in these subwatersheds.

Together, these retrofit studies have evaluated 18% of the County land area, with nearly 250 projects that, if feasible, would treat approximately 13% of the total watershed area evaluated to date. Extrapolated County-wide, an estimated 1,400 individual retrofit projects will be identified as the County completes this study of its retrofit potential. Therefore, the points to emphasize in addition to cost are the limited overall retrofit potential and the large number of projects necessary to achieve that potential. Planning and designing each project in a dense urban setting takes extensive time.

Recommendation #4: Assess Physical Constraints to Implementation
In conjunction with local governments, the states and EPA should establish a study of potential physical constraints to implementation progress. This assessment should also incorporate the potential implications of Climate Change impacts on water quality, hydrology, and process effectiveness (ref. Section 10.5 Factoring in Effects from Continued Climate Change). This could provide another basis (see recommendation #2) for initiating a Use Attainability Analysis as appropriate.

[FN1] "Little Pimmit Run Watershed Retrofit Plan," Center for Watershed Protection, March 2010

[FN2] "Gulf Branch, Donaldson Run, Torreyson Run, Crossman Run, Westover Branch Watershed Retrofit Plans," Center for Watershed Protection, drafts under development, October 2010

Response

EPA agrees that there are often site constraints associated with retrofitting, but also realizes that there are solutions to most of these challenges, including technical, policy and administrative solutions. EPA believes that it will not be possible to meet allocations for urban stormwater discharges without retrofit programs.

Comment ID 0473.1.001.012

Author Name: Pechart Michael

Organization: Pennsylvania Department of Environmental Protection and Department of Agriculture

• Pennsylvania does not agree with EPA's definition of "urban MS4 lands." Pennsylvania utilizes the definition of "urbanized area" and "MS4" from the federal regulations. Pennsylvania disagrees that the MS4 system includes all lands within in a designated urbanized area.

Response

EPA will continue these discussions with DEP in the context of permit review and oversight.

Comment ID 0496.1.001.005

Author Name: Allsbrook Lynn

Organization: City of Hampton, Virginia, Department of Public Works

The cities of Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, and Virginia Beach own Municipal Separate Storm Sewer Systems (MS4s) that operate under individual Phase I MS4 NPDES permits issued by the Virginia Department of Conservation and Recreation (DCR), while the cities of Poquoson, Suffolk and Williamsburg, and the counties of Isle of Wight, James City, and York own MS4s that operate under a general Phase II MS4 permit issued by DCR. At present, Gloucester and Surry are not designated as MS4s, but could be so designated in the future due to population growth or modification of the criteria used to designate MS4s. All or parts of the MS4s are identified in the James River Tributary Strategy as located within the James River watershed. Parts of the Hampton, James City County, York County, and Williamsburg MS4s are identified in the York River Tributary Strategy as located within the York River watershed as is part of Gloucester County. Exhibit A is a descriptive summary of the Localities' MS4s and their storm water control programs.

Response

EPA appreciates the comment, and the acknowledgment that MS4 programs will be notable players in implementation of nutrient and sediment reductions in the watershed.

Comment ID 0527.1.001.001

Author Name: Romanello Anthony

Organization: County of Stafford, Virginia

Stafford County staff has reviewed EPA's Draft TMDL for the Chesapeake Bay and Virginia's WIP and appreciates the opportunity to provide comment on these documents. The County owns and operates a municipal separate storm sewer system ("MS4") within the Chesapeake Bay watershed. This drainage system conveys and discharges stormwater pursuant to a state-issued National Pollutant Discharge Elimination System ("NPDES") permit. To the extent that our MS4 conveys nutrients and sediments covered by the Draft TMDL, those pollutants originate predominantly from air deposition, fertilizer use or other third party sources, and the MS4 is simply a conduit.

Response

The MS4 NPDES program is designed to control pollutants discharging through the storm sewer system that originate from activities such as fertilizer use, construction activity, and a variety of sources of nutrients, sediment and other pollutants.

Comment ID 0528.1.001.006

Author Name: Barnes C.

Organization: County of Spotsylvania, Virginia

A. Spotsylvania divides into two (2) distinct watersheds the Rappahannock River and the York River. The current MS-4 permits fall within the 02080104-E20- RA46 (Hazel Run) and RA47 (Massaponax Creek)

B. Spotsylvania's MS4 Programs - Spotsylvania has an MS4 permit for Hazel Run and Massaponax Creek. Both sub-watersheds list low pH and bacteria/fecal however, Spotsylvania owns no Municipal Storm Sewer Systems within Spotsylvania's boundaries. Spotsylvania at the time of the MS4 application did not reach the minimum population required and at present each watershed of our MS4 still does not meet the required population.

Response

EPA appreciates the comment, and the acknowledgment that MS4 programs will be notable players in implementation of nutrient and sediment reductions in the watershed.

Comment ID 0528.1.001.007

Author Name: Barnes C.

Organization: County of Spotsylvania, Virginia

C. Factors Affecting Storm Water Control in Spotsylvania - Spotsylvania is approximately 412 square miles (263,680 acres) with 32,319.38 acres within our primary settlement district ("PSD") located within the northern portion of the county next to the City of Fredericksburg. Located next to Lake Anna there is an approximate 1390.27 acres also designated as a PSD for a combined total 33,709.65 PSD within the county. The naturally occurring low pH has made simple E&SC measures ineffective for long term maintenance of any facility. In light of the low pH has promoted extensively the use of innovative stormwater designs including all forms of LID currently available.

D. Spotsylvania County Specific Factors of Concern - Spotsylvania's current TMDL 303d list shows low pH as a contributing factor that must be corrected. In The letter from Dr. Daniels of Virginia Tech (previously shared with EPA) clearly states that Spotsylvania is the first locality, outside of a mining community, that has such a low naturally occurring pH. Spotsylvania's soils make up the five (5) major acid soils and approximately 90% of the soils contain a pH reading of less then neutral. Of those soils approximately 80% are below the acid level of a battery. Under the draft TMDLs, Spotsylvania could never achieve compliance because of our inability to correct a naturally occurring condition. Additional testing is also needed to provide detailed DNA for bacteria obtained for the TMDL because several of the watersheds are still in the same natural wooded state since the formation of the county in the 1700's. These watersheds have had minimal development pressures, as compared to, urbanized communities.

Response

EPA appreciates the comment.

Comment ID 0552.1.001.001

Author Name: Steidel Robert

Organization: City of Richmond, Virginia

Thank you for the opportunity to comment on EPA's Draft TMDL for the Chesapeake Bay and Virginia's WIP. We own and operate a municipal separate storm sewer system ("MS4") within the Chesapeake Bay watershed. This drainage system conveys and discharges stormwater pursuant to a state-issued National Pollutant Discharge Elimination System ("NPDES") permit. To the extent that our MS4 conveys nutrients and sediments covered by the Draft TMDL, those pollutants originate predominantly from air deposition, fertilizer use or other third party sources, and the MS4 is simply a conduit.

Response

EPA appreciates the comment, and the acknowledgment that MS4 programs will be notable players in implementation of nutrient and sediment reductions in the watershed.

Comment ID 0571.1.001.020

Author Name: Rountree Glynn

Organization: National Association of Home Builders (NAHB)

VII The TMDL Does Not Go Far Enough to Ensure Flexibility or Invite Innovation.

Builders and developers strive to provide affordable, quality housing and contribute to thriving communities while embracing and enhancing the natural environment. They regularly plan their projects and take steps to provide a high quality of life by avoiding sensitive resources, minimizing natural disruptions, preserving trees and open space, and reducing overall environmental impacts. As regulations become more and more stringent, builders and developers lose needed flexibility to design and craft innovative solutions to stormwater management during land development. This oftentimes results in inefficient and/or ineffective outcomes. Unfortunately, EPA's proposed rule will have this result. It imposes new regulatory burdens, liabilities and compliance costs on builders and developers yet adds little, if any, demonstrated environmental protection. Furthermore, although the complexity and broad scope of the proposed TMDL demands implementation plans that are sufficiently flexible, invite innovative solutions, and identify and remove impediments to environmentally sensitive development, it treats each of the 92 watershed segments, various pollutant sources, and remedies as one single, mammoth entity, effectively placing inappropriate mandates in some instances and removing opportunities in others. Without sufficient flexibility and innovation, the TMDL should be considered dead on arrival.

a. The TMDL Must Recognize That LID Does Not Work Everywhere.

EPA guidance documents and encouragement for MS4s to require the use of LID to infiltrate, transpire or reuse the rain runoff from construction sites in the NPDES permits issued by the MS4s, leads NAHB to construe that EPA will insist that only LID BMPs will be acceptable to meet the TMDL for all construction activities. As NAHB has said many times, LID does not work everywhere in the Chesapeake Bay watershed. Early users of LID have experienced the difficulties and limitations associated with the practice, but EPA seems determined to make many of the same mistakes already made by others. We provide the simple but eloquent testimony of Cathy Drzyzgula, Council Member of the City of Gaithersburg, Md., who testified on behalf of the Metropolitan Washington Council of Governments (Washington COG) at the Sept. 22, 2008 House Hearing on the Reauthorization of the Chesapeake Bay Program:

Regulation should encourage the use of environmental site design and low-impact development techniques--as is now being done in Maryland, Virginia and the District of Columbia--but it should not prescribe that only these techniques are used. It is important to note that developers and localities are only starting to implement ESD/LID practices on a large-scale basis. The jury is still out on a number of issues regarding their performance, such as the relationship between maintenance and long-term performance efficiency. Local governments are concerned about the challenges of administering inspection and maintenance programs for practices that will be widely distributed throughout the urban landscape and that may be located on individual residential lots. It is also important to note that based on the experience of Washington Council of Government's stormwater program managers to date, such practices are not necessarily cheaper to install than more conventional stormwater management technology.

Baseline performance requirements for urban stormwater control should make a distinction between new development

and redevelopment sites, and any redevelopment requirements should be balanced by the critical need to encourage infill development and Smart Growth. In addition, baseline performance standards should include an allowance for offsets or other measures that would permit certain projects to go forward that cannot meet all of the runoff standards on site. This is particularly important for redevelopment sites, which typically face many more constraints than new development sites. To be truly effective, offset provisions and trading programs must be crafted at the state-local level and allow flexibility in implementation. This is not a provision that an overall federal standard should seek to detail.

NAHB concurs.

NAHB further notes that the Chesapeake Bay Program has developed a "Protocol for the Development, Review, and Approval of Loading and Effectiveness Estimates for Nutrient and Sediment Controls in the Chesapeake Bay Watershed Model", dated Oct. 14, 2010. Because this document was so recently published, it is not clear whether EPA's "approved" infiltration BMPs were approved after following this protocol, or whether EPA is planning a future analysis for infiltration BMPs or other LID BMPs using this protocol. The selection and implementation of BMPs on new construction and redevelopment projects is of keen interest to NAHB and its members. The Chesapeake Bay Program has not consulted with home builders or the construction industry on the benefits and limitations associated with using LID, nor has EPA shared data to support broad-scale mandates for the use of LID throughout the Chesapeake Bay region. NAHB strongly urges EPA to meet with home builders and other members of the development community to discuss the benefits and limitations of LID used for stormwater management.

b. Urban Retrofits Requirements Could Conflict with Smart Growth.

The Jan. 15, 2010 meeting of Maryland's Department of Planning "Task Force on the Future for Growth and Development" serves as a reminder that strong stormwater requirements on redevelopment projects in urban areas can chase away urban redevelopment unless alternatives for stormwater compliance are readily available.[FN 38] After hearing from several Maryland communities and several developers and builders, the state revised its aggressive program to provide some alternatives for compliance for projects in urban areas where space constraints, polluted soils, and other drawbacks make stormwater management more problematic and costly than similar projects outside of the urban areas.

EPA and the states need to proceed with caution to ensure that new, stringent stormwater goals are not in conflict with the Smart Growth concept of incentivizing redevelopment of our cities over building in the remaining green areas of the watershed. That means that alternatives for compliance with stormwater standards are needed for urban projects. In addition, programs for both stormwater and Smart Growth must be reevaluated periodically to ensure that the programs are not in conflict. Further, of the states must periodically assess the effect of new stormwater requirements on the cost of housing.

[FN 38] A summary of the meeting and presentations made is available at http://planning.maryland.gov/YourPart/773/773Meetings.shtml.

Response

EPA believes that strong regulatory programs are necessary to achieve the necessary allocations, but notes that the TMDL stipulates

only the environmental outcomes not specific technologies or standards.

Comment ID 0698.001.003

Author Name: Smith K.

Organization:

Run-off from urban areas are the biggest Non-Point on our Nansemond River going to the Chesapeake Bay. Let's take a look at innovative solutions to Stormwater Treatment.

Response

EPA appreciates the comment.

Comment ID 0742.001.002

Author Name: Wells John

Organization: Town of Leesburg, Virginia

Leesburg has already been taking initiatives with respect to storm sewer discharge. Specifically, the Town of Leesburg has an approved MS4 Plan that encompasses its entire 12.5 square mile boundary within the 64,000 square mile of the Chesapeake Bay Watershed. The Town has been implementing its current MS4 Plan since reapproval on July 9, 2008 for continuing to meet the six Minimum Control Measures as required in Permit #VAR040059, and for achieving measurable goals and milestones with implementation dates through the permit cycle ending on July 8, 2013 . The Best Management Practices (BMP) chosen to meet the Minimum Control Measures is designed to meet Virginia's maximum extent practical threshold in a cost-effective manner. We are actively working on programs to improve the quality of the water for the communities in and around Leesburg. The Town recognizes the importance of maintaining our precious water resources and serving as stewards of the natural environment.

Some of the initiatives include:

-Educating and informing the public about urban runoff pollution

-Encouraging public participation in community and clean-up events

-Working with industries and businesses to encourage pollution prevention " Requiring construction activities to reduce erosion and pollution.

-Requiring developing projects to include pollution controls that will continue to operate after construction is complete in the form of BMP.

The Town also works with its own internal departments and divisions to ensure that our maintenance and development projects are designed to reduce pollution.

Participation by the community is critical in preventing storm water pollution and keeping our water resources clean and safe for animals, plants and humans alike. The Town of Leesburg seeks to educate the public on ways individuals and groups can contribute to this effort .

Leesburg has taken strides to identify and encourage protection and restoration of a natural open space system, which will include a network of ecologically valuable lands that will protect water quality, conserve and increase forest canopy, and provide passive recreation opportunities and habitat for the flora and fauna indigenous to this area.

As this relates to Leesburg, the town currently maintains in excess of 130 miles of storm drainage lines, over 6000 inlets, 1000 storm sewer manholes, 400 culverts, and over 600 storm sewer outfalls within the corporate limits . Town residents demand that the local goverrnnent maintain the storm drainage infrastructure to a very high level . Within the Town are also over 75 public/private storm water management facilities which are owned and operated by various private entities . Some of the stormwater management facilities are owned and operated by the Loudoun County Public School System.

Response

EPA appreciates the comment, and the acknowledgment that MS4 programs will be notable players in implementation of nutrient and sediment reductions in the watershed.

7.13 - INDUSTRIAL DISCHARGE

Comment ID 0067.1.001.002

Author Name: Venezia Carmen

Organization: Global Tungsten & Powders Corporation (GTP)

GTP is addressing these comments jointly to EPA and DEP because of the integral relationship between the TMDL and WIP.

At the same time, the GTP Facility plays an important part in strategic materials production within our nation. We are one of the few producers of tungsten materials and alloys, which are utilized in a variety of applications in the machine tool, electronics, automotive, aerospace and defense industries, among many others. One of the GTP Facility's largest customers (both directly and indirectly) is the United States government, which relies on our output for a number of strategic uses.

In its wide and varied production processes, the GTP Facility generates various wastewaters, including process

wastewater, cooling tower blowdown, boiler blowdown, non-contact cooling water, steam condensate, and stormwater, which are discharged via four outfalls to the Susquehanna River pursuant to an NPDES Permit issued by DEP. Unlike almost all of the other NPDES permit regulated sources of nutrients in the Susquehanna Basin, nitrogen and phosphorus loadings at the GTP Facility are unrelated to organic loadings - we are not a high BOD generating facility. To the contrary, the production processes at GTP involve inorganic chemicals and inorganic processes, and hence many of the treatment processes that might be considered for sources such as sewage treatment plants and those industries with organic sources of nitrogen or phosphorus are simply inapplicable and unusable at the GTP Facility.

Response

EPA and the regulating states recognize that municipal discharges contain elevated levels of nutrients and other pollutants which are regulated by their NPDES permits. Just as municipal dischargers are held accountable for releases of pollutants other than nutrients, industrial dischargers are held accountable for discharges of pollutants which may cause an exceedance of their state's water quality standards (WQS).

Comment ID 0126.1.001.010

Author Name: Craun Ed

Organization: Augusta County Farm Bureau

The nutrient content of fish manure is similar to other livestock manures. This is according to reaserch by Naylor, S. Moccia, R. and Durant, G. at the University of Guelph, Canada.

Existing and future expansion of nutrient waste from stocking of fish (sources not assessed by WLA) within inland waterways and private ponds should be a component of the existing analysis and allocation of nutrients.

Response

Virginia has a general permit for aquacultural facilities. Accordingly, wastes from these facilities which include fish hatcheries and processing plants were accounted for in the modeling for this TMDL. With regard to aquatic farm, the model handles them in the non-significant category and they are limited to wastewater discharges.

Comment ID 0319.1.001.004

Author Name: Butler Nina

Organization: Smurfit-Stone Container Corporation

The Pulp and Paper Industry's Effluents Generally are Compatible with Receiving Water Ecosystems.

In the mid- 1990s, NCASI initiated multi-year studies to assess the effects of pulp mill effluent discharges on receiving water aquatic communities. This study, conducted in receiving waters in multiple eco-regions (including Codorus Creek that ultimately feeds into the Chesapeake Bay), system types (warm- or coldwater), in stream effluent concentration gradients, and mill process types (bleached vs. unbleached kraft) provide important information on potential short-term and long-term effluent-related patterns. Samples are taken from upstream and downstream sites, including nutrients samples. In addition to habitat assessments and effluent chemical and biological analyses, samples are collected for fish, macro-invertebrates, and periphyton. Population level parameters are assessed.

Results show that at all sites there are either (a) no differences at the population level of samples collected upstream or downstream from the mill discharges, or (b) where there are differences, these are due to stressors other than those associated with the effluent discharges (e.g., habitat differences). The results of the study do show the general overall compatibility of modem pulp mill effluents with healthy aquatic ecosystems in receiving waters. Recently, eight manuscripts describing the first eight years of data have been published in a peer reviewed journal.

Response

EPA recognizes that nearly all industrial sectors support organizations which perform scientific and other studies on their behalf. For the purpose of our decision making, EPA relies on more than one set of studies (where multiple sets are available) to understand the complexities of the effects of pollutants on the environment. In the case of establishing this TMDL, the contribution of each industrial and municipal category was evaluated. The point of the TMDL is to achieve nutrient reductions in the watershed by known industrial and municipal contributors; not to weigh the contribution of one source over another.

Comment ID 0319.1.001.009

Author Name: Butler Nina

Organization: Smurfit-Stone Container Corporation

In conclusion, Smurfit-Stone recommends that EPA modify the Proposed TMDL to address the significant issues raised by the company, VMA and AF&PA, and prevent unintended consequences by:

--Taking into account limits of available technology to achieve the nutrient and TSS reductions required by the TMDL on a consistent basis;

Response

Please see response to comment 0319.1.001.001.

Comment ID 0407.1.001.002

Author Name: Krouskop Dirk

Organization: MeadWestvaco Corporation (MWV)

MWV does not agree with the approach of the draft Bay TMDL of treating/allocating TSS from wastewater treatment plant point sources as sediment loads. TSS from a well treated biological wastewater treatment plant is entirely different in characteristics than sediment. Sediment is material that enters waterways from land runoff and stream bank erosion. Please refer to the attached document "A Review of the Characteristics and Fate of Suspended Solids Discharged with Biologically Treated Effluents from Pulp and Paper Mills," Dr. William E. Thacker, National Council for Air and Stream Improvement, Inc., October 2010. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0407.1] MWV concurs with the conclusion of the Thacker study that the TSS discharged from pulp and paper mills is predominately organic in nature and that the TSS will not impact the Bay or the James River when compared to "sediment" which is primarily inorganic in nature.

Response

Please refer to response to comment ID 0299.1.001.006

Comment ID 0414.1.001.005

Author Name: Myers George

Organization: Milton Regional Sewer Authority

Limit of Treatment Technology for POTW's is Incorrect

The TMDL states that limits of POTW treatment technology for total nitrogen and total phosphorus are, respectively, 3 mg/l and 0.1 mg/l.

1. Please cite the development document that arrives at this conclusion.
2. Please identify what treatment technology is required for achieving this performance, MBR's, denite filters, or what?
3. Please state what consideration has been given to the colder wastewater temperatures that prevail in Pennsylvania than in, say, mid-Maryland.
4. Please provide the analysis that relates the limit of treatment technology to the results that would be reported in a DMR given that the limit of detection of total phosphorus is 0.06 mg/l and that a non-detection result will be reported as 0.03 mg/l and not as 0.00 mg/l.
5. Please provide the analysis that relates annual cap loads, given colder wastewater temperature and higher flows in January through April and December of each year, to the limit of technology limits of 3 mg/l for total nitrogen and 0.1 mg/l for total phosphorus.
6. Why is limit of technology applied without regard to delivery ratios?
7. If the requested information is not available, please tell us why consideration was not given to these matters.
8. Can special circumstances be argued that limit of technology does not apply to a particular POTW? For example, would a northern Pennsylvania POTW be able to argue that the limit would not apply there?

Response

Commenter has requested a large volume of technical information which is beyond the scope of this response to comments to provide. Further the above consists of a series of questions and requests for information rather than an actual comment on the merits of the TMDL. Requests for information are more appropriately addressed through the Freedom of Information Act (FOIA) and EPA employs a FOIA Officer whose job is to make certain that all such requests are processed and answered in accordance with the Act.

Comment ID 0502.1.001.002

Author Name: Frank Stephen

Organization: RRI Energy

Shawville Generating Station

RRI Energy operates the Shawville Generating Station within the Chesapeake Bay Watershed. The Shawville Generating Station is located on the West Branch of the Susquehanna River. The station is comprised of four pulverized coal- fired units (Shawville Unit I, 2, 3 and 4). The installed capacity rating for the station (excluding the diesel generating units) is 618 megawatts (winter) and 597 megawatts (summer). All Shawville Units were retrofitted with low NOx burners in the mid-1990s to comply with Clean Air Act legislation. Selective non-catalytic reduction (SNCR) systems for NOx control were installed on each unit in 2005. The fly ash is transported to four silos by a vacuum transport system and landfilled onsite.

The Shawville Generating Station discharges stormwater and wastewater as authorized under NPDES Permit PA0010031. Discharges that will be most impacted by the Bay TMDL and PA WIP include Outall 005, which includes Internal Monitoring Point (IMP) 205 (treated sanitary sewage) and IMP 405 (treated industrial wastewater), and Outfalls 001, 002, 003, 010 and 012 (stormwater).

Comments

Based on the limited information available for public review, we are concerned that the inputs to the draft WIP and ultimately EPA's Watershed Model do not accurately reflect point source pollutant loadings from industrial discharges to the Chesapeake Bay.

Response

This is a very general comment which provides background information regarding the Shawville Generating Station and an overall objection to the TMDL. Following this general statement, the commenter provides specific comments upon which this statement is based.

Comment ID 0529.1.001.001

Author Name: Laczynski Michael

Organization: INVISTA - Waynesboro

I am writing on behalf of the INVISTA - Waynesboro manufacturing facility located in Waynesboro, Virginia. In addition to the individual VPDES permit for the facility's industrial wastewater and on-site storm water, the INVISTA Waynesboro site also holds VPDES Industrial Storm Water General Permit VAR051598, issued July!, 2009, for the non-contiguous property used for recycle activities. The property is identified as Baugher Farm.

Response

This comment provides background information. No response is required.

Comment ID 0604.1.001.001

Author Name: Missimer Carroll

Organization: P. H. Glatfelter Company

The P. H. Glatfelter Company ("Glatfelter") is global producer of specialty and engineered paper products headquartered in York, Pennsylvania. Our Specialty Papers Business Unit owns and operates two integrated bleached paper grade pulp and paper mills in Chillicothe, Ohio and Spring Grove, Pennsylvania. Glatfelter's Spring Grove, Pennsylvania facility has been located along Codorus Creek in York County, Pennsylvania since 1864. Codorus Creek is a tributary to the lower Susquehanna River, the largest source of water to the Chesapeake Bay. As such, the Spring Grove facility has been and will continue to be subject to regulatory initiatives designed to improve water quality in the Susquehanna River and the Chesapeake Bay including the subject draft TMDL proposed by US EPA.

Glatfelter agrees that the Chesapeake Bay is a unique national treasure that must be protected and improved and Glatfelter has done and is doing its part to do just that. Glatfelter's Spring Grove mill was one of the first industrial facilities and pulp and paper mills in the United States to install primary treatment in 1950 and secondary treatment in the early 1960s. US EPA has developed effluent guidelines for the pulp and paper industry three times in the last four decades. Each time, the Spring Grove mill's superior waste water treatment facilities and final effluent quality have served as the model for the New Source Performance Standards in those effluent guidelines. For these reasons and the fact that the Spring Grove mill discharges its effluent into a relatively small receiving water, the National Council for Air and Stream Improvement (NCASI) chose the mill as one of the four sites for intensive study in the Long Term Receiving Waters Study. This study includes extensive acute, chronic and life-cycle whole effluent toxicity testing, in-stream water quality and biological monitoring, mesocosom testing as well as relative risk assessments to properly place the impact of the paper mill within the stressors in the larger watershed.

Initiated over 15 years ago, the results of the Long Term Receiving Waters Study have been presented at national and international scientific conferences over the last decade. The results of the first nine years of study were recently

summarized and published in six papers in a single volume of the journal Integrated Environmental Assessment and Management (Volume 5, Number 2, April 2009). Overall, the results of the Long Term Receiving Waters Study document that well treated pulp and paper mill effluents have a minimal effect on the water quality and biological communities in the receiving streams into which they are discharged. This includes the effluent from the Spring Grove mill discharged to Codorus Creek where the effluent concentration approaches 50 percent during the low flow periods of the year.

Response

These paragraphs are introductory and presents background information. No response is required.

Comment ID 0764.001.002

Author Name: Young Leroy

Organization: Pennsylvania Fish & Boat Commission (PFBC)

The PFBC is somewhat unique as a resource agency in that we also have been listed by the DEP as one of 30 significant Pennsylvania industrial dischargers to the Susquehanna River Basin and thus the Chesapeake Bay. We operate seven State Fish Hatcheries (SFH) that discharge to the Susquehanna Basin. These facilities are predominately trout hatcheries, and they provide a majority of the 3.2 million trout that are stocked annually for recreational fishing in Pennsylvania. These stockings create significant direct and indirect economic benefits to many communities in Pennsylvania and contribute to the state's tax base. Even when other sectors of the economy slow down during economic downturns, recreational fishing typically continues to attract participants and produces much needed financial dividends. Our hatchery facilities produce tangible recreational, social and economic benefits to Pennsylvanians.

Over the past five years, we have upgraded five of the seven SFH's in the Susquehanna Basin by adding microscreen filtration systems at costs of between $1.5 and $3.0 million per facility to reduce loading of total suspended solids. New microscreen effluent filtration systems are now in operation at the Bellefonte, Benner Spring, Huntsdale, Pleasant Gap, and Tylersville SFH's. Each of these facilities has reduced total suspended solids loading from 60-72% compared to discharges before the systems were installed. These expenditures are reflective of our commitment to reduce impacts to the waters we discharge to within the Susquehanna River Basin. The PFBC has also been engaged with DEP for several years regarding our hatchery facilities and the newly proposed limits for nitrogen and phosphorus loading. We have provided DEP with approximately three year's worth of effluent nutrient data from the SFH's. DEP has set preliminary draft phosphorus and nitrogen loading limits for our hatchery facilities. We expect to reach a final agreement on these limits in the very near future which will hold us to the status quo and also allow us time to find ways to further reduce our nutrient releases.

Response

This comment sets forth historical background supporting improvements in progress at aquaculture facilities in PA.

7.14 - CAFOS

Comment ID 0038.1.001.024

Author Name: Eisen Professor Joel

Organization: University of Richmond Environmental Law and Policy

As a resident of Maryland, I have been aware of the plight of the bay for a long time. However, it is my understanding that the government of Maryland has taken steps to reduce its share of pollution in the watershed. That does not appear to be the case with Virginia. As stated on page 7 of the Draft TMDL summary, the VA plan contains "serious deficiencies", meeting neither the levels for nitrogen or phosphorus emission. Governor McDonnell is right in his plan that it is being developed "within the worst economy of a generation". But the challenge to restore the bay should be regarded as just that, one that is doable, not insurmountable. To that end, the EPA should consider the impact a stricter plan would have on the economy of Virginia, as those plans that can be shown to create jobs and be less costly to the state would garner more public support, which could force the administration's hand if necessary. Specifically, farm runoff, a large problem, could be dealt with more effectively if EPA officials communicated directly with farmers and could convince them to implement low-cost plans, or at least subsidize them. Cost must be considered because the states are likely to bear much of the burden, and effective plans will be hampered by the states' who do not wish to pay out of pocket, leaving no improvement for the environment at all.

Response

The federal budget for the upcoming fiscal year gives a good sense for the deepened federal commitment to Chesapeake Bay restoration. The proposed budget for federal agencies includes nearly a half billion dollars for Bay restoration overall with $383 million specifically for water quality efforts. EPA alone is proposing about $250 million through various funding sources. Significant US Department of Agriculture (USDA) funds are targeted to the Chesapeake Bay watershed through Farm Bill programs to help meet the challenges of polluted runoff in agriculture. Between 2008 and 2012, about $700 million is being made available in additional cost share for farmers under Farm Bill funding. EPA understands that restoration won't be easy, cheap or quick, but we are committed to supporting our partners and aiding in the restoration effort.

EPA understands the significant cost pressures that both states and municipalities are under given the current economic climate in the United States. There are several cost-share, grant and technical assistance programs that EPA is funding in order to assist the Bay community in this undertaking. The $11.2 million increase in Chesapeake Bay funding now totaling $50 million will help the seven Bay watershed jurisdictions to develop new regulations, design Watershed Implementation Plans (WIPs), reissue and enforce permits, and provide technical and compliance assistance to local governments and regulated entities. In addition, under the Clean Water State Revolving Loan Fund (CW SRF) program under the President's FY 2011 Budget, the Bay jurisdictions would receive an additional $155 million in CW SRF funding.

Furthermore, two additional grant programs which target Chesapeake Restoration include the Water Pollution Control State and

Interstate Program Support (CWA 106) and the Nonpoint Source Program (CWA 319). These programs will be receiving $27 million and $23 million, respectively, in FY 2010.

On several occasions over the past 6 months, EPA has met directly with farmers, representatives from the poultry and dairy industry, and industry groups in the Shenandoah Valley to discuss the need to manage farm runoff and implement a suite of low-cost best management practices. The incentive programs are in place, and while some farmers have willingly participated, many choose to not take advantage of them, despite EPA's communication efforts.

Comment ID 0045-cp.001.001

Author Name: Comment Anonymous

Organization:

Chesapeake dead zones are primarily caused by run-off from factory farms that line the Bay. Far from idyllic ‘small farms,' these corporate confined animal operations confine hundreds of thousands of animals in windowless buildings that generate waste equivalent to a small city. Rather than hold states and taxpayers accountable for the clean-up, Congress needs to pass regulation that recognizes factory farm waste for what it is: raw sewage, laced with salmonella, e. coli, cryptosporidium, and fecal coliform in amounts that the National Resources Defense Council estimates to be 10 to 100 times more concentrated than in human excrement. This waste also contains high amounts of drugs and antibiotics pumped into these animals to keep them alive in such filth and contamination. It also contributes to the rise of antibiotic resistant bacteria, making it more difficult to treat human disease. Would we allow any community, individual or business to dump raw sewage into our neighborhoods? Why should it be any different for the factory farms that line the Bay?

Response

Thank you for your comments. The EPA regulates animal feeding operations (AFOs) that discharge or propose to discharge pollutants into waters of the United States under its Concentrated Animal Feeding Operation (CAFO) regulations. Poultry operations with over 37,500 birds are required to get permits and implement nutrient management plans (NMPs). These NMPs outline how the operations manage their manure so that none of it runoffs into the Chesapeake Bay.

Comment ID 0246.1.001.013

Author Name: Kelble Jeff

Organization: Potomac Riverkeeper Inc. (Shenandoah and Potomac Riverkeeper)

Should Virginia fail to address this problem, EPA could do so as part of its efforts to amend its CAFO regulations. EPA should add buffers as a BMP, and establish minimum criteria for any confinement or concentration area. Then, EPA could also reduce the CAFO thresholds such that more farms would be subject to this BMP.

Response

Thank you for your comments that would strengthen CAFO program requirements.

As you may know EPA did develop as part of the Chesapeake Bay Executive Order technical guidance for agriculture and all other sectors. In particular, EPA developed a list of either new management practices or practics that some states have already included as part of its overall Chesapeake Bay suite of BMPs. Reliance upon buffers as you suggest is one of the BMPs included in EPA's technical guidance document. We have also mentioned that EPA will be developing a Chesapeake Bay CAFO regulation that builds upon the 2008 EPA CAFO regulation that many states are implementing. In Virginia EPA has recently approved Virginia's CAFO program and at this point in time VA is developing a permit program for all of its operations that need a NPDES CAFO permit.

Comment ID 0439.1.001.004

Author Name: Littrell Judy

Organization: New York Association of Conservation Districts

Since the late 1990's, New York's farms have been under strict CAFO regulations, those that are more strict than current EPA regulations dictate. The CAFO program is overseen by the Department of Environmental Conservation (DEC) and the Department of Ag and Markets. CAFO plans, Nutrient Management Plans, BMPs, are all developed by Certified Nutrient Management Planners, which go hand in hand with the Ag Environmental Management program that is a voluntary assessment of farm operations so that they can reasonably meet natural resource protection on their farms.

Response

Please see response to comment # 0197.1.001.002

Comment ID 0446.1.001.002

Author Name: Beegle Douglas

Organization: Penn State University

Many of the problems with nutrient pollution in the Bay are related to excess nutrients being imported into the watershed to support the strong animal agriculture industry in the watershed. This is driven by global economics and does not necessarily represent widespread mismanagement on individual farms in the watershed. Most of the progress to date has been from improving management on farms.

Response

The Chesapeake Bay Program partnership, including Pennsylvania and the agricultural community, have made significant past progress towards addressing the loss of nutrients and sediments to the tidal Chesapeake Bay. The agriculture and point source sectors, including municipal waste water treatment plants, have achieved the majority of the pollution reductions to date. Agriculture continues to represent the largest managed land use within the Chesapeake Bay watershed, as well as the largest single source of nutrients and sediment entering the Bay. Consequently, Pennsylvania and the Bay states are seeking additional nutrient and sediment reductions from the agricultural sector to assist with achieving the water quality requirements of the Chesapeake Bay TMDL to be released by December 31, 2010 through their supporting Watershed Implementation Plans (WIPs). A portion of this continued reliance by the Bay states to achieve future nutrient and sediment reductions is based on improving the tracking and reporting of both cost-shared and non-cost shared agricultural practices to more clearly document implementation of conservation practices by the agricultural community. If the implementation of the state's WIP should result in fewer nutrient and sediment reductions, potentially jeopardizing the TMDL load allocations, EPA may consider enacting additional federal actions to supplement to the state's WIP. Two possible actions are a revision of the CAFO program requirements and designating additional operations as CAFOs that require NPDES permits.

Comment ID 0586.1.001.001

Author Name: Fischer Micaela

Organization: The Pew Environment Group

In 2008 the Pew Commission on Industrial Farm Animal Production released a report entitled "Putting Meat on the Table: Industrial Farm Animal Production in America." Among other things, the report concluded that a range of improvements to current animal waste management practices were needed to protect the health of those who live near and downstream from industrial farm animal production facilities. In the two years following the release of that report, the Pew Charitable Trusts has begun an effort to implement many of those recommendations.

United States government statistics indicate that about 500 million tons of animal manure are produced annually by confined animal feeding operations (CAFOs). While manure has long been used as fertilizer for crops and pasture, the increasing volume of manure and its concentration in certain geographic areas presents a major environmental challenge in the Chesapeake Bay region and elsewhere. Improper management of manure can present serious threats to water quality, contribute to declines in fish populations and other aquatic resources, lead to creation of dead zones and threaten the safety of drinking water for many Americans. The TMDL and state WIPs offer both the EPA and the states an excellent opportunity to begin to address these problems in the Chesapeake watershed.

Response

EPA agrees that the TMDL and State Watershed Implementation Plans represent the latest opportunity to address significant nutrient load reductions in an effort to restore the Chesapeake Bay. The Bay agricultural community has made much progress as numerous best management practices have been implemented and supported by primarily USDA cost share funds as well as from agricultural producers. We have had several efforts between state and federal agencies that focus time and resources on addressing excess manure and the associated water quality and potential human health impacts. States are at a critical juncture in planning how

best to support advanced manure technologies that can provide needed energy, create new markets for nutrient trading, and other opportunities - all related to how best to address reducing both nitrogen and phosphorus. The federal government as well as the private sector also has a role to play in supporting alternative technologies. As final State WIPs have been completed we are aware of several planned programs that should address effective means to reduce nutrients as called as States comply with TMDL requirements.

7.15 - SSOS

No Comments are Applicable to this Issue Category, and Thus No Response is Necessary.

7.16 - CSOS

Comment ID 0419.1.001.005

Author Name: Sharma Lalit

Organization: City of Alexandria, Virginia

(2) EPA's current approach will create problems during future Progress Runs

EPA has explained that it will use the monthly DMR flows as the basis to monitor progress toward compliance with the WLAs. Progress Runs will use the most recent monthly flows from WWTP DMRs and apply those flows to the each model year between 1991 and 2000. This may be appropriate for WWTPs served by separated sewer systems, but this approach should not be used for WWTPs serving a CSS.

The combined system DMR flows (comprised of DWF and CS-C) reported by the WWTPs will vary based on the rainfall pattern received in a given year. It will not be possible to discern from the DMR data the changes in flow associated with growth (DWF) from the variability of rainfall from year to year (CS-C) as reflected in the variability in annual average flow shown in Figure 3. [Please see page 5 of the original comment letter (Docket ID EPA-R03-OW-0736-0419.1)] If EPA uses the actual monthly DMR flow data from a combined system for the Progress Run (i.e. 2002 Progress Run versus 2004 Progress Run) and attempts to use these flows in each year between 1991 through 2000, the flows (i.e. 2002 or 2004) would not match the '91-'00 hydrology. The 2002 DMR flows inputted for each year between 1991 and 2000 would have suggested load reductions that, in reality, would not have occurred (2002 flows were less than all the flows in the '91-'00 period). Conversely, the 2004 DMR flows are higher than all the flows in the '91- '00 period and would have suggested a lack of progress (higher loads compared to 2002 progress run). EPA and VDEQ will have trouble trying to explain to the public the differences between progress runs similar to 2002 or 2004 under EPA's DMR approach.

EPA should include in the model separate inputs for DWF, CS-C and CS-O, such that each component can be tracked separately. The DWF discharged from the WWTP will change in the same way as the flows for community served by a separate sewer system. For combined sewer portions, if the CS-O is reduced by separation or by capture and treatment, the combined sewer system model will estimate the amount of combined sewer overflowed for the period

1991 through 2000 after each major improvement to the CSS. If the CS-O is reduced by separation, the CS-O would be moved to the Urban Runoff (MS4) source sector. If the CS-O is reduced by capture and treatment, the CS-O would be moved to the CS-C. Tracking the flows as separate inputs would allow EPA to use this approach to monitor the progress for each of the 64 CSO communities in the Chesapeake Bay watershed and would lead to consistency between progress runs.

Virginia's approach to developing allocations and monitoring progress is based on its years of experience with advanced CSO LTCPs. EPA should adjust its modeling, basis for allocations, and monitoring to take advantage of Virginia's experience.

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. See Section 8 of the TMDL for discussion. Virginia has revised its wastewater portion of its WIP. EPA has worked out with Virginia a revised allocation for several Virginia facilties with CSO that EPA believes has addressed this comment. Combined sewer flows in a wet weather event are composed of sewage and contaminated water. From a compliance and a permitting perspective, it makes little sense to ""monitor"" dry weather and wet weather flows as these flow are mixed and a wet weather incident will effect flows at the WWTP for many days after conclusion of the incident. Substantial portions of these combined sewer flows are required by the permit to be directed to the waste water treatment plant for treatment At the WWTP, the quantity of these flows can and pollutant concentration can be precisely measured and compliance with the WWTP WLA can be determined. For combined sewer overflows, it is difficult to accurately monitor the discharge (and not always required by the NPDES permit) One approach is for the NPDES permit to include a performance standard approach based upon the LTCP, provided that the LA is based upon the LTCP.
Saying it this way is important because our “backstop” allocations did not themselves tighten any PS controls, they were based on assumptions that might happen in the future. This is a nuance we have to express carefully because it will be subject to litigation.

Comment ID 0419.1.001.007

Author Name: Sharma Lalit

Organization: City of Alexandria, Virginia

(2) The total suspended solids allocations for the CSO outfalls are not correct

The overall TP and TN allocation is consistent with data provided by the Communities and included in the WIP, however, the TSS WLAs for the CSO outfalls for Richmond, Lynchburg, and Alexandria are lower by 16, 17 and 31 percent, respectively, than the data provided in the VA WIP. EPA has offered no explanation or justification for reducing the scientifically-based TSS WLAs proposed in the WIP. EPA should use the TSS data provided in the WIP when it establishes the final TMDL.

Response

We used the 10 year (1991-2000) CSO data provided by DEQ previously with the LTCP rates they recommended. DEQ will provide the updates to the (1991-2000) CSO data and EPA will include the updates in the WIP phase 2.
The TSS WLAs reported in the draft WIP results were the sediment numbers (TSED) that are less than TSS. The organic component in TSS was taken out in the model calculation to get the sediment load for point sources. In the final WIP, TSS WLAs will be reported in TSS.

Comment ID 0419.1.001.014

Author Name: Sharma Lalit

Organization: City of Alexandria, Virginia

EPA's failure to include WLAs for the captured CSS flows is arbitrary and has no legitimate technical, legal, or policy basis. EPA should correct this error in the final TMDL by adopting the approach in Virginia's WIP, which bases the WWTP WLAs on the DWF and CS-C average of the '91-'00 flows, and footnote the WLAs to provide . guidance to permit writers to use a performance standard for flow above the DWF design capacity. EPA's proposal to establish the WLAs for captured CSS flow based on a fixed WWTP design flow capacity is also arbitrary because it fails to reflect the way that CSSs actually work; however, if EPA continues to insist on this approach, it should establish the fixed WWTP WLAs using the allocations listed in Table 2 above. [Please see page 10 of original letter (Docket ID EPA-R03-OW-0736-0419.1)]

EPA's unexplained reductions in the TSS WLAs for the Communities' CSO outfalls is also arbitrary. The TSS WLAs proposed in the WIP are based on data provided by the Communities and are consistent with the basin-wide TSS allocations distributed by EPA. EPA can offer no basis for disputing the validity of these data or a need to reduce the TSS allocations to achieve the basin-wide allocations. EPA should adopt the CSO outfall TSS WLAs proposed in the WIP.

Response

Please see response to comment 0293.1.001.003.

7.17 - NPDES DISCHARGE

Comment ID 0066.1.001.002

Author Name: Rountree Glynn

Organization: National Association of Home Builders (NAHB)

NAHB’s builder members will construct about 80 percent of the new housing projected for 2010. Because of the nature of their work, most of our members must obtain and operate pursuant to National Pollutant Discharge Elimination

System (NPDES) permits for controlling the stormwater discharges stemming from their construction activities. The Chesapeake Bay TMDL's requirements will become a part of the stormwater permits issued for homebuilding projects in the Bay watershed.

Response

EPA acknowledges the comment.

Comment ID 0070.1.001.016

Author Name: Hughes Robert

Organization: Eastern PA Coalition for Abandoned Mine Reclamation (EPCAMR)

1,575 Resource Extraction operations are within the Susquehanna River Basin according to PA DEP's eFACTs tracking system. The resource extraction activities subject to NPDES permitting in the Bay watershed include coal mining, noncoal mining and the earth disturbance related to abandoned mine reclamation activities. Oil and Gas development activities are not subject to NPDES permitting.

Coal mining permits are typically accompanied by an NPDES permit. Most coal mining permit areas include erosion and sedimentation controls that are permitted stormwater outfalls under an NPDES permit. Some coal mining activity permits include BMPs that are designed to prevent a stormwater discharge. A typical example of this is in the anthracite coal fields where new mining reaffects abandoned mine lands (AML), and all stormwater is contained in the pit. However, an unlined pit that is not compacted with a liner or bentonite clay might as well have an open conduit to the underground mine pools beneath the mining affected regions because without it, promotion of AMD is likely to occur in those areas, and an increase in the amount of groundwater reaching a subsurface mine pool complex is possible. EPCAMR encourages and supports remining of abandoned mine lands by the Anthracite Industry and other operators in the Northern Bituminous Region to reclaim additional acres of abandoned mine lands and to eliminate further generation of pyritic material and AMD from getting into our watersheds and underground mine pool complexes.

Response

EPA acknowledges the comment.

Comment ID 0072-cp.001.001

Author Name: Isenberg W.

Organization: Virginia Commonwealth University Center for Environmental Studies. Class: ENVS 601, Professor: P.L. deFur

The requirement for all construction land to be subject to sediment and erosion control by a general permit disregards the fact that states like VA have these permits but have poor enforcement. Local authorities of limited resources appear

unable to enforce simple installment of silt fences. If anything, there should be more funded and trained enforcement. Also, surface mining and railroad construction are EXEMPT from construction permits in VA. Including these sources and increasing enforcement of regulations will help accomplish what the construction permits seek to achieve.

Response

Thank you for your comment in support of stronger enforcement of existing sediment and erosion control programs.

Comment ID 0255.1.001.001

Author Name: Gumm Gary

Organization: Washington Suburban Sanitary Commission (WSSC)

The Washington Suburban Sanitary Commission (WSSC) is a public utility that has been a leader in the industry since 1918. We are the 8th largest combined water and wastewater utility in the nation with over 1,000 square miles in our sanitary district and a network of more than 5,500 miles of fresh water pipeline and nearly 5,400 miles of sewer pipeline. In addition to the 1.8 million residents served in Prince George's and Montgomery Counties, WSSC directly serves nearly 30 federal facilities including Andrews Air Force Base, NASA Goddard Space Flight Center, the National Institutes of Health and the U.S. Food and Drug Administration. The WSSC operates 2 water filtration plants and 6 wastewater treatment plants. Our wastewater treatment plants treat approximately 198 million gallons per day (MGD), with approximately 63 MGD treated at WSSC and 132 MGD at the Blue Plains Advanced Wastewater Treatment Plant. This represents significant and measurable effluent reaching the Chesapeake Bay.

Response

EPA acknowledges the comment.

Comment ID 0309-cp.001.001

Author Name: Wilson R.

Organization: Friends of the Cacapon River

I'm sorry I do not have a copy of the report to reference the specific location of my concern. My concern is the exclusion of "insignificant" waste treatment plants, i.e., those with a output below a certain level. However, 2 or more of these plants can easily exceed the cut-off level and have a significant impact on water quality. It is often the smaller plants that are failing in their treament process. A lot of resources are devoted to reducing non-point sources of polution. On the other hand, we know the exact location of the output from the smaller plants and it is technically possible to measure the polutant, just as in the larger plants. I understand that most of these small plants do not have the resources to monitor their out-flow. It would seem to be a very prudent use of funds to upgrade their monitoring capabilities, since we now the exact location of these potential polution sorces.

Response

The commenter is correct that the TMDL distinguishes between “significant” and “nonsignificant” municipal and industrial dischargers, based on permitted or existing flow characteristics and comparable loads. The reason for this distinction is fairly obvious, given the enormous quantity of small individually owned private waste systems. Accounting for each of these in a watershed calculation covering multiple states and jurisdictions is daunting. Although these small treatment systems are not captured in the TMDL, the commenter may take comfort in knowing that if these systems discharge to surface water, they are

covered by the states under the NPDES program. Depending upon which state has jurisdiction, they are either covered by an individual or general permit.

7.18 - MUNICIPAL DISCHARGE

Comment ID 0226.1.001.008

Author Name: Harris, Jr. Cecil

Organization: Hanover Courthouse, Hanover County, Virginia

The Chesapeake Bay Program long ago determined the York River does not influence mid-Bay water quality and any regulation of York River nutrient discharges should occur only for local water quality protection. For about a decade, Virginia has been operating under a York River Tributary Strategy for this purpose and Hanover voluntarily installed POTW nutrient removal technology based upon that Strategy. Furthermore, the State then issued the Virginia Regulations governing WWTPs in the York River basin (and others). For the York River Basin, in 2005 the EPA conducted special model runs to determine the impact of various nutrient discharge scenarios (James River Waste Load Allocations and York River Model Scenario). The results generally indicated that increasing stringent limits did not materially affect the Chesapeake Bay. Regardless, the DEQ adopted stringent limits for the POTWs in the York River Basin watershed.

Response

Please refer to section 8 for analysis of the Watershed Implementation Plans.

Comment ID 0230.1.001.008

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

I. INTRODUCTION & EXECUTIVE SUMMARY

On September 3, 2010, the Commonwealth of Virginia ("Virginia") submitted a Chesapeake Bay TMDL Phase I Watershed Implementation Plan ("Draft WIP" or "Virginia's WIP") to the United States Environmental Protection Agency ("EPA"). On September 22, 2010, EPA issued a Notice of Availability of the Draft TMDL and request for public review and comment on the Draft TMDL in the Federal Register regarding the development of a total maximum daily load ("TMDL") for the Chesapeake Bay Watershed. On September 24, 2010, EPA issued a DRAFT Chesapeake Bay Total Maximum Daily Load ("Draft TMDL" or "EPA's TMDL"). Virginia Association of Municipal Wastewater Agencies, Inc. ("VAMWA") hereby submits the following comments in response to EPA's Federal Register Notice, EPA's Draft TMDL, and Virginia's Draft WIP.

The Hampton Roads Sanitation District (HRSD) hereby submits the following comments in response to the EPA Federal Register Notice and Draft TMDL and Virginia's Draft WIP.

HRSD was created in 1940 as a political subdivision of the Commonwealth of Virginia. HRSD provides wastewater service to 1.6 million people in 17 counties and cities with a collection system of over 500 miles of pipe and 104 pump stations. HRSD operates 9 major treatment plants in Hampton Roads and 4 smaller facilities on the Middle Peninsula. http://www.hrsd.com/ The combined capacity of HRSD treatment plants is 249 million gallons per day. Each treatment plant (with the exception of the Atlantic plant) discharges treated wastewaters containing nutrients to the Chesapeake Bay watershed as follows: Rappahannock River (Urbanna), York River (King William, West Point, York River, and Mathews), and James River basin (Williamsburg, James River, Nansemond, Boat Harbor, Army Base, Virginia Initiative, and Chesapeake-Elizabeth). These circumstances cause HRSD to be a significant stakeholder in the Chesapeake Bay nutrient TMDL.

HRSD has been a leader in nutrient reduction and pioneered the development of the Virginia Initiative Process (VIP) during the 1980s. The VIP was developed a cost-effective method of Biological Nutrient Removal (BNR). HRSD did not patent the process in order to make in freely available for nutrient reduction projects on Chesapeake Bay. HRSD subsequently installed the technology on a voluntary basis at the Virginia Initiative and Nansemond treatment plants as part of plant expansions during the 1990s.

HRSD is fully prepared to comply with any new regulations resulting from the TMDL. However, as an organization that believes sound science must support all regulations, HRSD is concerned that additional investment in further nutrient removal at waste water treatment plants will not be the most cost effective or environmentally beneficial solution for restoration of the Chesapeake Bay.

Response

Please see response to comment 0501.1.001.005

Comment ID 0230.1.001.036

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

H. Algal blooms in the lower James River are not correlated with wastewater facility discharges

A determination of environmental triggers for algal blooms has been an area of intense study over the past few years in the lower James River and Elizabeth River system. Mulholland and others (2009) found that a widespread Cochlodinium polykrikoides bloom in 2007 was very patchy in its distribution and coincided with a period of intense rainfall and storm water runoff. Water column stratification, neap tides, and low wind conditions were also implicated as contributors to bloom formation. Morse and others (2009) evaluated another bloom of this species in 2008 and found it to first develop in the Lafayette and Elizabeth River. Old Dominion University's application of the VIMS HEM-3B model indicated that these blooms were transported by tidal flushing to the lower James River. The same pattern was

observed in 2009 indicating that the sub-estuaries of the Lafayette and Elizabeth Rivers play an important role in the formation of blooms in the larger lower James and lower Chesapeake Bay. These studies demonstrate that the environmental triggers for algal blooms in the lower estuary are highly complex and operate over small scales of space and time.

These issues have implications to the management of chlorophyll a in the lower James River estuary with respect to trading and areas of management focus. HRSD generally supports Virginia's concept to expand the nutrient trading program to include other sectors in the WIP. However, installing additional wastewater controls (to provide nutrient credits to the NPS sector) will not be effective in reducing the pulsed delivery of nutrients after storm events that trigger algal blooms in Hampton Roads. In addition, the studies show a need to emphasize controls on the Elizabeth River sub-estuary since they can be responsible for the spread of algal blooms into the tidal James River.

Response

Commenter is correct that the environmental conditions favorable to algal blooms is very complex, including secondary factors such as shading, stream flow, pH, etc. This does not diminish the importance of installing additional wastewater controls. It is not anticipated that installing wastewater controls will, in the absence of other reductions in the "pollution diet" , control nutrients in the Bay and it's watershed to sustainable levels, Rather, wastewater treatment plants along with other point and non-point reductions must be made.
The portion of this comment relating to nutrient trading is addressed in comment 0230.1.001.025.

Comment ID 0231.1.001.002

Author Name: Boepple Charles

Organization: Upper Occoquan Sewage Authority (dba Upper Occoquan Service Authority)

Historical Background
The TN WLA assigned to the UOSA water reclamation plant in its VPDES Nutrient General Permit VANO 100 19, namely, 1.316 million pounds/year, recognizes that the highly nitrified UOSA reclaimed water has benefited the water quality of the Occoquan Reservoir, which is a critical component in a drinking water supply system that serves nearly 1.7 million people in Northern Virginia.

In the 1960's the Occoquan was afflicted by serious water quality problems such as:
• Massive algal blooms (including blue-green algae) due to over-enrichment with plant nutrients;
• Periodic episodes of taste and odor problems in the finished drinking water;
• Periodic fish kills; and
• Generation of hydrogen sulfide in the sediments due to anaerobic decomposition of organic matter.

At that time the Virginia State Water Control Board took several bold actions aimed at correcting the water quality degradation of the reservoir. Engineering studies conducted under the auspices of the Board identified substandard discharges from secondary effluent wastewater treatment plants and nonpoint source runoff as major culprits. The Board's efforts culminated in the promulgation of the Occoquan Policy (9VAC25-410).

The Policy mandated corrective actions including the creation of a regional advanced water reclamation plant, UOSA, and an independent entity for the purpose of water quality surveillance and evaluation, the Occoquan Watershed Monitoring Laboratory (OWML). OWML is operated by the Virginia Tech Department of Civil Engineering, and it is overseen by the Occoquan Watershed Monitoring Subcommittee (OWMS) on behalf of the State Water Control Board.

UOSA has operated its water reclamation facility for over 30 years meeting very stringent permit limitations imposed by the Occoquan Policy. For example, since 1978 the UOSA plant has consistently complied with a total phosphorus permit limit of 0.1 mg/L, which is considered the limit of technology for phosphorus removal. Research and water quality surveillance conducted by OWML indicates that the UOSA discharge has substantially improved the water quality of the Occoquan Reservoir.

Response

EPA acknowledges the comment.

Comment ID 0260.1.001.001

Author Name: Brosious John

Organization: Pennsylvania Municipal Authorities Association (PMAA)

The Pennsylvania Municipal Authorities Association (PMAA) represents many of the sewage treatment plants in Pennsylvania that are mandated to meet nutrient limits to facilitate improvement to the Chesapeake Bay.

In response to the 2005 DEP Chesapeake Bay Tributary Strategy, PMAA worked with DEP and other interested stakeholders to address nutrient reductions from sewage treatment plants. These Point Source Workgroup stakeholders included: sewage treatment plant managers, engineers, and attorneys from PMAA; staff from DEP central and regional offices, and EPA; representatives from agriculture and the conservation districts; municipal government associations; the PA Builders and Harrisburg Area Builders Associations; and the Chesapeake Bay Foundation.

Numerous meetings of the Point Source Workgroup over the course of several months resulted in an equitable solution that allowed the largest 184 plants to come into compliance for nutrient removal in a three-phased schedule. This approach set uniform nutrient reduction limits of 6 mg/l TN and 0.8 mg/l TP for all plants based on their design flow. These limits will result in the point source sector achieving their share of reduction in Pennsylvania as early as 2011, and maintaining that reduction into the future. Actually, it is estimated that many sewage treatment plants will exceed their required nutrient reductions and have nutrient credits available for trading.

Response

This is introductory information at the beginning of a letter expressing concern that the TMDL has gone too far. For the introductory part, no additional response is required; for the latter see 0691.1.001.006. Furthermore, since the Pa WIP was

substantially improved from the draft WIP, EPA chose to remove the backstop allocations from the WWTPs.

Comment ID 0272.2.001.001

Author Name: Pippel Julie

Organization: Maryland Association of Municipal Wastewater Agencies, Inc. (MAMWA)

MAMWA is a statewide association that includes the owners and operators throughout Maryland of municipal wastewater treatment plants ("WWTPs"), which the Clean Water Act refers to as publicly owned treatment works ("POTWs"). Many MAMWA members' facilities clean and discharge highly treated wastewater within the Chesapeake Bay watershed pursuant to state-issued National Pollutant Discharge Elimination System ("NPDES") permits. As owners and operators of highly-regulated pollutant removing facilities, MAMWA's members have a direct stake in the development of the Bay TMDL and in its implementation. Indeed, MAMWA members are currently in the midst of a treatment upgrade program with an investment of approximately $1.5 billion to implement the Bay TMDL.

As point source dischargers to the Chesapeake Bay, MAMWA's members have a strong interest in the development of the Bay TMDL and in its implementation at the state and local level. Maryland's POTWs have dramatically reduced their loads from 1985 levels - more than any other sector contributing nutrients to the Bay. As EPA and Maryland move forward with the important task of finalizing these groundbreaking documents, we ask that you consider MAMWA's views, concerns and recommendations.

Response

EPA appreciates the efforts made by MAMWA and other associations which are assisting in efforts to upgrade municipal wastewater facilities, and remains committed to considering MAMWA’s views, concerns and recommendations.

Comment ID 0414.1.001.013

Author Name: Myers George

Organization: Milton Regional Sewer Authority

Sediment Limits Should Not Apply to POTW's

The draft TMDL assigns sediment limits to POTW's.

1. How are sediment loads contributed by point sources measured and reported? Is this the TSS discharge, the volatile TSS, as measured in the POTW effluent plus stormwater runoff, or what?
2. Are a POTW's SSO and CSO contributions included in the calculation?

Response

It is important to limit sediment loads in municipal permits because they contribute to problems associated with chlorophyll-a, clarity and a variety of other contaminant issues. TSS is measured in the effluent and reported on the DMRs, as are the other pollutants monitored in the permit, unless the permit requires a different reporting mechanism. One point of clarification, TSS which is a common pollutant in treated effluent and stormwater is not volatile. The commenter should discuss any questions he has regarding his facility's reporting requirements with the regulatory authority that issued his permit. The TSS loads in the draft TMDL are based upon current permit limits and modeled accordingly. Non-point sources are a major contributor of TSS so storm water runoff was modeled for the TMDL. No contributions from SSOs were modeled because SSOs are prohibited; however, CSO loads were modeled and included in the TMDL calculations.

Comment ID 0746.1.001.034

Author Name: Carl Jimmie

Organization: Southern Tier Chesapeake Bay TMDL Commenting Coalition

Nutrient Reduction Efforts by New York Bay Significant POTWs

(i) Binghamton-Johnson City Wastewater Treatment Plant

In July 2007, the largest wastewater treatment plant in the New York State portion of the Chesapeake Bay watershed completed construction of an enhanced nitrogen removal treatment facility. Input and design requirements for this upgrade included both NYSDEC and EPA input. Presently, this upgraded WWTP is producing an effluent concentration with a Total Nitrogen concentration of ~6 mg/l and the forecasted final average Total Nitrogen concentration in the effluent is 4 to 6 mg/L.

(ii) Bath Electric Gas and Water Systems (BEGWS)

BEGWS operates the wastewater and water systems for the Village of Bath. In 2007, BEGWS was fully approved by the New York State Department of Health to begin adding polyphosphate (SeaQuest) as a sequestering agent to their water supply, to control iron and manganese. The water system has occasional problems with red water, due to the impacts of iron in the water supply. Although the use of polyphosphates would have alleviated the impacts of iron and manganese for their water customers, BEGWS chose not to pursue the sequestration, because it was estimated that the Total Phosphorus loading to the wastewater treatment plant (and to the receiving waters) would also be increased by approximately 10 percent.

(iii) Village of Canisteo Wastewater Treatment Plant

Over 17 years ago, the Village began to pursue an upgrade/expansion of their wastewater treatment plant. At that time, during the planning process, a decision was made by the Village to replace the existing treatment process (contact-stabilization mode of the activated sludge process) with an entirely new process. The selected process is the sequencing batch reactor (SBR) process, which in the early 1990s was unproven in the region. The SBR process was

selected, in part, because it afforded a higher degree of treatment of the influent wastewater stream. Construction began on the SBR plant in November 1994. Of the 28 Significant Bay Wastewater Treatment Plants in New York State, the Village of Canisteo's wastewater treatment plant produces an effluent stream with one of the lowest concentrations of Total Nitrogen, with an average of roughly 5 mg/l.

In consideration of the Chesapeake Bay Restoration efforts, the Village of Canisteo has opted to discontinue the acceptance of hauled liquid wastes to the WWTP and forgo the associated revenue. From 2004 to 2006, an average of 5000 to 8000 gallons per month of septage was being received and treated at the Village's WWTP. The associated daily Nt loading associated with receiving 7000 gallons of septage per month is estimated to be 1.65 lbs Nt per day. This represents roughly 1.8 percent of the current influent Nt loading to the WWTP. The associated daily Pt loading associated with receiving 7000 gallons of septage per month is estimated to be 0.5 lbs Pt per day. This represents roughly 4.3 percent of the current influent Nt loading to the WWTP. Furthermore, the Village of Canisteo has been approached a cheese producer, regarding the treatment of their dairy by-product waste stream. The Village declined.

When the Village decided not to accept any hauled wastes to their WWTP, to reduce nutrient loadings, this represented a lost revenue for the Village equal to about 4% of their annual budget. In addition to these losses of potential revenues, between 1970 and 2000, the population of Steuben County decreased by approximately 820 people. Over half of this (436) came from the Village of Canisteo.

The above decisions made by the Village, which were logical in terms of keeping both its headworks and effluent loadings of nitrogen and phosphorus low, represent not only direct lost income to the Village, but arguably, treatment of these wastestreams by the Village in its plant which is achieving essentially Limit of Technology Nitrogen would have removed nitrogen from these sources down to the LOT before discharging it to the Bay watershed.

(iv) City of Corning Wastewater Treatment Plant

In 2010, the City of Corning began, on a voluntary trial basis, to add metal salts at its wastewater treatment plant, in an effort to reduce Total Phosphorus concentrations in the effluent stream.

(v) Town of Owego Wastewater Treatment Plant

The Town of Owego began, on a voluntary basis, to modify the operation of its wastewater treatment plants with the goal of optimizing the nutrient removal capabilities. Alterations to the aeration and the addition of carbon sources (sugar) have been experimented with. Effluent Total Nitrogen concentrations have been reduced to roughly 12 mg/L or lower.

(vi) Town of Erwin Wastewater Treatment Plant

The Town of Erwin upgraded and expanded its WWTP in 2001. The WWTP was expanded to meet the increased development and population growth within the Gang Mills area of the Town of Erwin, which was prompted by the expansion of Corning Incorporated's Sullivan Park research facility. As part of the planning for the expansion of the WWTP, EPA was contacted by the design engineers for this project. At that time, EPA advised that effluent nutrient limits, readily achievable through Biological Nutrient Removal (BNR), would be required at some point in the future. Accordingly, the upgraded Town of Erwin's WWTP is a Sequencing Batch Reactor that was voluntarily sized/designed

to incorporate BNR capabilities that could be incorporated in the future.

Response

The totality of this information is contained in Appendix A of the commenter's letter. It is provided as informational background and therefore, no response is required.

7.19 - LAND USE

Comment ID 0070.1.001.002

Author Name: Hughes Robert

Organization: Eastern PA Coalition for Abandoned Mine Reclamation (EPCAMR)

EPCAMR's geographic information system (GIS) known as the Reclaimed Abandoned Mine Land Inventory System (RAMLIS), based on PA DEP's Abandoned Mine Land Inventory System estimates that there are over 1,920 miles of AMD impacted streams on the Integrated List of Impaired waters within the Susquehanna River Basin and there are around 1,924 designated Problem Areas within the Basin that contain abandoned mine land features and polygons that total 12,706 in number and just over 86,230 acres. Around 10, 417 of those features are unreclaimed for a total of 86,232 acres, and around 2,289 features have been reclaimed for a total number of 13,144 acres within the Susquehanna River Basin alone. Between 27-29% of the Susquehanna River Basin is impaired by AMD. Over 530 miles of the impaired miles of streams are within 517 square mile drainage of the Anthracite Coal Fields.

Response

Mines and quarries were included in an extractive land use in the Phase 5.3 Chesapeake Bay Watershed Model. The extractive land use for Pennsylvania was based on information provided to the Chesapeake Bay Program Office from the PA Department of Environmental Protection, Division of Environmental Analysis and Support. The data included active, reclaimed, forfeited, and abandoned surface coal mines, quarries, and gravel pits permit data. Sub-surface mines were not included in the land use dataset.

Comment ID 0070.1.001.022

Author Name: Hughes Robert

Organization: Eastern PA Coalition for Abandoned Mine Reclamation (EPCAMR)

While oil and gas development activities are not subject to NPDES permitting, EPCAMR understands and is aware that the PA DEP has in place an Erosion and Sedimentation Control General Permit (ESCGP-1). In response to the EPA's rulemaking and the effect of the federal Energy Policy Act of 2005, DEP issued the ESCGP-1 for oil and gas activities

that disturb 5 acres or greater at one time over the life of the project. This permit applies to earth disturbance activities for oil and gas exploration, production, processing, treatment operations or transmission facilities (oil and gas industry). The added protection gained through this permit will ensure that proper best management practices (BMPs) will be planned, implemented and maintained for erosion and sediment control and postconstruction stormwater runoff from these activities. In addition, this approach is an incentive for the operator to minimize the disturbed area and restore the area promptly after completion of the well or installation of the pipeline. However, this does not deal with subsurface potential for contamination or underground mine pool complexes and the effects the project may have on AMD discharges that are not located at the site of the project location.

Response

Development activities associated with oil and gas exploration were not included in the land use dataset for the Chesapeake Bay Watershed Model. And the underground mine pool issue, while important, is not part of the Chesapeake Bay TMDL for nitrogen, phosphorous, and sediment.

Comment ID 0226.1.001.004

Author Name: Harris, Jr. Cecil

Organization: Hanover Courthouse, Hanover County, Virginia

however, we have conducted analysis land use data sets and found large variations in derived land use depending on the data set used. In our evaluations urban lands have varied from 50 to 120 percent and agricultural lands vary from 25 to 40 percent. This variability is particularly significant when actual acreages are compared. For example, the variability in agricultural land assessments could equal or exceed the total acreage of urban land. These findings are consistent with other published observations (Pyke, C.R., et. al. 2008).

Response

Fluctuations in the extent of developed lands (impervious and pervious) in different versions of the watershed model are due to changing technology and methods used for mapping developed lands and for inferring change over time. Changes have also been prompted by concerns expressed by the States, local governments, and other interested parties. For each version of the Chesapeake Bay Watershed Model, the Chesapeake Bay Program Office strives to use the best available data and methods to provide information that is accurate, consistent and comparable across the watershed and over time. A new version of the Watershed Model, Phase 5.3.2, will be coming out soon and will include an extent of impervious surface greater than that used in any previous version of the model due to the inclusion of impervious surfaces associated with all roads and single-detached housing units outside of dense urban areas.

Over the past six months, the US Geological Survey (USGS) has conducted additional ground-truthing of assumptions and data used to estimate the extent of impervoius surface in the watershed. In addition, the analytical methods have undergone review by the Chesapeake Bay Program's Scientific and Technical Advisory Committee and are currently in review by USGS.

Agricultural land uses are derived directly from the USDA Census of Agriculture at the County scale then allocated to modeling segments (which are smaller than counties) based on the spatial distribution of agricultural land cover (as mapped from satellite imagery). Variation in agricultural land uses among model versions at the modeling segment scale may be due to differences in the land cover data used to distribute those land uses. The new Phase 5.3.2 version of the watershed relies on a more accurate representation of agricultural land cover (due to the improved mapping of developed areas) compared with all previous versions of the model.

Comment ID 0232.1.001.002

Author Name: Deboer Jay

Organization: Virginia Association of Realtors

The EPA should delay adoption of the TMDL and backstops for at least one year and until no sooner than December 31, 2011 for the following reasons:

--The model used to establish the TMDL has three significant flaws: (1) data used for existing impervious surfaces is overstated by a 2.5 magnitude; (2) the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and (3) the model incorrectly accounts for pollutants from different land uses. It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Response

Fluctuations in the extent of developed lands (impervious and pervious) in different versions of the watershed model are due to changing technology and methods used for mapping developed lands and for inferring change over time. Changes have also been prompted by concerns expressed by the States, local governments, and other interested parties. For each version of the Chesapeake Bay Watershed Model, the Chesapeake Bay Program Office strives to use the best available data and methods to provide information that is accurate, consistent and comparable across the watershed and over time. An updated version of the Watershed Model, Phase 5.3.2, will be coming out soon and will include an extent of impervious surface greater than that used in any previous version of the model due to the inclusion of impervious surfaces associated with all roads and single-detached housing units outside of dense urban areas. Previous versions of the model land use, including Phase 5.3, have generally underestimated the extent of impervious surfaces due to the difficulty of mapping impervious surfaces associated with low density residential areas and rural roads from Landsat satellite imagery.

Over the past six months, the US Geological Survey (USGS) has conducted additional ground-truthing of assumptions and data used to estimate the extent of impervious surface in the watershed. In addition, the analytical methods have undergone review by the Chesapeake Bay Program's Scientific and Technical Advisory Committee and are currently in review by USGS.

The comment does not detail the assertion that the model inadequately counts reductions. BMP and conservation practice effectiveness estimates, which are critical to decision-making, are based on a 2-year study involving extensive peer-reviewed

scientific literature, field studies, and input from technical panels comprised of USDA, NRCS, state land grant universities, state agricultural agencies, and key practitioners.

The Chesapeake Bay Program Partnership watershed model has been in use for over 2 decades. It has been continually refined over that time period. The phase 5.3 watershed model has been built through collaboration with federal, state, academic, and private partners. Development teams at CBPO and USGS include EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the Draft TMDL.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed by several of the above groups. In addition, there have been 2 major independent reviews of the Phase 5 model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board.

In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the draft TMDL. The draft TMDL document has lists of additional TMDL-related meetings in Appendix V.

Comment ID 0235.1.001.006

Author Name: Helsel, Jr. Gordon

Organization: City of Poquoson, Virginia

Approximately one-third of the City's area is composed of a federal wildlife refuge, created from a former bombing range. Poquoson does not control or have access to this area, and should not be responsible for any pollutant-laden runoff or sediment from the property.

Response

The land use data used in the Phase 5.3 watershed model accurately depicts the extent of the federal wildlife refuge and loads associated with those lands will be attributed to the federal government.

Comment ID 0235.1.001.015

Author Name: Helsel, Jr. Gordon

Organization: City of Poquoson, Virginia

The fast pace and vast size of the TMDL program requires the EPA to make model input assumptions. A waste load allocation that is based on an assumed impervious land use rate and Poquoson's size would result in an excessively high allocation. The area of land within Poquoson's jurisdictional boundaries that can actually be treated for water quality or that could be realistically subject to waste load allocations is much smaller than the City's total acreage. This is because:

• Approximately one-third of Poquoson's land mass is composed of the Plum Tree Island National Wildlife Refuge. This is federal government-owned property, under the control of the Department of the Interior. Because of its past life as a bombing range, access to this area is restricted. Poquoson has no control over this area, and cannot provide mitigation for sedimentation or pollutant-laden runoff from this property. In order to be achievable, program requirements must reflect actual treatable land, not total City acreage.

• A significant portion of City acreage is located within conservation districts. This land is primarily composed of tidal wetlands. It does not contain impervious area.

• A significant portion of Poquoson's impervious area has already been provided water quality treatment. Per the Chesapeake Bay Act and our local City Code, all new impervious area in excess of 16% of the development's total area is treated. As the EPA has not requested actual land use data from localities, this treatment level is likely not reflected in Chesapeake Bay Model input data.

Response

The land use data used in the Phase 5.3 watershed model accurately depicts the extent of the federal wildlife refuge and loads associated with those lands will be attributed to the federal government. Tidal wetlands are represented as "woody open" in the Phase 5.3 model and not as impervious surface.

Comment ID 0298.2.001.010

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC)

EPA HAS FAILED TO PROVIDE THE HR LOCALITIES WITH ACCESS TO INFORMATION NEEDED TO FULLY EVALUATE AND COMMENT ON THE PROPOSED URBAN RUNOFF ALLOCATIONS

A. CBWM Input Mapping Data

To date EPA has not been able or has been unwilling to document the tremendous amount of input data and code required for the TMDL modeling effort. The Virginia Department of Conservation and Recreation requested mapping from the Chesapeake Bay Program Office (CBPO) that would indicate locations of various urban land use categories (such as Impervious High Intensity, Impervious Low Intensity, Pervious High Intensity, and Pervious Low Intensity) used

in the Phase 5.3 TMDL modeling. CBPO indicted that significant effort would be required to produce such mapping, and refused to do so. Likewise, there is very little documentation that would allow modelers outside EPA to ascertain how the data was collected and synthesized, which makes working with CBWM a highly unreliable proposition at the state and local levels. More thorough disclosure of documentation is needed, not merely on the model, but just as importantly on the data. The City of Newport News will defend vigorously any claim of waiver due to failure to submit comments to the TMDLs on the basis that EPA withheld pertinent information to evaluate the program.

Response

Documentation describing the data and methods used to create the land use inputs to the Phase 5.3 model, and the actual data, are available to the public for download from the Chesapeake Bay Program Office website:
http://www.chesapeakebay.net/phase5.htm

Comment ID 0327.1.001.002

Author Name: Stewart Steve

Organization: Baltimore County

• Urban land use: The urban land use changed markedly between the Phase 5.2 and Phase 5.3 Watershed Model results. There was a considerable decrease in urban land, primarily in the low-density pervious urban category. This needs to be corrected in future model runs with input from not only the states, but from local government. While Baltimore County agrees that the urban land use acreage in the Phase 5.3 model is low, the Maryland State Department of Planning urban land use acreage is too high. This low-density residential, in particular has too high an acreage of pervious urban land. In the process of preparing the Water Resources Element, Baltimore County found that as much as 30% of the low-density residential was actually forest cover.

Response

Fluctuations in the extent of developed lands (impervious and pervious) in different versions of the watershed model are due to changing technology and methods used for mapping developed lands and for inferring change over time. Changes have also been prompted by concerns expressed by the States, local governments, and other interested parties. For each version of the Chesapeake Bay Watershed Model, the Chesapeake Bay Program Office strives to use the best available data and methods to provide information that is accurate, consistent and comparable across the watershed and over time. A new version of the Watershed Model, Phase 5.3.2, will be coming out soon and will include an extent of impervious surface greater than that used in any previous version of the model due to the inclusion of impervious surfaces associated with all roads and single-detached housing units outside of dense urban areas. The extent of impervious and pervious developed lands associated with low density residential development will likely be underestimated in the Chesapeake Bay Watershed Model compared with estimates developed by the MD Department of Planning because it is not possible to accurately map the extent of very large lot (5-20 acre) residential development using the

methods employed to develop the Phase 5.3 and Phase 5.3.2 land uses. Such areas will likely be classed as "woody/open" in the watershed model land use dataset.

Over the past six months, the US Geological Survey (USGS) has conducted additional ground-truthing of assumptions and data used to estimate the extent of impervious surface in the watershed. In addition, the analytical methods have undergone review by the Chesapeake Bay Program's Scientific and Technical Advisory Committee and are currently in review by USGS.

Comment ID 0354.1.001.002

Author Name: Fickbohm Scott

Organization: Otsego County Soil and Water Conservation District

Had it been measured, it is likely that this trend would have been shown to begin at the turn of the century with the loss of the industrial manufacturing, agricultural and logging sectors from the region and as secondary growth forest ecosystems began to replace each to become the dominate land-use - a trend that continue to this day.

The very high quality of New York's headwaters also comes from a long track record of implementing nonpoint source best management practices and adherence to strict point source regulations established by the southern tier's network of natural resource professionals, farmers, landowners and municipalities.

Response

Please see response to Comment number 0080-cp.001.002

Comment ID 0399.001.004

Author Name: Comment Anonymous

Organization: Town of Erwin, New York

WHEREAS, the TMDL allocations imposed by EPA are inequitable in that New York State represents 4% of the population in the Chesapeake Watershed and 9.7% of the overall land area in the Watershed, 76% of which is forested, and

WHEREAS, New York State discharge is cleaner than any other state in the Watershed, and if all other downstream discharge were of the same quality as New York State's current discharge, the Bay would not have dead zones,

Response

Please refer to response to Comment number 0080-cp.001.002.

7.20 - GENERAL/MISCELLANEOUS

Comment ID 0038.1.001.021

Author Name: Eisen Professor Joel

Organization: University of Richmond Environmental Law and Policy

According to Anne Jennings' presentation 34% of our Bay's problems come from agriculture and 30% comes from wastewater treatment plants. Those two sources of pollution must be inspected closely on the TMDL and WIP, They are the two leading causes of pollution and I consider them the most crucial areas to evaluate and fix.

Response

Efforts in both wastewater treatment and agriculture, as well as other sectors, are important to the TMDL and the WIPs.

Comment ID 0050-cp.001.002

Author Name: Simonds Shelly

Organization:

Many of us have stopped allowing our children to swim in the James River after rainstorms because of dangerous levels of pollution.

Response

The Chesapeake TMDL addresses nutrients and sediment but does not directly cover bacteria or toxic pollutants, which also may impair the recreational uses of the James. Implementation of the Bay TMDL should improve the water quality of the James, including reducing many pollutants besides nutrients and sediment since the pollution reduction practices for nutrients and sediment also yield substantial reductions to other pollutants. As an example, fencing livestock out of streams reduces both nutrients and bacteria.

Comment ID 0063.1.001.003

Author Name: Jones Martin

Organization: Fertilizer Institute (TFI)

TFI represents the nation's fertilizer industry including producers, importers, retailers, wholesalers as well as companies that provide services to the fertilizer industry. TFI members own and operate facilities in the Chesapeake Bay watershed. Many hold National Pollutant Discharge Elimination System (NPDES) permits for point source or stormwater discharges into the Chesapeake Bay waters that would be affected by the Total Maximum Daily Loads (TMDLs) proposed by EPA. In addition, TFI members' products (e.g., fertilizers) are applied to the land and the Draft TMDL has the potential to affect their use.

Response

EPA acknowledges the comment.

Comment ID 0064-cp.001.001

Author Name: Hutchins Lawrence

Organization: Quail's Nest Industries

You have to recognize the difference between Forested Land and non-forested in relation to TMDLs.

Response

The TMDL does consider that forested and non-forested lands have different loads and different potential for reduction. Forested loads per acre are generally the lowest of any land use in the watershed model. See Section 6 of the TMDL.

Comment ID 0073-cp.001.002

Author Name: Comment Anonymous

Organization:

We need to look closely at the sale of over the counter fertilizer used by homeowners. I as a small farmer cannot afford to apply at rates above what my soil samples recommend. A homeowner who pays a small amount for fertilizer to apply to their quarter acre lot can very reasonably afford to apply ten times the rate of fertilizer necessary and no doubt never obtain soil samples! I will keep this short by ending with a locla neibhors story he applied 300 lbs of 18-18-18 to his yard before selling his home because he wanted his yard to be green. I am not making this up an you are welcome to call me to confirm this. It is high time you look at the other issues that are causing problems in the bay.

Response

The residential application of fertilizer is one of many sources of excess nutrients effecting the Bay. EPA includes fertilizer applications to lawns in the TMDL analysis and give credit when plans are made to reduce lawn applications. The analysis tools

that are used in the TMDL consider all sectors: waste water, forest, agriculture, runoff from developed areas, and atmospheric deposition.

Comment ID 0089.1.001.001

Author Name: Hunter J. And M.

Organization:

We (farmers, foresters, green industry, agribusiness suppliers, processors, etc.) are committed to environmental stewardship. Clean water and good soil are fundamental to our businesses. We have been doing our part- and will continue to do so in order to help create a healthy Chesapeake Bay and local waters. Specifically:
--Agriculture has met 52% of reduction goals for Nitrogen and 50% for Phosphorus and Sediment-all through a voluntary, incentive based program in Virginia. This doesn't even count the actions farmers are taking on their own without funding.
--According to the Virginia Department of Forestry, 83% of logging jobs use the proper combination of best management practices
--University studies have shown that turfgrass, when maintained properly, serves as an excellent filter for stormwater runoff, can be a carbon sink, and captures sediment.

Response

Significant progress has been made in implementation of management practices to reduce nitrogen, phosphorus, and sediment over the past 2-3 decades and this has resulted in observed decreases in nitrogen, phosphorus, and sediment concentration independent of flow in many areas of the watershed.
http://www.chesapeakebay.net/status_flowadjustednitrogen.aspx?menuitem=50308
http://www.chesapeakebay.net/status_flowadjustedphosphorus.aspx?menuitem=50309
http://www.chesapeakebay.net/status_flowadjustedsediment.aspx?menuitem=50310

However, the water quality standards in the Chesapeake have not been met and the TMDL is a requirement under federal law and responds to consent decrees in Virginia and Washington D.C. dating back to the late 1990s. (see the Draft TMDL Executive Summary)

Comment ID 0160-cp.001.001

Author Name: Comment Anonymous

Organization:

I, as a resident of the affected area for the proposed TMDL limits for the Chesapeake Bay watershed am somewhat concerned that to much emphasis is being placed on the farmers and not enough on the Urban areas. How about all the of the run off from the hugh parking areas, not to mention the thousands of rooftops that pour polluted water into the

bay. I understand that the airports use a type of antifreeze to de-ice the planes and runways, are they changing to another type that will not pollute the bay? Their are a lot of other areas that need to be looked at before you start tightening the noose around the farmers neck. Remember don't complain about the farmers with your mouth full of food.

Response

Urban areas are significant sources of nutrient and sediment pollution. Unlike some other sectors such as agriculture, urban sources have been increasing.

The analysis tools that are used in the TMDL consider all sectors: waste water, forest, agriculture, runoff from developed areas, and atmospheric deposition. The states may submit Watershed Implementation Plans with any combination of practices with reasonable assurance of implementation. These plans are written to plan for reduction in nutrients from all sectors. Airports are counted in with other types of developed land

The restoration of the Bay requires reductions from all sectors including both agriculture and urban lands. EPA has based the TMDL allocations on achieving those reductions.

Comment ID 0166.001.001

Author Name: Marhugh D.

Organization:

I am Doug Mayhugh, a dairy farmer in Culpeper County, My farm is located along Mountain Run which flows into the Rappahannock River. Mountain Run is an impaired stream long before it reaches my property. It is impaired as it comes out of the Town of Culpeper before it reaches the two dairy farms that are along Mountain Run before reaching my dairy farm.

As I understand it, the TMDL for each stream that flows into Bay watershed is not acceptable to EPA and these TMDL's must be lowered. I also understand that there are streams coming out of Shenandoah National Park that have unacceptable TMDL's due to wildlife defecating in streams and the natural runoff of water from forest decomposition of trees and leaves. I also understand that municipalities let storm sewers drain into streams with untreated runoff from streets, parking lots, rooftops, and other public areas. Fertilizer use in lawns and golf courses, is unregulated and the amount used per 1000 sq.ft. Area is far more than any of us involved in production agriculture can afford to use.

Response

The Chesapeake TMDL is to control Nitrogen, Phosphorus, and Sediment. Wildlife sources are often an important consideration in bacterial TMDLs, but are rarely, if ever, considered in nutrient TMDLs. Wildlife grow bacteria internally that would not exist without wildlife, increasing the overall bacteria counts. However, wildlife only cycle nutrients that already existed in the system and are considered part of the forest load of nutrients.

The analysis tools that are used in the TMDL consider all sectors: waste water, forest, agriculture, runoff from developed areas, and atmospheric deposition. Developed area loads include fertilizer applications to turfgrass and we give credit when plans are made to reduce applications.

Comment ID 0193.1.001.003

Author Name: Newsome Michael

Organization: Home Builders Association of Virginia (HBAV)

It has been well documented, and the EPA has acknowledged that, at tremendous expense, Virginia has made tremendous progress in reducing nitrogen, phosphorous, and sediment discharges into the Chesapeake Bay and its tributaries from all source sectors since 1985. Virginia Nitrogen loads have been reduced from almost 90 million pounds per year to just above 60 million pounds per year.

Phosphorous loads have been reduced from almost 12 million pounds per year to just over 6 million pounds per year. And, the Commonwealth and its citizens have made a big public commitment to continue the state's own pollution diet.

Response

Significant progress has been made in implementation of management practices to reduce nitrogen, phosphorus, and sediment over the past 2-3 decades and this has resulted in observed decreases in nitrogen, phosphorus, and sediment concentration independent of flow in many areas of the watershed.
http://www.chesapeakebay.net/status_flowadjustednitrogen.aspx?menuitem=50308
http://www.chesapeakebay.net/status_flowadjustedphosphorus.aspx?menuitem=50309
http://www.chesapeakebay.net/status_flowadjustedsediment.aspx?menuitem=50310

However, the water quality standards in the Chesapeake have not been met and the TMDL is a requirement under federal law and responds to consent decrees in Virginia and Washington D.C. dating back to the late 1990s. (see the Draft TMDL Executive Summary)

Comment ID 0201.1.001.001

Author Name: Fawver Gary

Organization: Pennsylvania Department of Transportation

It is well documented that runoff from roadway surfaces is not a major source of nitrogen and phosphorous loading in surface waters because the primary sources of these nutrients are atmospheric deposition and fertilizer applications. PennDOT limits its use of fertilizers to promoting the establishment of turf and other planting where none existed. PennDOT does not use fertilizers on established vegetation within its right of way except in limited instances to control

invasive broad leaf plants while promoting turf establishment. PennDOT has detailed policies for the applications of fertilizers. Adjacent land use is likely one of the more important factors influencing their associated concentrations in highway runoff.

Response

Based on research conducted on the National Stormwater Quality Database, Nitrogen and Phosphorus loading from 'freeway' and 'mixed freeway' were not distinguishable statistically from other developed land use types. See http://unix.eng.ua.edu/~rpitt/Research/ms4/NSQD%20Summary%20Table%20Ver%201_1%20043005.doc for a statistical summary.

In most land use types, including developed land uses, atmospheric deposition and nutrient applications are considered as part of the simulation in the watershed model and part of the load from that land use. EPA appreciates the restricted use of fertilizer by PennDOT.

Comment ID 0210.1.001.003

Author Name: Tolbert J.R.

Organization: Virginia Chapter-Sierra Club

Unfortunately, the bay is also one of the world's most fragile ecosystems, and for decades it's been in poor condition. Each year, nearly 300 million pounds of nitrogen pollution end up in the Chesapeake Bay. This pollution comes from run-off from agricultural facilities, poor stormwater management from developments and urban areas, and outdated sewage treatment plants.

Response

EPA agrees with the commenter that the Chesapeake Bay receives more nitrogen than it can assimilate and still attain water quality standards and that all sectors are significant sources of nutrient and sediment pollution.

The analysis tools that are used in the TMDL consider all sectors: waste water, forest, agriculture, runoff from developed areas, and atmospheric deposition. The restoration of the Bay requires reductions from all sectors.

Comment ID 0210.1.001.007

Author Name: Tolbert J.R.

Organization: Virginia Chapter-Sierra Club

The Bay and its tidal tributaries are overwhelmed with nutrients (nitrogen and phosphorus) and sediment. The excess

nutrients fuel harmful algal blooms that rob the water of oxygen while sediment block sunlight from reaching underwater bay grasses, all of which creates a dead zone that many summers takes up one-third of the Chesapeake Bay. The main sources of nitrogen, phosphorus and sediment are agriculture, urban and suburban runoff, wastewater, and airborne contaminants. Agriculture is the largest source of nutrient and sediment pollution in the watershed.

Response

See response to 0210.1.001.003. EPA agrees with the commenter on excess nutrients causing water quality violations and that all sectors contribute nutrient and sediment loads. EPA further agrees that agriculture is the largest sector when sectors are broken out as above.

Comment ID 0227.1.001.004

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

The predominant sources of the nitrogen, phosphorus, and sediment loads are well known. For nitrogen, the principal sources are agriculture, wastewater treatment plants, polluted stormwater from developed areas and air deposition. Phosphorus is mainly the result of agriculture, wastewater and stormwater from development. Sediment comes mostly from agriculture and stormwater from development, or from stream beds and banks eroding due to increased flows caused by runoff from impervious land covers.

Response

The analysis tools that are used in the TMDL consider all sectors: waste water, forest, agriculture, runoff from developed areas, and atmospheric deposition.

Comment ID 0267.1.001.016

Author Name: Bowman Cynthia

Organization: Cornell Law School Water Law Clinic

New York's current water quality-the highest of any of the Watershed Partners [FN 5]-has been achieved by years of collaboration with local communities to reduce nitrogen, phosphorus, and sediment loading through a number of innovative methods addressing both point and nonpoint sources.

[FN 5] See WIP I at 6.

Response

See response to 0080-cp.001.002

Comment ID 0267.1.001.026

Author Name: Bowman Cynthia

Organization: Cornell Law School Water Law Clinic

In setting TMDL allocations for New York, it is crucial that EPA account for other unique impacts on the state's water quality, namely those posed by potential high-volume natural gas drilling on the Marcellus Shale. The Clinic's experience in working with local governments to assess the potential impacts of natural gas drilling on road infrastructure persuades us that the level of nutrient reduction envisaged by EPA for New York will be impossible to achieve if natural gas drilling, currently subject to a New York State moratorium, begins in the area.

Road damage created by gas drilling trucks, along with impacts from constructing extensive pipelines, will result in significant sediment and nutrient erosion. A vast majority of the town and county roads in the New York portion of the watershed are not designed to withstand the heavy-load and high-volume truck traffic necessary for drilling activities. Field observations elsewhere have consistently demonstrated that the large-scale industrial activities associated with gas drilling, the construction of multiple pipeline rights of way, and the inordinately heavy traffic on rural roads and back roads together create incalculable loads of sediment and pollutants that are conveyed to streams in runoff.[FN 16] Yet, neither the draft Bay TMDL, nor EPA's evaluation of the New York Phase 1 WIP addresses natural gas drilling issues. EPA cannot continue to ignore a consequence of this magnitude if it is to set sediment and nutrient allocations that are reasonable and practicable for New York.

[FN 16] M. Lovegreen, Presentation to the Cornell Law School Land Use Clinic, Perspective on Gas Wells, Bradford County Soil Conservation District (March 2005).

Response

Extractive land use is explicitly considered in the model used for the TMDL (pages 5-30 and 5-33 of the draft TMDL document). Due to limited data and the late emergence of this watershed activity, natural gas drilling is not considered as a separate land use.

As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, “prior to 2017, EPA plans to review the full suite of the partnership’s Bay models based on the best available science and decision-support tools and consider whether updated models should be developed to support phase III implementation plans and potential modifications to the Bay TMDL allocations.”

New data and science will always continue to become available and, as stated in the above mentioned letter, EPA is using an adaptive management approach to incorporate new information as it becomes available with scheduled upgrades during 2011 and 2017. There is no anticipation of jurisdictions over-controlling nutrients in the interim.

Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf

Comment ID 0267.1.001.028

Author Name: Bowman Cynthia

Organization: Cornell Law School Water Law Clinic

- EPA must start addressing natural gas drilling issues when determining TMDL allocations for New York.

Response

See response to comment 0267.1.001.026

Comment ID 0308-cp.001.004

Author Name: Kreher Hal

Organization:

Also I believe that the EPA is focusing too much on agriculture and not enough on turf (lawn and golf course) fertilization or the fact that storm water is often comingled with sanitary sewers overwhelming water treatment plants. Another issue is that a large part of the watershed has been paved over which prevents infiltration and increases nutrient runoff. Not enough is being done about these aspects of the issue.

Response

The analysis tools that are used in the TMDL consider all sectors: waste water, forest, agriculture, runoff from developed areas, and atmospheric deposition. See section 5 of the draft TMDL documentation.

EPA agrees with the commenter that urban areas are significant sources of nutrient and sediment pollution, and further that unlike some other sectors such as agriculture, developed land sources have been increasing. Agriculture is the largest single sector.

The restoration of the Bay requires reductions from all sectors including both agriculture and urban lands. EPA has based the TMDL allocations on achieving those reductions.

Comment ID 0329.1.001.004

Author Name: Harrington Marilou

Organization: Town of Caroline, New York

Whereas, New York accounts for 10% of the total watershed area which is mostly forested (76%), is home to 4% of the total population in the watershed with agriculture (21%) being the dominant business sector; and

Response

These figures are in reasonable agreement with EPA figures

Comment ID 0345-cp.001.002

Author Name: D'Ardenne Dwayne

Organization: City of Roanoke, Virginia

- According to the Virginia Department of Agriculture and Consumer Services, only 1.2% of all nitrogen fertilizer sold in Virginia is for non-farm use. Despite the very low amount of nitrogen sold for non-farm use, turfgrass is treated in the Bay TMDLs as a major contributor to nitrogen runoff into the Bay. Science does not justify that claim.

- University studies have shown that turfgrass, when maintained properly, serves as an excellent filter for stormwater runoff, can be a carbon sink, and captures sediment.

Response

EPA agrees that grasses have high nutrient uptake rates and are useful in cover crops, swales, buffers, and in other runoff-filtering applications.

When setting the range of loads from developed areas and determining the sensitivity to inputs (including those from turfgrass) EPA used a great deal of peer-reviewed research was used. In addition these assumptions were reviewed through open meetings of the Chesapeake Bay Program urban workgroup, water quality goal implementation team, and modeling subcommittee. These groups have representation from state government, academics, environmental advocacy, and trade organizations. The watershed model has also had two independent peer reviews in 2005 and 2008.

The phase 5.3 watershed model has been built through collaboration with federal, state, academic, and private partners. Development teams at CBPO and USGS include EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

The technical direction and review of the Chesapeake Bay Program Partnership’s models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are

open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the Draft TMDL.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed by several of the above groups. In addition, there have been 2 major independent reviews of the Phase 5 model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board.

Comment ID 0354.1.001.003

Author Name: Fickbohm Scott

Organization: Otsego County Soil and Water Conservation District

A general understanding of the role of headwaters in watershed-wide nutrient transport and the impact of conservation practices and a specific observation of the southern tier's history and it's small contribution to the Bay system, demonstrates that a headwaters function in a watershed is, in fact, one of supplying clean water to the system. The model got this right.

Unless something reverses the long-term trends mentioned above, it is likely that the quality of the water leaving New York and entering Pennsylvania will remain very high and that New York will never be a significant source of the Bay's pollution.

Response

See response to 0080-cp.001.002

Comment ID 0382-cp.001.002

Author Name: Combs Tina

Organization: Chamber of Commerce, Martinsburg and Berkeley County, West Virginia

Pollutant sources for which reductions must be harvested include agriculture, forest, developed land (urban runoff), septic systems (all, collectively, "non-point sources") and wastewater treatment plants ("point sources"). Of these sources, West Virginia treatment plants are estimated by EPA to contribute 1% of the nitrogen and 3% of the phosphorus into the Bay. Agriculture is the single largest source of pollutants into the Bay, estimated to contribute 44% of the total nitrogen and phosphorus loads into the Bay. Municipal wastewater facilities (throughout the Bay watershed) are estimated to contribute 17% of the total nitrogen and 16% of the total phosphorus into the Bay.

Response

See response to 0257.1.001.002

Comment ID 0410.1.001.024

Author Name: Pujara Karuna

Organization: Maryland State Highway Administration (SHA)

We do not agree that roadways should be included in the urban stormwater sector when applying pollutant loading. The pollutant loadings for roadways and highways are different from. other types of impervious surfaces such as rooftops or residential, commercial or business development. The loadings can also differ based on average daily traffic for the roadway which is. important when developing controls at the smaller watershed level. We request that consideration be given to developing separate roadway sectors. SHA owned open areas have different pollutant loadings. SHA does not apply fertilizer for its roadside areas. SHA also employs nutrient management plan for all of its capital improvement construction projects which includes soil testing and Nutrient Management Plan (NMP) for each site to minimize pollutants to the extent possible. Construction sites are monitored for vegetative cover in addition to NMP implementation.

Response

Based on research conducted on the National Stormwater Quality Database, Nitrogen and Phosphorus loading from 'freeway' and 'mixed freeway' were not distinguishable statistically from other developed land use types. See http://unix.eng.ua.edu/~rpitt/Research/ms4/NSQD%20Summary%20Table%20Ver%201_1%20043005.doc for a statistical summary.

As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, “prior to 2017, EPA plans to review the full suite of the partnership’s Bay models based on the best available science and decision-support tools and consider whether updated models should be developed to support phase III implementation plans and potential modifications to the Bay TMDL allocations.”

New data and science will always continue to become available and, as stated in the above mentioned letter, EPA is using an adaptive management approach to incorporate new information as it becomes available with scheduled upgrades during 2011 and 2017. There is no anticipation of jurisdictions over-controlling nutrients in the interim.

Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf.

Comment ID 0448-cp.001.002

Author Name: Repman L.

Organization:

In review, I am urging that a breaking from businesses occur, as we no longer need them leaving their footprint behind anymore. Through steel and coal, we here in Pa and all in the watershed feel the effects of AMD. We do not need to repeat history again and suffer from benzene or radioactive elements as a result of hydrofracking. What was done in 2005 with the oil and gas industry exemption remains a wrongdoing that needs righted. With this Clean Water Section, the companies need to be held accountable to the federal regulations.

Response

The Chesapeake TMDL is for the effects of nitrogen, phosphorus, and sediment on the water quality of the tidal Chesapeake system. The other effects that you mention are addressed through other regulatory mechanisms

Comment ID 0473.1.001.003

Author Name: Pechart Michael

Organization: Pennsylvania Department of Environmental Protection and Department of Agriculture

In addition, Pennsylvania has provided leadership in programs to reduce nutrient loadings from municipal and industrial wastewater treatment facilities. Pennsylvania's Chesapeake Bay Compliance Plan was developed in 2006 in response to the adoption of new water quality standards established for the Chesapeake Bay. The plan sets forth how almost 200 of the largest point source facilities will achieve reductions based on their contribution to the overall load going to the Chesapeake Bay. Significant wastewater treatment plants, over 0.4 million gallons per day (MGD), were divided into phases by Total Nitrogen (TN) load. The facilities in Phase 1 (63 plants) have 85 percent of the load, those in Phase 2 (47 plants) have 10 percent of the load, and those in Phase 3 (73 plants) have 5 percent of the load.

Significant progress has been made in the implementation of the point source portions of the Compliance Plan. All of the 63 Phase 1 National Pollutant Discharge Elimination System (NPDES) permits are already issued. Forty-three of the facilities will be in compliance by 2011, another 13 will be in compliance by 2012, and the remaining 7 will be in compliance by 2015. NPDES permits for Phase 2 facilities will be issued by the end of this year or early next year. In March 2010, Section 92.8a planning letters were sent to Phase 3 facilities.

As a result of these and other efforts to control the delivery of nutrients and sediment to the Chesapeake Bay from point sources and nonpoint sources, progress has been made to reduce nitrogen and phosphorus pollution of the local waters in the Pennsylvania watershed. According to EPA's current watershed model, the Commonwealth has achieved 28 percent of the total nitrogen reductions needed and 46 percent of the total phosphorus reductions needed. This progress has been made despite the significant amount of nitrogen deposition that occurs, as described in Section 4 of the draft TMDL.

Response

see response to 0251.1.001.004

Comment ID 0503.1.001.001

Author Name: Skillen James

Organization: RISE (Responsible Industry for a Sound Environment)

RISE is a national not-for-profit trade association representing more than 225 producers and suppliers of specialty pesticide and fertilizer products to both the professional and consumer markets. RISE member companies manufacture more than 90 percent of domestically produced specialty fertilizers used in the United States, including consumer lawn and garden, golf course and other professional turf and lawn care, greenhouse and nursery products. RISE members are important stakeholders in the TMDL process. Our members have a tremendous amount of information about how consumers and professionals use fertilizer products. For example, we know specialty fertilizer use is typically less than 3% of the total fertilizer tonnage used in each state.

General Comments on the TMDL

Thick healthy lawns can play a significant role in protecting the Chesapeake Bay. Healthy lawns provide the following benefits:

--Lawns trap particles (pollution)
--Lawns slow runoff velocity (promote infiltration)
--Lawns stabilize soil (prevent erosion)
--Lawns absorb carbon dioxide
--Lawns produce oxygen

The EPA acknowledges some of these benefits in their definition of Swales: Grassed in the Municipal Separate Storm Sewer Systems (MS4) Questionnaire.

The United States Department of Agriculture (USDA), based upon research conducted in the Choptauk River watershed, now recommends planting a cover crop of rye grass after harvest to reduce nutrient losses from farming activities to the Chesapeake Bay. Rye grass is planted because grasses are very efficient in their use of nutrients, thus preventing any movement of nutrients away from the site.

The United States Department of Transportation (USDOT) requires planting turf grass alongside roads to prevent erosion and to filter runoff from the highway. These and other benefits turf grass provides are well documented in peer reviewed research conducted in the Chesapeake Bay watershed.

The specialty fertilizer market does not include agriculture; therefore, in a typical state the annual tonnage for specialty fertilizers sales is usually less than 3% of the total amount of fertilizer sold into the state. This percentage can vary from state to state based upon the agricultural commodities produced within each state. We believe a careful analysis of the fertilizer tonnage data for each Chesapeake Bay state is an appropriate start to gaining a better understanding of the significant fertilizer use patterns in the bay's watershed.

We believe our unique knowledge of consumer product use is invaluable to making meaningful changes to improve the bay. For example:

--50% of homeowners do not apply any fertilizer to their lawns on an annual basis.
--12% of homeowners contract with a professional lawn care company.
--38% of homeowners that engage in the do-it-yourself (DIY) fertilizer market each year.

These DIY consumers make less than two fertilizer applications a year to their lawns. This rate of application is less than the maintenance level of fertilization recommended by most turf researchers. One important step to a healthy bay is proper fertilizer use to create and maintain healthy lawns.

This issue is so important to our members that we gathered the top turfgrass researchers from around the country to present their research on the transport of nutrients and pesticides in the environment. The papers presented at the symposium were peer-reviewed and published by the American Chemical Society. The book is part of the ACS Symposium Series #997, the book is entitled The Fate of Nutrients and Pesticides in the Urban Environment and was edited by Mary T. Nett; Mark J. Carroll, PhD (University of Maryland); Brian P. Horgan, PhD (University of Minnesota) and A. Martin Petrovic PhD (Cornell University).

What did we learned at our symposium?

--Nutrient losses from unfertilized turf are greater than from fertilized turf

So we have a lot of information to share with the Chesapeake Bay Program. We certainly agree, all residents that live within the Chesapeake Bay watershed must do their part to help protect the bay. The Chesapeake Bay TMDL is designed to address nutrients (nitrogen and phosphorus) and sediment contributions to the bay. We know that homes with thick healthy lawns will protect the Chesapeake Bay; thick healthy residential lawns are part of the solution.

Response

As pointed out in the comment, the EPA agrees that grasses have high uptake rates and are useful in cover crops, swales, buffers, and in other runoff-filtering applications. The percentage of homeowners using professional or DIY fertilizer applications matches the assumptions in scenario builder as part of the TMDL calculations.

Thank you for the information on recent research. To determine the effect of fertilization on nutrient runoff, we are using our calibrated watershed model and also recommendations from the groups providing technical direction to the modeling effort.

The phase 5.3 watershed model has been built through collaboration with federal, state, academic, and private partners. Development teams at CBPO and USGS include EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are

co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the Draft TMDL.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed by several of the above groups. In addition, there have been 2 major independent reviews of the Phase 5 model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board.

Comment ID 0512.1.001.012

Author Name: Lehman Megan

Organization: County of Lycoming, Pennsylvania

Comment #12 - The County believes that the EPA needs to partner with scientific and technical experts to develop new technologies that can be implemented in the various sectors contributing to the nutrient and sediment load. However, these new technologies should be evaluated for cost-effectiveness (especially compared to existing BMPs) when any state or federal resources are being devoted to these projects.

Response

Please see response to 0139.1.001.017.

Comment ID 0516.1.001.003

Author Name: Winegrad Gerald

Organization: Senior Bay Scientists and Policy Makers for the Bay

The EPA and the Bay states have repeatedly failed by wide margins to achieve the agreed upon nutrient and sediment reductions necessary to restore the Bay, particularly from agriculture and from existing and new development. This is due to a failure to adopt the necessary measures to accomplish these reductions. While we fully support increased federal funding for direct, verifiable reductions from nonpoint sources, we are more convinced than ever that the current mostly voluntary approach to agricultural pollutants, especially animal waste, has not and will not succeed without mandatory, enforceable regulations. At best, the agricultural sector has only achieved one-half of the agreed-upon nutrient and sediment reductions after 27 years of funding enhancements. Further, pollutants flowing from developed lands are the only major pollution source that has been increasing, not decreasing, and it is clear that the states are not doing all that is necessary to control development and the resultant significant increases in impervious surfaces. There also has been a failure to retrofit existing developed areas for better stormwater control as called for in the Tributary Strategies.

Response

EPA agrees with the commenter that the Chesapeake Bay receives more nitrogen than it can assimilate and still attain water quality standards and that all sectors are significant sources of nutrient and sediment pollution.

The analysis tools that are used in the TMDL consider all sectors: waste water, forest, agriculture, runoff from developed areas, and atmospheric deposition.

The restoration of the Bay requires reductions from all sectors including both agriculture and urban lands. EPA has based the TMDL allocations on achieving those reductions.

Comment ID 0540-cp.001.001

Author Name: Goodsell Martha

Organization: Fallow Hollow Deer Farm, LLC

It is unfair that the TMDL focuses primarily on agriculture in New York, and does nothing to consider impacts of Marcellus Shale gas drilling on those numbers. I would encourage the EPA to reconsider the impacts that gas drilling will have on soil disturbance in the entire water shed and re-evaluate the model used to calculate those impacts.

Response

see response to comment 0267.1.001.026

Comment ID 0554.1.001.002

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

As President Obama's EO states, "The Chesapeake Bay is a national treasure constituting the largest estuary in the United States and one of the largest and most biologically productive estuaries in the world."[FN2] But few resources have been hit so hard by human activity. The Bay's immense watershed - approximately 64,000 square miles over six states and the District Columbia - has seen staggering population growth over the years and now houses about 17 million people. Resulting agricultural, urban, and industrial activities have polluted and impaired the Bay and its watershed, placing its wildlife at risk, endangering public health, and drastically diminishing the once astounding commercial shellfisheries and fisheries that have defined this region.

[FN2] 74 Fed. Reg. 23,099 (May 15, 2009).

Response

EPA agrees with the commenter that the Chesapeake Bay receives more nitrogen than it can assimilate and still attain water quality standards and that all sectors are significant sources of nutrient and sediment pollution.

Comment ID 0571.1.001.017

Author Name: Rountree Glynn

Organization: National Association of Home Builders (NAHB)

VI The TMDL Fails to Fully Consider All Sources, Inappropriately Targets Construction Activities, and Fails to Address Risks to the Restoration Program.

To meet the overall goals of the Bay's restoration, the TMDL must address all sources contributing to the Bay's deterioration, allocations must be proportional to the amount of pollutants each source contributes, and the need for restoration must be balanced with the need for growth. As proposed, however, the TMDL meets none of these goals.

Response

See responses to 0571.1.001.018 and 0571.1.001.019.

Comment ID 0587.1.001.012

Author Name: Watts George

Organization: U.S. Poultry & Egg Association, National Turkey Federation (NTF), and National Chicken Council (NCC)

8. Issues raised by Conservation Effects Assessment Project (CEAP)

The US Department of Agriculture Natural Resources Conservation Service released the draft CEAP report entitled Assessment of the Effects of Conservation Practices on Cultivated Cropland in the Chesapeake Bay Watershed (October 2010). As detailed in this document:

The original goals of CEAP were to estimate conservation benefits for reporting at the national and regional levels and to establish the scientific understanding of the effects and benefits of conservation practices at the watershed scale. As CEAP evolved, the scope was expanded to provide research and assessment on how to best use conservation practices in managing agricultural landscapes to protect and enhance environmental quality.

As stated in this draft report, 28 percent of the land within the Chesapeake Bay watershed is agricultural and produces 42 percent of the phosphorus to the Bay. Urban land makes up only eight percent of total land area in the watershed,

but contributes over 50 percent of phosphorus to the Bay. (USDA NRCSa 2010)

This latest draft report also shows that conservation practices in the Chesapeake Bay are working. Through partnerships with local landowners, progress has been made in reducing sediment, nutrient and pesticide losses from farm fields by implementing a variety of conservation approaches. For example, conservation practices in use on cultivated cropland within the watershed are responsible for reducing total loads delivered to the Bay by 14 percent for sediment, 15 percent for phosphorus and 15 percent for nitrogen.

The CEAP also includes 41 watershed studies to provide in-depth assessments of water quality and other conservation practice effects at a watershed scale. Two recent studies that were conducted were in the Choptank River and the Spring Creek watersheds - both located within the larger Chesapeake Bay watershed. In the Choptank watershed project, researchers used remote sensing, cover crop program data from Maryland, and field observations to determine nitrogen uptake by cover crops. Results from the cover crop study indicate that planting cover crops earlier (in the two weeks before the regional average first frost date of October 15) improves nitrogen uptake significantly. Because nitrogen uptake is improved with the more effective earlier planting date, practice cost-share costs per unit of nitrogen abated are reduced. In addition, experiments determined that rye and barley are far more effective cover crops in terms of nitrogen uptake than is wheat, which is currently more widely used as a cover crop. (USDA NRCSb 2010)

Spring Creek, in central Pennsylvania, drains into the Susquehanna River, the main northern tributary of the Chesapeake Bay. The Penn State University research team is organizing data on streams, fish, macroinvertebrates, and landscapes to assess conservation practice performance systematically and document impacts from agricultural activities. A necessary criterion for practice effectiveness is adoption and proper implementation by farmers. Thus, the research team is examining the factors that have affected practice implementation, performance, and maintenance throughout the watershed. The team has pioneered ways to integrate ecological and socio-economic data as they assess the condition of watersheds. Intense implementation of conservation practices in Cedar Run, a tributary of Spring Creek, has demonstrated the potential for voluntary conservation efforts to yield desired environmental benefits. Preliminary findings from monitoring water quality in Cedar Run show that from 1992 (pre-treatment) to 2007 (post treatment):

Fine sediment declined more than 50 percent after riparian restoration and fencing

Brown trout populations increased significantly-more than double in some sampling locations in some years-after BMP implementation

Macroinvertibrate densities increased downstream from treatment areas by up to 500 percent in some areas.

(USDA NRCSb 2010)

These pollutant reductions and benefits to the environment are significant, but the industry recognizes that there is opportunity to do more. We would like to emphasize to EPA that the draft CEAP report and the research promoted through USDA NRCS provides appropriate and applicable information for identifying where future Bay restoration efforts should be concentrated and how to most efficiently and cost effectively accomplish this.

Response

EPA agrees with the CEAP report that conservation works and that further reductions of nutrients and sediment from agriculture are possible and that conservation practices are a key part of the solution to a restored Chesapeake Bay.

We agree with the findings on the effectiveness of cover crops that the type of crop and the planting date affect uptake. These differences are accounted for in the phase 5.3 watershed mode.

Comment ID 0615-cp.001.001

Author Name: Comment Anonymous

Organization:

Pollution has long been killing the Chesapeake & 100s of other rivers & creeks in the region. It all gets collected into the bay as it has for decades. As an emeritus member of the American Institute of Biological Sciences (AIBS), I ask you to hold us all accountable for the pollution that is harming our health, our wildlife & damaging our local economy. Address all sources of pollution. Demonstrate how reductions will be gained.

Response

EPA agrees with the commenter that the Chesapeake Bay receives more nitrogen than it can assimilate and still attain water quality standards and that all sectors are significant sources of nutrient and sediment pollution.

The analysis tools that are used in the TMDL consider all sectors: waste water, forest, agriculture, runoff from developed areas, and atmospheric deposition.

The restoration of the Bay requires reductions from all sectors including both agriculture and urban lands. EPA has based the TMDL allocations on achieving those reductions.

Comment ID 0645-cp.001.001

Author Name: Snyder Ray

Organization: RTSFARMS

I belive that more information and testing needs to be done before any decision is made on this matter. The impact by this on the small farmer is going to be tremedous and we are al ready faced with on heard increases in our expenses. If you ever consider the imprtance of what the small farmer provides for you, you would not move forward with this unless more testing is done. I believe the home owner contributes to the problem more so then the small farmer in over

fertilization.

Response

The analysis tools that are used in the TMDL consider all sectors: waste water, forest, agriculture, runoff from developed areas, and atmospheric deposition. See section 5 of the draft TMDL documentation.

EPA agrees with the commenter that urban areas are significant sources of nutrient and sediment pollution, and further that unlike some other sectors such as agriculture, developed land sources have been increasing. Agriculture is the largest single sector.

The restoration of the Bay requires reductions from all sectors including both agriculture and urban lands. EPA has based the TMDL allocations on achieving those reductions.

The Chesapeake Bay Program Partnership watershed model has been in use for over 2 decades. It has been continually refined over that time period. The phase 5.3 watershed model has been built through collaboration with federal, state, academic, and private partners. Development teams at CBPO and USGS include EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the Draft TMDL.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed by several of the above groups. In addition, there have been 2 major independent reviews of the Phase 5 model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board.

In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the draft TMDL. The draft TMDL document has lists of additional TMDL-related meetings in Appendix V.

Comment ID 0646-cp.001.001

Author Name: Malcolm W.

Organization:

I am a WV farmer and have been swimming qnd using the rivers in WV all my life, I certainly want them to be clean for my children and grandchildren. BUT we MUST use solid science in determining TMDL and how to come to these

amounts. Common sense is many times lacking, especially in such a heated debate, but we need to know where and who is adding nutrients to the waters and not just guess or assume farms are the major sources of nutrients. I believe that most nutrients come from sewage and human waste. Lets just make sure we use good science in making decisions. Thank you for considering my comments. Ward Malcolm

Response

Please see response to Comment 0061-cp.001.002

Comment ID 0656.001.005

Author Name: Dietrich Fredric

Organization: Town of Danby and Tompkins County, New York

More important, the plan does not adequately address important sources of pollution in rural areas like Danby and therefore will be ineffective in reducing these nutrient loads.

Response

Rural development is considered in the analysis tools used in the TMDL and there are practices available to be applied to these lands in the watershed implementation plans.

Thank you for describing recent research from Cornell on nutrient characteristics of rural roads. As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, “prior to 2017, EPA plans to review the full suite of the partnership’s Bay models based on the best available science and decision-support tools and consider whether updated models should be developed to support phase III implementation plans and potential modifications to the Bay TMDL allocations.”

New data and science will always continue to become available and, as stated in the above mentioned letter, EPA is using an adaptive management approach to incorporate new information as it becomes available with scheduled upgrades during 2011 and 2017. There is no anticipation of jurisdictions over-controlling nutrients in the interim.

Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf.

Comment ID 0656.001.006

Author Name: Dietrich Fredric

Organization: Town of Danby and Tompkins County, New York

Originally heavily agricultural, Danby still has many small farms. Of the 34,404 acres in Danby, around 3,348 were involved in farm operations in 2001;[FN1] probably fewer are at present. Those farms included eight livestock operations, two dairy farms, and two grain farms, among other uses. Eleven of the farms worked between 100 and 500 acres. The 2001 Agricultural Profile Narrative published by the Tompkins County Cooperative Extension reported that "Although agriculture exists to a smaller extent in Danby than in other parts of the county, it remains a viable part-time enterprise for many of the town's farmers."[FN2]

In the latter part of the 20th century, the town has also developed as a residential suburb to the college town of Ithaca, NY; there is also some light industrial growth. There is no municipal sewer system, and waste disposal is carried out by individual septic systems. Apart from a small public water system serving around 150 homes, water is derived from private wells. Danby is connected by a network of roads, both paved and unpaved, and the main system for stormwater runoff is made up of roadside ditches. Danby has a road network of 108 miles, of which 91 miles are year-round paved or gravel roads, and 17 are seasonal roads of natural soil. The rolling topography of the region allows for quick runoff of stormwater during rain and snowmelt, causing sediment and other pollutants to move quickly to the streams that feed the Susquehanna River.

[FN1] These statistics are taken from the Tompkins County Cooperative Extension 2001 Agricultural Profile Narrative.
[FN2] Id.

Response

Thank you for the description of your area of interest. Please see response to 0656.001.005 above.

Comment ID 0656.001.013

Author Name: Dietrich Fredric

Organization: Town of Danby and Tompkins County, New York

A Note of Caution About Future Nutrient Loads

Finally, the town of Danby respectfully notes that the types of reduction in nutrient levels envisaged by the EPA and by the Danby proposal will be impossible to achieve if gas drilling by hydrofracturing, currently subject to a New York State moratorium, begins in the area. Experience from other states shows that natural gas drilling in the Marcellus Shale has seriously damaged roads in the region of the drilling. Gas drilling trucks carrying extremely heavy loads of over 80,000 pounds make an estimated 890-1,350 trips per well. The vast majority of town and county roads are not designed to withstand such traffic, leading to road destruction and failure. Road damage in other parts of the country where gas drilling is occurring is well documented. For example, of the 1,300 miles of roads in Bradford County, PA, immediately adjacent to New York State in the Chesapeake Bay Watershed, 1,100 miles have been impaired due to gas drilling trucks. Field observations consistently demonstrate that the large-scale industrial activities associated with gas drilling, the construction of multiple pipeline rights of way, and the inordinately heavy traffic on rural roads and back roads together create incalculable loads of sediment and pollutants that are conveyed to streams in runoff. To continue to ignore a consequence of this magnitude for the TMDLs is irresponsible and discredits the integrity of the TMDL

program.

Response

Thank you for the comment and description of gas drilling effects.

Please see the response to comment 0267.1.001.026.

Comment ID 0678-cp.001.001

Author Name: Comment Anonymous

Organization:

I have been a land owner in the susquehanna river watershed for close to forty years and I would just like to say that man has very little to do with the amount of sediment that is washed downstream every year. I have a stream that flows through my property and the natural erosion is quite substantial. I also kayak the susquehanna and the natural erosion is quite apparent at every bend in the river. So I don't see how regulations on farmers, who are already doing all they can to save their topsoil, or construction sites, that are already taking extreme measures to control soil erosion, are going to make any significant difference in the long run.

Response

For an overview of sediment processes on the land, river, and estuary, see the USGS summary here:
http://archive.chesapeakebay.net/pubs/subcommittee/nsc/sedwg/A_Summary_Report_of_Sediment_Processes.pdf
The discussion of watershed processes begins on page 34.

Comment ID 0684.1.001.001

Author Name: Saunders Jim

Organization: Saunders Brothers,Inc.

Environmental Progress By Agribusiness

----We (farmers, foresters, green industry, agribusiness supplies, processors, etc) are committed to environmental stewardship. Clean water and good soil are fundamental to our businesses. We have been doing our part-and will continue to do so in order to help create a healthy Chesapeake Bay and local waters. Specifically:

--Agriculture has met 52% of reduction goals for Nitrogen and 50% for Phosphorus and Sediment-all through a voluntary, incentive based program in Virginia. This doesn't even count the actions farmers are taking on their own

without funding.

--According to the Virginia Department of Forestry, 83% of logging jobs use the proper combination of best management practices.

--University studies have shown that turfgrass when maintained properly, serves as an excellent filter for stormwater runoff, can be a carbon sink, and captures sediment.

----We have been willing partners in making environmental progress-and have proven it with our actions times and time again.

--Virginia has over $80 million into Agricultural Best Management Practice (AG BMP) cost-Share program since 2006. Farmers have matched this spending with $0.60 of every dollar, and lined up at the door to do more. Annually, willing participants are turned away die to lack of adequate funds at the state and federal level.

--Even without cost-share funding, agriculture is taking action. Virginia farmers fence cattle from streams, practice conservation tillage, use proper nutrient management practices, and install buffers along waterways-without "counted" by EPA. o Without regulatory pressure, the turfgrass/green industry requested that the state create an Urban Nutrient Management Program so that their professionals can have plans specifically tailored for their businesses.

--Lawncare operators have supported and signed Voluntary Water Quality Agreements with the state. Major home lawn fertilizer companies have signed agreements to reduce and/or eliminate phosphorus from maintenance fertilizers by 2012.

--Virginia's golf industry is developing a Best Management Handbook covering water quality, pesticide use, and water supply issues for their industry to implement.

Response

See response to 0089.1.001.001.

Comment ID 0689.1.001.028

Author Name: Hann Steven

Organization: Capital Region Council of Governments TMDL Work Group

41. Has EPA evaluated any unpermitted sources of pollution to the Chesapeake Bay Watershed and their impact on the levels ofnutrients found in the Chesapeake Bay Watershed?

Response

The analysis tools that are used in the TMDL, including the scenario builder and watershed model are expressly built to consider all sources of nutrients to the Chesapeake Bay including forest, agriculture, developed area runoff, atmospheric deposition, and waste water.

Comment ID 0697.001.003

Author Name: Wass J.

Organization:

Stormwater run-off is a major problem. (mixed in with sewers) nonpoint source pollution is a major problem for big plan in future. Point-source is now requested + we should pay more attention to non-point source problems (agri, household, etc)

Response

The analysis tools that are used in the TMDL consider all sectors: waste water, forest, agriculture, runoff from developed areas, and atmospheric deposition.

EPA agrees with the commenter that urban areas are significant sources of nutrient and sediment pollution, and that unlike some other sectors such as agriculture, urban sources have been increasing.

The restoration of the Bay requires reductions from all sectors including both agriculture and urban lands. EPA has based the TMDL allocations on achieving those reductions.

Comment ID 0701.001.005

Author Name: Barnes Walter

Organization: Jackson Township, Tioga County, PA and Partner, Maple Knoll Farm

Before EPA asks the dairy farmer to accept unreasonable proposals, EPA should look beyond their computer model and see what the agriculture community has done to curtail runoff of sediment at the present time. And then go look at their favorite golf course or talk with a local landscape company and check their fertilizer program for keeping the golf course greens green and landscaped yards growing beautifully. Or consider the local airport that is busily deicing planes during the snow events of winter. Where is this runoff going? Down the drains and straight to the bay.

Response

The analysis tools that are used in the TMDL consider all sectors including waste water, forest, agriculture, runoff from developed areas, and atmospheric deposition. See section 5 of the draft TMDL documentation.

EPA agrees with the commenter that urban areas are significant sources of nutrient and sediment pollution, and further that unlike some other sectors such as agriculture, developed land sources have been increasing. Agriculture is the largest single sector.

While deicers are not explicitly considered in the analysis tools, both airports and gold courses are implicitly considered in developed land uses.

The restoration of the Bay requires reductions from all sectors including both agriculture and urban lands. EPA has based the TMDL allocations on achieving those reductions.

Comment ID 0743.001.007

Author Name: Declue Robert

Organization: Water Quality Coordinating Committee (WQCC)

WHEREAS the Soil and Water Conservation Districts that comprise the Upper Susquehanna Coalition have worked diligently with the many county, state, federal, and private partners to cohesively integrate both agricultural and nonagricultural best management practices (BMPs) throughout New York State's portion of the Chesapeake Bay Watershed, and

WHEREAS the Upper Susquehanna Coalition and all of its partners look forward to building upon and enhancing its implementation throughout this watershed, and

WHEREAS both Cornell University (New York State's land grant university) and Cornell Cooperative Extension has and continues to conduct research on nutrient management and developed soil type correlated agronomic input recommendations and other tools which adequately factor in environmental risk to guide farmers and consultants on appropriate soil amendment applications, and

WHEREAS the farms located within New York State's portion of the Chesapeake Bay Watershed have consistently and voluntarily made a strong allocation to water quality improvement by the commitment of both time and monies through the New York State Agriculture and Markets, Agricultural Environmental Management Program, USDA Natural Resources Conservation Service, Farm Service Agency,

WHEREAS the waters of New York that contribute to the Chesapeake Bay Watershed are of the highest water quality in entire Chesapeake Bay Watershed

Response

Please see response to Comment 0080-cp.001.002.

Comment ID 0743.001.010

Author Name: Declue Robert

Organization: Water Quality Coordinating Committee (WQCC)

WHEREAS the Soil and Water Conservation Districts that comprise the Upper Susquehanna Coalition have worked diligently with the many county, state, federal, and private partners to cohesively integrate both agricultural and nonagricultural best management practices (BMPs) throughout New York State's portion of the Chesapeake Bay Watershed, and

WHEREAS the Upper Susquehanna Coalition and all of its partners look forward to building upon and enhancing its implementation throughout this watershed, and

WHEREAS the farms located within New York State's portion of the Chesapeake Bay Watershed have consistently and voluntarily made a strong allocation to water quality improvement by the commitment of both time and monies through the New York State Agriculture and Markets, Agricultural Environmental Management Program, USDA Natural Resources Conservation Service, Farm Service Agency,

WHEREAS the waters of New York that contribute to the Chesapeake Bay Watershed are of the highest water quality in entire Chesapeake Bay Watershed

Response

Please see response to Comment 0080-cp.001.002.

Comment ID 0746.1.001.004

Author Name: Carl Jimmie

Organization: Southern Tier Chesapeake Bay TMDL Commenting Coalition

B. Water Quality Within the New York Portion of the Watershed

The New York streams and rivers which make up our portion of the Bay Watershed have good water quality. Despite some localized impacts due to phosphorus and/or sediments, none of them are included on New York's 303(d) list of Impaired Waters due to significant levels of nutrients. As shown on Figures 1 and 2, based on USGS data the long term mean Total Nitrogen (Nt) loadings at Towanda, Pennsylvania,[FN7] is 1.135 mg/L and the average Total Phosphorus (Pt) concentration at this location is 0.076 mg/L for P. The nutrient reductions called for in the Draft TMDL are intended to reduce or eliminate excessive algal growth, reduced water quality and to improve Dissolved Oxygen levels in the water. There are no numeric water quality criteria or applicable numeric Nt and Pt water quality standards within either the New York portion of the Bay watershed, or within the Bay itself [FN8].

In regards to Nt and Pt, the Figures 1 and 2 USGS data indicates that the quality of the water leaving the New York State portion of the Chesapeake Bay watershed is better than that of Delaware, Washington, D.C., Maryland, Pennsylvania, Virginia, and West Virginia.[FN9] [See figures 1 and 2 in original comment letter 0746.1] Furthermore, it is commonly understood that if the water quality of the water entering the Chesapeake Bay was equivalent to that leaving New York in the Susquehanna River, the Bay would not be impaired by excessive algal growth, reduced water quality and nutrient-related low Dissolved Oxygen problems.

Appendix A, Comparison of Unit Area Loadings & Required Removal Percentages, demonstrates the relative water quality by calculating unit area nutrient loadings for edge-of-stream conditions (expressed as lbs of nutrient per year per acre) and comparing them for each Bay State. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0746.1] As used in Appendix A, "unit area loading" is the ratio of the loading from a particular entity to its respective tributary area. Edge-of-stream unit area loadings (as opposed to delivered unit area loadings) reflect local water quality.

Figures 3 and 4 present edge-of-stream unit area loadings for Nt for each of the Bay States. As shown, New York has the lowest edge-of-stream unit area loading of any of the states. [See figures 3 and 4 in original comment letter 0746.1]

[FN7] The closest USGS monitoring station in the Susquehanna River downstream from the New York border.
[FN8] See Draft Bay TMDL at Section 2.
[FN9] For the purposes of these comments, these 4 states, Washington D.C. and New York are collectively referred to as
the "Bay States".

Response

See response to comment 0080-cp.001.002.

Response to Public Comments: Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

Issue Category:
8. Chesapeake Bay Program Models

Pages 599 – 1079

December 29, 2010

Docket #: EPA-R3-OW-2010-0736

8 - CHESAPEAKE BAY PROGRAM MODELS

Comment ID 0061-cp.001.002

Author Name: Haterius Stephen

Organization: National Association of State Departments of Agriculture (NASDA)

If EPA does not withdraw the Draft TMDL, we request EPA to make the models EPA relied on to develop the TMDL available to the public.

Response

EPA has committed to ensuring full partnership and public access to all elements of the suite of Bay models used in the development of the Bay TMDL, from the source code of the actual models to input data, scenario outputs and detailed model documentation. During the two year Bay TMDL development process, some of the Bay models were undergoing refinements based on review, feedback and decisions by the partnership. For example, EPA released two interim phases (5.1 and 5.2) prior to going final with the Phase 5.3 Chesapeake Bay Watershed Model during the Bay TMDL development process. Completion of these models depended, in part, on the partnership making initial decisions on how it wanted to proceed with the Bay TMDL.

After more than five years of development work, calibration and validation of the Phase 5.3 Chesapeake Bay Watershed Model was completed in March 2010. All the Phase 5.3 Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf.

The Chesapeake Community Modeling Program, an organization supported by and staffed by academic institutions across the Chesapeake Bay watershed, hosts the open-source code of the Chesapeake Bay Phase 5.3 Watershed Model on its website. This model code has been accessed by and is being used by numerous academic institutions, states and others in supporting local, regional and state-wide decision making. The Phase 5.3 Watershed Model's code can be accessed at the Chesapeake Community Modeling Program's website at http://ches.communitymodeling.org/models/CBPhase5/datalibrary.php.

The Phase 5.3 Chesapeake Bay Watershed Model report, accessible at http://www.chesapeakebay.net/model_phase5.aspx?menuitem=26169, provides detailed documentation on all aspects of the Bay Watershed Model.

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the supporting database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site.

Comment ID 0061-cp.001.003

Author Name: Haterius Stephen

Organization: National Association of State Departments of Agriculture (NASDA)

EPA does not withdraw the Draft TMDL, we request EPA to provide the public with 120 days to review and comment on these models following their release.

Response

After careful evaluation, EPA determined it was not feasible to extend the 45-day public comment period for the draft Chesapeake Bay TMDL past November 8, 2010 and, therefore, delay finalization of the TMDL past December 31, 2010.
The completion date was requested by the states in June 2008 and agreed to by the Chesapeake Executive Council, which includes the Governors, the Mayor of the District of Columbia and the EPA Administrator.

The 45-day public comment period was also the product of negotiation and agreement among the states and EPA. The December 31, 2010 date is also a specific commitment in the Executive Order 13508 Strategy issued in May 2010. In addition, a settlement agreement between EPA and the Chesapeake Bay Foundation requires EPA to issue the final TMDL by this date. We were unable to extend the public comment period and meet our important commitment to the states and citizens of the watershed to complete the TMDL by December 31, 2010.

The draft Chesapeake Bay TMDL has been developed through a highly transparent and engaging process during the past two years. The outreach effort has included hundreds of meetings with interested groups; two extensive rounds of public meetings, stakeholder sessions and media interviews in all six states and the District of Columbia in the fall of 2009 and the fall of 2010; a dedicated EPA website; a series of monthly interactive webinars accessed by more than 2,500 people; three notices published in the Federal Register; and a close working relationship with Chesapeake Bay Program advisory committees representing citizens, local governments and the scientific community.

Additionally, EPA and the states and D.C. have been working together to develop the Chesapeake Bay TMDL since 2005. Officials and staff have been in constant discussion throughout the process, including in hundreds of conference calls and meetings, particularly through the Chesapeake Bay Program. The states and D.C. also involved stakeholders in the development of their draft Watershed Implementation Plans, providing another layer of outreach.

Most of these Bay models are in their fourth or fifth generation version, with a long history of management application within the partnership, supporting shared decision making. The full suite of models have undergone independent scientific peer reviews over the course of their development, calibration, verification, and management application, with the majority of these reviews conducted through the Chesapeake Bay Program's Scientific and Technical Advisory Committee. For access to the full record of Bay model peer reviews please go to http://www.chesapeakebay.net/committee_msc_projects.aspx?menuitem=16525.

Each of the models has also undergone review and approval through the Chesapeake Bay Program management structure. The

technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team (which provides final application of the models for management application), the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the final Bay TMDL.

Comment ID 0061.1.001.004

Author Name: Haterius Stephen

Organization: National Association of State Departments of Agriculture (NASDA)

If EPA refuses to withdraw the Draft TMDL, at a minimum EPA must make available for public review the scenario data and scenario results that are the inputs and outputs of the "Scenario Builder" model that provides inputs to the Chesapeake Bay Watershed model.

Response

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the support database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site.

Comment ID 0061.1.001.005

Author Name: Haterius Stephen

Organization: National Association of State Departments of Agriculture (NASDA)

Despite their significance, these scenario inputs and outputs are not available. See http://ches.communitymodeling.org/models/CBPhase5/index.php (accessed October 10, 2010). This information must be made available for public review, as the calculations used to establish TMDLs are required to be subject to public review.

Response

The Scenario Builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using Scenario Builder and run as input decks through the Chesapeake

Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site.

Comment ID 0061.1.001.007

Author Name: Haterius Stephen

Organization: National Association of State Departments of Agriculture (NASDA)

Further, the Draft TMDL that EPA made available for review on September 24, 2010, consists not only of these wasteload and load allocations, but also consists of detailed implementation instructions directed at the watershed jurisdictions. Thus, the Draft TMDL consists not only of the 370 pages of the Draft TMDL document, but also the 1672 pages of the 22 appendices, as well as the technical analysis and modeling information that is referenced throughout the draft TMDL. We have not attempted to quantify the volume of that supporting information.

Despite its acknowledgement that the Draft TMDL is the most complex ever attempted, EPA is allowing only 45 days for public comment. We believe that 45 days is insufficient under the Administrative Procedure Act to provide for meaningful public comment on the Draft TMDL by any entity, and particularly by the homeowners and small animal feeding operations who may be completely unaware of this effort to regulate them. Accordingly, we request a 120 day comment period beginning on the date that EPA makes available for public review the inputs to and outputs from the Scenario Builder model.

Response

After careful evaluation, EPA determined it was not feasible to extend the 45-day public comment period for the draft Chesapeake Bay TMDL past November 8, 2010 and, therefore, delay finalization of the TMDL past December 31, 2010.
The completion date was requested by the states in June 2008 and agreed to by the Chesapeake Executive Council, which includes the Governors, the Mayor of the District of Columbia and the EPA Administrator.

The 45-day public comment period was also the product of negotiation and agreement among the states and EPA. The December 31, 2010 date is also a specific commitment in the Executive Order 13508 Strategy issued in May 2010. In addition, a settlement agreement between EPA and the Chesapeake Bay Foundation requires EPA to issue the final TMDL by this date. We were unable to extend the public comment period and meet our important commitment to the states and citizens of the watershed to complete the TMDL by December 31, 2010.

The draft Chesapeake Bay TMDL has been developed through a highly transparent and engaging process during the past two years. The outreach effort has included hundreds of meetings with interested groups; two extensive rounds of public meetings, stakeholder sessions and media interviews in all six states and the District of Columbia in the fall of 2009 and the fall of 2010; a dedicated EPA website; a series of monthly interactive webinars accessed by more than 2,500 people; three notices published in the Federal Register; and a close working relationship with Chesapeake Bay Program advisory committees representing citizens, local governments and the scientific community.

Additionally, EPA and the states and D.C. have been working together to develop the Chesapeake Bay TMDL since 2005. Officials

and staff have been in constant discussion throughout the process, including in hundreds of conference calls and meetings, particularly through the Chesapeake Bay Program. The states and D.C. also involved stakeholders in the development of their draft Watershed Implementation Plans, providing another layer of outreach

.

Comment ID 0062.1.001.002

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

If EPA does not withdraw the Draft TMDL, we request EPA to make all relevant information regarding the models EPA relied on to develop the TMDL available to the public and to provide the public with 120 days to review and comment on the Draft TMDL after this information is made available in the docket.

Response

After careful evaluation, EPA determined it was not feasible to extend the 45-day public comment period for the draft Chesapeake Bay TMDL past November 8, 2010 and, therefore, delay finalization of the TMDL past December 31, 2010.
The completion date was requested by the states in June 2008 and agreed to by the Chesapeake Executive Council, which includes the Governors, the Mayor of the District of Columbia and the EPA Administrator.

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Additionally, EPA and the states and D.C. have been working together to develop the Chesapeake Bay TMDL since 2005. Officials and staff have been in constant discussion throughout the process, including in hundreds of conference calls and meetings, particularly through the Chesapeake Bay Program. The states and D.C. also involved stakeholders in the development of their draft Watershed Implementation Plans, providing another layer of outreach.

Most of these Bay models are in their fourth or fifth generation version, with a long history of management application within the

partnership, supporting shared decision making. The full suite of models have undergone independent scientific peer reviews over the course of their development, calibration, verification, and management application, with the majority of these reviews conducted through the Chesapeake Bay Program's Scientific and Technical Advisory Committee. For access to the full record of Bay model peer reviews please go to http://www.chesapeakebay.net/committee_msc_projects.aspx?menuitem=16525.

Each of the models has also undergone review and approval through the Chesapeake Bay Program management structure. The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team (which provides final application of the models for management application), the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the final Bay TMDL.

Comment ID 0062.1.001.013

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

Further, the Draft TMDL that EPA made available for review on September 24, 2010, consists not only of these wasteload and load allocations, but also consists of detailed implementation instructions directed at the watershed jurisdictions. Thus, the Draft TMDL consists not only of the 370 pages of the Draft TMDL document, but also the 1,672 pages of the 22 appendices, as well as the technical analysis and modeling information that is referenced throughout the draft TMDL. We have not attempted to quantify the volume of that supporting information.

Despite its acknowledgement that the Draft TMDL is the most complex ever attempted, EPA is allowing only 45 days for public comment. We believe that 45 days is insufficient under the Administrative Procedure Act to provide for meaningful public comment on the Draft TMDL by any entity, and particularly by the homeowners and small animal feeding operations who may be completely unaware of this effort to federally regulate them. Accordingly, if EPA does not withdraw the Draft TMDL, as requested above, we request a 120 day comment period beginning on the date that EPA makes available for public review the code for, the inputs to, and the outputs from the Scenario Builder model.

Response

After careful evaluation, EPA determined it was not feasible to extend the 45-day public comment period for the draft Chesapeake Bay TMDL past November 8, 2010 and, therefore, delay finalization of the TMDL past December 31, 2010.
The completion date was requested by the states in June 2008 and agreed to by the Chesapeake Executive Council, which includes the Governors, the Mayor of the District of Columbia and the EPA Administrator.

The 45-day public comment period was also the product of negotiation and agreement among the states and EPA. The December 31, 2010 date is also a specific commitment in the Executive Order 13508 Strategy issued in May 2010. In addition, a settlement agreement between EPA and the Chesapeake Bay Foundation requires EPA to issue the final TMDL by this date. We were unable

to extend the public comment period and meet our important commitment to the states and citizens of the watershed to complete the TMDL by December 31, 2010.

The draft Chesapeake Bay TMDL has been developed through a highly transparent and engaging process during the past two years. The outreach effort has included hundreds of meetings with interested groups; two extensive rounds of public meetings, stakeholder sessions and media interviews in all six states and the District of Columbia in the fall of 2009 and the fall of 2010; a dedicated EPA website; a series of monthly interactive webinars accessed by more than 2,500 people; three notices published in the Federal Register; and a close working relationship with Chesapeake Bay Program advisory committees representing citizens, local governments and the scientific community.

Additionally, EPA and the states and D.C. have been working together to develop the Chesapeake Bay TMDL since 2005. Officials and staff have been in constant discussion throughout the process, including in hundreds of conference calls and meetings, particularly through the Chesapeake Bay Program. The states and D.C. also involved stakeholders in the development of their draft Watershed Implementation Plans, providing another layer of outreach

Comment ID 0063.1.001.001

Author Name: Jones Martin

Organization: Fertilizer Institute (TFI)

On behalf of our client, The Fertilizer Institute (TFI), we submit this request to provide an extension of the comment period for the U.S. Environmental Protection Agency's (EPA's) Draft Chesapeake Bay TMDL (Draft TMDL) document. We request the comment period be extended for at least 120 days following EPA's release of the information used in its watershed modeling and incorporated in the Draft TMDL.

Response

After careful evaluation, EPA determined it was not feasible to extend the 45-day public comment period for the draft Chesapeake Bay TMDL past November 8, 2010 and, therefore, delay finalization of the TMDL past December 31, 2010.
The completion date was requested by the states in June 2008 and agreed to by the Chesapeake Executive Council, which includes the Governors, the Mayor of the District of Columbia and the EPA Administrator.

The 45-day public comment period was also the product of negotiation and agreement among the states and EPA. The December 31, 2010 date is also a specific commitment in the Executive Order 13508 Strategy issued in May 2010. In addition, a settlement agreement between EPA and the Chesapeake Bay Foundation requires EPA to issue the final TMDL by this date. We were unable to extend the public comment period and meet our important commitment to the states and citizens of the watershed to complete the TMDL by December 31, 2010.

The draft Chesapeake Bay TMDL has been developed through a highly transparent and engaging process during the past two years. The outreach effort has included hundreds of meetings with interested groups; two extensive rounds of public meetings, stakeholder

sessions and media interviews in all six states and the District of Columbia in the fall of 2009 and the fall of 2010; a dedicated EPA website; a series of monthly interactive webinars accessed by more than 2,500 people; three notices published in the Federal Register; and a close working relationship with Chesapeake Bay Program advisory committees representing citizens, local governments and the scientific community.

Additionally, EPA and the states and D.C. have been working together to develop the Chesapeake Bay TMDL since 2005. Officials and staff have been in constant discussion throughout the process, including in hundreds of conference calls and meetings, particularly through the Chesapeake Bay Program. The states and D.C. also involved stakeholders in the development of their draft Watershed Implementation Plans, providing another layer of outreach

Comment ID 0063.1.001.004

Author Name: Jones Martin

Organization: Fertilizer Institute (TFI)

TFI's ability to provide meaningful comments on EPA's Draft TMDL necessitates access to the information and assumptions EPA used in its modeling calculations that formed the bases for the Draft TMDL and requires adequate time to review and evaluate that information.

Response

EPA has committed to ensuring full partnership and public access to all elements of the suite of Bay models used in the development of the Bay TMDL, from the source code of the actual models to input data, scenario outputs and detailed model documentation. During the two year Bay TMDL development process, some of the Bay models were undergoing refinements based on review, feedback and decisions by the partnership. For example, EPA released two interim phases (5.1 and 5.2) prior to going final with the Phase 5.3 Chesapeake Bay Watershed Model during the Bay TMDL development process. Completion of these models depended, in part, on the partnership making initial decisions on how it wanted to proceed with the Bay TMDL.

After more than five years of development work, calibration and validation of the Phase 5.3 Chesapeake Bay Watershed Model was completed in March 2010. All the Phase 5.3 Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf.

The Chesapeake Community Modeling Program, an organization supported by and staffed by academic institutions across the Chesapeake Bay watershed, hosts the open-source code of the Chesapeake Bay Phase 5.3 Watershed Model on its website. This model code has been accessed by and is being used by numerous academic institutions, states and others in supporting local, regional and state-wide decision making. The Phase 5.3 Watershed Model's code can be accessed at the Chesapeake Community Modeling Program's website at http://ches.communitymodeling.org/models/CBPhase5/datalibrary.php.

The Phase 5.3 Chesapeake Bay Watershed Model report, accessible at http://www.chesapeakebay.net/model_phase5.aspx?menuitem=26169, provides detailed documentation on all aspects of the Bay

Watershed Model.

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the supporting database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site.

Comment ID 0063.1.001.009

Author Name: Jones Martin

Organization: Fertilizer Institute (TFI)

A 45-Day Comment Period is Insufficient to Provide an Adequate Opportunity to Review the Numerous and Complex Draft TMDL Documents

As EPA acknowledges, the "Chesapeake Bay TMDL is the largest, most complex TMDL in the country, covering a 64,000-square-mile area in seven jurisdictions." Draft TMDL, at 2-7. The Draft TMDL includes proposals for two separate sets of load allocations and waste load allocations for three pollutants in 92 water body segments (one set to meet current water quality standards and one set to meet proposed water quality standards that may or may not be approved by the time the TMDL is issued). In all, the Draft TMDL consists of 552 separate TMDLs. The TMDLs also will affect many individual residences and small livestock operations in the seven jurisdictions. Further, the Draft TMDL includes detailed implementation instructions directed at the watershed jurisdictions. Finally, in addition to the Draft TMDL document, which consists of 370 pages, voluminous appendices and technical analyses and modeling information referenced in the Draft TMDL add to the number of documents and complexity of the information that must be reviewed to provide meaningful comments on the Draft TMDL (22 appendices add another 1,672 pages).

Despite its acknowledgement that the Draft TMDL is the most complex ever attempted, EPA is allowing only 45 days for public comment. TFI believes that 45 days is insufficient under the Administrative Procedure Act to provide for meaningful public comment on the Draft TMDL by any entity, and particularly by the homeowners and small animal feeding operations who may be completely unaware of this effort to regulate them. Accordingly, we request a 120-day comment period extension beginning on the date that EPA makes available for public review the link to the inputs, and outputs as well as the Scenario Builder code for the Scenario Builder model.

Response

EPA recognizes the complexity of the Bay TMDL and the significant number of data sets that were accessed and used in its development. EPA worked throughout the 2-year process for development of the Bay TMDL to make all the underlying datasets available as they were generated and applied.

Over its 27 year history, the Chesapeake Bay Program partnership has worked to make its shared decision making processes as transparent as possible, making the underlying scientific understanding, technical data, and programmatic basis available to the public through the partnership's web site at http://www.chesapeakebay.net.

As the partners continue forward over the next 15 years, EPA has committed to taking an adaptive management approach to the implementation of the Chesapeake Bay TMDL. In the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010 (accessible at http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf), EPA laid out a three phase approach development and implementation of the Bay TMDL:

• 2010—Chesapeake Bay TMDL publication along with the jurisdictions' Phase I Watershed Implementation Plans;
• 2011—refinements to Bay Watershed Model, publication of the jurisdictions' Phase II Watershed Implementation Plans, and modifications as needed to the Bay TMDL;
• 2017—updates to the suite of Bay models as needed to support the jurisdictions' development and public of their Phase III Watershed Implementation Plans, and modifications, as needed to the Bay TMDL.

In addition, EPA and its partners will continue to develop, commit to, and carry out implementation actions in support of meeting jurisdiction and federal partner specific 2-year milestones directed towards achieving 60% of the needed nitrogen, phosphorus, and sediment load reduction actions by 2017 and ensuring all the actions are in place by 2025 to restore Chesapeake Bay water quality. EPA believes the three-phased approach to the Bay TMDL in concert with the 2-year milestones process put in place in 2009 by Chesapeake Executive Council will provide further numerous opportunities for public input and adaptive management as the jurisdictions move forward with implementation of their pollutant reduction actions.

After careful evaluation, EPA determined it was not feasible to extend the 45-day public comment period for the draft Chesapeake Bay TMDL past November 8, 2010 and, therefore, delay finalization of the TMDL past December 31, 2010.
The completion date was requested by the states in June 2008 and agreed to by the Chesapeake Executive Council, which includes the Governors, the Mayor of the District of Columbia and the EPA Administrator.

The 45-day public comment period was also the product of negotiation and agreement among the states and EPA. The December 31, 2010 date is also a specific commitment in the Executive Order 13508 Strategy issued in May 2010. In addition, a settlement agreement between EPA and the Chesapeake Bay Foundation requires EPA to issue the final TMDL by this date. We were unable to extend the public comment period and meet our important commitment to the states and citizens of the watershed to complete the TMDL by December 31, 2010.

The draft Chesapeake Bay TMDL has been developed through a highly transparent and engaging process during the past two years. The outreach effort has included hundreds of meetings with interested groups; two extensive rounds of public meetings, stakeholder sessions and media interviews in all six states and the District of Columbia in the fall of 2009 and the fall of 2010; a dedicated EPA website; a series of monthly interactive webinars accessed by more than 2,500 people; three notices published in the Federal Register; and a close working relationship with Chesapeake Bay Program advisory committees representing citizens, local governments and the scientific community.

Additionally, EPA and the states and D.C. have been working together to develop the Chesapeake Bay TMDL since 2005. Officials

and staff have been in constant discussion throughout the process, including in hundreds of conference calls and meetings, particularly through the Chesapeake Bay Program. The states and D.C. also involved stakeholders in the development of their draft Watershed Implementation Plans, providing another layer of outreach.

Comment ID 0066.1.001.009

Author Name: Rountree Glynn

Organization: National Association of Home Builders (NAHB)

In addition to proposing a TMDL that is highly complex and confusing, EPA has not made all of the supporting documentation available for review. As a result, it is impossible for the public to fully understand the Agency's reasoning or follow its justifications. For example, EPA has provided no technical data to justify the need for the urban stormwater requirements contained in the backstop allocations or to demonstrate that they will meet the desired outcomes.

Response

Initial drafts of the Phase 5 Watershed Model documentation have been available on-line at the Chesapeake Bay Program parntership's web site www.chesapeakebay.net since 2008 when the first of several model calibrations (Phase 5.1) were conducted. When the Chesapeake Bay TMDL is finalized at the close of December 2010, all of the final documentation of the Phase 5.3 Chesapeake Bay Watershed Model and Scenario Builder documentation, code, and data used to develop and apply the models will be are on the web and fully available. Parts of the model documentation could not be completed until final decisions were made on the Bay TMDL itself, hence, final publication of both the Bay TMDL and the model documentation at the same time. In addition, the Phase 5.3 Chesapeake Bay Watershed Model has been developed as open source, public domain models that have been developed and applied in open public meetings over the last decade.

Scenario Builder and Watershed Model downloadable information
Scenario Builder documentation (uploaded 9/16/10), source code (10/29), and database (11/5) are available on this site:
ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/Scenario Builder

Inputs and outputs are available on this ftp site (continually updated as new results are run):
ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/

Phase 5.3 Watershed Model documentation information is available here:
http://ches.communitymodeling.org/models/CBPhase5/index.php

The urban stormwater requirements in the backstop scenario are estimated, along with other controls in the backstop scenarios, to fully achieve Chesapeake Bay water quality standards. In the final Bay TMDL, most of the stormwater backstops were removed or significantly reduced due to the efforts of the jurisdictions to significantly improve the quality of their final Phase I Watershed Implementation Plan.

Comment ID 0066.1.001.011

Author Name: Rountree Glynn

Organization: National Association of Home Builders (NAHB)

If the public does not have access to these baseline datasets, it is unable to provide meaningful comment. Similarly, if the public cannot understand how the proposal will affect their interests or businesses, their ability to provide useful input is significantly hindered.

Response

Please refer to the response to comment 0061.1.001.004.

Comment ID 0069.1.001.001

Author Name: Nemura Adrienne

Organization: LimnoTech

I am writing to request that the comment period be extended for a minimum of 120 days. An extension to the comment period is necessary due to a number of factors described below. While EPA believes that certain portions of the TMDL are based on "state-of-the-art modeling tools, extensive monitoring data, [and] peer-reviewed science", all of the tools have not been properly reviewed as stated in the draft TMDL dated September 27, 2010 (p. ii).

Response

After careful evaluation, EPA determined it was not feasible to extend the 45-day public comment period for the draft Chesapeake Bay TMDL past November 8, 2010 and, therefore, delay finalization of the TMDL past December 31, 2010.
The completion date was requested by the states in June 2008 and agreed to by the Chesapeake Executive Council, which includes the Governors, the Mayor of the District of Columbia and the EPA Administrator.

The 45-day public comment period was also the product of negotiation and agreement among the states and EPA. The December 31, 2010 date is also a specific commitment in the Executive Order 13508 Strategy issued in May 2010. In addition, a settlement agreement between EPA and the Chesapeake Bay Foundation requires EPA to issue the final TMDL by this date. We were unable to extend the public comment period and meet our important commitment to the states and citizens of the watershed to complete the TMDL by December 31, 2010.

The draft Chesapeake Bay TMDL has been developed through a highly transparent and engaging process during the past two years. The outreach effort has included hundreds of meetings with interested groups; two extensive rounds of public meetings, stakeholder

sessions and media interviews in all six states and the District of Columbia in the fall of 2009 and the fall of 2010; a dedicated EPA website; a series of monthly interactive webinars accessed by more than 2,500 people; three notices published in the Federal Register; and a close working relationship with Chesapeake Bay Program advisory committees representing citizens, local governments and the scientific community.

Additionally, EPA and the states and D.C. have been working together to develop the Chesapeake Bay TMDL since 2005. Officials and staff have been in constant discussion throughout the process, including in hundreds of conference calls and meetings, particularly through the Chesapeake Bay Program. The states and D.C. also involved stakeholders in the development of their draft Watershed Implementation Plans, providing another layer of outreach.

Most of these Bay models are in their fourth or fifth generation version, with a long history of management application within the partnership, supporting shared decision making. The full suite of models have undergone independent scientific peer reviews over the course of their development, calibration, verification, and management application, with the majority of these reviews conducted through the Chesapeake Bay Program's Scientific and Technical Advisory Committee. For access to the full record of Bay model peer reviews please go to http://www.chesapeakebay.net/committee_msc_projects.aspx?menuitem=16525.

Each of the models has also undergone review and approval through the Chesapeake Bay Program management structure. The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team (which provides final application of the models for management application), the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the final Bay TMDL

Comment ID 0069.1.001.004

Author Name: Nemura Adrienne

Organization: LimnoTech

If implementation of the TMDL and the WIPs is going to be successful, it is important that States and affected stakeholders be given the opportunity to thoughtfully review and comment on the TMDL, the WIPs, and the scenario builder and other underlying tools (in particular the Watershed Model).

Response

With regard to the opportunity to review the TMDL, please refer to the response to comment 0060.1.001.001. The Watershed Implementation Plans are not part of the TMDL, and each state and the District of Columbia had their own processes for public review.

Also please see the response to comment 0061.1.001.004.

Comment ID 0072-cp.001.003

Author Name: Isenberg W.

Organization: Virginia Commonwealth University Center for Environmental Studies. Class: ENVS 601, Professor: P.L. deFur

In the modeling process, there was no mention of population growth and what that would do to land use changes and water demand. Especially with regard to increased water demand, the 10 year hydrologic period may be complicated if water tables yield lower than expected flow with resulting greater summer hypoxia.

Response

The Bay TMDL nutrient and sediment loads are caps, so increases in loads due to population increases would need to be offset. As population grows, water demand can also grow unless offset by increased conservation measures. Another factor in play is the estimated effect of climate change on annual flows which were examined to some extent in the TMDL documentation:http://www.regulations.gov/search/Regs/home.html#documentDetail?R=0900006480b5cfb4.

In the preliminary climate change analysis, documented in the TMDL report in estimated increase of evapotranspiration due to increased temperatures, caused annual river flows to decrease. This has implications, of course, for public water supply.

These are initial draft findings. Climate change influences on the Chesapeake TMDL will be fully explored in a 2017 evaluation of Chesapeake TMDL progress as called for in the President's Chesapeake Bay Executive Order.

Comment ID 0108.001.003

Author Name: Kerstetter Donald

Organization: Trappe Landing Farm and Native Sanctuary

At the EPA TMDL meeting in Easton yesterday your representatives advised that they had basically accepted Maryland's TMDL response. When asked about the recent disclosure by USGS that Choptank nitrogen pollution had increased 63% in the last 8 years your representative referred to a "small area above Greensboro". Creekwatchers reports for the last 15 years for our Creek and other streams in the Choptank South of Greensboro show that the entire Choptank is in decline at an increasing rate. In releasing the report the USGS scientist pointed out that the Choptank is indicative of all other Eastern Shore watersheds as shown in red on the EPA nutrient load maps where similar farming is practiced including the Sassafras, Chester, Nanticoke, and Pocomoke Rivers. What was not said was that Best Management Practices (BMPs) used extensively in the last 20 years have been ineffective in the view of the same USGS scientist who released the report . Maryland's TMDL response for agriculture is largely dependant on the voluntary implementation of the same BMPs that USGS questions. In short repeating the same actions despite failure after failure and expecting a different result is a definition of insanity.

Response

The Chesapeake TMDL is for the protection of water quality of all waters of the Chesapeake Bay and its watershed. The Chesapeake Bay Program estimates sufficient nutrient and sediment reductions from the Choptank basin, as well as the other basins of watershed, to achieve all Bay water quality standards. These are water quality standards that are protective of the Chesapeake's living resources. An important feature of the Chesapeake TMDL is that planning of environmental management actions is with the CBP models, but the measurement of achievement of the water quality standards is with observed monitoring data. This means that adaptive management can make corrections through a series of two year milestone assessments that will assess progress in achieving the water quality standards between now and 2025. If in the ongoing assessment the observed monitoring shows that the water quality standards are not being achieved, more environmental controls will be required.

Comment ID 0145.1.001.007

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

Our Facilities are mis-identified in the TMDL as the "Binghamton-Johnson City Joint Borough" wastewater treatment plant ("WWTP") and, beginning in Section 4, are mis-described as having a 20 MGD "design flow" upon which the wasteload allocation ("WLA") proposed in the TMDL is based and, we suspect, EPA modeling - including the Scenario Builder program data input - is founded. Information available to us also suggests that, within its Bay watershed modeling programs, the EPA has assigned our Facilities a 59.14% Total Nitrogen ("TN") Delivery Coefficient and a 41.24% Total Phosphorus ("TP") Delivery Coefficient whereas, for example, the Village of Endicott WWTP (issued SPDES Permit NY-002-7669) - which is approximately 9.5 nautical miles downstream from our outfall and, thus, closer to the Bay than we are - is believed to have been assigned a lower 54.36% TN Delivery Coefficient and a lower 39.35% TP Delivery Coefficient.

Response

Thank you for your comment. The Chesapeake bay Program has an ongoing effort to improve our input data and believe the open source, public domain modeling approach used in the CBP is the best way to allow "many eyes to make few bugs” in the model code and inputs. Opportunities to refine model input data are welcomed, and the CBP looks forward to the opportunity of working with the Binghamton-Johnson City Joint Sewage Board to get the NDPES point source information exactly right for this source in the Phase II WIPs, two-year milestones, and in the 2017 midcourse TMDL assessment. In the final Phase I Watershed Implementation Plan, NY already updated the WLA of Binghamton-Johnson with a design flow of 35 MGD.

Comment ID 0145.1.001.011

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

If implementation of the TMDL and those Bay-jurisdiction Watershed Implementation Plans ("WIPs") that the EPA may find acceptable is going to be successful, it is important that the jurisdictions and affected stakeholders be given the opportunity to become fully-informed, to thoughtfully review, and credibly comment on the TMDL, the WIPs, the Scenario Builder, and other underlying tools (in particular, the Chesapeake Bay Watershed Model) in a final form.

Response

With regard to the opportunity to comment on the Bay TMDL, please see the response to comment 0060.1.001.001. The Watershed Implementation Plans (WIPs) are not part of the TMDL. Each of the jurisdictions had their own processes for reviewing the WIPs.

Response – Same Response as 0061.1.001.004.

Comment ID 0145.1.001.015

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

Our Board's ability to provide thoughtful, meaningful comments on the TMDL, as well as that of the public we serve, necessitates access to all of the information and assumptions the EPA used in its modeling calculations forming the basis for the TMDL in order to specifically cite the locations of the above-identified errors, as well as data or programming that resulted in such errors, and propose appropriate corrections.

Response

During the Bay TMDL development process and during the public review period, the Scenario Builder inputs and outputs were publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios, based on submissions from the seven watershed jurisdictions, were developed using Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results were made publically accessible through the same FTP site.

Comment ID 0145.1.001.018

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

Because the TMDL is not complete, nor has all of the information upon which the TMDL is based been identified, publicly posted, or made available for public review, we respectfully request that the EPA immediately withdraw the TMDL. Alternatively, we request that the EPA immediately make the scenario data, scenario results, and Scenario

Builder program code publicly available as required by 40 C.F.R. § 130.7(c)(l)(ii) and, correspondingly, extend the public comment period or, alternatively, our time to submit written comments, by 120 days from the date this information/data is released to our Board and/or the public we serve in order to ensure that all the relevant information used to establish the TMDL is fully available and that our Board and the public we serve will have sufficient time to review all pertinent data and meaningfully comment on the TMDL.

Response

With regard to additional time for review, please refer to the response to comment 0060.1.001.001.

Please refer to the response to comment 0061.1.001.004.

Comment ID 0147.001.001

Author Name: Halstead P.

Organization:

As a family farm supporter from the Chesapeake Bay watershed area, I ask that the Environmental Protection Agency (EPA) adopt the model refinements recommended by the New York State Development of Environmental Conservation (NYS DEC) in their Draft Phase I Watershed Implementation Plan as mandated by the U.S. Environmental Protection Agency (EPA) to restore the Chesapeake Bay and its watershed. These requested model refinements reflect the environmental protection accomplishments New York State has already attained and truthfully represent the environmental stewardship of New York's family farms.

Response

Please refer to the response to comment 0103-cp.001.004.

Comment ID 0169.1.001.004

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

EPA has failed to provide the public with sufficient data and documentation needed to review, evaluate, and fully comment on the proposed allocations. What information and data that is available show that the model and model inputs are lacking in the level of precision that should be required of regulatory action with consequences as significant and widespread as the Bay TMDL.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0169.1.001.029

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

The Model results that are the basis for the proposed allocations are clearly lacking in the level of precision and certainty required to justify the resulting billions of dollars in costs. EPA professes to be taking an adaptive management approach to the TMDLs; but in reality, EPA is taking an adaptive legal and regulatory approach to the TMDLs by establishing the TMDLs based on incomplete and flawed science and then seeking to supply the missing documentation after the fact.

Response

The Chesapeake Bay Program models are being applied in the Chesapeake TMDL in appropriate ways and at appropriate scales. The Chesapeake Bay Program models support development of TMDL allocation loads at the major river basin-jurisdiction level and these are the loads that the seven watershed jurisdictions used to develop their Watershed Implementation PlansWIPs. At the same time, the number of model segments, land uses, and calibration stations in the Phase 5.3 Chesapeake Bay Watershed Model have increased by an order of magnitude over the previous Phase 4.3 Chesapeake Bay Watershed Model, now enabling assessments at local jurisdiction levels (e.g, counties) as well as at the major river basin-jurisdiction scale.

Initial drafts of the Phase 5 Watershed Model documentation have been available on-line at the Chesapeake Bay Program parntership's web site www.chesapeakebay.net since 2008 when the first of several model calibrations (Phase 5.1) were conducted. When the Chesapeake Bay TMDL is finalized at the close of December 2010, all of the final documentation of the Phase 5.3 Chesapeake Bay Watershed Model and Scenario Builder documentation, code, and data used to develop and apply the models will be are on the web and fully available. Parts of the model documentation could not be completed until final decisions were made on the Bay TMDL itself, hence, final publication of both the Bay TMDL and the model documentation at the same time. In addition, the Phase 5.3 Chesapeake Bay Watershed Model has been developed as open source, public domain models that have been developed and applied in open public meetings over the last decade.

Scenario Builder and Watershed Model downloadable information
Scenario Builder documentation (uploaded 9/16/10), source code (10/29), and database (11/5) are available on this site:
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Inputs and outputs are available on this ftp site (continually updated as new results are run):
ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/

Phase 5.3 Watershed Model documentation information is available here:
http://ches.communitymodeling.org/models/CBPhase5/index.php

Comment ID 0198.1.001.006

Author Name: Covington Roy

Organization: Chesterfield County, Virginia

At this extremely late point in time, EPA has unilaterally changed the computer model it uses to judge the adequacy of Virginia's actions.

Response

The Chesapeake Bay TMDL have been developed through a highly transparent, inclusive, and engaging process during the past two years, including two rounds of public meeting held in all seven watershed jurisdictions and a public comment period. The Phase 5.3 Chesapeake Bay Watershed Model has been under development, calibration and then management application over the past five years, guided by the Chesapeake Bay Program partnership. All changes in the suite of Chesapeake Bay models and their application were reviewed and vetted by the Chesapeake Bay Program partners in open public meetings documented within Appendix C of the Bay TMDL report.

Comment ID 0202.1.001.005

Author Name: Carl Jimmie

Organization: Southern Tier New York WWTP

Furthermore, the percentage of a nutrient quantity discharged to a river that is actually delivered to the Bay decreases with the distance from the Bay itself. The ratio of the "edge of stream" nutrient quantity to the portion reaching the Bay is known as a delivery factor. As New York State is located in the headwaters of the Chesapeake Bay watershed at a considerable upstream distance from the Bay, some of the lowest nutrient delivery ratios exist within New York. For example, in regards to Total Phosphorus, the delivery ratios for New York State range from 23 to 47 percent, whereas the portions of Maryland and Virginia near the Bay have a delivery factor of 80 to 100 percent. Also, for example, the Hornell/Canisteo area of New York is located in the upper portion of the watershed and has a delivery factor of Total Nitrogen of less than 20 percent.

These concepts are significant for the following reasons:

2. Assuming equivalent upgrade costs, it will cost substantially more for a New York State WWTP to remove a pound of delivered TN or TP from the Bay, than states closer to the Bay.

Response

For a response specific to New York please see the response to comment 0080-cp.001.002.

While New York has low delivery factors of total phosphorus to the Chesapeake, in large part due to the many impoundments and opportunities for the settling and sequestering of total phosphorus in the watershed, the point of delivery of New York's loads to the tidal Bay, being at the absolute head of tide at Havre de Grace, Maryland, makes New York loads, along with the Susquehanna River watershed loads of Maryland and Pennsylvania particularly effective at impairing Chesapeake water quality.

Comment ID 0202.1.001.011

Author Name: Carl Jimmie

Organization: Southern Tier New York WWTP

G. In-Bay Activities that Impact Water Quality

A number of "in-Bay" activities may act to degrade the Bay's water quality and appear to be largely ignored. These activities include the following.

- Increased shoreline development along the Bay
- Overfishing of oysters and menhaden that are filter feeders that act to improve water quality
- Navigational dredging within the Bay
- Intensive chicken farming operations to the east of the Bay

Response

1) Shoreline development: Shoreline development is controlled in the States bordering the Chesapeake by critical area laws which generally at a minimum restrict development within 100 feet of mean high tide. In the critical area natural vegetation such as woodland is encouraged and structures are generally prohibited. Additionally shoreline protection permits are moving toward "green shoreline protection and away from hard shorelines affording an additional level of protection from damaging shoreline development.

2) Overfishing of oysters and menhaden: Increases in the oyster biomass of the Chesapeake Bay, as is encouraged by recent moves by Maryland and Virginia to increase sanctuary areas and aquaculture, will improve water quality in the Chesapeake. While improved management and ultimately larger biomasses of oysters and menhaden filter feeders in the Chesapeake are estimated to improve water quality, there is uncertainty in the time needed to increase the biomass of these resources.

3) Navigational dredging within the Bay: The Chesapeake Bay Water Quality and Sediment Transport Model simulates input loads of sediment from the watershed, shoreline erosion, resuspension due to wave energy, and ocean inputs. Currently total suspended sediment loads resuspended by maintenance dredging in tidal waters is not a model input into the Chesapeake Bay Water Quality and Sediment Transport Model. If warranted, this input load can be considered in the next generation Bay Water Quality Model that will be used for assessment of Chesapeake Bay TMDL progress in 2017. However, the reviewer raises excellent points for judicial

application of existing Sate and Federal permitting of dredging action in the Chesapeake, particularly the encouragement of dredging operations in the winter period when environmental degradation be minimized and is during the period when the SAV-clarity water quality standard in not in effect due to the absence of the SAV resource in the winter quiescent period.

4) Eastern Shore poultry operations: Poultry operations on the Eastern Shore are fully considered in the scope of management actions for the Maryland, Delaware, and Virginia's Watershed Implementation Plans. Poultry operations are accounted for and simulated in the Scenario Builder and Phase 5.3 Chesapeake Bay Watershed Model, which covers the entire watershed. Please see sections 4 and 5 of the final Bay TMDL document.

Comment ID 0211.1.001.010

Author Name: McCarthy R.

Organization: Town of Erwin, New York

the EPA has attributed declining Chesapeake Bay water quality solely to excess nutrient and sediment discharge to the bay from its watershed but has failed to fully investigate the adverse impact to the Bay's water quality resulting from over-farming and overfishing of filter feeders by those living on and near the Bay,

Response

1) Over-farming near the Bay: The Virginia, Delaware, and Maryland Watershed Implementation Plans fully account for agricultural loads from regions adjacent to the Chesapeake. Generally, point and nonpoint sources in areas close to the Chesapeake Bay's tidal waters have to do relatively more than regions further removed, like the New York portion of the watershed. See Section 6 of the final Bay TMDL report for more details.

2) Overfishing of oysters and menhaden: The Chesapeake Bay Water Quality and Sediment Transport Model provided a complete assessment of the positive influence that increased filter feeders would have on water quality. Increases in the oyster biomass of the Chesapeake Bay, as is encouraged by recent moves by Maryland and Virginia to increase sanctuary areas and aquiculture, will improve water quality in the Chesapeake. While improved management, and ultimately larger biomasses of oysters and menhaden filter feeders in the Chesapeake Bay are estimated to improve water quality, there is uncertainty in the time needed to increase the biomass of these resources.

Comment ID 0215.1.001.006

Author Name: Milo J.

Organization: Maury Service Authority (MSA)

At this extremely late point in time, EPA has unilaterally changed the computer model it uses to judge the adequacy of Virginia's actions.

Response

The Chesapeake Bay TMDL have been developed through a highly transparent, inclusive, and engaging process during the past two years, including two rounds of public meeting held in all seven watershed jurisdictions and a public comment period. The Phase 5.3 Chesapeake Bay Watershed Model has been under development, calibration and then management application over the past five years, guided by the Chesapeake Bay Program partnership. All changes in the suite of Chesapeake Bay models and their application were reviewed and vetted by the Chesapeake Bay Program partners in open public meetings documented within Appendix C of the Bay TMDL report.

Comment ID 0226.1.001.002

Author Name: Harris, Jr. Cecil

Organization: Hanover Courthouse, Hanover County, Virginia

We feel strongly that a detailed sensitivity analysis which acknowledges the uncertainty in the modeled system in conjunction with the probable water quality improvements is a necessity if the TMDL is established. The proposed TMDL exceeds the limitations of the modeling tool and is not appropriate for the intended purpose of source limits at the sub-watershed or local jurisdiction level.

Response

The Chesapeake Bay models have been thoroughly reviewed and vetted and are fully capable of supporting the 2010 Chesapeake TMDL.

Comment ID 0230.1.001.032

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

D. EPA's justification for drastic load reduction hinges on insignificant water quality responses

Due to the lack of complete information on the model results, it was difficult to determine the level of water quality benefits that EPA expected from the large load reductions. However, VAMWA interpreted the limited information available, [FN57] mostly derived from a June 18, 2010 presentation. Results of this review revealed that EPA was recommending huge allocation cuts on the basis of tiny model-predicted shifts in chlorophyll-a. Specific conclusions of Bell and Hunley (2010) were as follows:

1. The predicted changes in chlorophyll-a are smaller than can be precisely quantified by the model: Based on a review

of Appendix O TMDL materials, CBPO's justification for going beyond the 190 TN / 13 TP allocation level is to reach very small and predicted decreases in chlorophyll-a and non-attainment rates:

--2-3% reductions in non-attainment in selected segment seasons (JMSTFL, JMSMH)
--1-2 micrograms per liter (ug/L) reduction in chlorophyll-a in selected segment seasons [FN58]

It is a misapplication of the model framework to claim that it is capable of distinguishing between model scenarios at such small differences in percent attainment and ambient chlorophyll-a concentrations, or that major management decisions costing hundreds of millions of dollars be made based on these tiny predicted shifts. Given the strong implicit margin of safety of the Bay TMDL, it cannot be concluded that the model is precise enough to distinguish non-attainment between scenarios that predict 0-1% and 2-4% nonattainment. The precision of chlorophyll-a predictions can be expected to be significantly less than that for main stem Bay dissolved oxygen (D.O.), which enjoys a much better calibration.

If the model cannot distinguish between D.O. non-attainment rates of 0% and 1% (as acknowledged by EPA), the spread in distinguishable non-attainment rates for chlorophyll-a can be expected to be greater. On this particular point, VADEQ (2010) provides a comparison between chlorophyll and D.O. reliability with respect to a number of different metrics including: impairment confidence, criteria evolution, criteria metric, analysis method, data quantity, analytical method variability, environmental variability, and model prediction ability. [FN59] Their comparison indicated that chlorophyll a measurements are considerably less certain in all areas than D.O. The obvious implication is that the allowable percentage non-attainment for chlorophyll is greater than 1%.

2. The predicted changes in chlorophyll-a are smaller than those that can be detected in monitoring data: It can be demonstrated that tiny predicted shifts in chlorophyll-a between the 190 scenario and the "between 170/Potomac" scenario (i.e. EPA's proposed allocation) would not even be detectable in light of environmental, sampling, and analytical variability. For example: (a) power analysis demonstrates that even after long (25 year) monitoring periods, the minimum significant difference (MSD) in seasonal mean chlorophyll-a would be in the 2-4 ug/L range for most attaining segment seasons. [FN60] Thus, the modeled shift in chlorophyll-a between the 190 and the "between 170/Potomac" scenario would not be detectable in the monitoring data; and (b) based on a review of laboratory split sample results for the 1991-2000 James River data obtained from the CBMP data hub, the median relative percent difference (RPD) in chlorophyll-a samples was about 16 percent, corresponding to 1-4 ug/L chlorophyll-a, depending on segment and season. [FN61] Thus, analytical variability alone is equal to or greater than the modeled shifts in chlorophyll-a between the 190 scenario and the "between 170/Potomac" scenario. Consideration of field (sampling) variability would cause the total variance of chlorophyll-a measurements to increase even further. The management implication is that the water quality response in the James River between the D.O. based allocation and EPA's backstop allocation would be essentially the same but with significant differences in source controls and cost to the citizens of the Commonwealth.

3. The predicted changes in chlorophyll-a are not ecologically significant: The difference in chlorophyll-a levels predicted between tributary strategy and the proposed reduced allocation scenarios (on the order of 1-2 ug/L seasonal average and 2-4% in terms of nonattainment rates) are exceptionally small in magnitude. This estimated level of change is too small to be seriously considered a matter of practical importance or consequence to the James River. Even if the model could adequately discern such differences (which VAMWA disputes as discussed above), they would not result in tangible environmental benefits. One must keep in mind that the resulting chlorophyll-a standards were

acknowledged by VADEQ and stakeholders to be highly imprecise.

4. James River chlorophyll-a concentrations are predicted to be relatively insensitive to nutrient load reductions in key segment-seasons: Very large reductions in nutrient loading would result in only very small incremental reductions in chlorophyll-a concentrations and/or reductions in non-attainment rate. For example the critical segments of the tidal freshwater and lower estuary are predicted to have response rates of approximately 1.0 and 0.3 ug/L chlorophyll response per million pounds of TN reduction per year. Such a misapplication of the modeling framework would lead to huge expenditures without significant changes in standards attainment or tangible environmental improvement.

5. Similarly, differences between the "Tributary Strategy" and TMDL scenarios are predicted to be very small: Appendix 34 [FN62] includes a series of four tables ("stoplight plots") for the "91-00 Base", "Tributary Strategy", "190/12.7 Loading", and "James LOE ½ Potomac" scenarios for each of the three-year rolling average for the periods between 1991 through 2000 that EPA uses to assess compliance. Each table includes percent nonattainment of the chlorophyll-a water quality criteria for each of the five model segments of the James River shown in Figure 2. The blacked data points shown in Appendix 34 for the JMSTFL and JMSPH segments in the "James LOE ½ Potomac" model scenario represent chlorophyll-a model output that was not considered reliable by EPA. Once post-processing of the data was completed, the JMSMH segment showed only 1% nonattainment, which EPA indicated was sufficient to establish the James River basin allocations for TN and TP loads at 23.5 and 2.35 million pounds per year, respectively. However, there are no records in the TMDL Report or its appendices for the percent non-attainment for the JMSMH segment prior to the post-processing for the '97-'99 or '98- '00 summer periods shown in Appendix 34. Therefore, we have undertaken the analysis below to compare the scenarios.

Appendix 35 shows the same four scenario tables ("stoplight plot") as provided in Appendix 34, except the post-processing of the data for the "190/12.7 Loading" scenario was applied based on the EPA's June 2010 presentation. Appendix 35 shows that JMSTFL and JMSPH segments were also not considered reliable by EPA and removed from consideration. EPA reported that the percent non-attainment for the JMSMH segment was reduced from 15 percent in Appendix 34 to 4 percent in Appendix 35, which was based on the EPA's removal of the problem regression data. It is reasonable to assume that the same trend would exist for the "Tributary Strategy" Scenario as shown in Appendix 35. The post-processed "Tributary Strategy" percent non-attainment rate for the JMSMH segment would be expected to be about 1 percent higher than the "190/12.7" scenario (based on comparison between Appendix 34 and Appendix 35). Therefore, it would be expected that the "Tributary Strategy" data would attain the standard about 93 to 94 percent of the time. The difference between this attainment rate and the one percent rate that EPA used to develop the proposed allocations are "essentially equivalent" (refer to previous comments above).

[FN57] Attached hereto as Appendix 31.
[FN58] See Attachment A of Bell and Hunley (2010) (attached hereto as Appendix 32) for details of these calculations.
[FN59] Attached hereto as Appendix 33.
[FN60] See Attachment B of Bell and Hunley (2010) (Appendix 32).
[FN61] See Attachment C of Bell and Hunley (2010) (Appendix 32).
[FN62] Data extracted from Table M3 of Appendix M to the Draft TMDL.

Response

1. Small Differences Between Scenarios

A TMDL must be developed to achieve the applicable water quality standards. In the case of the tidal James River, Virginia's water quality standards regulations have defined numerical concentrations of chlorophyll a that define a healthy, productive aquatic ecosystem.

EPA took specific steps described in the Bay TMDL report and Appendix O to remove from consideration specific segment-season-3 year periods where close evaluation of the model output and modeling/monitoring regressions called into question the confidence in driving the allocations even lower. EPA also determined 1 percent non-attainment was attainment of the designated use for a limited set of segment-season-3 year periods where there was evidence of reduced sensitivity approaching the criterion concentration (Appendix I). If EPA had not taken these steps, the resultant James River nitrogen and phosphorus allocations would have been even lower than those published in the Bay TMDL.

2. Predicted Changes in Chlorophyll a Concentrations

It is important to recognize that the scenario assessment methodology applied in development of the Bay TMDL is specifically designed to make use of the model as the best available method for predicting response to nutrient load reductions as represented the relative degree of change in chlorophyll a concentrations from one loading scenario to another, and not for estimating the actual mean itself. While the WQSTM's ability to approximate observed conditions is used as a metric for identifying those locations time periods for which its estimates of response are most useful, EPA relies on the historical monitoring data as the best available estimate of the mean chlorophyll a concentrations in any given season and location. EPA uses the WQSTM to predict the degree change expected in that mean with reductions in pollutant loads. See Section 6.2.4 in the Bay TMDL report for more details.

3. Predicted Changes in Chlorophyll a Not Ecologically Significant

Given Virginia's chlorophyll a water quality standard is stated as seasonal mean concentration, relatively small incremental changes in the seasonal mean concentration heading down towards achievement of that standard translates into ecologically significant reductions in extreme bloom conditions over the same spring or summer season (USEPA 2007). For the tidal James River, Virginia's water quality standards regulations have defined numerical concentrations of chlorophyll a that define a healthy, productive aquatic ecosystem, period. Concentrations above those water quality standards mean the waterbody is impaired and does not meet its designated uses.

USEPA (U.S. Environmental Protection Agency). 2007. Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries. 2007 Chlorophyll Criteria Addendum. EPA 903-R-07-005 CBP/TRS
288/07. U.S. Environmental Protection Agency, Region 3 Chesapeake Bay Program Office, Annapolis, MD.

4. Chlorophyll a Concentration Changes Insensitive to Nutrient Load Reductions

[See Attachment 1 to the Response to Comment document for Figure 3 titled "JMSMH Summer 1997-1999."]

The above figure provides clear evidence for chlorophyll a responses to nutrient load responses, using the combination of the Chesapeake Bay Water Quality Model to predict change in concentration under different nitrogen and phosphorus loads and Chesapeake Bay Monitoring Program data as the measured starting concentration. There is a slight flattening of the response curve on the way toward 100 percent attainment of the applicable chlorophyll a water quality standards—in this case the 10 ug/L summer

season criterion for lower James River segment JMSMH for the 1997-1999 period assessment period.

5. Small Differences Between Tributary Strategy and TMDL Scenarios
As described above, the Chesapeake TMDL allocation must achieve the applicable water quality standards. In the case of the tidal James River, Virginia's water quality standards regulations have defined numerical concentrations of chlorophyll a that define a healthy, productive aquatic ecosystem and the WQSTM is fully capable of providing guidance in what's required to achieve the James chlorophyll water quality standard.

Comment ID 0230.1.001.039

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

VII. EPA'S BAY MODEL IS FLAWED

A. EPA Should Correct A Number of Modeling Issues

EPA expects VAMWA members (and others) to comply with an extraordinarily expensive cleanup plan. However, EPA itself has not fulfilled its obligation to ensure that its modeling framework is adequate to support its TMDL and the accompanying WLAs and LAs. If EPA presses forward with finalizing the TMDL over the objections of Bay dischargers and interested stakeholders, despite the faulty model that it has put forth in support of its TMDL, its decision to do so will be arbitrary and capricious.

Like any model, EPA's Bay model is a highly imperfect representation of reality. Over time, EPA has inappropriately shifted to using it in ways that are beyond its capabilities (e.g., predicting D.O. concentrations and non-attainment rates in specific segments to the single percentage point level under far-reaching management scenarios). This has resulted in wide swings in predicted loads and goals with each major model version. HRSD believes that this instability will continue to occur in the future as the model is periodically modified.

HRSD objects to overreliance on unstable models to the single percentage point of output, such that environmental policies are undermined with each new model run. Following are examples of problematic modeling issues that should cause EPA to shy away from major disruptions to state regulations/policy on the basis of single-digit shifts in model output:

1. Lack of full model validation and peer review: The Scientific and Technical Advisory Committee (STAC) has placed a strong emphasis on the need for model validation (STAC, 2006), calling validation "an essential and a required step in model development, particularly if the model is to be used for TMDL development purposes" (STAC, 2008b). [FN67] Although the watershed model (WSM) appears to have been subjected to some kind of validation, the public documentation of the validation is very poor. Moreover, it is unclear if the Water Quality and Sediment Transport Model (WQSTM) has been validated in any manner. VAMWA scientists were unable to locate any record of WQSTM validation in Chesapeake Bay Program materials. It also appears that the STAC reviews of the WQSTM have focused on the sediment, clarity, and SAV components, and there may not have been a complete peer review of the latest

version of the full eutrophication and DO simulation.

2. The model is being extrapolated beyond the observed range of management controls and living resources: The model framework has been calibrated using data from years with widely varying hydrologic conditions. However, none of the calibration data are representative of management controls or living resources that being called for as part of the Bay TMDL and related goals. Therefore, there is simply no way to verify that the Bay system will respond precisely as predicted. The model predictions of attainment are best characterized as rough approximations rather than highly precise predictions.

3. An estimate of model uncertainty should be used to determine the essential equivalence of model scenarios: EPA was correct to implement an interpretive rule (the "1% rule") by which model-predicted non-attainment is considered indistinguishable from zero. However, the one-percent magnitude underestimates the model error and overestimates the precision of both the model and monitoring data. Based on the analysis of Bell (2010b), segments that are close to attainment would require spatial D.O. violation rates that differ by 4% or more before they would be statistically distinguishable from one another. EPA's justification for the 1% magnitude was not based on calibration or validation statistics, but by an analysis of the sensitivity of simulated to DO attainment to simulated load reductions. [FN68] It is recommended that the EPA further evaluate the statistical power of the model and monitoring to distinguish between non-attainment rates of differing magnitude. With the information in hand, HRSD concludes that the "1% rule" should be a "4% rule" at minimum.

4. Inaccuracy of groundwater inputs: The model handles groundwater inputs/loads in a very simplistic manner that is dissimilar to physical reality. Or as stated by STAC (2008a), "the model does not represent the full coupling of the groundwater to the surface water system on a regional scale." Considering that 50% of the total freshwater flow to the Bay is derived from groundwater (Bachman and others, 1998), this is a major model limitation and source of uncertainty for management scenarios.

5. Lack of criteria for acceptance of model predictions: Predictions of dissolved oxygen and chlorophyll-a in some segments are characterized by anomalies (e.g., counterintuitive trends with decreasing loads). EPA recognized many of the most obvious problems, and used poor model behavior as a justification for not using DO or chlorophyll-a attainment in many segment-seasons (e.g., Keisman, 2010a; Keisman 2010b). [FN69] However, in most of these cases, the underlying cause(s) were not identified, and full implications of these problems for the model were not explored. The same problems that caused obviously poor model behavior in some segment-seasons might be also causing more widespread but less obvious problems in other segment-seasons. We see no evidence that the CBPO developed objective criteria for the acceptance or rejection of model results in these circumstances. Poor behavior of the James River chlorophyll-a model is discussed in more detail in Section VI.

6. Poor chlorophyll-a calibration: The chlorophyll-a calibration is obviously very poor in many segments (e.g., tidal freshwater James), and EPA has not demonstrated that the model is a useful predictor of annual changes in chlorophyll-a in other key segment-seasons. This comment is discussed in more detail in Section VI.

7. Instability and inaccuracy in urban land use assumptions: The watershed model suffers from questions regarding accuracy of the urban land use acreages. Urban land use breakdowns have been very unstable between model versions and even subversions, varying with different derivation methods and assumptions. For example, the urban land use breakdown varied by millions of acres between model version 5.2 and 5.3. [FN70] It unclear that the latest

version is accurate or has been adequately ground-truthed. Urban stormwater loads and implementation costs are highly sensitive to the assumptions regarding urban land use breakdown.

8. Missing point sources: It is our understanding the current version of the model framework does not include 139 active Virginia point sources. Further, EPA is aware of this error, however it has not been corrected due to a lack of time until EPA's self-imposed December 31, 2010 deadline.

9. Inappropriate application of watershed model to local level. In their review of the Phase 5 watershed model, STAC (2008) clearly stated that the model was not appropriate for use at the local level, and would need recalibration/resegmentation for this application. It is unclear, then, why the Bay Program is continuing to promote the application of the model to determine local-level loads and allocations, and why EPA is calling for such values in the Phase II WIPs.

10. Overparamterized modeling framework: The model combined modeling framework is so complex and highly parameterized that there are no unique calibration solutions; it is easy to obtain the "right" answer for the "wrong" reason. Calibration also relies on regional calibration factors that act as "black box" knobs, divorcing the model result from physical understanding of the processes. While necessary for calibration, these factors introduce yet another source of uncertainty into model predictions.

11. Inconsistent watershed model results: We understand that a consultant retained by another stakeholder has run the watershed model has obtained widely different results on different computers. If true, this brings into question which is the "correct" result, and undermines the entire basis of the TMDL allocations. We encourage the Bay Program to fully investigate the reasons and implications of this finding.

[FN67] Attached hereto as Appendix 37.

[FN68] Batiuk, R. and Shenk, G., 2010. Technical Rationale for Documenting Attainment for 1% Non-attainment Dissolved Oxygen Criteria Values. Attachment C2 for State/District Co-Regulators June 14, 2010 Conference Call (attached to Appendix 41).

[FN69] Attached hereto as Appendix 38; see also Appendix 31.

[FN70] See Appendix 39.

Response

1. Review of the Chesapeake Bay Water Quality Model

The principles of the phytoplankton model were established in the original three-dimensional model study (Cerco and Cole 1993, Cerco and Cole 1994). Although the model has been revised, the basic principles are the same. These have been subject to countless reviews over a twenty-year period. Notably, the model was reviewed and accepted by the Chesapeake Bay Program’s Modeling and Research Subcommittee as part of the original re-evaluation of the 40% nutrient reduction goal. The behavior of the model was extensively examined and published (Thomann et al. 1994). An independent scientific peer review of the Virginia Tributaries version of the Chesapeake Bay Water Quality Model, sponsored by the Chesapeake Bay Program’s Scientific and Technical

Advisory Committee was completed in 1999. The STAC review led to substantial improvements in the 2002 version of the model. The algal kinetics from this version are carried over into the present model. These kinetics have been peer-reviewed as part of the publication process and several publications have resulted (Cerco 2000, Cerco and Noel 2004).

With each new version of the Chesapeake Bay Water Quality Model
--1987 Chesapeake Bay Water Quality Model (2-year, steady state summer averaged)
--1992 Bay Water Quality Model (4-year, with dynamic sediment fluxes),
--1997 Virginia Tributary Refinements version of the Bay Water Quality Model (10 year, SAV and benthic filter/deposit feeders)
--2002 Chesapeake Bay Water Quality Model
--2010 Chesapeake Bay Water Quality and Sediment Transport Model
there was a combination of detailed technical review (Chesapeake Bay Program's Modeling Subcommittee), independent scientific peer review (Chesapeake Bay Program's Scientific and Technical Advisory Committee), and partnership review and approval for management applications (Chesapeake Bay Program's Water Quality Steering Committee and now the Water Quality Goal Implementation Team).

Cerco, C., and T. Cole. 1993. Three-dimensional eutrophication model of Chesapeake Bay. Journal of Environmental Engineering 119(6), 1006-1025.

Cerco, C.F. and T.M. Cole. 1994. Three-dimensional eutrophication model of Chesapeake Bay. Technical Report EL-94-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg MS.

Cerco, C. 2000. Phytoplankton kinetics in the Chesapeake Bay model. Water Quality and Ecosystem Modeling 1:5-49.

Cerco, C., and M. Noel. 2004. Process-based primary production modeling in Chesapeake Bay. Marine Ecology Progress Series 282:45-58.

Thomann, R., J. Collier, A.Butt, E.Casman, and L.Linker. 1994. Response of the Chesapeake Bay water quality model to loading scenarios. CBP/TRS 101/94, US EPA Chesapeake Bay Program, Annapolis MD.

2. Extrapolation Beyond the Observed Range of Management Controls
EPA and its partners have, in fact, conducted multiple simulations of a "pristine" and a "1950's" Bay. The objective of these simulations has been to ensure that the model reproduces pre-eutrophic conditions when it is subjected to pre-eutrophic loads. One consequence of these simulations is the finding that certain model parameters or processes require adjustment in the face of extreme nutrient load reductions. The Bay Water Quality Model developers have devised algorithms in which the following are adjusted to reflect nutrient load reductions:
--Nutrient concentrations at the bay mouth are adjusted downwards to reflect the concentration reductions in coastal waters due to reduced export from the bay and reduced atmospheric loading.
--SAV is assigned a higher probability of propagation to reflect modification of the local environment by dense, extensive SAV beds.
--SAV feedback effects on suspended solids are adjusted to reflect influence of dense, extensive SAV beds.
--Oysters are assigned lower rates of harvest and predation to reflect 1950's conditions.

EPA believes the examination of model performance with regard to extreme load reductions and the resulting steps taken eliminate the problem of extrapolating beyond observed, existing conditions.

3. Power Analysis
Regarding the power analysis, the argument that we should not implement corrective measures because we lack sufficient tools to measure their effect is flawed before we even begin to start to consider the details of the argument. Consider this analogy. A patient goes to a doctor and it is diagnosed that the patient has a fever. The doctor prescribes that the patient should take an analgesic to bring the fever down. On arriving home, the patient discovers that he does not have a medicinal thermometer. Under the proffered logic, the patient should not take the analgesic because he has no way to show that his temperature will decrease as a result.

Nevertheless, a key point is that in the power analysis, extrapolation of monthly violation rates are improperly used to make a statement about a minimum statistically significant difference in non-attainment rates. They are two different rates. A mean 4% violation rate does not directly correspond to a non-attainment rate.

4. Groundwater
This point was addressed in the response to the STAC review:
http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf
"A fully developed groundwater model coupled to the Phase 5 Watershed Model is beyond the scope of currently available resources and time. We note that there are regional groundwater models under development in the Chesapeake region and believe a winning strategy is to couple a future version of the CBP watershed model with one of these models once development is complete. Even with the current HSPF Phase 5 simulation though we do have a full mass balance accounting of nitrogen and note that about 50% of the total nitrogen simulated in the reach is from the HSPF representation of groundwater. Still, we readily concede that the HSPF representation of groundwater is simplistic and falls well short of a regional groundwater model, especially with regard to lag time, and agree that a coupled watershed and regional groundwater model is a worthy long-term objective."

It should also be noted that scenarios run on the watershed model are designed to be the loads given a constant state of management. Lag time should not figure into management scenarios so a mass-balance approach without the lag time of a regional model is appropriate for this purpose.

5. Lack of Criteria for Acceptance of Model Predictions Poor Chlorophyll a Calibration
There are no universal criteria for determining the acceptability of model performance. This absence occurs for many reasons. Among them are:
--Lack of agreement on a standard set of statistics.
--Variation in characteristics of different systems. The criteria for nutrients in a system like Florida Bay would differ from Chesapeake Bay.
--Variations in different substances. Criteria for salinity would differ from chlorophyll.

The Bay Water Quality Model developers have maintained a consistent statistical measure of model performance (Cerco and Noel 2005) since the original model study. Statistics have been calculated and compared for the original model, for the Virginia Tributary

Refinements, for the 2002 Chesapeake Bay Model, and for the 2010 Model. These statistics include mean difference, absolute mean difference, and relative difference:

[See Attachment 1 to the Response to Comment document for Equation 2 from the Lack of Criteria for Acceptance of Model Predictions Poor Chlorophyll a Calibration section]

in which:
MD = mean difference
AMD = absolute mean difference
RD = relative difference
O = observation
P = prediction
N = number of observations

The mean difference describes whether the model over-estimates or under-estimates the observations, on average. The mean difference can attain its ideal value, zero, while discrepancies exist between individual observations and computations. The absolute mean difference is a measure of the characteristic difference between individual observations and computations. An absolute mean difference of zero indicates the model perfectly reproduces each observation. Relative difference is the absolute mean difference normalized by the mean of the observations.

Statistics for chlorophyll in the James River are presented in the table below for the four stages of model application. Model performance, as characterized by absolute mean difference and relative difference, is the best ever. Performance characterized by mean difference is among the best ever. Model versions with quantitative performance statistics lower than the present version were accepted for verification of the 40% nutrient reduction goal and for determination of tributary load allocations. EPA believes the performance of the present model version is sufficient for use in determining TMDLs in the James River.

[See Attachment 1 to the Response to Comment document for Table 2 titled “Chlorophyll Summary Statistics for James River (Lack of Criteria for Acceptance of Model Predictions Poor Chlorophyll a Calibration section).”]

6. Chesapeake Bay Water Quality Model Calibration
Chlorophyll in the tidal James River is considered along with the chlorophyll a calibration system-wide. Model results are subject to multiple performance measures in several modes. These include:
--Time series of computed and observed chlorophyll at stations in the tidal fresh, transition, and lower estuarine regions.
--Comparison of computed and observed chlorophyll along the estuarine axis. These are averaged according to season and presented for years of different hydrology.
--Cumulative distribution plots of computed and observed chlorophyll.
--Time series of computed and observed primary production.
--Time series of computed and observed water column respiration.

We have maintained a consistent statistical measure of model performance (Cerco and Noel 2005) since the original model study. Statistics have been calculated and compared for the original 1987 Chesapeake Bay Water Quality Model (2-year, steady state

summer averaged), 1992 Bay Water Quality Model (4-year, with dynamic sediment fluxes), 1997 Virginia Tributary Refinements version of the Bay Water Quality Model (10 year, SAV and benthic filter/deposit feeders), the 2002 Chesapeake Bay Water Quality Model, and for the 2010 Chesapeake Bay Water Quality and Sediment Transport Model. These statistics include mean difference, absolute mean difference, and relative difference:

[See Attachment 1 to the Response to Comment document for Equation 1 in the section Chesapeake Bay Water Quality Model Calibration.]

in which:
MD = mean difference
AMD = absolute mean difference
RD = relative difference
O = observation
P = prediction
N = number of observations

The mean difference describes whether the model over-estimates or under-estimates the observations, on average. The mean difference can attain its ideal value, zero, while discrepancies exist between individual observations and computations. The absolute mean difference is a measure of the characteristic difference between individual observations and computations. An absolute mean difference of zero indicates the model perfectly reproduces each observation. Relative difference is the absolute mean difference normalized by the mean of the observations.

Statistics for chlorophyll in the James River are presented in the table below for the four stages of model application. Model performance, as characterized by absolute mean difference and relative difference, is the best ever. Performance characterized by mean difference is among the best ever. Model versions with quantitative performance statistics lower than the present version were accepted for verification of the 40% nutrient reduction goal and for determination of tributary load allocations. EPA believes the performance of the 2010 Chesapeake Bay Water Quality Model is sufficient for use in determining TMDLs for the tidal James River.

[See Attachment 1 to the Response to Comment document for Table 1 titled “Chlorophyll Summary Statistics for James River (Chesapeake Bay Water Quality Model Calibration section).”]

Cerco, C., and Noel, M. (2005). “Incremental improvements in Chesapeake Bay environmental model package,” Journal of Environmental Engineering 131(5), 745-754.

7. Urban Land Assumption
Fluctuations in the extent of developed lands in different versions of the watershed model are due to changing technology and methods for mapping developed lands and inferring change over time using a combination of datasets. For each version of the Watershed Model, the EPA uses the best available data and methods to provide information that is accurate, consistent, and comparable across the watershed and over time.

As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the Phase 5.3 will be updated with a revised developed land data set, not for the December 31 2010 TMDL, but for the phase II Watershed Implementation Plans, which will be due after the 2010 TMDL. In accordance with court documents, EPA does not have the ability to ignore the December 31, 2010 deadline. Adjustments to the allocations, if warranted, might be made at that time. Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf

8. Missing VA Point Sources
EPA uses all available waste water data. Virginia supplied a good deal of point source data after the September 1st, 2010 deadline for this type of data submission on September 3rd, 2010. The 139 missing point sources were not supplied with correct geographic information and could not be included without spatial reference. EPA has worked with Virginia to obtain corrected geographic information and included these point sources in implementation scenarios starting on November 18, 2010. The final Bay TMDL allocations includes these previously missing facilities.

9. Application to Local Level
This point was addressed in the response to the STAC review:
http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf.

To summarize the main points: Consistency of data is an important feature of the Phase 5.3 Model in that it is used to fairly inform the allocation of loads among different jurisdictions and watersheds. The Phase 5.3 Watershed Model development process considered all available input data at the finest consistent scale possible within the Bay watershed using comparable level of accuracy for all watersheds. The Phase 5.3 Model was also calibrated at the finest scale of observed stream data available. Therefore the Phase 5.3 Watershed Model uses the best available information that is consistent across jurisdictions and watersheds.

10. Overparameterized Modeling Framework
Equifinality is a known issue with all deterministic watershed models, however few are analyzed to account for this. The modified Monte Carlo or GLUE methods most often used as tools to address equifinality are not feasible to implement on a model of this complexity. HSPF, which is the model code used in phase 5.3 of the watershed model is a widely-used TMDL model and is included in the EPAs BASINS software package as a recommended model for TMDLs.

The technical direction and review of the Chesapeake Bay Program Partnership’s models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are cochairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the Draft TMDL.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed by several of the above groups.

11. Inconsistent Watershed Model Results
We are working on the issue of the Phase 5.3 Watershed Model producing different results on some different platforms. It was been

verified that the code in use in the TMDL is internally consistent. Some other installations are finding that there are errors in reading some of the binary files on those systems only.

Comment ID 0257.1.001.004

Author Name: Christian Stephen

Organization: Berkeley County Development Authority, Berkeley County, Martinsburg, West Virginia

The nitrogen, phosphorus and sediment discharge allocations are estimated by algorithmic modeling conducted by an EPA contractor. No direct scientific evidence proves that West Virginia point source discharges impact the Bay or that the assigned allocations will be effective in restoring and protecting the Bay. We believe sound science is needed before wasting millions of dollars in public monies on an inadequate or inappropriate solution to the problem.

Response

Five generations of the Chesapeake Bay Program Watershed Model has been applied to management decisions in the Chesapeake Bay region for over two decades. The Bay Watershed Model has been continually refined over those five development cycles. The Chesapeake Bay Watershed Model and the input data sets have had four formal partnership-driven cycles of development, calibration, verification, and management application, since the mid-1980's supporting programmatic and policy decisions and directions embedded within the 1987 Chesapeake Bay Agreement, 1992 Amendments to the Chesapeake Bay Agreement, the 1997 Nutrient Reevaluation, and the Chesapeake 2000 Agreement. With the development and publication of the Bay TMDL, the partnership has carried out the fifth such cycle supporting management decision-making.

The Phase 5.3 Watershed Model was been developed, calibrated and verified through collaboration with federal, state, academic, and private partners. Development teams at the Chesapeake Bay Program Office (CBPO) and the U.S. Geological Survey (USGS) included EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed and approved by several of the above groups. All the Phase 5.3 Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf.

The Chesapeake Community Modeling Program, an organization supported by and staffed by academic institutions across the Chesapeake Bay watershed, hosts the open-source code of the Chesapeake Bay Phase 5.3 Watershed Model on its website. This model code has been accessed by and is being used by numerous academic institutions, states and others in supporting local, regional and state-wide decision making. The Phase 5.3 Watershed Model's code can be accessed at the Chesapeake Community Modeling Program's website at http://ches.communitymodeling.org/models/CBPhase5/datalibrary.php.

In addition, there have been two independent scientific peer-reviews of the Chesapeake Bay Phase 5 Watershed Model in 2005 and 2008 involving scientists drawn from across the country-Penn State University, Virginia Tech, Duke University, University of

North Carolina, University of Maryland Baltimore County, and University of Florida—and overseen by the Scientific and Technical Advisory Committee. These independent peer reviews and the Chesapeake Bay Program partnership's responses can be found at:

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

Comment ID 0265.1.001.006

Author Name: Clark, Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Hampton, Virginia

At the Commission meeting on October 20, 2010, the HRPDC acted to endorse the following position and attached comments.

• The Phase 5.3 model and model inputs are not sufficiently developed to produce reliable predictions.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0265.1.001.025

Author Name: Clark, Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Hampton, Virginia

A. The chlorophyll-a water quality model is not stable, not calibrated properly, and should not be used to establish the TMDL allocations.

Since 2009, the regulated community has urged EPA to address significant issues relating to the accuracy of the chlorophyll-a modeling predictions, including erroneous calibration in certain segments and seasons, model post-processing problems, unexplained model anomalies, and the improper use of data. [FN 14] EPA has not only failed to undertake the systematic review and analysis of the model's predictive capabilities needed to fix these problems, it has improperly manipulated the model. Specifically, while EPA was attempting calibrate the model, it found that when using

data from the September 1999 timeframe, chlorophyll-a concentrations were going up rather than going down as loads were reduced as shown in [Figure 1]. But rather taking the time to find and correct the source of the problem, EPA simply eliminated the September 1999 data to produce the result it was seeking. EPA has offered no explanation for why the model was not working properly nor has it offered a justification for deleting the data. If EPA is going to disqualify data, it should at least explain why it is being disqualified.

Figure 1 [FN 15] "Anomaly in some driver of the model simulation that caused poor scenario performance in the latter half of September 1999 at LE5.2" [Please see original document]

Further, EPA provided no reasonable explanation for why the chlorophyll levels increased with decreasing nutrient loads. EPA should recalibrate the model and explain the cause of the model errors. Until EPA recalibrates the model and the model is verified with enough peer review to ensure appropriate reliability in establishing reasonable allocations for the James River basin, the allocation should remain at the "Tributary Strategy" level for the reasons discussed below.

[FN 14] See letter dated August 16, 2010 and attachments from the Virginia Association of Municipal Wastewater Agencies (VAMWA) to EPA, which is attached to and incorporated in these comments as Exhibit E. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0265.1]

[FN 15] From TMDL Report, Appendix O, Figure 6. Plot of simulated surface chlorophyll a concentrations for WQM cell 731 (location of station LE5.2) during the summer of 1999 (a), and resulting regression plot for September 1999 LE5.2 chlorophyll a (b). The quote in Figure 1 is from Appendix O, pg O-5.

Response

The WQSTM is well calibrated and appropriate for application to assess the James chlorophyll water quality standard. Chlorophyll calibration in the tidal James River is considered along with the chlorophyll a calibration system-wide. Model results are subject to multiple performance measures in several modes. These include:

--Time series of computed and observed chlorophyll at stations in the tidal fresh, transition, and lower estuarine regions.
--Comparison of computed and observed chlorophyll along the estuarine axis. These are averaged according to season and presented for years of different hydrology.
--Cumulative distribution plots of computed and observed chlorophyll.
--Time series of computed and observed primary production.
--Time series of computed and observed water column respiration.

We have maintained a consistent statistical measure of model performance (Cerco and Noel 2005) since the original model study. Statistics have been calculated and compared for the original 1987 Chesapeake Bay Water Quality Model (2-year, steady state summer averaged), 1992 Bay Water Quality Model (4-year, with dynamic sediment fluxes), 1997 Virginia Tributary Refinements version of the Bay Water Quality Model (10 year, SAV and benthic filter/deposit feeders), the 2002 Chesapeake Bay Water Quality Model, and for the 2010 Chesapeake Bay Water Quality and Sediment Transport Model. These statistics include mean difference, absolute mean difference, and relative difference:

[See Attachment 1 to the Response to Comment document for Equation 1 in the section Chesapeake Bay Water Quality Model Calibration.]

in which:
MD = mean difference
AMD = absolute mean difference
RD = relative difference
O = observation
P = prediction
N = number of observations

The mean difference describes whether the model over-estimates or under-estimates the observations, on average. The mean difference can attain its ideal value, zero, while discrepancies exist between individual observations and computations. The absolute mean difference is a measure of the characteristic difference between individual observations and computations. An absolute mean difference of zero indicates the model perfectly reproduces each observation. Relative difference is the absolute mean difference normalized by the mean of the observations.

Statistics for chlorophyll in the James River are presented in the table below for the four stages of model application. Model performance, as characterized by absolute mean difference and relative difference, is the best ever. Performance characterized by mean difference is among the best ever. Model versions with quantitative performance statistics lower than the present version were accepted for verification of the 40% nutrient reduction goal and for determination of tributary load allocations. EPA believes the performance of the 2010 Chesapeake Bay Water Quality Model is sufficient for use in determining TMDLs for the tidal James River.

[See Attachment 1 to the Response to Comment document for Table 1 titled “Chlorophyll Summary Statistics for James River (Chesapeake Bay Water Quality Model Calibration section).”]

Cerco, C., and Noel, M. (2005). “Incremental improvements in Chesapeake Bay environmental model package,” Journal of Environmental Engineering 131(5), 745-754.

To be clear about what a deterministic model like the WQSTM is, the model is a consistent structure of governing equations which balance mass and energy. The model can’t be “unstable”, there’ no “unstable” programmed in its code. The model inevitably responds in an unalterable, consistent way to inputs of light, nutrients, and temperature. There were instances of human errors made in model input decks and in these cases the problem scenarios were withdrawn and the scenario data was unused.

Comment ID 0265.1.001.026

Author Name: Clark, Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Hampton, Virginia

B. EPA has failed to provide documentation related to post-processing of the data.

EPA has made it extremely difficult to evaluate the differences between the chlorophyll-a model runs. In Appendix O to the TMDL Report, EPA only states that it post-processed (manipulated) the data to address the poorly performing model results associated with the "James LOE ½ Potomac" model scenario. However, based on a review of EPA's "stoplight plots" for chlorophyll-a in Table M3 of Appendix M to the TMDL Report, it appears that EPA post-processed only the "James LOE ½ Potomac" scenario and failed to post-process the remaining scenarios. Scenarios with higher allocations in the James River should have been post processed and published to allow public review of the results and the relative attainment rates for different load allocations.

Exhibit F [FN 16] [Comment Letter contains additional information in the form of an attachment. See original comment letter 0265.1] includes a series of four tables ("stoplight plots") for the "91-00 Base", "Tributary Strategy", "190/12.7 Loading", and "James LOE ½ Potomac" scenarios for each of the three-year rolling average for the periods between 1991 through 2000 that EPA uses to assess compliance. Each table includes percent non-attainment of the chlorophyll-a water quality criteria for each of the five model segments of the James River shown in Figure 2. The blacked data points shown in Exhibit F for the JMSTFL and JMSPH segments in the "James LOE ½ Potomac" model scenario represent chlorophyll-a model output that was not considered reliable by EPA. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0265.1] Once postprocessing of the data was completed, the JMSMH segment showed only 1% nonattainment, which EPA indicated was sufficient to establish the James River basin allocations for TN and TP loads at 23.5 and 2.35 million pounds per year, respectively. However, there are no records in the TMDL Report or its appendices for the percent nonattainment for the JMSMH segment prior to the post-processing for the '97-'99 or '98- '00 summer periods shown in Exhibit F. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0265.1] Therefore, we have undertaken the following analysis of the data to compare the scenarios.

[Figure 2 James River Model Segments- please see original document]

EPA's PowerPoint presentation in early summer 2010 showed the percent nonattainment rates for the "190/12.7 Loading" scenario after post-processing of the model results. Exhibit G shows the same four scenario tables ("stoplight plot") as provided in Exhibit F, except the post-processing of the data for the "190/12.7 Loading" scenario was applied based on the EPA's June 2010 presentation. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0265.1] Exhibit G shows that JMSTFL and JMSPH segments were also not considered reliable by EPA and removed from consideration. EPA reported that the percent non-attainment for the JMSMH segment was reduced from 15 percent in Exhibit F to 4 percent in Exhibit G, which was based on the EPA's removal of the problem regression data. It is reasonable to assume that the same trend would exist for the "Tributary Strategy" Scenario as shown in Exhibit G. The post-processed "Tributary Strategy" percent non-attainment rate for the JMSMH segment would be expected to be about 1 percent higher than the "190/12.7" scenario (based on comparison between Exhibit F and Exhibit G). Therefore, it would be expected that the "Tributary Strategy" data would attain the standard about 93 to 94 percent of the time. The difference between this attainment rate and the one percent attainment rate that EPA used to develop the proposed allocations is inconsequential considering the fact that (1) EPA has failed to fix the flaws in the model and has had to improperly manipulate the data to make it work, and (2) the difference in modeled chlorophyll-a concentrations between the two scenarios is so small that it is likely to be undetectable.

EPA has indicated that the "190/12.7 Loading" scenario is needed to meet the dissolved oxygen water quality standard in the main stem Chesapeake Bay. However, the 2005 James River Tributary Strategy loading was established based on the chlorophyll-a criteria, which was well below what was required to comply with the dissolved oxygen standard in the main stem Chesapeake Bay. Additionally, it is well known that the James River has little impact on the Chesapeake Bay given its proximity to the Atlantic Ocean. EPA should provide a model run that keeps all the other segments at the allocations associated with the "190/12.7 Loading" scenario, but increase the James River basin loadings to 27.5 and 3.3 million pounds per year for TN and TP, respectively. It is expected that this model scenario will show that the Tributary Strategy loading in the James River basin will not have a material or measurable impact on the dissolved oxygen in the Chesapeake Bay. Therefore, the allocations for the James River Basin should remain at the "Tributary Strategy" loadings.

[Exhibit F and G- please see original document]

[FN 16] Data extracted from Table M3 of Appendix M to the TMDL Report.

Response

An enormous amount of data and information on the Chesapeake TMDL models and application has been developed and distributed in an open and transparent way throughout the TMDL development process. Inevitably during that process of application and review errors and problems are eliminated in the scenario input data and postprocessing. As to reasons why chlorophyll concentrations go up when loads are reduced, recall that the chlorophyll simulation responds the both nutrients and light. Often light is the most limiting factor of algal growth and it's not at all uncommon to see that reductions in watershed loads, which include sediment loads are enough to relive the greatest limitation – light and to have the response of higher chlorophyll concentrations with reduced watershed loads.

As described elsewhere in these responses to comments, the Chesapeake Bay Water Quality and Sediment Transport Model has been well calibrated and thoroughly peer reviewed.

Comment ID 0280.1.001.002

Author Name: Newcomb Jim

Organization: Dorchester Soil Conservation District

The Dorchester Soil Conservation District has reviewed Maryland's Watershed Implementation Plan (WIP) and would like to make the following comments.

• The accuracy of the model has been questioned as well as the ability of the model to move with new research and technology. We need to work harder and make sure that we are using the most accurate numbers, based in science and revisit them often.

Response

EPA agrees that the Chesapeake Bay Program partnership's models need to continually push at the expanding edge of science and understanding in order to improve our management of the Chesapeake watershed and Bay. Over the last two decades five generations of the Chesapeake Bay Program Watershed Model has been applied to management decisions in the Chesapeake. The Watershed Model has been continually refined over those five development cycles. The Chesapeake Bay Watershed Model and the input data sets have had four formal partnership-driven cycles of development, calibration, verification, and management application, since the mid-1980's supporting programmatic and policy decisions and directions embedded within the 1987 Chesapeake Bay Agreement, 1992 Amendments to the Chesapeake Bay Agreement, the 1997 Nutrient Reevaluation, and the Chesapeake 2000 Agreement. With the development and publication of the Bay TMDL, the partnership has carried out the fifth such cycle supporting management decision-making.

The technical direction for the development, management application, and independent review of the Chesapeake Bay Program Partnership's models is carried out through several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. Descriptions of each of these groups is provided within Section 1 of the final Bay TMDL. Each has broad representation by federal, state, local, academic, and private groups. Programmatic and policy direction on the application of the models and their use in supporting decision making is undertaken through the partnership's Management Board (previously the Implementation Committee) and the Principals' Staff Committee. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. All the independent scientific peer reviews of the models are carried by the Chesapeake Bay Program's Scientific and Technical Advisory Committee. Links to records of these meetings and conference calls can be found in Appendix C of the final Bay TMDL.

The Phase 5.3 Chesapeake Bay Watershed Model was been developed, calibrated and verified through collaboration with federal, state, academic, and private partners. Development teams at the Chesapeake Bay Program Office (CBPO) and the U.S. Geological Survey (USGS) included EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed and approved by several of the above groups. All the Phase 5.3 Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf.

Comment ID 0287-cp.001.005

Author Name: Ristow Aaron

Organization: Upper Susquehanna Coalition

4. The Model does not have the accuracy necessary to predict loads. There are many assumptions combined with a lack of testing with independent data that is used to generate numbers. The CBP own Associate Director of Science admits that there is no single number that reflects accuracy and that there is no confidence interval to indicate the reliability of the estimates they generate. Good models are able to determine the accuracy of model predictions by

plugging in independent data to test them.

5. NY differs from the lower states in the watershed in many ways. These differences are not properly addressed in the model. NY water has a very low nutrient content compared to the other states. NY's portion of the watershed saw an increase in forest cover from 1985 through 2010 while its population and agricultural operations decreased. Furthermore, farms in the NY watershed practice low intensity agriculture with a large land base and implement progressive natural resource management programs that exceed federal standards

Response

The Phase 5.3 Chesapeake Bay Watershed Model accounts for annual changes in estimated land use between 1985 and 2005 and projects estimated land use to 2010 and beyond. The decrease in diairy animal units, human population and other land use changes are tracked by the Phase 5.3 Watershed Model.

As noted in this comment, New York may have BMPs of higher efficiency and control than elsewhere in the watershed. The Chesapeake Bay Program welcomes this type of information and as has a partnership agreed to protocol for documenting and crediting BMPs not currently in the Watershed Model. Clear guidance for how all new proposed BMPs may be included in the model estimates can be found here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

Also there are “placeholder” procedures we can use in our simulations while the new BMPs are being reviewed and approved: http://archive.chesapeakebay.net/pubs/Guide_for_EPA_WIP_Evaluation_4-2-10.pdf.

EPA and staff at the Chesapeake Bay Program Office have been working closely with scientists and extension experts at Cornell University and members of the Upper Susquehanna Coalition to ensure we factor in more New York specific and unique information and data into the full suite of modeling and accounting tools used by the partnership.

Comment ID 0288.1.001.003

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

first we are compelled to point out the severe lack of a meaningful opportunity for public review and comment on these complex regulatory proposals. The development of the Bay models has required thousands of hours of time from dozens of EPA staff over many years. However, EPA has not provided an opportunity for the public to understand how the models work and the implications of changes to the input data sets for model results. These results define the allocations that EPA has proposed in the TMDL. Therefore, although the model is being used as far more than a "tool" and is essentially being used to define scope and extent of the TMDL requirements, it very much represents a "black box" hat frustrates opportunities for meaningful public review and comment. Furthermore, VAMWA has made requests for information to better understand specific issues of interest in the models, but EPA has not responded to those requests. Against this background of complexity, EPA has only given the public 45 days to comment on what is

arguably the most complex TMDL ever developed in the nation. We believe that the lack of transparency in combination with a limited review period fails to comply with both the spirit and the letter of the Administrative Procedure Act.

Response

Response to "EPA has not provided an opportunity for the public to understand how the models work and the implications of changes to the input data sets for model results" - The Chesapeake Bay models have been developed and applied in an open, transparent way in meetings where the objective is understanding model structure, dynamics, and output. The collaborative work of the CBP model development and application by federal, state, academic, and private partners have been distributed on the web in the open source, public domain, community model approach adopted by and employed the Chesapeake Bay Program over the past decade.

With regard to the public comment period, please see the response to comment 0060.1.001.001.

With regard to the complexity of the TMDL, please see the response to comment 0153.001.003.

As to transparency, the Chesapeake Bay TMDL has been developed through a highly transparent, inclusive and engaging process during the past two years. The outreach effort has included hundreds of meetings with interested groups; two extensive rounds of public meetings, stakeholder sessions and media interviews in all six states and the District of Columbia in the fall of 2009 and the fall of 2010; a dedicated EPA website; a series of monthly interactive webinars accessed by more than 2,500 people; three notices published in the Federal Register; and a close working relationship with Chesapeake Bay Program advisory committees representing citizens, local governments and the scientific community.

During the formal public comment period in the fall of 2010, EPA conducted 18 public meetings in all six states and the District of Columbia. More than 2,700 people participated in the public meetings and seven of the meetings were broadcast live online via webinar. As EPA officials traveled throughout the watershed for the public meetings, they also met separately with many stakeholder groups, including local governments, agriculture groups, homebuilder and developer associations, wastewater industry representatives and environmental organizations to clarify the TMDL and its process and address questions. EPA also had special meetings with state environment secretaries and their department staff and other state officials and elected representatives.

Since 2008, EPA staff has participated in nearly 400 meetings on the Bay TMDL attended by stakeholders.

Comment ID 0288.1.001.020

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

We support EPA's efforts to consider the role of Atlantic menhaden in relation to management of chlorophyll-a. Recent modeling work has shown that their migration into the tributaries and associated consumption of algae has the potential

to affect chlorophyll-a and associated compliance with the standards. We agree with the statement included in TMDL Appendix U "Although the influence of menhaden on water quality is estimated to be less than that of oyster filter feeders, even a small percentage of nutrient assimilation or chlorophyll reduction in the Chesapeake Bay would ease the pressure in meeting 2-year milestones." Menhaden stocks do not dramatically reduce chlorophyll as long term averages but their incremental effects are considered comparable to nutrient reduction.

VAMWA recommends that additional analyses be conducted to evaluate menhaden effects on seasonal peaks and/or worst years in the record. Further, additional modeling enhancements need to address menhaden migration and residence time variability according to a food gradient. A number of papers indicate that menhaden consumption of algae increases in areas with higher chlorophyll-a. This is logical because the species would remain longer in an area with greater availability of food. Because the model does not presently capture these foraging effects the available reductions in chlorophyll due to menhaden (especially during bloom conditions) would be under-estimated.

Response

Thank you for your comment of support for the Chesapeake Bay Program's efforts to consider the role of Atlantic menhaden in relation to management of chlorophyll -a. Going forward in the two-year milestone assessments and in the 2017 mid-course TMDL Progress Assessment, the Chesapeake Bay Program partnership will continue to apply the state of the science simulation of menhaden in the Chesapeake Bay Water Quality and Sediment Transport Model and to expand the analysis of filter feeder influences on Chesapeake Bay water quality by menhaden and oyster filter feeders.

Comment ID 0293.1.001.001

Author Name: Pomeroy Christopher

Organization: Virginia Municipal Stormwater Association, Inc. (VAMSA)

first we are compelled to point out the severe lack of a meaningful opportunity for public review and comment on these complex regulatory proposals. The development of the Bay models has required thousands of hours of time from dozens of EPA staff over many years. However, EPA has not provided an opportunity for the public to understand how the models work and the implications of changes to the input data sets for model results. These results define the allocations that EPA has proposed in the TMDL. Therefore, although the model is being used as far more than a "tool" and is essentially being used to define scope and extent of the TMDL requirements, it very much represents a "black box" that frustrates opportunities for meaningful public review and comment. Furthermore, VAMSA's sister association, the Virginia Association of Municipal Wastewater Agencies ("VAMWA"), has made requests for information to better understand specific issues of interest in the models,but EPA has not responded to those requests. Against this background of complexity, EPA has only given the public 45 days to comment on what is arguably the most complex TMDL ever developed in the nation. We believe that the lack of transparency in combination with a limited review period fails to comply with both the spirit and the letter of the Administrative Procedure Act.

Response

With regard to the public comment period, please see the response to comment 0060.1.001.001.

The Chesapeake Bay TMDL has been developed through a highly transparent, inclusive and engaging process during the past two years. The outreach effort has included hundreds of meetings with interested groups; two extensive rounds of public meetings, stakeholder sessions and media interviews in all six states and the District of Columbia in the fall of 2009 and the fall of 2010; a dedicated EPA website; a series of monthly interactive webinars accessed by more than 2,500 people; three notices published in the Federal Register; and a close working relationship with Chesapeake Bay Program committees representing citizens, local governments and the scientific community.

During the formal public comment period in the fall of 2010, EPA conducted 18 public meetings in all six states and the District of Columbia. More than 2,700 people participated in the public meetings and seven of the meetings were broadcast live online via webinar. As EPA officials traveled throughout the watershed for the public meetings, they also met separately with many stakeholder groups, including local governments, agriculture groups, homebuilder and developer associations, wastewater industry representatives and environmental organizations to clarify the TMDL and its process and address questions. EPA also had special meetings with state environment secretaries and their department staff and other state officials and elected representatives.

Since 2008, EPA staff has participated in nearly 400 meetings on the Bay TMDL attended by stakeholders.

The Phase 5.3 Watershed Model and Scenario Builder have been developed as open source, public domain models that have been developed and applied in open public meetings over the last decade. Initial drafts of the model documentation have been available since 2008. When the Chesapeake TMDL is published at the close of December 2010 all of the final documentation of the Phase 5.3 Watershed Model and Scenario Builder documentation, code, and data used to develop and apply the models will be are on the web and fully available.

Scenario Builder and Watershed Model downloadable information
Scenario Builder documentation (uploaded 9/16/10), source code (10/29), and database (11/5) are available on this site:
ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/

Scenario Builder inputs and outputs are available on this ftp site (continually updated as new results are run):
ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/

Phase 5.3 watershed model information is available here:
http://ches.communitymodeling.org/models/CBPhase5/index.php

For more information and to review the P53 model key scenario documentation, visit:
http://ches.communitymodeling.org/models/CBPhase5/documentation.php#p5modeldoc

With regards to the Phase 5.3 application to the Chesapeake TMDL, the Phase 5.3 Watershed Model is a representation of the watershed, not a perfect refection of it. The Chesapeake Bay models, like all models, are infinitely perfectible. More time and more resources will always improve the model performance which, after all, is really what the refinements of the Watershed Model

to support the Phase II WIPs are about. Regardless of the ongoing process of model refinement to support decision making in the Chesapeake Bay Program, the Phase 5.3 Model is fully capable of supporting the development of the Phase I WIPs.

The CBP models have been, and continue to be open source, public domain, transparent community models freely made available on the web. Enormous amounts of information has been placed on the web and many, many, specific requests have been responded to including requests from VAMWA requiring many hours of staff time at CBPO applied to addressing VAMWAs information needs.

Comment ID 0293.1.001.019

Author Name: Pomeroy Christopher

Organization: Virginia Municipal Stormwater Association, Inc. (VAMSA)

Like any model, EPA's Bay model is a highly imperfect representation of reality. Over time, EPA has inappropriately shifted to using it in ways that are beyond its capabilities (e.g., predicting D.O. concentrations and non-attainment rates in specific segments to the single percentage point level under far-reaching management scenarios). This has resulted in wide swings in predicted loads and goals with each major model version. VAMSA believes that this instability will continue to occur in the future as the model is periodically modified.

Response

The suite of Chesapeake Bay models have been appropriately applied in the Chesapeake Bay TMDL. Over the last decade of development and application of the Chesapeake Bay models, the model response and findings in the assessment of what's required to achieve the Chesapeake water quality standards have been remarkably stable. In both the 2003 Allocation and the 2010 TMDL, the model findings are that essentially the same nutrient and sediment loads return the same water quality response. This should not be surprising as the primary basis and forcing function of the nutrient load reductions in both the 2003 and 2010 assessments were the dissolved oxygen needs of the deep waters of the mid-Chesapeake mainstem Bay, particularly in the region of CB4. The model results consistently show essentially the same level of nutrient reductions to achieve water quality standards in this region of the Bay. What has changed is the scale of the decision making—designated use-segments in the case of the tidal waters and the 92 segment watersheds in the case of the Bay watershed. Since 2005 and decisions by the partnership to anticipate the need for a Bay TMDL by 2010, the partners proceeded forward done a path whereby the suite of models would be develop, calibrated, peer reviewed and applied at those scales. New scientific findings, expanded calibration stations and record in the watershed, long calibration period in the tidal waters supported the movement to these new decision making scales.

Comment ID 0298.2.001.020

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC)

An analysis of the data shows that the Water Quality Model is poorly calibrated against the Chlorophyll-a standard. Consequently, the model results used to derive the James River allocations do not accurately predict the load reductions needed to attain compliance with the James River Chlorophyll-a standards.

Response

The CBP models have been developed as open source, public domain models that have been developed and applied in an open transparent process in public meetings over the last decade. Both the CBP Modeling Workgroup and the Water Quality Goal implementation Team have reviewed and approved all aspects of model development, calibration, and application including the chlorophyll calibration and application. In addition, the CBP models have been thoroughly peer reviewed. In all aspects, and in all cases, the models were determined to be applicable and appropriate for the support of the 2010 Chesapeake TMDL including the assessment of the chlorophyll water quality standard.

Comment ID 0298.2.001.021

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC)

0298.2.001.021 EPA compounded the consequences of using a poorly calibrated model when it used a one percent Chlorophyll-a standard attainment rate to derive the James River allocations.

The model results show that attainment rates between 96 and 99 percent result in changes to in-stream Chlorophyll-a concentrations of between 1 and 2 ug/l, which is well within the 1-4 ug/l margin of error in the EPA-approved Chlorophyll-a test method.

The one percent attainment rate used in this case is inconsistent with attainment rates used or approved by EPA in other TMDLs.

Response

It’s incorrect to confuse a decision rule applied in the Chesapeake TMDL development process with a margin of error applied in laboratory tests. In a laboratory test the margin of error is for a single sample. In the Chesapeake Bay Water Quality and Sediment Transport Model, literally thousands of individual chlorophyll a concentrations collected from over 150 water quality monitoring stations over two decades of operation of the Chesapeake Bay Water Quality Monitoring Program were used in the model development, calibration, validation, and management application. The two processes have different levels of uncertainty arising from different sources

In the TMDL decision rules, the empirical observation of a small, yet persistent percentage of model projected DO criteria

nonattainment of about 1% was seen across a wide range of segments and designated uses, all of which were responding to nutrient load reductions. As described in Section 6 and Appendix I of the Bay TMDL Report, this is an outcome of the model-based assessment methodology. Because this has been observed in a wide variety of different segments across all three DO designated uses—open-water, deep-water, and deep-channel—nonattainment percentages projected by the model rounded to 1 percent were considered to be in attainment for a segment's designated use for purposes of developing the Chesapeake Bay TMDL. This decision rule, established for DO, was applied only in very specific circumstances for assessing attainment of the chlorophyll and SAV-clarity water quality standards. Please see Section 6.2.3 and Appendix I for the supporting documentation.

Comment ID 0298.2.001.022

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC)

EPA has failed to offer any justification for its use of a one percent attainment rate in this case, particularly in light its use of a poorly calibrated model.

EPA has a certain amount of discretion in determining when models are sufficiently calibrated and in establishing attainment rates. However, EPA abused its discretion when it used a poorly calibrated model and an attainment rate to establish allocations designed to achieve changes in in-stream Chlorophyll-a concentrations that have significant economic consequences and no quantifiable water quality benefit.

Response

In the TMDL decision rules, the empirical observation of a small, yet persistent percentage of model projected DO criteria nonattainment of about 1% was seen across a wide range of segments and designated uses, all of which were responding to nutrient load reductions. As described in Section 6 and Appendix I of the Bay TMDL Report, this is an outcome of the model-based assessment methodology. Because this has been observed in a wide variety of different segments across all three DO designated uses—open-water, deep-water, and deep-channel—nonattainment percentages projected by the model rounded to 1 percent were considered to be in attainment for a segment's designated use for purposes of developing the Chesapeake Bay TMDL. This decision rule, established for DO, was applied only in very specific circumstances for assessing attainment of the chlorophyll and SAV-clarity water quality standards. Please see Section 6.2.3 and Appendix I for the supporting documentation.

Comment ID 0301.1.001.005

Author Name: Pappas Peter

Organization: Middletown Borough Authority

This approach nets a fraction of the needed reductions from Pennsylvania and carries a huge financial burden to the rate-paying public.

Response

Due to the significant improvement in jurisdictions' final Phase I Watershed Implementation Plans, EPA was able to remove and significant reduce the backstop allocations, ensuring the final Bay TMDL more fully reflected the jurisdictions' more cost effectiveness allocations.

Comment ID 0330.1.001.006

Author Name: Krasnoff Alan

Organization: City of Chesapeake, Virginia

The City is a member of the Hampton Roads Planning District Commission (HRPDC) and the Virginia Municipal Stormwater Association (VAMSA), both of which organizations have analyzed the Draft TMDL with the assistance of scientific and environmental experts. The City fully endorses the position adopted by the member localities at the HRPDC meeting on October 20, 2010, and the position of the VAMSA, which jointly include:

• The Phase 5.3 model and model inputs used in the Draft TMDL are not sufficiently developed to produce reliable predictions.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0331.1.001.004

Author Name: Wilson B.

Organization: City of Virginia Beach, Virginia

The flaws in EPA‘s proposed allocations are compounded in the James River basin by its use of model results that are poorly calibrated against the basin‘s chlorophyll-a standards. A knee-of-the-curve analysis shows that EPA‘s use of poorly-calibrated model results and a one-percent non-attainment rate for the chlorophyll a standards will have enormous adverse economic consequences for all of the Hampton Roads localities with no quantifiable water quality benefit.

Response

The Bay TMDL allocations are for attaining the current water quality standards (WQS) as required by the Clean Water Act (CWA). That is the Bay TMDL is required to use the current chlorophyll-a criteria as the basis for James River allocations. If the Virginia choose to modify their WQS for the James River, they are required to submit those modifications to EPA for approval.

Please refer to the detailed response to comment 0288.1.001.016 for more details on the chlorophyll a simulation and calibration within the Chesapeake Bay Water Quality and Sediment Transport Model.

Comment ID 0335-cp.001.002

Author Name: Halprin William

Organization: Tidewater Builders Association (TBA)

TBA is a trade association representing nearly 700 members firms involved in home building, remodeling, multifamily construction, property management, subcontracting, design, housing finance, building product manufacturing and other aspects of residential and light commercial construction in the Hampton Roads region of Virginia. Because of the nature of their work, many of our members must obtain and operate pursuant to National Pollutant Discharge Elimination System (NPDES) permits for controlling the stormwater discharges stemming from their construction activities. The Chesapeake Bay TMDL's requirements will become a part of the stormwater permits issued for homebuilding projects in the Hampton Roads area.

Throughout the development of the TMDL, our members operating within the watershed have consistently voiced interest in restoring the Bay using cost-effective, balanced, and sustainable solutions that facilitate economic growth and preserve the ability of a growing population to live, work, and play in the watershed. In fact, here in the eastern portion of Virginia, we have been conducting business under the auspices of the Commonwealth's Chesapeake Bay Preservation Act for over 20 years. We therefore have a history of developing homes and businesses while protecting the Chesapeake Bay.

To reach this reasonable, responsible, and realistic restoration plan, we believe the EPA and state agencies must develop and adopt TMDL and implementation plans that allow for and invite broad public participation; are based on defensible modeling and data; are cost-effective and affordable; are understandable; are fair and equitable; and are flexible and invite innovation.

Given the complex nature of the TMDL, and the quantified significant costs to all involved, the 45-day public comment period is inadequate and should be immediately extended. For the EPA to impose this level of impact on the well- being of the Commonwealth, its citizens and its businesses, while ignoring a notice requirement and cost analysis requirements of federal law (the Administrative Procedures Act and the Small business Regulatory Act), is wrong. We urge the EPA to extend the public comment period for the proposed TMDL by another 180 days to allow adequate stakeholder input to the process. We suggest that EPA provide access to the background modeling and technical decisions and assumptions that EPA has made regarding the proposal and to actually consider and act on the input it receives. Furthermore, we urge EPA to fix the modeling and publish it for public review and comment before finalizing the TMDL.

Response

With regard to the public comment period and the complexity of the TMDL, please see response to comment 0328.1.001.006.

The Phase 5.3 Chesapeake Bay Watershed Model is fully sufficient for support of the 2010 Chesapeake TMDL just as other, earlier versions of this model supported Chesapeake Bay Program allocations for more than two decades now. There will always be opportunities for model refinement and improvements in data collection and we are continuing our efforts in that regard. The Chesapeake Bay Program Watershed Model has been continually refined over its 28 years of application in the Chesapeake. The Phase 5.3 Watershed Model has been built through collaboration with federal, state, academic, and private partners. Development teams at CBPO and USGS include EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. All of these groups have been providing data and modeling instructions for at least the past five years and in some cases much longer. Links to records of these meetings can be found in Appendix C of the Bay TMDL report.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed by several of the above groups. The calibration operation is a continuous run over the entire simulation period from 1984 to 2005 using observed flow and water quality data over that entire period and involved changing the estimated Phase 5.3 land use and best management practices annually as they occurred over the two decade simulation period.

In addition, there have been 2 major independent reviews of the Phase 5 Model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board available at http://www.epa.gov/spc/pdfs/modelpr.pdf.

The reviews and responses can be found here:
http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf

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http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the draft TMDL. The draft TMDL document has lists of additional TMDL-related meetings in Appendix C.
The Phase 5.3 Watershed Model and Scenario Builder have been developed as open source, public domain models that have been developed and applied in open public meetings over the last decade. Initial drafts of the model documentation have been available since 2008. When the Phase 1 Chesapeake TMDL is finalized at the close of December 2010 all of the final documentation of the Phase 5.3 Watershed Model and Scenario Builder documentation, code, and data used to develop and apply the models will be are on the web and fully available.

Scenario Builder and Watershed Model downloadable information:
Scenario Builder documentation (uploaded 9/16/10), source code (10/29), and database (11/5) are available on this site:
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Scenario Builder inputs and outputs are available on this ftp site (continually updated as new results are run):
ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/

Phase 5.3 watershed model information is available here:
http://ches.communitymodeling.org/models/CBPhase5/index.php

Comment ID 0341.1.001.003

Author Name: Anderson David

Organization: Virginia Fountainhead Alliance

Worse, EPA's draft allocation numbers are wrong. EPA admits that its new model used to determine its allocations is flawed. First, the model does not properly account for the amount of impervious surface in the Bay watershed. The amount of impervious surface in the watershed is directly related to the amount of pollutants that flow into the Bay. Getting impervious surface wrong goes to the heart of the exercise. Second, the new model does not fully take into account the best management practices (BMPs) that businesses employ to mitigate the flow of pollutants into the Bay. EPA estimates that it will take six months to correct the flaws in the new model. Phase I was scheduled to end this year. However, Virginia will likely be required to revise its Phase I WIP next year in response to EPA's "corrected" allocation numbers - at the same time it is contending with Phase II allocations at the local level.

It is hard to imagine how serious people confronting such a serious problem could devise such a frivolous process. For the Virginia TMDL and WIP process to be a success, it must at a minimum be thoughtful, contain necessary and cost-efficient measures, and it must represent the stable consensus of opinion of those who will live under its strictures for decades to come. The process that EPA imposed upon Virginia - a process long on flawed and tardy data but short on time for deliberation and opportunity for public comment - has not produced that result.

EPA has insisted upon this badly flawed and rushed process despite the fact that Virginia has made substantial progress in reducing the flow of nitrogen and phosphorus into the Bay. Since 1985, Virginia's nitrogen load has been

reduced from about 90 million lbs/year to just above 60 million lbs/year; phosphorus has been reduced in that time period from about 12 million lbs/year to about 6 million lbs/year.

Response

With regard to the comment that the process is "short on time for deliberation and opportunity for public comment," please see response to comment 0060.1.001.001. EPA has acknowledged the pollution reduction progress of Virginia and the other jurisdictions, but as our peer-reviewed science clearly shows, there is a long way to go to meet water quality standards in the Bay and its tidal tributaries.

The Phase 5.3 Chesapeake Bay Watershed Model has well-founded estimates of impervious land use as documented in Section 4 of the Phase 5 Model documentation which can be found here: ftp://ftp.chesapeakebay.net/Modeling/P5Documentation/SECTION_4.pdf.

In addition, The Phase 5.3 Watershed Model is fully sufficient for support of the 2010 Chesapeake TMDL, just as other, earlier versions of this model supported Chesapeake Bay Program allocations for more than two decades now. There will always be opportunities for model refinement and improvements in data collection and we are continuing our efforts in that regard. The Chesapeake Bay Program Watershed Model has been continually refined over its 28 years of application in the Chesapeake. The Phase 5.3 Watershed Model has been built through collaboration with federal, state, academic, and private partners. Development teams at CBPO and USGS include EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

Comment ID 0354.1.001.001

Author Name: Fickbohm Scott

Organization: Otsego County Soil and Water Conservation District

The prolonged degradation of water quality of the Mid-Atlantic States and its subsequent impact on the biology of the Chesapeake Bay continues to be an ecological disaster for the region and the country. That the water flowing into the Bay from the Susquehanna has to be cleaner in order for those ecosystems to recover has been known for many years. As the watershed was studied, measured and modeled, by your and other agencies, estimates were made of the relative contribution of sources basin wide and by state.

It must be said that the Chesapeake Bay computer model that has evolved over the past five years to frame this TMDL process is flawed in many respects and we would like to associate ourselves with the comments of the New York State Department of Environmental Conservation (DEC), the Upper Susquehanna Coalition (USC), Cornell University and others on the many aspects of the model that do not accurately reflect nutrient and sediment export from New York.

However, even if an over estimation, that analysis has concluded that New York contributes a very small portion of the overall load to the Chesapeake Bay; less than 10% of either the nitrogen (TN), phosphorus (TP) or sediment (TSS) total loads. Bay modeling, monitoring and analysis make clear the understanding that baseline water quality in the New York

portion of the Bay watershed is cleaner than that of any other contributing state and has trended upwards since 1985.

Response

Thank you for your comment. Using the BIAS statistic, the Phase 5.3 Watershed Model output was compared to USGS observed flow and nutrient load estimates. The BIAS statistic measures the average trend of the simulated data to be larger or smaller than their observed counterpart. The optimal value is 0.0 and low values indicate an accurate model simulation.

The Phase 5.3 Model river segments located in the Susquehanna River in New York reported annual BIAS values lower than 15 % for flow (only segment reported 21%). According to Moriasi et al., (2007) monthly BIAS values lower than +/-15% for stream flow suggest a good model performance.

Observed nutrient data in the Susquehanna River report annual BIAS values lower than -20% for nitrogen and lower than 25 % for phosphorus. According to Moriasi et al., (2007) monthly BIAS values lower than +/-30% for nutrients suggest a good model performance.

Moriasi, D. N., J. G. Arnold, M. W.Van Liew, R. L. Bingner, R. D. Harmel, and T. L. Veith. 2007. Model evaluation guidelines for systematic quantification of accuracy in watershed simulations. Trans. ASABE 50(3): 885900.

Comment ID 0361.1.001.002

Author Name: Weidenbach Richard

Organization: Delaware County Soil and Water Conservation District (SWCD), New York

The model used by EPA is subjectively flawed in the fact that it does not take into account realistic phosphorus and nitrogen values for New York State's agricultural land. EPA's "one size fits all" approach in assigning nitrogen and phosphorus values throughout the watershed is arbitrary and capricious. We strongly suggest that EPA collaborate with Cornell University in calibrating its model to achieve accurate and realistic nutrient values for New York State.

Response

To test the quality of the Phase 5.3 Chesapeake Bay Watershed Model calibration to nitrogen and phosphorous the BIAS statistic is used to compare the model output to USGS observed flow and nutrient loads estimates. The bias statistic measures the average trend of the simulated data to be larger or smaller than their observed counterpart. The optimal value is 0.0 and low values indicate an accurate model simulation.

The Phase 5.3 Chesapeake Bay Watershed Model river segments located in the Susquehanna River in New York reported annual BIAS values lower than 15 % for flow (only segment reported 21%). According to Moriasi et al., (2007) monthly BIAS values lower than +/-15% for stream flow suggest a good model performance.

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Moriasi, D. N., J. G. Arnold, M. W.Van Liew, R. L. Bingner, R. D. Harmel, and T. L. Veith. 2007. Model evaluation guidelines for systematic quantification of accuracy in watershed simulations. Trans. ASABE 50(3): 885900.

EPA does not agree that there are extensive flaws in the data. There will always be opportunities for improvement in data collection and we are continuing our efforts in that regard. The Chesapeake Bay Program Watershed Model has been in use for over two decades. It has been continually refined over that time period. The Phase 5.3 Watershed Model has been built through collaboration with federal, state, academic, and private partners. Development teams at CBPO and USGS include EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. All of these groups have been providing data and modeling instructions for at least the past five years and in some cases much longer. Links to records of these meetings can be found in Appendix C of the Draft TMDL.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed by several of the above groups. The calibration operation is a continuous run over the entire simulation period from 1984 to 2005 using observed flow and water quality data over that entire period and involved changing the estimated Phase 5.3 land use and best management practices annually as they occurred over the two decade simulation period.

In addition, there have been 2 major independent reviews of the Phase 5 Model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board available at http://www.epa.gov/spc/pdfs/modelpr.pdf.

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http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the final Bay TMDL. The final Bay TMDL report has lists of additional TMDL-related meetings in Appendix C.

In Scenario Builder the amount of nutrient applied and timing is governed by the following principles:
• Temperature zone variations
• State nutrient management and land grant university cooperative extension recommendations
• Regional management practices
• Actual yield history, from the NASS Agricultural Census

Scenario Builder documentation (uploaded 9/16/10), source code (10/29), and database (11/5) are available on this site: ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. Scenario Builder inputs and outputs are available on this ftp site (continually updated as new results are run): ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/.

Comment ID 0376.1.001.030

Author Name: Smith Brooks

Organization: Virginia Manufacturers Association VMA

EPA appears content to wait to address these concerns during the 2011 modeling refinement process (i.e., after the TMDL has been finalized). This places the regulated community in an untenable position, facing regulatory costs and the threat of fines and penalties for failure to implement when there are serious questions about the integrity of the modeling projections. The final TMDL should specifically list the modeling issues to be addressed in 2011, along with the anticipated impacts on the TMDL itself (e.g., on specific wasteload and load allocations, or EPA's assignment of reductions among different sources/sectors). EPA's failure to address these concerns as part of the TMDL will result in great regulatory uncertainty and conflict, unlike Virginia's WIP, which provided a clear and certain path forward with buy-in from all stakeholders and an implementation framework largely in place.

Response

The Phase 5.3 Watershed Model is fully sufficient for support of the 2010 Chesapeake TMDL, just as other, earlier versions of this model supported Chesapeake Bay Program allocations for more than two decades now. There will always be opportunities for model refinement and improvements in data collection and we are continuing our efforts in that regard. The Chesapeake Bay Program Watershed Model has been continually refined over its 28 years of application in the Chesapeake, and the 2011 Phase 5.3.2 Model development is a part of the continual, ongoing model refinement process.

Comment ID 0379.1.001.006

Author Name: Shields Wyatt

Organization: City of Falls Church, Virginia

Chesapeake Bay Modeling Concerns

Another significant concern is the nearly absolute reliance on modeling rather than looking directly at outcomes in the Bay. While this model has seen years of development it continues to experience fundamental flaws that call its credibility into question. Similarly Virginia is convinced that the manner in which it has been used for this Bay-wide TMDL assumes a level of precision far beyond what the model is capable of and without regard for the economic consequences. This "inputs based" rather than "outputs based" approach hurts the credibility of the overall effort.

The development of the Bay models has required thousands of hours of time from dozens of EPA staff over many years. However, EPA has not provided an opportunity for the public to understand how the models work and the implications of changes to the input data sets for model results. These results define the allocations that EPA has proposed in the TMDL. Therefore, although the model is defining regulation, it very much represents a "black box" for purposes of adequate public review and comment. We do not believe EPA itself has fulfilled its obligation to ensure that its modeling framework is adequate to support its TMDL and the accompanying WLAs and LAs. If EPA presses forward with finalizing the TMDL over the objections of Bay dischargers and interested stakeholders, despite the faulty model that it has put forth in support of its TMDL, its decision to do so will be arbitrary and capricious.

Response

In developing the Bay TMDL, EPA and its partner jurisdictions relied on a combination:

• a long history of continually improving scientific understanding of the Chesapeake Bay ecosystem and its surrounding watershed;
• a several decade record of water quality monitoring at hundreds of stations within the tidal waters as well as across the free flowing rivers and streams of the watershed;
• over 25 years of tracking and reporting practices and technologies directed towards reducing nitrogen, phosphorus and sediment pollution; and
• management application of a suite of Bay models built on the first three above.

Further, the entire objective of the Bay TMDL is to define the nitrogen, phosphorus, and sediment pollutant limits necessary to remove the water quality impairments measured using monitoring data in the 92 Bay segments compared with Delaware, Maryland, Virginia, and the District of Columbia’s water quality standards regulations. Clearly, the suite of Bay models were used to connect information and data on sources throughout the Bay watershed with known and monitored water quality impairments in the tidal waters. However, development of the Bay TMDL required full consideration of the “inputs”, the “outputs”, and the desired “outcomes”, drawn from application of the best available scientific understanding, analysis of decades of monitoring data, evaluation of decades of tracking and reporting data, assessment of water quality standards regulations, and application of a suite of linked models.

EPA agrees with the importance of the jurisdictions, other partners, and stakeholders being involved with the review and comment of the full suite of models and tools used in development of the Bay TMDL and the jurisdictions' Watershed Implementation Plans. Over its 27 year history, the Chesapeake Bay Program partnership has worked to make its shared decision making processes as transparent as possible, making the underlying scientific understanding, technical data, and programmatic basis available to the public through the partnership's web site at http://www.chesapeakebay.net. Over the past five years, EPA and its jurisdictional partners carried out an open process for development and refinement of the full suite of models and tools. Over the past two years, EPA undertook an extensive outreach effort, in large part, directed towards engaging affected stakeholders.

Over the past two, five, and even 27 years, there have been a multitude of opportunities for the jurisdictions and stakeholders to directly participate, make their concerns heard and acted upon. All the partnership's meetings are open to the public. Links to records of these meetings directly related to the Bay TMDL held over the past two years can be found in Appendix C of the final Bay TMDL.

As the partnership moves forward with development of the Phase II Watershed Implementation Plans and beyond, there will be continued and expanded opportunities for direct involvement of stakeholders in development of the local targets and plans. EPA and its partners will continue to develop, commit to, and carry out implementation actions in support of meeting jurisdiction and federal partner specific 2-year milestones directed towards achieving 60% of the needed nitrogen, phosphorus, and sediment load reduction actions by 2017 and ensuring all the actions are in place by 2025 to restore Chesapeake Bay water quality. EPA believes the three-phased approach—2010, 2011, and 2017—to the Bay TMDL in concert with the 2-year milestones process put in place in 2009 by Chesapeake Executive Council will provide further numerous opportunities for public input and adaptive management as the jurisdictions move forward with implementation of their pollutant reduction actions.

Comment ID 0389.1.001.009

Author Name: Iwanowicz Peter

Organization: New York State Department of Environmental Conservation

Bay Water Quality, Sediment Transport Model
• Unexplained variations in recent results.
• Not enough runs were conducted near cap load.
• Not enough effort to determine sensitivity to Phosphorus vs. Nitrogen. reductions, particularly for the Susquehanna River.
• Sediment sheds were never analyzed as originally planned.
• Inadequate for processing nutrients within small tidal rivers.
• No workable component to account for the benefits of filter feeders.

Response

The objective of model application in the Chesapeake Bay Program is understanding, not numbers. No salient key variations in the Water Quality and Sediment Transport Model (WQSTM) were left unexplored.

There were more than ten different model scenario runs made in the neighborhood of the 2010 TMDL allocation loads, more than enough to fully explore the options and trade-offs in the allocation. That the extensive nitrogen and phosphorus sensitivity runs in the upper Bay Susquehanna region were not done was made largely moot with the nitrogen and phosphorus trading allowed in the Phase I WIPs (see Section 6.4.6 in the final Bay TMDL report). The sediment sheds were analyzed to the extent necessary and in any case, the limit of the sediment reductions largely turned on the nitrogen and phosphorus reductions needed in the watershed. Filter feeders of menhaden and oysters were fully simulated and considered in the Chesapeake Bay models and the simulation of nutrients in small tidal rivers were found to be sufficient as demonstrated by the approval of the Chesapeake Bay Water Quality and Sediment Transport Model calibration by the Chesapeake Bay Program's Modeling Workgroup and the Water Quality Goal Implementation Team.

Comment ID 0389.1.001.026

Author Name: Iwanowicz Peter

Organization: New York State Department of Environmental Conservation

C. Bay Water Quality, Sediment Transport Model (Appendix M)

l. Total Cap Load is Arbitrary & Capricious

EPA and the Bay states have used discretion in assigning the water quality standards for various segments of the Bay. Applying a marginally haigher tolerance at a few small key spots, such as the Eastern Bay, which is clearly within EPA and the Bay states' limits of discretion, would yield a much higher allowable load to the Bay and as a result more fair and reaiistic load allocation for New York (For example, see Exhibit 3 as attached).' [Comment Letter contains additional information in the form of an attachment. See original comment letter 0389.1] Based upon demonstrations by EPA, NY offers the following descriptions of the total cap derivation.

1. EPA divides the Bay into 92 segments. Segments are horizontal (Main Bay versus Tidal Tributaries) and vertical (Open Water, Deep Water and Deep Channel). Oxygenation issues are mainly found in Deep Water and Deep Channel segments.

2. EPA proposes to establish the Bay TMDL with an overall nutrient loading of 187 million pounds/year Total Nitrogen (TN) and 12.52 million pounds/year Total Phosphorus (TP). At these levels, EPA models indicate that all Main Bay Deep Water and Deep Channel segments will attain Dissolved Oxygen standards.

3. EPA uses a 'general definition of attainment as meeting DO standards with a variance of 1.5% or less (1.5% is rounded down to 1%). EPA uses a variance of 1.5% or less because it judges this to be "within the noise of the models."

4. EPA allows for a greater level of variance when: a) historical data shows naturally occurring low DO, b) decreases in the overall TN and TP loadings to the Bay (including the "Everything by Everybody Everywhere" scenario: 141 TN, 8.5 TP) are used and the model response is a continuing level of nonattainment above 1.5%, or c) a higher variance

already exists in state water quality standards.

5. As above-referenced in 4.), using three segments for comparison: Main Channel #4, Chester River, and Eastern Bay, EPA could re-balance its variance criteria without impacting the health of the individual segments or the overall Bay. This re-balancing would allow EPA to provide NY with more equitable allocations by raising the total cap.

a. Main Channel #4: Under the 2003 allocation scenario (183 TN and 12.8 TP) MD established water quality standard variances for DO for this segment: Deep Water 7% and Deep Channel 2%. Now, using greater overall loadings (190 TN and 13 TP) and revised models, its Deep Water variance reduces to 5% and its Deep Channel stays at 2%.

b. Chester River: At 190 TN and 13 TP, before the 2010 TMDL is established, MD will need to revise its DO variance for this Deep Channel segment to 14% (believed to be naturally occurring pollutant source: deep channel isolated from main bay; stays over 1.5% unless all forested.) If the DO variance threshold for Chester River can be raised to 14%, EPA can apply this methodology to other segments that would benefit NY by raising the total cap.

c. Eastern Bay: At 190 TN and 13 TP, this Deep Water segment attains standards (it is also attains standards at very high loadings of 248 TN, 16.6 TP); the Deep Channel segment also attains standards. However, at 191 TN and 14.4 TP, the Deep Channel variance only increases to 2% (a less than 0.5% change).

6. As noted in 5.) a. & c. above, EPA could use the 2% improvement in Main Channel #4 (from 7% in 2003 down to 5% in 2010) as rational for allowing an increase in the Eastern Bay variance from 1% to 2%. This rationale is further supported by the Eastern Bay being adjacent to the Main Channel #4 (i.e., this boundary line is only a convenient artifact of mapping) and that by not doing so, EPA is, as a result, requiring additional nutrient reduction from the Susquehanna River in New York, when it acknowledges that its models "underestimate the contribution of nutrients from MD's Eastern Shore," which surrounds this embayment. In addition, MD should first enact stream standards for TP before the Susquehanna River is held responsible for this segment. The impact to the Eastern Bay could be shoreline septic systems which the model attributes zero phosphorus load.

7. Although increasing the Bav total from 190 to 191 TN does not appear very significant, the increase from 13 to 14.4 TP is extremely significant because the additional Phosphorus could be converted (using EPA ratio of 15:1) to 21 million pounds TN, which would raise the total Bay cap 10% and also NY's.

II. The Level Chosen for the TMDL is Arbitrary:

EPA did not run enough load scenarios showing relationship of N to P
--The one percent threshold should vary for the size of the segment, in that model is less precise for smaller segments, as demonstrated by need for variances in the Chester River.
--The Bay Model shows instability between May 2010 and the most recent runs shown in TMDL Appendix M. Because of this demonstrated instabilitv the model results are suspect.
--DO problems in the Eastern Bay and CB4 get slightly worse with a million lb P reduction.
--Figure 6-9 does not conform to DO stoplight tables in Appendix M-l of the TMDL. What other lines of evidence were beyond the Bay Water Quality Model were considered? Also, the Figure should show all model runs; it currently does not.
--EPA should have done more model runs, slightly above the cap to see if subtle increases in cap load could still meet

water quality in all segments.
--The eleven side embayment segments that the model indicates would remain out of compliance at the cap load call into question either the applicability of the model for these small water bodies or the overall approach EPA used to test compliance. New York repeatedly requested model runs where load was removed from the watershed directly tributary to the impaired segments, rather than removing load from the watershed as a whole. EPA used this approach in the James River to establish waterbody specific watershed targets, and should have pursued this in the Bay other watersheds first.

III. Other Water Quality/Sediment Transport Problems

N:P Ratio is Unsupported by Science

New York has repeatedly requested a sensitivity analysis of N vs P reductions in the Susquehanna and Potomac loads to develop the optimal reduction of each nutrient in each of these river systems. Such finer scale analysis could support a higher total cap or allowable fluctuations between Nitrogen and Phosphorus. A Maryland scientist recommended a series of optimum ratios for smaller embayments, but EPA has not shown if and how they used these ratios.

Instead, EPA has relied on two other papers, which the TMDL states is based on the outdated model and water quality data that is 16 years old. The shape of the curve in figure 6-15 does not support the conclusions drawn. When more P is reduced, the TN:TP ratio goes up from 9, and does not go down. Further, the 5:1 TN:TP exchange ratio is based on a Chiorphyii concentration in Figure 6-16, which for most of the Bay is not the driving factor because it is not a direct representation of the DO water quality impairment in most of the Bay (at least the main bay where NY is contributory) The conservative trading ratios are arbitrary and not supported by the cited work, which concludes "an effective trade-off is one that would generally intensify an existing predominant nitrogen or phosphorus limitation." Although the 2009 reference does not look at the Susquehanna individually, it shows the upper Bay to be phosphorus limited. The asymmetrical trading ratio of a 5: 1 TN:TP would discourage additional reductions of phosphorus.

Sediment Model Limitations

The Sediment component of the model was behind schedule, did not include analysis of sediment shed versus re-suspension or the effect of hardened shoreline, and is consequently inadequate for preparation of the TMDL in side embayments. Sediment source origins in side embayments are unclear. It is also unknown whether more reduction is needed from tributary watersheds, or whether there are other more holistic approaches such as shoreline habitat restoration. EPA appears not to have fully factored in sediment transport into the Bay Water Quality Model, showing that areas in the lower bay such as Eastern Bay (see recent Virginia Institute of Marine Sciences Submerged Aquatic Vegetation study) are not able to process nutrients as well. Because the model is not accurately accounting for localized sediment sources this has a detrimental effect on Bay recovery.

These apparent modeling limitations adversely impact NY because EPA then requires more universal load reductions, including nutrients from NY. Also, the allocation method (the relative effectiveness aspect) requires less reduction from Maryland's eastern shore because the model shows less benefit from load reductions to the main bay (because the load is processed in these embayments, while resulting in deteriorated local water quality). The local water quality problems have adverse impacts on ecosystem and the ability of the entire bay to process nutrients and are not accounted for in the modeling.

The Model does not Address Filter Feeders

The TMDL does not account for changes in nutrient assimilative capacity that couid occur if filter feeder populations are restored, either as a positive feed-back from cleaner water or a reduction in harvesting. The TMDL relies on a single initial study to discount other work showing a positive benefit from increases in filter feeder populations. NY maintains that states harvesting filter feeders should make up the negative effect such harvest has on assimilative capacity by meeting a lower allocation of nutrients. EPA should further investigate filter feeders in the Bay Water Quality and Sediment Transport Models to determine if the total cap should be raised commensurate with a full population of filter feeders. Raising the total Bay cap would obviously benefit NY.

Response

It's important to realize that the Chesapeake Bay TMDL must develop allocations for the water quality standards as they are, not as we wish them to be. The variances that exist, like the 2% variance in the Deep Channel designated use of CB4, exist because there is a foundation of analysis and study, backed up by monitoring and research, that anoxia is a persistent and natural feature of these deep waters. This is not the case in other large bodies of the mainstem Bay like Eastern Bay. In the Eastern Bay, the observed anoxia is ephemeral and controllable by nutrient reductions. Also, the Chesapeake Water Quality and Sediment Transport Model was well calibrated for these large deep water regions of the Chesapeake.

The technical/scientific basis for establishing a variance in regions like the Eastern Bay is nonexistent. Again, EPA must establish allocations for achieving the jurisdictions' water quality standards regulations as they are currently established by the laws of the downstream tidewater States. Further, the reductions needed to achieve the water quality standards in the Eastern Bay and other major CB segments were borne to a much larger extent by the tidewater states than by headwater States like New York.

Confusion over the reason there is a 1% persistent level of model projected nonattainment across a wide range of segments and designated uses can be resolved by a closer read of Section 6 and Appendix I in the final Bay TMDL report.

There were more than ten model runs in the vicinity of the allocation loads that were made. No instability was seen in the model runs, but the confusion may be due to the interactions of nitrogen and phosphorus reductions in the tidal waters. As the commenter suggests, greater reductions in phosphorus lead to greater DO nonattainment in the more saline waters of the Chesapeake. This is because of phosphorus limitation in the fresh tidal waters and nitrogen limitation in the more saline waters. This causes a condition where when more phosphorus is reduced in the Susquehanna, the reduced algae in the tidal fresh Chesapeake waters reduce nutrient uptake there, and more nitrogen passes to the saline waters where it causes greater DO problems. This is a well understood phenomenon in the Chesapeake, first documented in the 1992 Allocation, and is the basis for the dual nutrient control required in the Chesapeake Bay water quality restoration.

With regards to local reductions in small water bodies as a solution to local water quality concerns, it's quantifiably demonstrable that the small basins would be unable to control their own water quality destinies because the majority of the nutrient loads come into the small tidal tributaries from waters of the main Bay.

The requested nitrogen and phosphorus sensitivity studies are unnecessary in light of the tradable exchange allowed in the Phase I

WIPs. The exchange ratios of nitrogen to phosphorus of 5:1 (by weight) for phosphorus trades to nitrogen and 15:1 for nitrogen exchanged for phosphorus were established as a safety factor to be environmentally protective in these exchanges and are built on peer-review scientific publications.

The sediment-shed analysis for the SAV-clarity water quality standard was largely unneeded as the sediment reductions that were ancillary to the required nutrient reduction needed for achievement of the DO water quality standard were sufficient for almost complete achievement of the SAV-clarity water quality standard.

Finally, the influence that oyster and menhaden filter feeders have on water quality was full simulated in the Chesapeake Bay Water Quality and Sediment Transport Model and fully considered in the Chesapeake TMDL as described in Appendix U of the TMDL documentation.

Comment ID 0391.1.001.003

Author Name: Downes Paul

Organization: Mountaire Farms Inc.

Further concern lies with EPA's failure to provide complete documentation so that a full and complete review of the tools and models used to develop the TMDL can be performed. In many locations the draft TMDL states that technical documentation is provided via a URL. Unfortunately, in many cases the links provided are incorrect. For instance, the draft TMDL (p. 1-2) states that the technical documentation for each model is provided via a URL in Section 5:

Technical documentation for each of the Chesapeake Bay TMDL models-airshed, land change, Scenario Builder, SPARROW, watershed, Bay water quality/sediment transport, oyster filter feeder and menhaden filter feeder-are provided via URL in Section 5.

However, the links provided in the draft TMDL to the Scenario Builder documentation are incorrect. It is not possible for the reader to locate the Scenario Builder documentation using the links provided in the draft TMDL document. For example, on p. 4-31 of the draft TMDL the following is stated:

Additional information related to Scenario Builder and its application in Bay TMDL development (USEPA 2010d) is at http://www.chesapeakebav.netlmodeling.aspx?melluitem=19303

The link provided [accessed October 27, 2010] does not take the reader to the referenced Scenario Builder documentation. The link provided directs the reader to the Chesapeake Bay Program "Modeling" web page where there is no mention or link to the Scenario Builder documentation referenced in the draft TMDL.

Response

Initial drafts of the Phase 5 Watershed Model documentation have been available on-line at the Chesapeake Bay Program partnership’s web site www.chesapeakebay.net since 2008 when the first of several model calibrations (Phase 5.1) were conducted.

When the Chesapeake Bay TMDL is finalized at the close of December 2010, all of the final documentation of the Phase 5.3 Chesapeake Bay Watershed Model and Scenario Builder documentation, code, and data used to develop and apply the models will be are on the web and fully available. Parts of the model documentation could not be completed until final decisions were made on the Bay TMDL itself, hence, final publication of both the Bay TMDL and the model documentation at the same time. In addition, the Phase 5.3 Chesapeake Bay Watershed Model has been developed as open source, public domain models that have been developed and applied in open public meetings over the last decade.

Scenario Builder and Watershed Model downloadable information
Scenario Builder documentation (uploaded 9/16/10), source code (10/29), and database (11/5) are available on this site:
ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/Scenario Builder

Inputs and outputs are available on this ftp site (continually updated as new results are run):
ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/

Phase 5.3 Watershed Model documentation information is available here:
http://ches.communitymodeling.org/models/CBPhase5/index.php

Comment ID 0399.001.010

Author Name: Comment Anonymous

Organization: Town of Erwin, New York

WHEREAS, the EPA has attributed declining Chesapeake Bay water quality solely to excess nutrient and sediment discharge to the bay from its watershed but has failed to fully investigate the adverse impact to the Bay's water quality resulting from over-farming and overfishing of filter feeders by those living on and near the Bay

Response

More than a half of a century of research, modeling, and monitoring have shown that the Chesapeake water quality problems are a result of excessive nutrient and sediment loads. To reduce these loads all portions of the watershed have to do their part. Specifically:

1) Over-farming near the Bay: The Virginia, Delaware, and Maryland WIPs fully account for agricultural loads from regions adjacent to the Chesapeake. Generally, point and nonpoint sources in areas close to the Chesapeake Bay's tidal waters have to do relatively more than regions further removed, like the New York portion of the watershed. Please see Section 6 within the Bay TMDL report.

2) Overfishing of oysters and menhaden: The Chesapeake Bay Water Quality and Sediment Transport Model provided a complete assessment of the positive influence that increased filter feeders would have on water quality. Increases in the oyster biomass of the Chesapeake, as is encouraged by recent moves by Maryland and Virginia to increase sanctuary areas and aquaculture, will improve

water quality in the Chesapeake. While improved management, and ultimately larger biomasses of oysters and menhaden filter feeders in the Chesapeake Bay are estimated to improve water quality, there is uncertainty in the time needed to increase the biomass of these resources.

Comment ID 0410.1.001.025

Author Name: Pujara Karuna

Organization: Maryland State Highway Administration (SHA)

Since the TMDL for regulated stormwater will be enforced through MS4 permits, the data concerning the development of the loads and reductions specific to the MS4 permits should be made·available so the permit holders can understand fully the factors involved in their impacts, correct data as necessary and run model scenarios in order to develop and verify their individual implementation plans.

Response

The simulation of the MS4 managed areas and the BMPs used for MS4 discharges can be found in the web sites of documentation sources listed below. Specifically the simulation of developed urban and suburban is the same for both MS4 and non-MS4 areas. The estimates of the areas of developed land simulation can be found in Section 4 of the Phase 5.3 Chesapeake Bay Watershed Model documentation, and the input loads for these areas are in Section 5. The BMPs used in developed urban and suburban lands can be found in the Scenario Builder documentation.

Again, the sole difference between the MS4 and non-MS4 loads is that the Bay Program States provide the areas covered by MS4s, and the developed land areas within these areas are MS4 loads and those developed lands not covered by an MS4 area are not MS4 loads. That is the only difference between the two as documented in the sources below:

Scenario Builder and Watershed Model downloadable information
Scenario Builder documentation (uploaded 9/16/10), source code (10/29), and database (11/5) are available on this site: ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/.

Scenario Builder inputs and outputs are available on this ftp site (continually updated as new results are run): ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/.

Phase 5.3 Watershed Model information is available at http://ches.communitymodeling.org/models/CBPhase5/index.php.

Comment ID 0418.1.001.030

Author Name: Devine Jon

Organization: Natural Resources Defense Council (NRDC)

District of Columbia

The District is not expecting additional growth from development so redevelopment is the primary focus. Population growth will stretch WWTP capacity. The current WIP utilizes a growth allocation (rather than offsets) expected to be used to increase capacity at Blue Plains. Although the District indicates that it does not expect increased loadings from its stormwater system, NRDC believes this may be over-optimistic; urban stormwater pollution may increase due to increased precipitation and runoff associated with climate change, an impact that EPA acknowledges the TMDL does not significantly address.

Response

A preliminary analysis of the influence climate change on estimated Chesapeake watershed flows, nutrient, and sediment loads has been included in the Bay TMDL documentation—please see Appendix E. Summary of Initial Climate Change Impacts on the Chesapeake Bay Watershed Flows and Loads.

Appendix E describes a preliminary assessment of climate change impacts on the Chesapeake Bay using an earlier version of the Phase 5 Chesapeake Bay Watershed Model (Phase 5.2) and tools developed for EPA's BASINS 4 system including the Climate Assessment Tool (CAT). Flows and associated nutrient and sediment loads were assessed in all river basins of the Chesapeake Bay with three key climate change scenarios reflecting the range of potential changes in temperature and precipitation in the year 2030. The three key scenarios came from a larger set of 42 climate change scenarios that were evaluated from 7 Global Climate Models (GCMs), 2 scenarios from the Intergovernmental Panel on Climate Change (IPCC) SRES (Special Report on Emissions Scenarios) storylines, and 3 assumptions about precipitation intensity in the largest events.

In 2017 a more complete analysis of climate change effects on TMDL nutrient and sediment loads will be made during a mid-course assessment of Chesapeake TMDL progress, as called for in Section 203 of the Chesapeake Executive Order (May 12, 2009) (http://executiveorder.chesapeakebay.net/EO/file.axd?file=2009%2f8%2fChesapeake+Executive+Order.pdf). The Executive Order directs the assessment of "the impacts of a changing climate on the Chesapeake Bay and develop[ment of] a strategy for adapting natural resource programs and public infrastructure to the impacts of a changing climate on water quality and living resources of the Chesapeake Bay watershed"

A subsequent Executive Order Strategy (May 12, 2010) (http://executiveorder.chesapeakebay.net/file.axd?file=2010%2f5%2fChesapeake+EO+Strategy%20.pdf) calls for ensuring the "TMDL allocations account for climate change impacts, and that EPA and USGS will work in conjunction with the states to conduct an analysis by 2017 to consider accounting for uncertainties of climate change in TMDL allocations." Since the TMDL nutrient and sediment allocation are caps, any increases in loads due to climate change will need to be offset by further management action to ensure the Chesapeake water quality standards are achieved.

Comment ID 0419.1.001.003

Author Name: Sharma Lalit

Organization: City of Alexandria, Virginia

EPA's proposed approach for establishing WLAs for WWTPs served by CSSs is flawed for the following reasons:

• Inconsistent Loads in Model: The WWTP WLAs will be used as a constant value in the model input deck, which will not match the actual '91-'00 hydrology. Figure 3 shows an example of natural fluctuations of the annual average flow based on the amount of urban runoff (CS-C) treated at the WWTP, which is directly related to the amount of rainfall in the '91-'00 period. EPA's water quality model used to judge compliance will not recognize the dry weather days and corresponding benefits of the low annual loads during dry years such as the three year period 1998-2000.

Figure 3 - Future Richmond WWTP Annaul Average Flow [Please see page 5 of the original letter (Docket ID EPA-R03-OW-2010-0736-0419.4)].

Response

The waste load allocations for Virginia's CSOs were developed by Greeley and Hansen in cooperation with the Virginia Department of Environmental Quality (DEQ). The current agreement between EPA and DEQ is that Virginia will continue to pursue the proposed performance approach referenced in this comment through the Chesapeake Bay Program's Wastewater Workgroup and that any resulting changes in the assessments of CSO loads will be incorporated in the Phase 2 Watershed Implementation Plans.

Comment ID 0419.1.001.009

Author Name: Sharma Lalit

Organization: City of Alexandria, Virginia

Others such as the Virginia Association of Municipal Water Agencies (VAMWA), the Virginia Association of Municipal Stormwater Agencies (VAMSA) [FN5], and the Hampton Roads Planning District Commission (HRPDC) (on behalf of the Hampton Roads localities with Municipal Separate Storm Sewer Systems) either have or will be submitting comments on EPA's use of the chlorophyll-a model to establish the James River allocations. To summarize, those comments point out that since 2009, the regulated community has urged EPA to address significant issues relating to the accuracy of the chlorophyll-a modeling predictions, including erroneous calibration in certain segments and seasons, model post-processing problems, unexplained model anomalies, and the improper use of data. VAMWA's VAMSA's, and HRPDC's comments further point out that EPA has not only failed to undertake the systematic review and analysis of the model's predictive capabilities needed to fix these problems, it has improperly manipulated the model. Richmond and Lynchburg agree with the objections (as well as the basis for those objections) to EPA's use of the chlorophyll-a model set forth in VAMWA's VAMSA's, and HRPDC's comments and incorporate them by reference rather than repeating them here.

[FN5] Richmond and Lynchburg are members of both VAMWA and VAMSA.

Response

Please see the comprehensive responses to comment ID 0288.1.001.016.

Comment ID 0432.1.001.012

Author Name: William Neilson John Bell and

Organization: Pennsylvania Farm Bureau

6. Extent of pollution control measures being performed in Pennsylvania is understated in the Model. and EPA has so far failed to provide a reasonable means for reporting and crediting of those activities.

Recently completed studies of farming and crop land practices in Lancaster County and Bradford County confirm that the Chesapeake Bay Model is seriously failing to capture and credit the extent of best management practices being performed on Pennsylvania farms, particularly in the use of conservation tillage practices and cover crop production. Yet, EPA has provided virtually no guidance to Pennsylvania or other Bay states on a feasible methodology for reporting, collection and of these practices that is acceptable to EPA. And EPA has shown little interest so far in accepting any methodology for reporting and crediting of agricultural best management practices in the Model other than an unworkable and cost-prohibitive methodology of personal inspection and verification of vast acreage of farmland by "qualified" individuals.

Statistical methodologies and similar methodologies universally accepted as providing accurate and credible measurement of actual occurrence refute the need for the type of reporting and crediting system for best management practices on farms that requires every acre of ground to be inspected and verified. And we strongly believe that the scope of "qualified" persons used under an acceptable methodology should be much broader than regulatory and enforcement personnel, and include state and local governmental officials and those in the private sector who provide management, consulting and custom services for farmers.

EPA needs to recognize more feasible and flexible methodologies for reporting and capture of agricultural best management practices in the Chesapeake Bay Model than those suggested so far.

Response

The Chesapeake Bay Program agrees that non-cost share implemented practices are likely under-counted because of difficulties in data collection. Verified non-cost shared practices can be accepted and credited within the Bay model, but historically have not been included to a great extent because the information has not been made available to the Chesapeake Bay Program. Non-cost shared practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These practices are typically funded by farmers alone. EPA is committed to working with USDA, NACD, state environmental and agricultural agencies, conservation districts, and the agricultural community at large to credit nutrient and sediment reductions from voluntary practices. As committed to in the Chesapeake Bay

Executive Order Strategy, EPA and USDA will work with state and local partners to "By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented."

Comment ID 0436.1.001.006

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Chesapeake, Virginia

At the Commission meeting on October 20, 2010, the HRPDC acted to endorse the following position and attached comments.

• The Phase 5.3 model and model inputs are not sufficiently developed to produce reliable predictions.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0436.1.001.025

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Chesapeake, Virginia

A. The chlorophyll-a water quality model is not stable, not calibrated properly, and should not be used to establish the TMDL allocations.

Since 2009, the regulated community has urged EPA to address significant issues relating to the accuracy of the chlorophyll-a modeling predictions, including erroneous calibration in certain segments and seasons, model post-processing problems, unexplained model anomalies, and the improper use of data.[FN 14] EPA has not only failed to undertake the systematic review and analysis of the model's predictive capabilities needed to fix these problems, it has improperly manipulated the model. Specifically, while EPA was attempting calibrate the model, it found that when using data from the September 1999 timeframe, chlorophyll-a concentrations were going up rather than going down as loads were reduced as shown in Figure 1. But rather taking the time to find and correct the source of the problem, EPA simply eliminated the September 1999 data to produce the result it was seeking. EPA has offered no explanation for why the model was not working properly nor has it offered a justification for deleting the data. If EPA is going to disqualify data, it should at least explain why it is being disqualified.

(Please See Figure 1 on page 13 of the original letter [Docket ID No. EPA-R03-OW-2010-0736]) [FN 15]

Further, EPA provided no reasonable explanation for why the chlorophyll levels increased with decreasing nutrient loads. EPA should recalibrate the model and explain the cause of the model errors. Until EPA recalibrates the model

and the model is verified with enough peer review to ensure appropriate reliability in establishing reasonable allocations for the James River basin, the allocation should remain at the "Tributary Strategy" level for the reasons discussed below.

[FN 14] See letter dated August 16, 2010 and attachments from the Virginia Association of Municipal Wastewater Agencies (VAMWA) to EPA, which is attached to and incorporated in these comments as Exhibit E. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0436.1]
[FN 15] From TMDL Report, Appendix O, Figure 6. Plot of simulated surface chlorophyll a concentrations for WQM cell 731 (location of station LE5.2) during the summer of 1999 (a), and resulting regression plot for September 1999 LE5.2 chlorophyll a (b). The quote in Figure 1 is from Appendix O, pg O-5.

Response

The Chesapeake Bay Water Quality and Sediment Transport Model is well calibrated and appropriate for application to assess the James chlorophyll water quality standard. Chlorophyll calibration in the tidal James River is considered along with the chlorophyll a calibration system-wide. Model results are subject to multiple performance measures in several modes. These include:
--Time series of computed and observed chlorophyll at stations in the tidal fresh, transition, and lower estuarine regions.
--Comparison of computed and observed chlorophyll along the estuarine axis. These are averaged according to season and presented for years of different hydrology.
--Cumulative distribution plots of computed and observed chlorophyll.
--Time series of computed and observed primary production.
--Time series of computed and observed water column respiration.

We have maintained a consistent statistical measure of model performance (Cerco and Noel 2005) since the original model study. Statistics have been calculated and compared for the original 1987 Chesapeake Bay Water Quality Model (2-year, steady state summer averaged), 1992 Bay Water Quality Model (4-year, with dynamic sediment fluxes), 1997 Virginia Tributary Refinements version of the Bay Water Quality Model (10 year, SAV and benthic filter/deposit feeders), the 2002 Chesapeake Bay Water Quality Model, and for the 2010 Chesapeake Bay Water Quality and Sediment Transport Model. These statistics include mean difference, absolute mean difference, and relative difference:

[See Attachment 1 to the Response to Comment document for the mathematical equations in the section Chesapeake Bay Water Quality Model Calibration.]
in which:
MD = mean difference
AMD = absolute mean difference
RD = relative difference
O = observation
P = prediction
N = number of observations

The mean difference describes whether the model over-estimates or under-estimates the observations, on average. The mean difference can attain its ideal value, zero, while discrepancies exist between individual observations and computations. The absolute mean difference is a measure of the characteristic difference between individual observations and computations. An absolute mean difference of zero indicates the model perfectly reproduces each observation. Relative difference is the absolute mean difference normalized by the mean of the observations.

Statistics for chlorophyll in the James River are presented in the table below for the four stages of model application. Model performance, as characterized by absolute mean difference and relative difference, is the best ever. Performance characterized by mean difference is among the best ever. Model versions with quantitative performance statistics lower than the present version were accepted for verification of the 40% nutrient reduction goal and for determination of tributary load allocations. EPA believes the performance of the 2010 Chesapeake Bay Water Quality Model is sufficient for use in determining TMDLs for the tidal James River.

[See Attachment 1 to the Response to Comment document for the table titled "Chlorophyll Summary Statistics for James River (Chesapeake Bay Water Quality Model Calibration section)."]

Cerco, C., and Noel, M. (2005). "Incremental improvements in Chesapeake Bay environmental model package," Journal of Environmental Engineering 131(5), 745-754.

To be clear about what a deterministic model like the WQSTM is, the model is a consistent structure of governing equations which balance mass and energy. The model can't be "unstable", there' no "unstable" programmed in its code. The model inevitably responds in an unalterable, consistent way to inputs of light, nutrients, and temperature. There were instances of human errors made in model input decks and in these cases the problem scenarios were withdrawn and the scenario data was unused.

An enormous amount of data and information on the Chesapeake TMDL models and application has been developed and distributed in an open and transparent way throughout the TMDL development process. Inevitably during that process of application and review errors and problems are eliminated in the scenario input data and postprocessing. As to reasons why chlorophyll concentrations go up when loads are reduced, recall that the chlorophyll simulation responds the both nutrients and light. Often light is the most limiting factor of algal growth and it's not at all uncommon to see that reductions in watershed loads, which include sediment loads are enough to relive the greatest limitation – light and to have the response of higher chlorophyll concentrations with reduced watershed loads.

Comment ID 0436.1.001.026

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Chesapeake, Virginia

B. EPA has failed to provide documentation related to post-processing of the data.

EPA has made it extremely difficult to evaluate the differences between the chlorophyll-a model runs. In Appendix O to the TMDL Report, EPA only states that it post-processed (manipulated) the data to address the poorly performing

model results associated with the "James LOE ½ Potomac" model scenario. However, based on a review of EPA's "stoplight plots" for chlorophyll-a in Table M3 of Appendix M to the TMDL Report, it appears that EPA post-processed only the "James LOE ½ Potomac" scenario and failed to post-process the remaining scenarios. Scenarios with higher allocations in the James River should have been post processed and published to allow public review of the results and the relative attainment rates for different load allocations.

Exhibit F [Comment Letter contains additional information in the form of an attachment. See original comment letter 0436.1] [FN 16] includes a series of four tables ("stoplight plots") for the "91-00 Base", "Tributary Strategy", "190/12.7 Loading", and "James LOE ½ Potomac" scenarios for each of the three-year rolling average for the periods between 1991 through 2000 that EPA uses to assess compliance. Each table includes percent non-attainment of the chlorophyll-a water quality criteria for each of the five model segments of the James River shown in Figure 2. The blacked data points shown in Exhibit F for the JMSTFL and JMSPH segments in the "James LOE ½ Potomac" model scenario represent chlorophyll-a model output that was not considered reliable by EPA. Once postprocessing of the data was completed, the JMSMH segment showed only 1% nonattainment, which EPA indicated was sufficient to establish the James River basin allocations for TN and TP loads at 23.5 and 2.35 million pounds per year, respectively. However, there are no records in the TMDL Report or its appendices for the percent nonattainment for the JMSMH segment prior to the post-processing for the '97-'99 or '98- '00 summer periods shown in Exhibit F. Therefore, we have undertaken the following analysis of the data to compare the scenarios.

Figure 2. James River Model Segments[Please see page 15 of the original letter (Docket ID #EPA-R03-OW-2010-0736)]

EPA's PowerPoint presentation in early summer 2010 showed the percent nonattainment rates for the "190/12.7 Loading" scenario after post-processing of the model results. Exhibit G [Comment Letter contains additional information in the form of an attachment. See original comment letter 0436.1] shows the same four scenario tables ("stoplight plot") as provided in Exhibit F, except the post-processing of the data for the "190/12.7 Loading" scenario was applied based on the EPA's June 2010 presentation. Exhibit G shows that JMSTFL and JMSPH segments were also not considered reliable by EPA and removed from consideration. EPA reported that the percent non-attainment for the JMSMH segment was reduced from 15 percent in Exhibit F to 4 percent in Exhibit G, which was based on the EPA's removal of the problem regression data. It is reasonable to assume that the same trend would exist for the "Tributary Strategy" Scenario as shown in Exhibit G. The post-processed "Tributary Strategy" percent non-attainment rate for the JMSMH segment would be expected to be about 1 percent higher than the "190/12.7" scenario (based on comparison between Exhibit F and Exhibit G). Therefore, it would be expected that the "Tributary Strategy" data would attain the standard about 93 to 94 percent of the time. The difference between this attainment rate and the one percent attainment rate that EPA used to develop the proposed allocations is inconsequential considering the fact that (1) EPA has failed to fix the flaws in the model and has had to improperly manipulate the data to make it work, and (2) the difference in modeled chlorophyll-a concentrations between the two scenarios is so small that it is likely to be undetectable.

EPA has indicated that the "190/12.7 Loading" scenario is needed to meet the dissolved oxygen water quality standard in the main stem Chesapeake Bay. However, the 2005 James River Tributary Strategy loading was established based on the 15 HRPDC Comments on the Draft Chesapeake Bay TMDL November 5, 2010 chlorophyll-a criteria, which was well below what was required to comply with the dissolved oxygen standard in the main stem Chesapeake Bay. Additionally, it is well known that the James River has little impact on the Chesapeake Bay given its proximity to the Atlantic Ocean. EPA should provide a model run that keeps all the other segments at the allocations associated with the

"190/12.7 Loading" scenario, but increase the James River basin loadings to 27.5 and 3.3 million pounds per year for TN and TP, respectively. It is expected that this model scenario will show that the Tributary Strategy loading in the James River basin will not have a material or measurable impact on the dissolved oxygen in the Chesapeake Bay. Therefore, the allocations for the James River Basin should remain at the "Tributary Strategy" loadings.

[FN 16] Data extracted from Table M3 of Appendix M to the TMDL Report.

Response

An enormous amount of data and information on the Chesapeake TMDL models and application has been developed and distributed in an open and transparent way throughout the TMDL development process. Inevitably during that process of application and review errors and problems are eliminated in the scenario input data and postprocessing. As to reasons why chlorophyll concentrations go up when loads are reduced, recall that the chlorophyll simulation responds the both nutrients and light. Often light is the most limiting factor of algal growth and it's not at all uncommon to see that reductions in watershed loads, which include sediment loads are enough to relieve the greatest limitation – light and to have the response of higher chlorophyll concentrations with reduced watershed loads.

As described elsewhere in these responses to comments, the Chesapeake Bay Water Quality and Sediment Transport Model has been well calibrated and thoroughly peer reviewed.

Comment ID 0436.1.001.027

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Chesapeake, Virginia

C. A knee-of-the-curve analysis further indicates that the James River allocations should be based on the Tributary Strategy

We recognize that EPA has a certain amount of discretion to rely on model predictions as the basis for its TMDLs, even when the predictions are acknowledged to reflect some uncertainty. However, there are limits to the exercise of that discretion; and this is one instance where EPA would be acting arbitrarily because in addition to unresolved flaws in the model, the model predictions are unable to reliably distinguish between model scenarios with immense cost implications as shown in the following knee-of-curve analysis, which was prepared by one of the Localities' consulting engineers, Greeley and Hansen.

Figure 3 [Please see page 17 of the original letter (Docket ID #EPA-R03-OW-2010-0736)] shows the estimated capital costs of attaining the chlorophyll-a criteria against the percent attainment rate. The capital costs include estimates for basin-wide wastewater treatment plant reductions, agricultural BMPs, and urban runoff controls necessary to meet the allocations identified by EPA for the scenarios identified in Figure 3. The wastewater treatment plant capital costs are a function of design flows and level of treatment (biological nutrient removal, enhanced nutrient removal and limit of technology). Agricultural capital costs are based on BMP unit cost per acre and the BMP assumptions used in the

Phase 5.3 Model. The urban runoff capital costs [FN 17] are based on the performance associated with the runoff reduction method for an estimated amount of retrofit controls that could be installed in a locality, which represents only a portion of the urban runoff costs. The costs for the remainder of the urban runoff reductions needed to meet the allocations would be achieved with storage and reuse. The estimated capital costs were prepared for the following EPA Scenarios:

• '91-'00 Base Scenario: Point "A" represents the James River TN and TP loading of 36.9 and 3.3 million pounds per year, respectively.

• EPA's Tributary Strategy: Point "B" represents the James River TN and TP portion of the Bay-wide loading, which is 27.5 and 3.3 million pounds per year, respectively.

• EPA's James Chl-a Compliance: Point "C" represents the James River TN and TP loading of 23.5 and 2.35 million pounds per year, respectively. EPA has selected this scenario as the basis for compliance with the James River chlorophyll-a criteria. EPA also refers to this scenario as "James Level of Effort at ½ Potomac". In Appendix J to the TMDL Report, EPA states "In the James, the nutrient loads are equivalent to the level of effort half way between Virginia's portion of the Potomac and the James for the 190/12 Loading Scenario."

• E3 (Everything, Everywhere, by Everybody): Point "D" represents the James River TN and TP loading of 16.1 and 1.5 million pounds per year, respectively. EPA considers this to be the "theoretical maximum levels of managed controls on all pollutant load sources". There are no cost and few physical limitations to implementing controls for point and nonpoint sources in the E3 scenario. This scenario is used with the No-Action scenario to define the "controllable" loads, i.e., the difference between No-Action and E3 loads." See TMDL Report at Appendix J.

The knee-of-the-curve analysis determines where the increment of pollution reduction achieved in the receiving water diminishes compared to the increased costs. There is a steep inflection at Point "B" that represents the knee-of-the-curve. Any reduction beyond Point "B" lacks a viable cost-to-benefit ratio and does not reflect a reasonable level of attainment. EPA has selected Point "C" as the basis for the James River compliance with the chlorophyll-a criteria, which is about half way between Point "B" and EPA's E3 scenario (Point "D"). If one assumes that the model predictions are accurate (about which there is substantial doubt), at Point "B", the James River would be 93 to 94 percent compliant with chlorophyll-a criteria compared to 99 percent at Point "C". However, the true difference in chlorophyll model output between Points "B" and "C" is only 2 to 3 g/L (three parts in a billion). Additionally, the sampling and testing accuracies for physical water measurements is 1 to 3 g/L. In other words, even if the loadings between Points "B" and "C" were achieved, it is unlikely that the difference in James River chlorophyll-a concentrations could be measured. The difference in the estimated cost of achieving the loadings between Points "B" and "C", on the other hand, is over $10 billion.

[FN 17] Urban nutrient management was not included. The capital costs are based on meeting the waste load allocation for the Urban Runoff identified in Appendix Q-1 of the TMDL report.

Response

EPA will not be identifying the total federal, state, local and private cost burden in the TMDL for reasons discussed in the response to comment 0139.1.001.017.

A TMDL must be developed to achieve the applicable water quality standards. In the case of the tidal James River, Virginia's water quality standards regulations have defined numerical concentrations of chlorophyll a that define a healthy, productive aquatic ecosystem. While a "knee of the curve" analysis is interesting, it has no standing unless its recommended loads achieves Virginia's water quality standards, and the Tributary Strategy loads fail to do so.

EPA took specific steps described in the Bay TMDL report and Appendix O to remove from consideration specific segment-season-3 year periods where close evaluation of the model output and modeling/monitoring regressions called into question the confidence in driving the allocations even lower. EPA also determined 1 percent non-attainment was attainment of the designated use for a limited
set of segment-season-3 year periods where there was evidence of reduced sensitivity approaching the criterion concentration (Appendix I). If EPA had not taken these steps, the resultant James River nitrogen and phosphorus allocations would have been even lower than those published in the Bay TMDL.

It is important to recognize that the scenario assessment methodology applied in development of the Bay TMDL is specifically designed to make use of the model as the best available method for predicting response to nutrient load reductions as represented the relative degree of change in chlorophyll a concentrations from one loading scenario to another, and not for estimating the actual mean itself. While the Chesapeake Bay Water Quality and Sediment Transport Model's ability to approximate observed conditions is used as a metric for identifying those locations time periods for which its estimates of response are most useful, EPA relies on the historical monitoring data as the best available estimate of the mean chlorophyll a concentrations in any given season and location. EPA uses the WQSTM to predict the degree change expected in that mean with reductions in pollutant loads. See Section 6.2.4 in the Bay TMDL report for more details.

Given Virginia's chlorophyll a water quality standard is stated as seasonal mean concentration, relatively small incremental changes in the seasonal mean concentration heading down towards achievement of that standard translates into ecologically significant reductions in extreme bloom conditions over the same spring or summer season (USEPA 2007). For the tidal James River, Virginia's water quality standards regulations have defined numerical concentrations of chlorophyll a that define a healthy, productive aquatic ecosystem, period. Concentrations above those water quality standards mean the waterbody is impaired and does not meet its designated uses.

Comment ID 0438.1.001.002

Author Name: Johnson Roger

Organization: National Farmers Union (NFU)

NFU is concerned that, as it is currently written, compliance with TMDL regulations will create a hardship on family agricultural producers for compliance with state and federal water quality standards without the likelihood of increased environmental benefits. I raise this concern because EPA is proceeding with finalizing the TMDL by December 31, 2010, while acknowledging it has already outlined plans to update and refine modeling data and assumptions in 2011.[FN3] If EPA knows modeling data will require updating in less than one year, this exposes agricultural producers to unnecessary and potentially disastrous regulation and uncertain environmental improvement.

[FN 3] Letter to Principal's Staff Committee from EPA Region III Administrator Shawn Garvin, June 11, 2010.

Response

The Chesapeake Bay Program has continually refined and updated its models since its inception. The Phase 5.3 Watershed Model is in it's fifth generation of development and application. The Bay Airshed Model and Bay Water Quality Model have also had several generations of model development and application in the Chesapeake. While the models continue to be refined to keep up with the management needs of the Chesapeake Bay Program it's remarkable that the overall findings of are so similar. For example, the early 2003 Phase 4.3 model findings of the overall nitrogen loads needed to achieve water quality standards in the Chesapeake is within a few percent of that of the Phase 5.3 TMDL loads.

The Chesapeake Bay Program will continue to refine the CBP models as needed to support the Chesapeake watershed environmental management needs. The Chesapeake Bay Program will modify the Phase 5.3 Model to refine simulation of loads from developed lands for the WIP II process. This will provide a more detailed simulation for the higher resolution Phase II WIPs.

Comment ID 0444.1.001.007

Author Name: Allen Paul

Organization: Constellation Energy

Additionally, all of the model inputs and outputs have not been released for peer and public review as we believe is required to satisfy the requirements of the Administrative Procedures Act. This is of particular concern to regulated entities, such as Constellation, where wasteload allocations based on an incomplete and inaccurate model could become part of enforceable permit limits. EPA should make all the relevant information available for public review and reopen the comment period. for a sufficient length of time. The current 45-day comment period would not have been sufficient due to its complexity.

Response

Initial drafts of the Phase 5 Watershed Model documentation have been available on-line at the Chesapeake Bay Program partnership’s web site www.chesapeakebay.net since 2008 when the first of several model calibrations (Phase 5.1) were conducted. When the Chesapeake Bay TMDL is finalized at the close of December 2010, all of the final documentation of the Phase 5.3 Chesapeake Bay Watershed Model and Scenario Builder documentation, code, and data used to develop and apply the models will be are on the web and fully available. Parts of the model documentation could not be completed until final decisions were made on the Bay TMDL itself, hence, final publication of both the Bay TMDL and the model documentation at the same time. In addition, the Phase 5.3 Chesapeake Bay Watershed Model has been developed as open source, public domain models that have been developed and applied in open public meetings over the last decade.

Scenario Builder and Watershed Model downloadable information

Scenario Builder documentation (uploaded 9/16/10), source code (10/29), and database (11/5) are available on this site: ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/Scenario Builder

Inputs and outputs are available on this ftp site (continually updated as new results are run): ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/

Phase 5.3 Watershed Model documentation information is available here: http://ches.communitymodeling.org/models/CBPhase5/index.php

With regard to the comment period, please refer to the response to comment 0060.1.001.001.

The Bay TMDL is a detailed document. That this why the TMDL has been developed through a highly transparent, inclusive and engaging process during the past two years. The outreach effort has included hundreds of meetings with interested groups; two extensive rounds of public meetings, stakeholder sessions and media interviews in all six states and the District of Columbia in the fall of 2009 and the fall of 2010; a dedicated EPA website; a series of monthly interactive webinars accessed by more than 2,500 people; three notices published in the Federal Register; and a close working relationship with Chesapeake Bay Program committees representing citizens, local governments and the scientific community.

During the formal public comment period in the fall of 2010, EPA conducted 18 public meetings, in all six states and the District of Columbia. More than 2,700 people participated in the public meetings and seven of the meetings were broadcast live online via webinar. As EPA officials traveled throughout the watershed for the public meetings, they also met separately with many stakeholder groups, including local governments, agriculture groups, homebuilder and developer associations, wastewater industry representatives and environmental organizations to clarify the TMDL and its process and address questions. EPA also had special meetings with state environment secretaries and their department staff and other state officials and elected representatives.

Since 2008, EPA staff has participated in nearly 400 meetings on the Bay TMDL attended by stakeholders.

EPA has provided a wealth of documentation, background information, modeling data and other support material on its web sites (www.chesapeakebay.net, www.epa.gov/chesapeakebaytmdl), in public meetings, in stakeholder meetings, during conference calls with partners and stakeholders, on regular webinars and through other means as part of an extensive, collaborative effort to develop the Bay TMDL, particularly over the past two years. Detailed scientific information has been posted as attachments to meeting agendas of the Water Quality Goal Implementation Team and in other places on the public web site, www.chesapeakebay.net, as the process has evolved.

Comment ID 0466.1.001.009

Author Name: Suarez Julie

Organization: New York Farm Bureau (NYFB)

Further, several NRCS definitions which EPA's model employs does not represent the full environmental value New

York's BMPs bring to the watershed, such as precision feeding and prescribed grazing. These small deficiencies and programmatic gaps that the model does not account for aggregates into a large sum that New York agriculture is unfairly being asked to accommodate through further source reductions.

Response

The Chesapeake Bay Program can accept additional verified practices for use in the model on an ongoing basis. The Chesapeake Bay Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

Comment ID 0475.1.001.001

Author Name: Frazier Katie

Organization: Virginia Agribusiness Council

On behalf of the members of the Virginia Agribusiness Council, we respectfully submit the following comments on the Draft Chesapeake Bay Total Maximum Daily Load (Draft TMDL), released for public comment on September 24,2010,75 Fed. Reg. 57776 (Sept. 22, 2010) (Docket Number EPA-R03-0W-2010-0736) (hereinafter Draft TMDL).

Agriculture and forestry represent the number one industry in the Commonwealth of Virginia, generating $79 billion in economic impact and 10.3% of employment. The Virginia Agribusiness Council represents farmers, foresters, processors, manufacturers, and suppliers of agricultural and forestal products, as well as approximately 40 commodity associations. It is essential that our agribusiness industry be fully engaged in the development of the Chesapeake Bay TMDL. Thousands of farms and forests in the Commonwealth will be directly impacted. We appreciate this opportunity to provide public comment on the Draft TMDL.

According to EPA, the "Chesapeake Bay TMDL is the largest, most complex TMDL in the country, covering a 64,000-square-mile area in seven jurisdictions." EPA is proposing two separate sets of load allocations and waste load allocations for three pollutants in 92 water body segments. For Virginia, which has approximately 40 water segments, this means that there are 120 separate TMDLs for the Commonwealth's portion of the Chesapeake Bay.

The Draft TMDL allocations are based on the Chesapeake Bay watershed model (5.3) (Model) updated in June 2010. While parts of the Model have been made available for public review, others have not been accessible to the public during the full course of the Public Comment period. The scenario builder data heavily utilized by Virginia officials in calculating agriculture reductions in the Draft TMDL and WIP, were not made available until November 5, 2010, just three short days prior to the close of the public comment period.

EPA has admitted that the Model is flawed, specifically related to the credit given for nutrient management planning, a key component of agricultural reductions, and plans to make changes to the Model in 2011- several months after the EPA finalizes the Bay TMDL. Despite these known flaws, and significant delays in EPA's initial schedule for providing

states load allocation, EPA required states, including Virginia, to submit draft a Watershed Implementation Plan (WIP) in an inadequate period of time. Target loads for nutrients were provided on July 1, 2010, sediments on August 13,2010, and draft WIPs were due to EPA on September 1, 2010. Maintaining strict deadlines when EPA itself missed deadlines to provide states with information has led to inadequate time for states to develop WIPs, and an inadequate public comment period. While our request to extend the Comment Period to 120 days has been denied, we again respectfully petition EPA to reconsider and give adequate time for public review, stakeholder input, and state negotiations. Based upon the inadequate public comment period, we respectfully reserve the right to supplement these Comments as additional information and analysis becomes available.

Response

With regard to the public comment period, please see response to comment 0060.1.001.001.

The Bay TMDL is a detailed document. That this why the TMDL has been developed through a highly transparent, inclusive and engaging process during the past two years. The outreach effort has included hundreds of meetings with interested groups; two extensive rounds of public meetings, stakeholder sessions and media interviews in all six states and the District of Columbia in the fall of 2009 and the fall of 2010; a dedicated EPA website; a series of monthly interactive webinars accessed by more than 2,500 people; three notices published in the Federal Register; and a close working relationship with Chesapeake Bay Program committees representing citizens, local governments and the scientific community.

During the formal public comment period in the fall of 2010, EPA conducted 18 public meetings, in all six states and the District of Columbia. More than 2,700 people participated in the public meetings and seven of the meetings were broadcast live online via webinar. As EPA officials traveled throughout the watershed for the public meetings, they also met separately with many stakeholder groups, including local governments, agriculture groups, homebuilder and developer associations, wastewater industry representatives and environmental organizations to clarify the TMDL and its process and address questions. EPA also had special meetings with state environment secretaries and their department staff and other state officials and elected representatives.

Since 2008, EPA staff has participated in nearly 400 meetings on the Bay TMDL attended by stakeholders.

EPA has provided a wealth of documentation, background information, modeling data and other support material on its web sites (www.chesapeakebay.net, www.epa.gov/chesapeakebaytmdl), in public meetings, in stakeholder meetings, during conference calls with partners and stakeholders, on regular webinars and through other means as part of an extensive, collaborative effort to develop the Bay TMDL, particularly over the past two years. Detailed scientific information has been posted as attachments to meeting agendas of the Water Quality Goal Implementation Team and in other places on the public web site, www.chesapeakebay.net, as the process has evolved.

With regard to the Watershed Implementation Plans, for several months EPA worked closely with the states and the District of Columbia to strengthen the draft Watershed Implementation Plans submitted to EPA in early September. EPA had numerous constructive meetings and conference calls with each of the jurisdictions and reviewed preliminary WIP submissions. EPA also worked with jurisdictions after the submittal of final WIPs to minimize or eliminate the possibility of federal backstop measures.

Response – With regards to model documentation, the Phase 5.3 Watershed Model and Scenario Builder have been developed as open source, public domain models that have been developed and applied in open public meetings over the last decade. Initial drafts of the model documentation have been available since 2008. When the Chesapeake Bay TMDL is finalized at the close of December 2010 all of the final documentation of the Phase 5.3 Watershed Model and Scenario Builder documentation, code, and data used to develop and apply the models will be are on the web and fully available.

Scenario Builder and Watershed Model downloadable information
Scenario Builder documentation (uploaded 9/16/10), source code (10/29), and database (11/5) are available on this site:
ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/

Scenario Builder inputs and outputs are available on this ftp site (continually updated as new results are run):
ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/

Phase 5.3 watershed model information is available here:
http://ches.communitymodeling.org/models/CBPhase5/index.php

For more information and to review the P53 model key scenario documentation, visit
http://ches.communitymodeling.org/models/CBPhase5/documentation.php#p5modeldoc

With regards to the Phase 5.3 application to the Chesapeake TMDL, the Phase 5.3 Watershed Model is a representation of the watershed, not a perfect refection of it. The CBP models, like all models, are infinitely perfectible. More time and more resources will always improve the model performance which, after all, is really what the refinements of the Watershed Model to support the Phase II WIPs are about. Regardless of the ongoing process of model refinement to support decision making in the Chesapeake Bay Program, the Phase 5.3 Chesapeake Bay Watershed Model is fully capable of supporting the development of the Phase I WIPs.

Comment ID 0496.1.001.022

Author Name: Allsbrook Lynn

Organization: City of Hampton, Virginia, Department of Public Works

A. The chlorophyll water quality model is not stable, not calibrated properly, and should not be used to establish the TMDL allocations.

Since 2009, the regulated community has urged EPA to address significant issues relating to the accuracy of the chlorophyll-a modeling predictions, including erroneous calibration in certain segments and seasons, model post-processing problems, unexplained model anomalies, and the improper use of data. [FN14] EPA has not only failed to undertake the systematic review and analysis of the model's predictive capabilities needed to fix these problems, it has improperly manipulated the model. Specifically, while EPA was attempting calibrate the model, it found that when using data from the September 1999 timeframe, chlorophyll-a concentrations were going up rather than going down as loads

were reduced as shown in Figure 1. But rather taking the time to find and correct the source of the problem, EPA simply eliminated the September 1999 data to produce the result it was seeking. EPA has offered no explanation for why the model was not working properly nor has it offered a justification for deleting the data. If EPA is going to disqualify data, it should at least explain why it is being disqualified.

Figure 1[FN15] "Anomaly in some driver of the model simulation that caused poor scenario performance in the latter half of September 1999 at LE5.2" [Please see page 13 of the original letter EPA-R03-OW-2010-0736-0496.1]

Further, EPA provided no reasonable explanation for why the chlorophyll levels increased with decreasing nutrient loads. EPA should recalibrate the model and explain the cause of the model errors. Until EPA recalibrates the model and the model is verified with enough peer review to ensure appropriate reliability in establishing reasonable allocations for the James River basin, the allocation should remain at the "Tributary Strategy" level for the reasons discussed below.

B. EPA has failed to provide documentation related to post-processing of the data.

EPA has made it extremely difficult to evaluate the differences between the chlorophyll-a model runs. In Appendix O to the TMDL Report, EPA only states that it post-processed (manipulated) the data to address the poorly performing model results associated with the "James LOE 1/2 Potomac" model scenario. However, based on a review of EPA's "stoplight plots" for chlorophyll-a in Table M3 of Appendix M to the TMDL Report, it appears that EPA post-processed only the "James LOE 1/2 Potomac" scenario and failed to post-process the remaining scenarios. Scenarios with higher allocations in the James River should have been post processed and published to allow public review of the results and the relative attainment rates for different load allocations.

Exhibit F [FN16] includes a series of four tables ("stoplight plots") for the "91-00 Base", "Tributary Strategy", "190/12.7 Loading", and "James LOE 1/2 Potomac" scenarios for each of the three-year rolling average for the periods between 1991 through 2000 that EPA uses to assess compliance. Each table includes percent non-attainment of the chlorophyll-a water quality criteria for each of the five model segments of the James River shown in Figure 2. The blacked data points shown in Exhibit F for the JMSTFL and JMSPH segments in the "James LOE 1/2 Potomac" model scenario represent chlorophyll-a model output that was not considered reliable by EPA. Once post-processing of the data was completed, the JMSMH segment showed only 1% non-attainment, which EPA indicated was sufficient to establish the James River basin allocations for TN and TP loads at 23.5 and 2.35 million pounds per year, respectively. However, there are no records in the TMDL Report or its appendices for the percent non-attainment for the JMSMH segment prior to the post-processing for the '97-'99 or '98-'00 summer periods shown in Exhibit F. Therefore, we have undertaken the following analysis of the data to compare the scenarios.

Exhibit F From Appendix M, Table M3 with only post processing for James LOE at 1/2 Potomac [Please see the original letter EPA-R03-OW-2010-0736-0496.1]

Figure 2 James River Model Segments [Please see page 15 of the original letter EPA-R03-OW-2010-0736-0496.1]

EPA's PowerPoint presentation in early summer 2010 showed the percent non-attainment rates for the "190/12.7 Loading" scenario after post-processing of the model results. Exhibit G shows the same four scenario tables ("stoplight plot") as provided in Exhibit F, except the post-processing of the data for the "190/12.7 Loading" scenario was applied

based on the EPA's June 2010 presentation. Exhibit G shows that JMSTFL and JMSPH segments were also not considered reliable by EPA and removed from consideration. EPA reported that the percent non-attainment for the JMSMH segment was reduced from 15 percent in Exhibit F to 4 percent in Exhibit G, which was based on the EPA's removal of the problem regression data. It is reasonable to assume that the same trend would exist for the "Tributary Strategy" Scenario as shown in Exhibit G. The post-processed "Tributary Strategy" percent non-attainment rate for the JMSMH segment would be expected to be about 1 percent higher than the "190/12.7" scenario (based on comparison between Exhibit F and Exhibit G). Therefore, it would be expected that the "Tributary Strategy" data would attain the standard about 93 to 94 percent of the time. The difference between this attainment rate and the one percent attainment rate that EPA used to develop the proposed allocations is inconsequential considering the fact that (1) EPA has failed to fix the flaws in the model and has had to improperly manipulate the data to make it work, and (2) the difference in modeled chlorophyll-a concentrations between the two scenarios is so small that it is likely to be undetectable.

Exhibit G Adjusted Values Based on EPA June 2010 Presentation [Please see the original letter EPA-R03-OW-2010-0736-0496.1]

EPA has indicated that the "190/12.7 Loading" scenario is needed to meet the dissolved oxygen water quality standard in the main stem Chesapeake Bay. However, the 2005 James River Tributary Strategy loading was established based on the chlorophyll-a criteria, which was well below what was required to comply with the dissolved oxygen standard in the main stem Chesapeake Bay. Additionally, it is well known that the James River has little impact on the Chesapeake Bay given its proximity to the Atlantic Ocean. EPA should provide a model run that keeps all the other segments at the allocations associated with the "190/12.7 Loading" scenario, but increase the James River basin loadings to 27.5 and 3.3 million pounds per year for TN and TP, respectively. It is expected that this model scenario will show that the Tributary Strategy loading in the James River basin will not have a material or measurable impact on the dissolved oxygen in the Chesapeake Bay. Therefore, the allocations for the James River Basin should remain at the "Tributary Strategy" loadings.

[FN14]See letter dated August 16, 2010 and attachments from the Virginia Association of Municipal Wastewater Agencies (VAMWA) to EPA, which is attached to and incorporated in these comments as Exhibit E.
[FN15] From TMDL Report, Appendix O, Figure 6. Plot of simulated surface chlorophyll a concentrations for WQM cell 731 (location of station LE5.2) during the summer of 1999 (a), and resulting regression plot for September 1999 LE5.2 chlorophyll a (b). The quote in Figure 1 is from Appendix O, pg O-5.
[FN16] Data extracted from Table M3 of Appendix M to the TMDL Report.

Response

The Chesapeake Bay Water Quality and Sediment Transport Model is well calibrated and appropriate for application to assess the James chlorophyll water quality standard. Chlorophyll calibration in the tidal James River is considered along with the chlorophyll a calibration system-wide. Model results are subject to multiple performance measures in several modes. These include:
--Time series of computed and observed chlorophyll at stations in the tidal fresh, transition, and lower estuarine regions.
--Comparison of computed and observed chlorophyll along the estuarine axis. These are averaged according to season and presented for years of different hydrology.
--Cumulative distribution plots of computed and observed chlorophyll.

--Time series of computed and observed primary production.
--Time series of computed and observed water column respiration.

We have maintained a consistent statistical measure of model performance (Cerco and Noel 2005) since the original model study. Statistics have been calculated and compared for the original 1987 Chesapeake Bay Water Quality Model (2-year, steady state summer averaged), 1992 Bay Water Quality Model (4-year, with dynamic sediment fluxes), 1997 Virginia Tributary Refinements version of the Bay Water Quality Model (10 year, SAV and benthic filter/deposit feeders), the 2002 Chesapeake Bay Water Quality Model, and for the 2010 Chesapeake Bay Water Quality and Sediment Transport Model. These statistics include mean difference, absolute mean difference, and relative difference:

[See Attachment 1 to the Response to Comment document for the mathematical equations in the section Chesapeake Bay Water Quality Model Calibration.]
in which:
MD = mean difference
AMD = absolute mean difference
RD = relative difference
O = observation
P = prediction
N = number of observations

The mean difference describes whether the model over-estimates or under-estimates the observations, on average. The mean difference can attain its ideal value, zero, while discrepancies exist between individual observations and computations. The absolute mean difference is a measure of the characteristic difference between individual observations and computations. An absolute mean difference of zero indicates the model perfectly reproduces each observation. Relative difference is the absolute mean difference normalized by the mean of the observations.

Statistics for chlorophyll in the James River are presented in the table below for the four stages of model application. Model performance, as characterized by absolute mean difference and relative difference, is the best ever. Performance characterized by mean difference is among the best ever. Model versions with quantitative performance statistics lower than the present version were accepted for verification of the 40% nutrient reduction goal and for determination of tributary load allocations. EPA believes the performance of the 2010 Chesapeake Bay Water Quality Model is sufficient for use in determining TMDLs for the tidal James River.

[See Attachment 1 to the Response to Comment document for the table titled “Chlorophyll Summary Statistics for James River (Chesapeake Bay Water Quality Model Calibration section).”]

Cerco, C., and Noel, M. (2005). “Incremental improvements in Chesapeake Bay environmental model package,” Journal of Environmental Engineering 131(5), 745-754.

To be clear about what a deterministic model like the WQSTM is, the model is a consistent structure of governing equations which balance mass and energy. The model can’t be “unstable”, there’ no “unstable” programmed in its code. The model inevitably

responds in an unalterable, consistent way to inputs of light, nutrients, and temperature. There were instances of human errors made in model input decks and in these cases the problem scenarios were withdrawn and the scenario data was unused.

Finally, on the point that Tributary Strategy Scenario loads for the James may achieve DO standards in the Main Bay is irrelevant to the TMDL which requires Virginia dischargers to achieve Virginia water quality standards including Virginia's chlorophyll standard. What's required are nutrient load reductions beyond that of the Tributary Strategy level.

Comment ID 0497.1.001.007

Author Name: Hobbs Jack

Organization: Town of Amherst, Virginia

At this extremely late point in time, EPA has unilaterally changed the computer model it uses to judge the adequacy of Virginia's actions.

Response

The Chesapeake Bay TMDL have been developed through a highly transparent, inclusive, and engaging process during the past two years, including two rounds of public meeting held in all seven watershed jurisdictions and a public comment period. The Phase 5.3 Chesapeake Bay Watershed Model has been under development, calibration and then management application over the past five years, guided by the Chesapeake Bay Program partnership. All changes in the suite of Chesapeake Bay models and their application were reviewed and vetted by the Chesapeake Bay Program partners in open public meetings documented within Appendix C of the Bay TMDL report.

Comment ID 0527.1.001.003

Author Name: Romanello Anthony

Organization: County of Stafford, Virginia

Finally, we are concerned that there may be computer modeling deficiencies which are documented in the comments of VAMSA.

Response

Please see the comprehensive response to 0575.1.001.002.

Comment ID 0528.1.001.003

Author Name: Barnes C.

Organization: County of Spotsylvania, Virginia

What information and data that is available show that the model and model inputs are lacking in the level of precision that should be required of regulatory action with consequences as significant and widespread as the Chesapeake Bay TMDL.

Most notably, the Phase 5.3 model used to derive the proposed allocations is new, untested, and flawed, in its rush to establish the TMDL by an artificial deadline; EPA has proposed draft allocations without first calibrating the model and verifying the accuracy of the model predictions. In fact, EPA has effectively acknowledged that the model and model inputs are incomplete by announcing its intention to conduct additional model calibration after the TMDL is established.

Response

Please see response to comment 0340.1.001.006.

The Phase 5.3 Model is the fifth generation model in an ongoing cycle of simulation improvement over the last 20 years. The next version of the model, Phase 5.3.2, continues refinements that allows finer scale application of the Phase 2 WIPs.

Comment ID 0528.1.001.014

Author Name: Barnes C.

Organization: County of Spotsylvania, Virginia

D. Known variability less than default allowances.

The TMDL is addressing values that fall within its own tolerance levels for uncertainty. This raises the question whether any regulation whatsoever is scientifically justified.

Response

The Phase 5.3 Chesapeake Bay Watershed Model is appropriately applied in the Chesapeake TMDL. As described in Section 6.2.4 of the TMDL document, the implicit margin of safety in the nutrient allocations due to conservative TMDL and modeling assumptions accounts for uncertainty in the models. Due to additional uncertainty in the sediment modeling, an additional explicit margin of safety was adopted which reduced the available loading for Load Allocation and Waste Load Allocation (see Section 6.4.4 for more details).

Comment ID 0528.1.001.018

Author Name: Barnes C.

Organization: County of Spotsylvania, Virginia

The model results that are the basis for the proposed allocations are clearly lacking in the level of precision and certainty required to justify the significant costs to localities.

Response

The Chesapeake Bay models have been developed as open source, public domain models that have been developed and applied in an open transparent process in public meetings over the last decade. The Chesapeake Bay Program's Modeling Workgroup and the Water Quality Goal implementation Team have reviewed and approved all aspects of model development and application and all the Chesapeake Bay models have undergone independent scientific peer reviews. In all aspects, and in all cases, the Bay models were determined to be applicable and appropriate for the support of the 2010 Chesapeake TMDL.

Comment ID 0575.1.001.002

Author Name: Pomeroy Christopher

Organization: Virginia Municipal Stormwater Association, Inc. (VAMSA)

C. The James River chlorophyll-a model is flawed and is of questionable utility

The James River chlorophyll-a simulation has serious technical problems that, until resolved, should preclude its use to make major changes to existing load allocations. VAMSA is aware that VAMWA has expressed these concems on numerous occasions, including multiple requests for better calibration infotwation and a critical review of EPA's allocation methodology.[FN8] The results of VAMWA's review are summarized below (consistent with comments it has filed in response to this docket):

1. The James River chlorophyll-a model lacks a comprehensive review: There is no evidence that the James River chlorophyll-a model has ever been subjected to a detailed peer review specifically oriented to detetwining its utility for allocating loads based on chlorophyll-a. At most, any peer reviews appear to have been lumped in with an overall review of the WSM and WQSTM output, involving multiple parameters and scores of segments Baywide. Whatever peer review the model received, it obviously did not adequately address the James River chlorophyll-a model, as evidenced by the fact that major calibration and behavior problems with the chlorophyll-a simulation were not recognized or acknowledged by EPA until the summer of2010. Given the magnitude of regulatory and cost implications of the James River chlorophyll-a simulation, a comprehensive peer review is absolute essential.

2. The James River chlorophyll-a model exhibits poor behavior: EPA has recognized certain model calibration and post-processing issues. These issues include obviously erroneous calibration in certain segments and seasons, post-processing problems associated with regressions and scenario-transforms, unexplained model anomalies, and leverage of a few data points in the data transformation process. For example, EPA has noted instances where decreased loadings resulted in increased chlorophyll-a. However, no evidence was presented that EPA conducted a more

comprehensive review of these same issues in all segment-season conclusions, determined the extent of the anomalies, or fully evaluated the predictive capabilities of the model. It is possible that similar but undetected problems may have occurred elsewhere that would have affected the results, but that EPA did not develop or apply a system or criteria to adequately address the model and its use.

3. The EPA has failed to adequately calibrate the James River chlorophyll-a model, or even to rigorously evaluate the calibration: EPA has been asked repeatediy for a rigorous review of the model's calibration. To date, EPA has refused this request, and appears to be in denial regarding both the quality of the calibration and need for a more rigorous evaluation. Following is a brief history from VAMWA's comments of recent (20092010) activity related to the chlorophyll-a calibration:

a. In early 2009, the CBPO began to produce preliminary chlorophyll-based stoplight plots for the technical work groups, prior to any focused evaluation of the model's calibration.

b. In materials for the May 2009 teleconference between EPA, VADEQ, and VAMWA, EPA included a tabulation of non-attainment rates according to monitoring data and the linked Phase 5.1 WSM and WQSTM,[FN9] presumably to allow evaluation of the agreement between observed and modeled nonattainment rates. However, subsequent review revealed that it was not at all useful for this purpose because, under the EPA's data transformation approach (i.e., "scenarioing" of the data), there should be no differences between the observed non-attainment rates and the "base case" modeled non-attainment rates. The differences that were tabulated were apparently due to difference in the stations used to tabulate monitoring results versus scenarioed model results.

c. In the May 2009 teleconference between EPA, VADEQ, and VAMWA, it was agreed that an EPA action item should be to "closely evaluate the Bay water quality/sediment transport model calibration for the tidal James River."[FN10]

d. In three subsequent teleconferences between EPA, VADEQ, and stakeholders (held in September, October, and December 2009), there were neither materials nor discussion to indicate that EPA had performed a rigorous examination of the James River model calibration. Rather, EPA's analyses had focused on other topics such as the biological reference curve and logtransformation issue.

e. In the December 2009 teleconference, VAMWA discussed results of its own (review of the model calibration, based on longitudinal and time-series plots from Modeling Subcommittee meetings. The review indicated that the model severely underestimated chlorophyll-a in the tidal freshwater segments and failed to predict the correct magnitude of interannual variations. In the lower estuary, the model tended to over predict spring blooms and also failed to predict the correct magnitude and direction of interannual variations. This raised serious questions regarding whether the model algorithms were useful for predicting how management scenarios would affect chlorophyll-a attainment.

f. In the December 2009 teleconference, VAMWA verbally requested that EPA perform a rigorous evaluation of the model calibration, to which EPA verbally agreed. VAMWA followed the verbal request up with an e-mail on January 4, 2010 [FN11] that specifically requested tabulation of observed versus modelpredicted "chlorophyll-a means and attainment rates, without the data transformation, by three-year period and also by individual year." Neither the verbal nor the email request was answered by EPA.

g. EPA planned the next James River teleconference for February 2010. The distributed agenda made no mention of

the model calibration. VAMWA sent (an email to request that discussion of the calibration be added to the agenda.[FN12] In response, EPA indicated that it ultimately intended to perform the calibration evaluation, but would not have time to perform it by the February teleconference. [FN13] This was the last EPA-led, James-specific teleconference to which VAMWA and other stakeholders were invited.

h. VAMWA repeated the email request for calibration tables on June 2,2010, as part of a larger information request. [FN14] EPA never responded to the request.

i. As the June 2010 deadline for draft allocations approached, EPA released materials for a June 14,2010 co-regulators teleconference and a June 18,2010 James-specific conference call to which stakeholders were not invited. These materials included chlorophyll-a non-attainment diagnostics and the basis for the draft James River nutrient allocations. These materials indicated that, for the first time, EPA had recognized and acknowledged some calibration problems with the model. However, there was no evidence presented that the EPA had performed true evaluation of the calibration or improved the calibration at all. VAMWA has referenced the following examples:

i. EPA's review of the James River chlorophyll-a calibration appears to have been limited to visual inspection of charts. EPA apparently never tabulated calibration statistics nor performed a rigorous examination of determine how well the model predicted the magnitude and direction of interannual variation in different segment-seasons.

ii. EPA did not determine the reason for the poor calibration, nor adjust the calibration. Rather, EPA's response to the poor calibration was to "cross out" model results from segment-seasons that had most obviously flawed calibration (tidal freshwater and polyhaline summer). Specifically, EPA found that when it used data from the September 1999 timeframe, chlorophyll-a concentrations were going up rather than going down as loads were reduced (see Figure 2 below). But rather than taking the time to find and correct the source of the problem, EPA simply eliminated the September 1999 data to produce the result it was seeking. Further, EPA has offered no explanation for why the model was not working properly nor has it offered a justification for deleting the data. IfEPA is going to disqualify data, it should at least explain why it is being disqualified.

iii. EPA apparently had no objective criteria for determining in which segment-seasons the calibration was adequate.

iv. Despite the poor calibration in the tidal freshwater spring, EPA picked one year (1995) among ten (1991-2000) for which it deemed the calibration adequate and used this as a basis for load allocation. This contravenes accepted modeling practices.

[Figure 15- Anomaly in some driver of the model simulation that caused poor scenario performance in the latter half of September 1999 at LE5.2. Please see page 8 of original document 0575.1] [FN15]

Figures 3 and 5 (Appendix 0) presented in the Draft TMDL provide time series plots of simulated versus observed chlorophyll-a in the tidal fresh and mesohaline James River for selected model grid cells. These figures themselves demonstrate that the model still does not have the ability to capture inter-annual variability. Because annual and smaller time simulations of chlorophyll-a influence the TMDL, it is essential that the model have the ability to simulate chlorophyll-a at these smaller scales (i.e., variation within individual 3 year periods). EPA's insistence that the results be evaluated as individual 3 year periods (rather than as 10 year period in the 2005 James River Altematives Analysis) significantly magnified the effect of poor inter-annual model performance on the TMDL.

In summary, VAMWA has argued that, although EPA held numerous teleconference and meetings, including five teleconferences specific to the James River, EPA has failed to fulfill repeated requests and agreements to perform a rigorous evaluation of the model calibration. In the rush to meet the allocation deadline, EPA applied a poorly calibrated model in a highly arbitrary fashion that contravenes accepted modeling practices. To this day, EPA appears to be in denial regarding the quality of the James River model calibration and the need to fully evaluate it.

4. EPA has not been responsive to requests for information on model calibration and results: A number oftimely model related data requests have been made to EPA (January 4, June 2, and August 3, 2010).[FN16] In addition, EPA has been asked for documentation on predicted non-attainment by model scenario and post-processing regression results. However, these requests have not been answered by the conmlent deadline. This limits the ability to effectively comment and offer problem solutions, and results in a process that is not transparent.

On a related note, in addition to making it difficult to follow the development of the Draft TMDL, EPA's Draft TMDL itself is lacking in adequate detail to allow for a thorough review of these modeling issues. EPA has made it extremely difficult to evaluate the differences between the model runs. In Appendix a to the TMDL Report, EPA only states that it post-processed (manipulated) the data to address the poorly performing model results associated with the "James LOE 1/2 Potomac" model scenario. However, based on a review of EPA's "stoplight plots" for chlorophyll-a in Table M3 of Appendix M to the TMDL Report, it appears that EPA post-processed only the "James LOE 1/2 Potomac" scenario and failed to post-process the remaining scenarios. VAMWA submits that EPA should have post processed and published scenarios with higher allocations in the James to allow for a public review of the results and the relative attainment rates for different load allocations.

[Figure 2: James River Model Segments. Please see pager 9 of original document 0575.1]

Until EPA recalibrates the model and the model is verified with enough peer review to ensure appropriate reliability in establishing reasonable allocations for the James River Basin, the allocation should remain at the "Tributary Strategy" level.

D. EPA's justification for drastic load reduction hinges on insignificant water quality responses

Due to the lack of complete information on the model results, it was difficult to determine the level of water quality benefits that EPA expected from the large load reductions. However, based upon an interpretation of the limited information available (Bell and Hunley (2010)) [FN17] mostly derived from a June 18, 2010 presentation, one can conclude that EPA's recommendation for huge allocation cuts is premised on tiny model-predicted shifts in chlorophyll-a. VAMWA scientists drew the following specific conclusions:

1. The predicted changes in chlorophyll-a are smaller than can be precisely quantified by the model: Based on a review of Appendix a TMDL materials, CBPO's justification for going beyond the 190 TN / 13 TP allocation level is to reach very small and predicted decreases in chlorophyll-a and non-attainment rates:

    o 2-3% reductions in non-attainment in selected segment seasons (JMSTFL, JMSMH)

o 1-2 micrograms fer liter (ug/L) reduction in chlorophyll-a in selected segment seasons. [FN18]

It is a misapplication of the model framework to claim that it is capable of distinguishing between model scenarios at such small differences in percent (attainment and ambient chlorophyll-a concentrations, or that major management decisions costing hundreds of millions of dollars be made based on these tiny predicted shifts. Given the strong implicit margin of safety of the Bay TMDL, it cannot be concluded that the model is precise enough to distinguish nonattainment between scenarios that predict 0-1% and 2-4% non-attainment. The precision of chlorophyll-a predictions can be expected to be significantly less than that for main stem Bay dissolved oxygen (D.O.), which enjoys a much better calibration.

If the model cannot distinguish between D.O. non-attainment rates of 0% and 1% (as acknowledged by EPA), the spread in distinguishable non-attainment rates for chlorophyll-a can be expected to be greater. On this particular point, VADEQ (2010) provides a comparison between chlorophyll and D.O. reliability with respect to a number of different metrics including: impairment confidence, criteria evolution, criteria metric, analysis method, data quantity, analytical method variability, environmental variability, and model prediction ability. [FN19] Its comparison indicated that chlorophyll-a measurements are considerably less certain in all areas than D.O. The obvious implication is that the allowable percentage non-attainment for chlorophyll is greater than 1%.

2. The predicted changes in chlorophyll-a are smaller than those that can be detected in monitoring data: It can be demonstrated that tiny predicted shifts in chlorophyll-a between the 190 scenario and the "between 170/Potomac" scenario
(i.e. EPA's proposed allocation) would not even be detectable in light of environmental, sampling, and analytical variability. For example: (a) power analysis demonstrates that even after long (25 year) monitoring periods, the minimum significant difference (MSD) in seasonal mean chlorophyll-a would be in the 2-4 ug/L range for most attaining segment seasons.[FN20] Thus, the modeled shift in chlorophyll-a between the 190 and the "between 170/Potomac" scenario would not be detectable in the monitoring data; and (b) based on a review of laboratory split sample results for the 1991-2000 James River data obtained from the CBMP data hub, the median relative percent difference (RPD) in chlorophyll-a samples was about 16 percent, corresponding to 1-4 ug/L chlorophyll-a, depending on segment and season [FN21] Thus, analytical variability alone is equal to or greater than the modeled shifts in chlorophyll-a between the 190 scenario and the "between 170/Potomac" scenario. Consideration of field (sampling) variability would cause the total variance of chlorophyll-a measurements to increase even further. The management implication is that the water quality response in the James River between the D.O. based allocation and EPA's backstop allocation would be essentially the same but with significant differences in source controls and cost to the citizens of the Commonwealth.

3. The predicted changes in chlorophyll-a are not ecologically significant: The difference in chlorophyll-a levels predicted between tributary strategy and the proposed reduced allocation scenarios (on the order of 1-2 ug/L seasonal average and 2-4% in tell DS of nonattainment rates) are exceptionally small in magnitude. This estimated level of change is too small to be seriously considered a matter of practical importance or consequence to the James River. Even if the model could adequately discern such differences, they would not result in tangible environmental benefits. One must keep in mind that the resulting chlorophyll-a standards were acknowledged by VADEQ and stakeholders to be highly imprecise.

4. James River chlorophyll-a concentrations are predicted to be relatively insensitive to nutrient load reductions in key

segment-seasons: Very large reductions in nutrient loading would result in only very small incremental reductions in chlorophyll-a concentrations andlor reductions in non-attainment rate. For example the critical segments of the tidal freshwater and lower estuary are predicted to have response rates of approximately 1.0 and 0.3 ug/L chlorophyll response per million pounds of TN reduction per year. Such a (misapplication of the modeling framework would lead to huge expenditures without significant changes in standards attainment or tangible environmental improvement.

5. Similarly, differences between the "Tributmy Strategy" and TMDL scenarios are predicted to be very small: Attachment L [FN22] includes a series of four tables ("stoplight plots") for the "91-00 Base," "Tributmy Strategy," "190/12.7 Loading," and "James LOE 1/2, Potomac" scenarios for each of the three-year rolling average for the periods between 1991 through 2000 that EPA uses to assess compliance. Each table includes percent non-attainment of the chlorophyll-a water quality criteria for each of the five model segments of the James River shown in Figure 2. The blacked data points shown in Attachment L for the JMSTFL and JMSPH segments in the "James LOE 1/2, Potomac" model scenario represent chlorophyll-a model output that was not considered reliable by EPA. Once post-processing of the data was completed, the JMSMH segment showed only 1% non-attainment, which EPA indicated was sufficient to establish the James River basin allocations for TN and TP loads at 23.5 and 2.35 million pounds per year, respectively. However, there are no records in the TMDL Report or its appendices for the percent non-attainment for the JMSMH segment prior to the post-processing for the '97-'99 or '98-'00 summer periods shown in Attachment 1. VAMWA has undertaken the analysis below to compare the scenarios.

Attachment M shows the same fom scenario tables ("stoplight plot") as provided in Attachment L, except the post-processing of the data for the "190/12.7 Loading" scenario was applied based on the EPA's June 2010 presentation. Attachment M shows that JMSTFL and JMSPH segments were also not considered reliable by EPA and removed from consideration. EPA reported that the percent non-attainment for the JMSMH segment was reduced from 15 percent in Attachment L to 4 percent in Attachment M, which was based on the EPA's removal of the problem regression data. It is reasonable to assume that the same trend would exist for the "Tributary Strategy" Scenario as shown in Attachment M. The post-processed "Tributary Strategy" percent non-attainment rate for the JMSMH segment would be expected to be about 1 percent higher than the "190/12.7" scenario (based on comparison between Attachment Land Attachment M). Therefore, it would be expected that the "Tributary Strategy" data would attain the standard about 93 to 94 percent of the time. The difference between this attaimnent rate and the one percent rate that EPA used to develop the proposed allocations are considered "essentially equivalent."

[FN8] Acomprehensive list of VAMWA's requests is attached as Attachment G to this Appendix.
[FN9] Attachment H to this Appendix.
[FN10] Attachment I to this Appendix.
[FN11] See Attachment G.
[FN12] Id.
[FN13] Id.
[FN14] Id.
[FN15] See Draft TMDL, Appendix 0, Figure 6. Plot of simulated surface chlorophyll-a concentrations for WQM cell 731 (location of station LE5.2) during the summer of 1999 (a), aud resulting regression plot for September 1999 LE5.2 chlorophyll a (b). The quote above Figure I is from Appendix 0, at p. 0-5.
[FN16] See Attachment G.
[FN17] Attaclunent J to this Appendix.
[FN18] See Attaclunent A of Bell and Hunley (2010) (attached hereto as Attaclunent J) for details ofthese calculations.

[FN19] Attached hereto as Attachment K.
[FN20] See Attachment B of Bell and Hunley (2010) (Attaclunent J).
[FN21] See Attachment C of Bell and Hunley (2010) (Attachment J).
[FN22] Data extracted from Table M3 of Appendix M to the Draft TMDL.

Response

1. Review of the Chesapeake Bay Water Quality Model
The principles of the phytoplankton model were established in the original three-dimensional model study (Cerco and Cole 1993, Cerco and Cole 1994). Although the model has been revised, the basic principles are the same. These have been subject to countless reviews over a twenty-year period. Notably, the model was reviewed and accepted by the Chesapeake Bay Program's Modeling and Research Subcommittee as part of the original re-evaluation of the 40% nutrient reduction goal. The behavior of the model was extensively examined and published (Thomann et al. 1994). An independent scientific peer review of the Virginia Tributaries version of the Chesapeake Bay Water Quality Model, sponsored by the Chesapeake Bay Program's Scientific and Technical Advisory Committee was completed in 1999. The STAC review led to substantial improvements in the 2002 version of the model. The algal kinetics from this version are carried over into the present model. These kinetics have been peer-reviewed as part of the publication process and several publications have resulted (Cerco 2000, Cerco and Noel 2004). With each new version of the Chesapeake Bay Water Quality Model
--1987 Chesapeake Bay Water Quality Model (2-year, steady state summer averaged)
--1992 Bay Water Quality Model (4-year, with dynamic sediment fluxes),
--1997 Virginia Tributary Refinements version of the Bay Water Quality Model (10 year, SAV and benthic filter/deposit feeders)
--2002 Chesapeake Bay Water Quality Model
--2010 Chesapeake Bay Water Quality and Sediment Transport Model
there was a combination of detailed technical review (Chesapeake Bay Program's Modeling Subcommittee), independent scientific peer review (Chesapeake Bay Program's Scientific and Technical Advisory Committee), and partnership review and approval for management applications (Chesapeake Bay Program's Water Quality Steering Committee and now the Water Quality Goal Implementation Team).

Cerco, C., and T. Cole. 1993. Three-dimensional eutrophication model of Chesapeake Bay. Journal of Environmental Engineering 119(6), 1006-1025.

Cerco, C.F. and T.M. Cole. 1994. Three-dimensional eutrophication model of Chesapeake Bay. Technical Report EL-94-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg MS.

Cerco, C. 2000. Phytoplankton kinetics in the Chesapeake Bay model. Water Quality and Ecosystem Modeling 1:5-49.

Cerco, C., and M. Noel. 2004. Process-based primary production modeling in Chesapeake Bay. Marine Ecology Progress Series 282:45-58.

Thomann, R., J. Collier, A.Butt, E.Casman, and L.Linker. 1994. Response of the Chesapeake Bay water quality model to loading scenarios. CBP/TRS 101/94, US EPA Chesapeake Bay Program, Annapolis MD.

2. Bay Water Quality Model Behavior

The phytoplankton component of the Chesapeake Bay Water Quality and Sediment Transport Model follows long-established and well-accepted principles. The fundamentals of quantitative phytoplankton modeling were established by Riley (1946). Riley's model described the seasonal trends in phytoplankton biomass as the sum of three processes: photosynthesis, respiration, and grazing. These processes were expressed as functions of fundamental variables including irradiance, light attenuation, temperature, mixed-layer depth, herbivore abundance, and nutrient availability. Spatial variability was added to phytoplankton models through division of large systems into well-mixed boxes (Kremer and Nixon 1978; Thomann and Fitzpatrick 1982). The basic process relationships were applied to each box and exchange of material between the boxes was quantified by means of long-term flows and/or exchange coefficients. The final step in the development of modern phytoplankton models was the coupling of phytoplankton dynamics to physics-based multi-dimensional hydrodynamic models. The original three-dimensional Chesapeake Bay model (Cerco and Cole 1993) was one of the first to successfully accomplish this coupling. The principles of the phytoplankton model were still Riley's, however. Phytoplankton biomass was determined by the sum of three processes: photosynthesis, respiration, and grazing. Primary forcing functions were irradiance, light attenuation, temperature, and nutrient availability. The original Chesapeake Bay model evolved through the Virginia Tributary Refinements (Cerco et al. 2002) and the 2002 Chesapeake Bay Model (Cerco and Noel 2004). The principles of the algal model remained, however. The present WQSTM uses the same model code and, largely, the same model parameters as the 2002 model.

The formulations of the Cerco and Cole (1994) model were incorporated into the Environmental Fluid Dynamics Code, which is presently available from the EPA (http://www.epa.gov/athens/wwqtsc/html/efdc.html) and is widely used in TMDL applications. The
WQSTM formulations are equivalent to those in other widely-employed models such as the Regional Ocean Model System (ROMS, http://www.myroms.org). The algal framework of the WQSTM follows long-established principles, is widely accepted, and is universally-employed. The framework is stable and model parameters are known and bounded within established limits.

Cerco, C.F. and Cole, T. M. (1994). "Three-dimensional eutrophication model of Chesapeake Bay," Technical Report EL-94-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg MS.
Cerco, C., Johnson, B., and Wang, H. (2002). "Tributary refinements to the Chesapeake Bay model," ERDC TR-02-4, US Army Engineer Research and Development Center, Vicksburg, MS.

Cerco, C., and Noel, M. (2004a). "The 2002 Chesapeake Bay eutrophication model," EPA 903-R-04-004, Chesapeake Bay Program Office, US Environmental Protection Agency, Annapolis MD. (available at http://www.chesapeakebay.net/modsc.htm)

Kremer, J., and Nixon, S. (1978). A coastal marine ecosystem. Springer-Verlag, Berlin-Heidelberg.
Riley, G. (1946). "Factors controlling phytoplankton populations on Georges Bank," Journal of Marine Research 6, 54-73.

Thomann, R., and Fitzpartick, J. (1982). "Calibration and verification of a mathematical model of the eutrophication of the Potomac River estuary," Contract No. ES-80-6, HydroQual Inc., Mahwah NJ.

3. Chesapeake Bay Water Quality Model Calibration

Chlorophyll in the tidal James River is considered along with the chlorophyll a calibration system-wide. Model results are subject to

multiple performance measures in several modes. These include:
--Time series of computed and observed chlorophyll at stations in the tidal fresh, transition, and lower estuarine regions.
--Comparison of computed and observed chlorophyll along the estuarine axis. These are averaged according to season and presented for years of different hydrology.
--Cumulative distribution plots of computed and observed chlorophyll.
--Time series of computed and observed primary production.
--Time series of computed and observed water column respiration.

We have maintained a consistent statistical measure of model performance (Cerco and Noel 2005) since the original model study. Statistics have been calculated and compared for the original 1987 Chesapeake Bay Water Quality Model (2-year, steady state summer averaged), 1992 Bay Water Quality Model (4-year, with dynamic sediment fluxes), 1997 Virginia Tributary Refinements version of the Bay Water Quality Model (10 year, SAV and benthic filter/deposit feeders), the 2002 Chesapeake Bay Water Quality Model, and for the 2010 Chesapeake Bay Water Quality and Sediment Transport Model. These statistics include mean difference, absolute mean difference, and relative difference:

[See Attachment 1 to the Response to Comment document for the mathematical equations in the section Chesapeake Bay Water Quality Model Calibration.]
in which:
MD = mean difference
AMD = absolute mean difference
RD = relative difference
O = observation
P = prediction
N = number of observations

The mean difference describes whether the model over-estimates or under-estimates the observations, on average. The mean difference can attain its ideal value, zero, while discrepancies exist between individual observations and computations. The absolute mean difference is a measure of the characteristic difference between individual observations and computations. An absolute mean difference of zero indicates the model perfectly reproduces each observation. Relative difference is the absolute mean difference normalized by the mean of the observations.

Statistics for chlorophyll in the James River are presented in the table below for the four stages of model application. Model performance, as characterized by absolute mean difference and relative difference, is the best ever. Performance characterized by mean difference is among the best ever. Model versions with quantitative performance statistics lower than the present version were accepted for verification of the 40% nutrient reduction goal and for determination of tributary load allocations. EPA believes the performance of the 2010 Chesapeake Bay Water Quality Model is sufficient for use in determining TMDLs for the tidal James River.

[See Attachment 1 to the Response to Comment document for the table titled “Chlorophyll Summary Statistics for James River (Chesapeake Bay Water Quality Model Calibration section).”]

Cerco, C., and Noel, M. (2005). "Incremental improvements in Chesapeake Bay environmental model package," Journal of Environmental Engineering 131(5), 745-754.

4. Responses to VAMWA's Requests for Information

EPA has a wide array of partners and stakeholders is needs to be responsive to support an open, transparent decision making within the larger partnership. EPA recognizes is did not fully respond to all of VAWMA's requests. With limited time and staff resources, EPA placed priority on responding to the requests and direction from its partnership, specifically the Water Quality Goal Implementation Team, then responding to others requests as time and resources allowed. VAMWA has full access to the same sets of data, model scenario input decks and outputs as members of the Water Quality Goal Implementation Team. EPA could not take on the responsibility for conducting analyses beyond the scope of what had been agreed to by the partnership through Water Quality Goal Implementation Team due to limited resources.

5. Predicted Changes in Chlorophyll a Concentrations

It is important to recognize that the scenario assessment methodology applied in development of the Bay TMDL is specifically designed to make use of the model as the best available method for predicting response to nutrient load reductions as represented the relative degree of change in chlorophyll a concentrations from one loading scenario to another, and not for estimating the actual mean itself. While the WQSTM's ability to approximate observed conditions is used as a metric for identifying those locations time periods for which its estimates of response are most useful, EPA relies on the historical monitoring data as the best available estimate of the mean chlorophyll a concentrations in any given season and location. EPA uses the WQSTM to predict the degree change expected in that mean with reductions in pollutant loads. See Section 6.2.4 in the Bay TMDL report for more details.

5b. Power Analysis

Regarding the power analysis, the argument that we should not implement corrective measures because we lack sufficient tools to measure their effect is flawed before we even begin to start to consider the details of the argument. Consider this analogy. A patient goes to a doctor and it is diagnosed that the patient has a fever. The doctor prescribes that the patient should take an analgesic to bring the fever down. On arriving home, the patient discovers that he does not have a medicinal thermometer. Under the proffered logic, the patient should not take the analgesic because he has no way to show that his temperature will decrease as a result.

Nevertheless, a key point is that in the power analysis, extrapolation of monthly violation rates are improperly used to make a statement about a minimum statistically significant difference in non-attainment rates. They are two different rates. A mean 4% violation rate does not directly correspond to a non-attainment rate.

6. Predicted Changes in Chlorophyll a Not Ecologically Significant

Given Virginia's chlorophyll a water quality standard is stated as seasonal mean concentration, relatively small incremental changes in the seasonal mean concentration heading down towards achievement of that standard translates into ecologically significant reductions in extreme bloom conditions over the same spring or summer season (USEPA 2007). For the tidal James River, Virginia's water quality standards regulations have defined numerical concentrations of chlorophyll a that define a healthy, productive aquatic ecosystem, period. Concentrations above those water quality standards mean the waterbody is impaired and does not meet its designated uses.

USEPA (U.S. Environmental Protection Agency). 2007. Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries. 2007 Chlorophyll Criteria Addendum. EPA 903-R-07-005 CBP/TRS 288/07. U.S. Environmental Protection Agency, Region 3 Chesapeake Bay Program Office, Annapolis, MD.

7. Chlorophyll a Concentration Changes Insensitive to Nutrient Load Reductions
[See Attachment 1 to the Response to Comment document for the figure titled "JMSMH Summer 1997-1999."]

The above figure provides clear evidence for chlorophyll a responses to nutrient load responses, using the combination of the Chesapeake Bay Water Quality Model to predict change in concentration under different nitrogen and phosphorus loads and Chesapeake Bay Monitoring Program data as the measured starting concentration. There is a slight flattening of the response curve on the way toward 100 percent attainment of the applicable chlorophyll a water quality standards—in this case the 10 ug/L summer season criterion for lower James River segment JMSMH for the 1997-1999 period assessment period.

8. Small Differences Between Scenarios
As described above, the Chesapeake TMDL allocation must achieve the applicable water quality standards. In the case of the tidal James River, Virginia's water quality standards regulations have defined numerical concentrations of chlorophyll a that define a healthy, productive aquatic ecosystem and the WQSTM is fully capable of providing guidance in what's required to achieve the James chlorophyll water quality standard.

EPA took specific steps described in the Bay TMDL report and Appendix O to remove from consideration specific segment-season-3 year periods where close evaluation of the model output and modeling/monitoring regressions called into question the confidence in driving the allocations even lower. EPA also determined 1 percent non-attainment was attainment of the designated use for a limited set of segment-season-3 year periods where there was evidence of reduced sensitivity approaching the criterion concentration (Appendix I). If EPA had not taken these steps, the resultant James River nitrogen and phosphorus allocations would have been even lower than those published in the Bay TMDL.

9. Review of the Chesapeake Bay Water Quality Model
The principles of the phytoplankton model were established in the original three-dimensional model study (Cerco and Cole 1993, Cerco and Cole 1994). Although the model has been revised, the basic principles are the same. These have been subject to countless reviews over a twenty-year period. Notably, the model was reviewed and accepted by the Chesapeake Bay Program's Modeling and Research Subcommittee as part of the original re-evaluation of the 40% nutrient reduction goal. The behavior of the model was extensively examined and published (Thomann et al. 1994). An independent scientific peer review of the Virginia Tributaries version of the Chesapeake Bay Water Quality Model, sponsored by the Chesapeake Bay Program's Scientific and Technical Advisory Committee was completed in 1999. The STAC review led to substantial improvements in the 2002 version of the model. The algal kinetics from this version are carried over into the present model. These kinetics have been peer-reviewed as part of the publication process and several publications have resulted (Cerco 2000, Cerco and Noel 2004).

With each new version of the Chesapeake Bay Water Quality Model
--1987 Chesapeake Bay Water Quality Model (2-year, steady state summer averaged)
--1992 Bay Water Quality Model (4-year, with dynamic sediment fluxes),
--1997 Virginia Tributary Refinements version of the Bay Water Quality Model (10 year, SAV and benthic filter/deposit feeders)

--2002 Chesapeake Bay Water Quality Model
--2010 Chesapeake Bay Water Quality and Sediment Transport Model
there was a combination of detailed technical review (Chesapeake Bay Program's Modeling Subcommittee), independent scientific peer review (Chesapeake Bay Program's Scientific and Technical Advisory Committee), and partnership review and approval for management applications (Chesapeake Bay Program's Water Quality Steering Committee and now the Water Quality Goal Implementation Team).

Cerco, C., and T. Cole. 1993. Three-dimensional eutrophication model of Chesapeake Bay. Journal of Environmental Engineering 119(6), 1006-1025.

Cerco, C.F. and T.M. Cole. 1994. Three-dimensional eutrophication model of Chesapeake Bay. Technical Report EL-94-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg MS.

Cerco, C. 2000. Phytoplankton kinetics in the Chesapeake Bay model. Water Quality and Ecosystem Modeling 1:5-49.

Cerco, C., and M. Noel. 2004. Process-based primary production modeling in Chesapeake Bay. Marine Ecology Progress Series 282:45-58.

Thomann, R., J. Collier, A.Butt, E.Casman, and L.Linker. 1994. Response of the Chesapeake Bay water quality model to loading scenarios. CBP/TRS 101/94, US EPA Chesapeake Bay Program, Annapolis MD.

Comment ID 0587.1.001.009

Author Name: Watts George

Organization: U.S. Poultry & Egg Association, National Turkey Federation (NTF), and National Chicken Council (NCC)

Chesapeake Bay Water Quality and Sediment Transport Model (WQSTM) Documentation is Not Available for Public Review

The Chesapeake Bay Water Quality and Sediment Transport Model (WQSTM) documentation is cited as "in preparation" in the draft TMDL and consequently, is not available for public review.

The WQSTM model documentation cited in the draft TMDL reference section (p. 12-3) is referenced as:

Cerco, C. 2010. The Chesapeake Bay Water Quality and Sediment Transport Model. In preparation.

The draft TMDL (p. 1-2) states that the technical documentation for each model is provided via a URL in Section 5:

Technical documentation for each of the Chesapeake Bay TMDL models-airshed, land change, Scenario Builder, SPARROW, watershed, Bay water quality/sediment transport, oyster filter feeder and menhaden filter feeder-are provided via URL in Section 5.

However, the links provided for documentation of the WQSTM in the draft TMDL are to an earlier version of the water quality model. For example, on p. 5-37 the following information and link is provided for documentation on the WQSTM:

Detailed documentation on the Chesapeake Bay Water Quality/Sediment Transport Model is at http://www.chesapeakebay.net/content/publications/cbp_26167.pdf.

However, the link goes to documentation on the 2002 Chesapeake Bay Eutrophication Model, which is cited in the draft TMDL reference section (p. 12-3) as:

Cerco, C.F., and M.R. Noel. 2004. The 2002 Chesapeake Bay Eutrophication Model. EPA 903-R-04-004. U.S. Environmental Protection Agency, Chesapeake Bay Program Office, Annapolis, MD.

The 2004 model documentation reflects an earlier version of the model and does not reflect the version of the model that was used in the development of the TMDL. The 2002 Chesapeake Bay Eutrophication Model uses a different (much coarser) model grid, and more importantly, does not include the sediment transport capability that has been incorporated into the current version of the WQSTM.

The public and the Chesapeake Bay stakeholders are entitled to have access to documentation on the WQSTM as this is one of the primary models used in the development of the TMDL. The lack of documentation prevents stakeholders from providing EPA with informed scientific and technical feedback on the adequacy of the WQSTM model calibration and its application to support the development of the TMDL. The lack of transparency represents a critical flaw in the TMDL study conducted by EPA, as it effectively denies public oversight and comment on the technical effort that was conducted to finalize the calibration and application of this important modeling tool. Documentation is essential to provide context and understanding for how the model was developed, the assumptions made, the inherent limitation and the overall modeling effort that was conducted. EPA has denied stakeholders the opportunity to provide informed comments on the technical and scientific merits of the WQSTM model that was used in development of the TMDL simply due to the lack of model documentation. As such, many stakeholders receiving load allocations under the TMDL cannot have confidence that their allocations are realistic and appropriate with respect to the TMDL.

The Chesapeake Bay Water Quality Sediment Transport Model (WQSTM) is not Available for Public Review

The final Chesapeake Bay Water Quality and Sediment Transport Model (WQSTM) model calibration (code, inputs, etc.) used to support the development of TMDL scenarios has not been made publically available by EPA, and documentation of the model is also unavailable as described above.

EPA has deprived stakeholders, and the public at large, of the opportunity to conduct a thorough review to provide informed comment on the on the technical and scientific merits of the calibrated WQSTM that was subsequently applied in developing TMDL scenarios and for the determination of draft load allocations for sediment and nutrients. Stakeholders that have been assigned allocation loads have a direct interest in being assured that any load allocations they receive are fair and equitable and based on scientifically defensible modeling tools. This assurance cannot exist when the WQSTM and documentation is unavailable for review during the TMDL public comment period.

Response

The Chesapeake Bay Water quality and Sediment Transport Model (WQSTM) has been developed as an open source, public domain model, and all decisions regarding the development and application of the WQSTM have been made in open public meetings over the last decade. The 2004 WQSTM Report that's cited in the TMDL documentation and referenced n this comment is relevant to the current version of the model as the 2004 version has the same model structure and function for dissolved oxygen and chlorophyll, and essentially the same approach to the SAV simulation, though in this regard the 2004 documentation describes a more primitive simulation approach than the more sophisticated and detailed approach taken in the 2010 WQSTM. The full documentation of the 2010 WQSTM is up and distributed on the of the CBP Model Team web site at http://www.chesapeakebay.net/publications.aspx?menuitem=16531.

Comment ID 0654.001.006

Author Name: Igli Kevin

Organization: Tyson Foods, Inc.

The Chesapeake Bay Water Quality and SDediment Transport Model (WQSTM) documentation is not available for public review. The TMDL reference for the WQSTM indicates the document is in preparation nd not available for review (USEPA, 2010, p. 12-3, Cerco, C. 2010. The Chesapeake Bay Water Quality and Sediment Transport Model.). It is not possible for stakeholders to review the Draft TMDL without the complete documentation of the WQSTM used in the development of the Draft TMDL.

Response

All the stage of development, calibration, verification, independent scientific peer review, and management application of the Chesapeake Bay Water Quality and Sediment Transport Model (WQSTM) has been in open meetings and documentation of previous versions of the Chesapeake Bay Water Quality and Sediment Transport Model documentation (July 2004) are relevant and have been publically available for years at :
http://www.chesapeakebay.net/content/publications/cbp_26167.pdf.

Documentation of the most resent version of the Chesapeake Bay Water Quality and Sediment Transport Model will be complete and available by the close of December 2010. The final model documentation was dependent, in part, on final decisions on the Bay TMDL, hence the publication of both the final Bay TMDL and the next version of Chesapeake Bay Water Quality and Sediment Transport Model documentation.

Comment ID 0680.1.001.003

Author Name: Satterfield Bill

Organization: Delmarva Poultry Industry, Inc. (DPI)

Further concern lies with EPA's failure to provide complete documentation so that a full and complete review of the tools and models used to develop the TMDL can be performed. In many locations the draft TMDL states that technical documentation is provided via a URL. Unfortunately, in many cases the links provided are incorrect. For instance, the draft TMDL (p. 1-2) states that the technical documentation for each model is provided via a URL in Section 5:

Technical documentation for each of the Chesapeake Bay TMDL models-airshed, land change, Scenario Builder, SPARROW, watershed, Bay water quality/sediment transport, oyster filter feeder and menhaden filter feeder-are provided via URL in Section 5.

However, the links provided in the draft TMDL to the Scenario Builder documentation are incorrect. It is not possible for the reader to locate the Scenario Builder documentation using the links provided in the draft TMDL document. For example, on p. 4-31 of the draft TMDL the following is stated:

Additional information related to Scenario Builder and its application in Bay TMDL development (USEPA 2010d) is at http://www.chesapeakebay.net/modeling.aspx?menuitem=19303

The link provided [accessed October 27, 2010] does not take the reader to the referenced Scenario Builder documentation. The link provided directs the reader to the Chesapeake Bay Program "Modeling" web page where there is no mention or link to the Scenario Builder documentation referenced in the draft TMDL.

Response

The Chesapeake Bay models have been developed as open source, public domain models that have been developed and applied in an open transparent process in public meetings over the last decade. Initial drafts of the model documentation have been available on-line since 2008. When the Chesapeake TMDL is finalized at the close of December 2010, all of the final documentation of the Phase 5.3 Watershed Model and Scenario Builder documentation, code, and data used to develop and apply the models will be are on the web and fully available.

Scenario Builder and Watershed Model downloadable information
Scenario Builder documentation (uploaded 9/16/10), source code (10/29), and database (11/5) are available on this site:
ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/

Scenario Builder inputs and outputs are available on this ftp site (continually updated as new results are run):
ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/

Phase 5.3 watershed model information is available here:
http://ches.communitymodeling.org/models/CBPhase5/index.php

Comment ID 0681.1.001.002

Author Name: Baxter Russ

Organization: VA Department of Environmental Quality

The Chesapeake Bay Water Quality/Estuary (WQE) Model calibration was conducted in a set of cells corresponding to monitoring stations. These calibration points for the most part were along the main axis of the bay and major tributaries. While the model has undergone a calibration and review process, a well calibrated model does not always match the monitored data. A study of any discrepancies is important particularly when evaluating a pass/fail metric of a water quality criterion. Despite requests by jurisdictions as early as 2008, the Chesapeake Bay Program still needs to develop a uniform set of objective criteria for evaluating model performance. These criteria would establish how well model results match observed data.

Previously, WQE model calibration cells were chosen as the most appropriate scale in the assessment of progress and attainment (pass/fail) of water quality criterion (EPA 2002). Unfortunately, current attainment assessment for the TMDL was developed in a number of segment/cells with little or no data or knowledge of model performance. In fact, model performance at criterion locations across the estuary has not been properly determined for any of the 92 impaired CB segments. This severely erodes confidence in model results or applications.

Furthermore, nonattainment diagnostics (pass/fail) for dissolved oxygen and chlorophyll in small tributaries appears to have applied questionable methods and assumptions. For example, using regression lines to make predictions outside the range of values to assess attainment/non-attainment must be exercised with great caution. The confidence limits in such an extrapolation exercise were not adequately considered or reviewed for acceptance by the scientific community.

EPA acknowledges that chlorophyll-a is naturally highly variable and that "A dataset has not been identified from which there is confidence a biological reference curve can be derived (US EPA 2007b)." In addition, EPA concludes that the published phytoplankton index of biological integrity does not provide a suitable representation of the integrated seasonal biological community conditions needed to develop appropriate seasonal reference conditions for Chesapeake Bay chlorophyll-a criteria attainment assessments (EPA 2010). Despite these limitations and a small number of data points in the tidal James River data analyses, EPA concluded that the 10th percentile was adequate to apply their analysis to observed data. Unfortunately, a similar approach to the criteria attainment assessment of model output under various nutrient reduction scenarios was applied. This approach is highly undesirable and inappropriate given both the uncertainty of model performance as noted above and the lack of a thorough technical review.

The predicted changes in chlorophyll (1-2 ug/l seasonal average and 2-4% in terms of non-attainment) are well within the uncertainty of the model at calibration points. Experience has taught us that changes outside the calibration points are expected to be even greater. This uncertainty needs to be properly considered in using the model results in site-specific assessments.

Recommendation: EPA should develop a uniform set of criteria for evaluating model performance and attainment assessment of model output. These criteria should undergo scientific peer review.

Response

EPA has worked closely with DEQ in previous versions of the Water Quality and Sediment Transport Model to develop a uniform set of criteria for evaluating model performance and we can use that example for an assessment of the current version. EPA looks forward to collaborating with DEQ on this work as soon as is practicable.

Comment ID 0727.001.004

Author Name: Thigpen Janet

Organization: Steuben County Environmental Management Council

Sources within the Chesapeake B:ay The draft TMDL allocates loads to sources identified in the Chesapeake Bay Watershed Model without sufficient attention to factors within the Chesapeake Bay itself that contribute to its impairment. Additional consideration should be given to the contribution of boats, coastal erosion, degraded biological communities (resulting in reduced biological filtration), and other factors.

Response

The Chesapeake TMDL included consideration of other loads and influences on water quality. Discharges of boat wastes are negligible and are in any case prohibited discharges in Chesapeake Bay waters. Shore erosion and tidal resuspension of sediment is fully considered in the Chesapeake TMDL and is simulated in the Chesapeake Bay Water Quality and Sediment Transport Model. Several CBP management actions will continue to reduce sediment resuspension in tidal waters. As underwater grass beds continue to expand in the Bay, as they are projected to do under the TMDL-driven nutrient and sediment reductions, more bottom sediment will be bound by the grass beds and kept from resuspending back into the water column. In addition, the SAV beds tend to cause quiescent conditions in the water column which acts to increase the setting of suspended sediments and also dampens wave energy causing shoreline erosion. The influence of filter feeders on Chesapeake water quality is also fully considered by the Chesapeake TMDL (and fully simulated within the oyster filter feeding and menhaden filter feeding submodels of the larger Chesapeake Bay Water Quality and Sediment Transport Model). Increases in the oyster biomass of the Chesapeake, as is encouraged by recent moves by Maryland and Virginia to increase sanctuary areas and aquiculture, will improve water quality in the Chesapeake Bay.

Comment ID 0741.001.007

Author Name: Caskey W.

Organization: Isle of Wight County

The modeling predictions do not justify use of the chlorophyll-a criteria as the basis for the James River basin allocations.

Response

Please refer to the detailed response to comment 0288.1.001.016.

8.1 - WATERSHED MODEL

Comment ID 0049-cp.001.002

Author Name: Sheppard Brandon

Organization: Weed Man of Winchester

The proposed TMDL's do not consider the overall environmental contribution of turfgrass and are rely heavily on research that does not consider the nutrient absorption potential of turfgrass and the impact that reductions in fertilization will have on the ability of turfgrass to function as an environmental filter. I suggest that you examine the research conducted recently at the University of Florida (http://edis.ifas.ufl.edu/ss496) for more information on how poorly constructed fertilization regulations can directly harm water quality.

It is well established that turfgrass is a critical component to our increasingly urban environment. Turfgrass along with producing oxygen and processing carbon dioxide (as much as seven times the amount produced in its care), turfgrass absorbs tons of air and waterborne pollutants. Regulations on fertilization that are not based upon sound agronomic research will have a direct impact on the performance of turfgrass as well as injuring our air and water quality.

Response

Thank you for the reference to the University of Florida self-published research. EPA has reviewed the information but does not find it to be persuasive. The authors bring up some interesting points about possible effects of any particular implementation of a fertilizer ordinance. This particular research is not very relevant to the Chesapeake Bay region, however. The physical setting of the research is restricted to Florida, which has different soils and different grasses than the Chesapeake Bay region. Specifically, sandy soils and warm season grasses dominate in Florida, while the Chesapeake Bay region has a large variety of soil types and more cold season than warm season grasses.

When setting the range of loads from developed areas and determining the sensitivity to inputs (including those from turfgrass) EPA used a great deal of peer-reviewed research was used. In addition these assumptions were reviewed through open meetings of the Chesapeake Bay Program's Urban Stormwater Workgroup, Water Quality Goal Implementation Team, and Modeling Subcommittee. These groups have representation from state government, academics, environmental advocacy, and trade organizations. The Phase 5 Chesapeake Bay Watershed Model has also had two independent scientific peer reviews in 2005 and 2008.

Comment ID 0060.1.001.007

Author Name: Bredwell III Paul

Organization: U.S. Poultry & Egg Association, National Turkey Federation (NTF), and National Chicken Council (NCC)

To provide meaningful comment on the TMDL proposal, the industry requests EPA to provide a copy of Scenario Builder in order to test whether EPA is applying appropriate assumptions to "real world" land uses and nutrient management activities in the industry.

Response

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the support database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using Scenario Builder and run as input decks through the Phase 5.3 Chesapeake Bay Watershed Model, those new results are made publically accessible through the same FTP site.

Comment ID 0060.1.001.008

Author Name: Bredwell III Paul

Organization: U.S. Poultry & Egg Association, National Turkey Federation (NTF), and National Chicken Council (NCC)

The industry also requests documentation regarding the peer review that was done for Scenario Builder. Scenario Builder plays a fundamental technical role in informing the reduction targets and other elements of the TMDL process, and should have been peer reviewed. In light of the fact that the latest version of Scenario Builder was just recently completed, the public interest - including the interest of potentially severely affected stakeholders - demands that this crucial "building block" behind the proposed TMDL receives proper technical evaluation prior to the agency's final action.

Response

The technical direction on development and review of the Scenario Builder have been accomplished through collaborative meetings and conference call of several groups within the Chesapeake Bay Program partnership’s organizational structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings were open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference calls are be found in Appendix C of the final Bay TMDL. These links provide direct access to the briefing materials prepared in advance of the meeting/conference call, the presentations given during the meeting/conference call, and the summary of decisions/actions coming out of the meeting/conference call.

Scenario Builder is a is a database used to formalize a system of data handling rules for input to the watershed model and a tool that helps inform EPA on the allocation. The scenario builder is based on the best available science and, as described above, has been developed in a transparent manner with tremendous partner and stakeholder input. While there has not been a formal independent peer review of Scenario Builder, the data handling rules and input data were all reviewed by one or more of the groups identified above, the full suite of models used in the TMDL have been all been independently peer reviewed, and the best management practices and their efficiencies are review and approved through a peer reviewed formal protocol.

Comment ID 0062.1.001.005

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

Given its significance, the Scenario Builder model also should be subject to peer review.

Response

The technical direction on development and review of the Scenario Builder have been accomplished through collaborative meetings and conference call of several groups within the Chesapeake Bay Program partnership's organizational structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings were open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference call can be found in Appendix C of the final Bay TMDL. These links provide access to the briefing materials prepared in advance of the meeting/conference call, the presentations given, and the summary of decisions/actions coming out of the meeting/conference call.

Scenario Builder is a is a database used to formalize a system of data handling rules for input to the watershed model and a tool that helps inform EPA on the allocation. The scenario builder is based on the best available science and, as described above, has been developed in a transparent manner with tremendous partner and stakeholder input. While there has not been a formal independent peer review of Scenario Builder, the data handling rules and input data were all reviewed by one or more of the groups identified above, the full suite of models used in the TMDL that simulate physical systems have been all been independently peer reviewed, and the best management practices and their efficiencies are review and approved through a peer reviewed formal protocol.

Comment ID 0062.1.001.008

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

If EPA refuses to withdraw the Draft TMDL, at a minimum EPA must make available for public review the code for the

"Scenario Builder" model that provides inputs to the Chesapeake Bay Watershed model. EPA is relying on the "Scenario Builder" model to determine the assumptions under which the Chesapeake Bay Watershed Model predicts that water quality standards will be met. EPA then incorporated those assumptions into the Draft TMDL. See Draft TMDL, section 8 and Appendix H.

Scenarios representing different nutrient and sediment loading conditions were run using the Chesapeake Bay Phase 5.3 Watershed Model and the resultant model scenario output was fed as input into the Chesapeake Bay Water Quality Model to evaluate the response of critical water quality parameters, specifically dissolved oxygen, water clarity, underwater bay grasses and chlorophyll a.

Draft TMDL, Appendix H, at 1. Despite its significance, and unlike the Chesapeake Bay Watershed Model, the Scenario Builder code is not available to the public. In addition, while EPA may have provided the Scenario Builder inputs and outputs to watershed jurisdictions, there is no reference or link to this information in the Draft TMDL. See http://ches.communitymodeling.org/models/CBPhase5/index.php (noting scenario data and phase 5 scenario results are "coming soon") (accessed October 15, 2010).

Response

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the support database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site.

Comment ID 0063.1.001.005

Author Name: Jones Martin

Organization: Fertilizer Institute (TFI)

In particular, EPA must make available for public review the scenario data and scenario results that are the inputs and outputs of the "Scenario Builder" model that provides inputs to the Chesapeake Bay Watershed model. EPA is relying on these inputs to determine the assumptions under which the model predicts that water quality standards will be met. These assumptions are incorporated in the Draft TMDL. See Draft TMDL, section 8 and Appendix H. Despite its significance, and unlike the Chesapeake Bay Watershed Model, the Scenario Builder code is not available to the public. In addition, while EPA may have provided the Scenario Builder inputs and outputs to watershed jurisdictions, there is no reference or link to this information in the Draft TMDL. See http://ches.communitymodeling.org/models/CBPhase5/index.php (noting scenario data and phase 5 scenario results are "coming soon") (accessed October 15,2010).

Response

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the support database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site.

Comment ID 0063.1.001.007

Author Name: Jones Martin

Organization: Fertilizer Institute (TFI)

Accordingly, we request that EPA make the scenario data, scenario results, and Scenario Builder code publically available as required by 40 C.F.R. § 130.7(c)(l)(ii)

Response

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the support database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site.

Comment ID 0065-cp.001.002

Author Name: Mason James

Organization: Virginia Poultry Growers Cooperative, Inc.

One itiem I know is incorrect in the draph is the amount of farm land that is being operated with no-till practices. The draph has the amount of land in no-till grossly underestimited. this one mistake alone has a great effect on loadings.

Response

Some practices are likely under-counted due to difficulties in data collection

Verified non-cost shared practices can be accepted in the model, but historically have not been included to a great extent because

the information has not been made available to the Chesapeake Bay Program. Non-cost shared practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These voluntary practices are typically funded by farmers alone. EPA is committed to working with USDA, NACD, state environmental and agricultural agencies, conservation districts, and agricultural community at large to credit nutrient and sediment reductions from voluntary practices. As committed to in the Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to "By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented."

State reporting agencies report to EPA on-the-ground practices they track annually. Non-cost shared practices or practices not enrolled in state programs are not held to standards required for the efficiency credited in the suite of Chesapeake Bay models. Additionally, some state standards do not meet the standard for the BMP efficiency in the models.

The standards for all model-approved BMPs prevent the state reporting agencies from reporting some installed BMPs because the standards are not met. The exclusion of practices not meeting standards prevents over-estimates of pollution reduction from BMPs in the models.

Please refer to Scenario Builder documentation for the current model standards for all BMPs including, but not limited to: "Continuous No-Till," "Cover Crops," and "Forest Buffers" here: http://archive.chesapeakebay.net/pubs/SB_Documentation_Final_V22_9_16_2010.pdf.

EPA can accept additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

Comment ID 0069.1.001.009

Author Name: Nemura Adrienne

Organization: LimnoTech

We also request all documentation of any and all peer reviews that were conducted to check the Scenario Builder model.

Response

The technical direction on development and review of the Scenario Builder have been accomplished through collaborative meetings and conference call of several groups within the Chesapeake Bay Program partnership's organizational structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings were open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference calls are be found in Appendix C of the final Bay TMDL. These links provide direct access to the briefing materials prepared in advance of the meeting/conference call, the presentations given during the meeting/conference call, and the summary of decisions/actions coming out of the meeting/conference call.

The meeting records for all but the Modeling Workgroup are available from the Water Quality Goal Implementation Team page at http://www.chesapeakebay.net/wq_git_info.aspx?menuitem=47174. The meeting records for the Modeling Workgroup are available at http://www.chesapeakebay.net/committee_msc_info.aspx

Scenario Builder is a is a database used to formalize a system of data handling rules for input to the watershed model and a tool that helps inform EPA on the allocation. The scenario builder is based on the best available science and, as described above, has been developed in a transparent manner with tremendous partner and stakeholder input. While there has not been a formal independent peer review of Scenario Builder, the data handling rules and input data were all reviewed by one or more of the groups identified above, the full suite of models used in the TMDL have been all been independently peer reviewed, and the best management practices and their efficiencies are review and approved through a peer reviewed formal protocol.

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the support database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site.

Comment ID 0070.1.001.006

Author Name: Hughes Robert

Organization: Eastern PA Coalition for Abandoned Mine Reclamation (EPCAMR)

Is the Chesapeake Bay Model incorporating AMD Treatment systems constructed as BMPs? Are the State's abandoned mine land reclamation projects in terms of acres reclaimed and stream miles restored being added to the model? Are the reductions in loadings of metal contamination to the streams within the Chesapeake Bay tributaries for specific segments being incorporated into the model? If not, they should be. Since there is no mechanism for reporting

private efforts (Anthracite Operators that are remining abandoned mine lands), private foundations such as the Foundation for PA Watersheds, or industry efforts such as Co-generation Plants that operate within the Basin under the trade association of ARIPPA (www.arippa.org).

Response

The lone management practice currently recognized on mine land is "erosion and sediment control". Other type of management practices affecting nutrients can be added as detailed below:

EPA can accept additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

Metals are not part of the Chesapeake TMDL so their loads and management actions are not tracked.

Comment ID 0070.1.001.008

Author Name: Hughes Robert

Organization: Eastern PA Coalition for Abandoned Mine Reclamation (EPCAMR)

EPCAMR believes that PA has ample and effective waste disposal and management regulations already in place. It is important that we continue to support private business and industry that successfully balance economic development with environmental protection. Innovative solutions to environmental problems should be applauded, not restricted, or overly regulated. EPCAMR believes that these successes are being under reported and should be added to the Chesapeake Bay Model.

Response

EPA agrees with the commenter that non-cost shared implemented practices are likely under-counted due to difficulties in data collection.

Verified non-cost shared practices can be accepted in the model, but historically have not been included to a great extent because the information has not been made available to the Chesapeake Bay Program. Voluntary practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the

model. These voluntary practices are typically funded by farmers alone. EPA is committed to working with USDA, NACD, state environmental and agricultural agencies, conservation districts, and agricultural community at large to credit nutrient and sediment reductions from voluntary practices. As committed to in the Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to "By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented."

Specifically for mining-related BMPs, EPA can accept additional verified practices for use in the model on an ongoing basis. The Chesapeake Bay Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

Comment ID 0070.1.001.018

Author Name: Hughes Robert

Organization: Eastern PA Coalition for Abandoned Mine Reclamation (EPCAMR)

The DEP Bureau of District Mining Operations (DMO) administers an environmental regulatory program for all coal and noncoal mining activities. DEP offers remining incentives for coal mining which are geared toward reclaiming abandoned mine features and stabilizing the areas. Regulatory programs are assisting in the reclamation and restoration of Pennsylvania's land and water. DEP has been effective in implementing the NPDES program for mining operations throughout the Commonwealth. This reclamation was done through the use of remining permits that have the potential for reclaiming abandoned mine lands, at no cost to the Commonwealth or the Federal government. EPCAMR is unsure if these remining sites are being considered by the Chesapeake Bay Model, and if not, they should be.

Response

Please refer to the responses to comments 0070.1.001.006 and 0070.1.001.008.

Comment ID 0089.1.001.003

Author Name: Hunter J. And M.

Organization:

The Chesapeake Bay Model, the basis for nutrient and sediment reductions required by EPA, has been shown to have extensive flaws in the data it utilizes. EPA even acknowledges this fact. EPA should not move ahead with costly mandates based upon flawed modeling and data. Examples:
--In 2010, Virginia Cooperative Extension conducted a field observation study in the Coastal Plain. They found that 90% of crop acres were planted in no-till. Only 15% of the acres are enrolled in DCR's no-till program.
--Is the model fully accounting for practices that are already mandated by state permitting programs? (ex: mortality control for poultry facilities)
--The model is currently "throwing out" actual, ground-truthed data from Virginia because it does not meet the "modeled" land use data. This is unfair when the practices are meeting all requirements set forth by EPA.

Federal actions must be based on accurate information. No additional regulations or penalties should be put on states or industries until the science and data have been proven.

Response

EPA does not agree that there are extensive flaws in the data. There will always be opportunities for improvement in data collection and we are continuing our efforts in that regard.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. All of these groups have been providing data and modeling instructions for at least the past five years and in some cases much longer.

EPA agrees with the commenter that non-cost shared implemented practices are likely under-counted due to difficulties in data collection.

Verified non-cost shared practices can be accepted in the model, but historically have not been included to a great extent because the information has not been made available to the Chesapeake Bay Program. Voluntary practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These voluntary practices are typically funded by farmers alone. EPA is committed to working with USDA, NACD, state environmental and agricultural agencies, conservation districts, and agricultural community at large to credit nutrient and sediment reductions from voluntary practices. As committed to in the Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to "By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented."

Non-cost shared practices or practices not enrolled in state programs are not held to standards required for the efficiency credited in the suite of Chesapeake Bay models. Additionally, some state standards do not meet the standard for the BMP efficiency in the models. The standards for all model-approved BMPs prevent the state reporting agencies from reporting some installed BMPs because the standards are not met. The exclusion of practices not meeting standards prevents over-estimates of pollution reduction

from BMPs in the models.

Please refer to Scenario Builder documentation for the current model standards for all BMPs here: http://archive.chesapeakebay.net/pubs/SB_Documentation_Final_V22_9_16_2010.pdf.

EPA can accept additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

Comment ID 0089.1.001.011

Author Name: Hunter J. And M.

Organization:

The Bay states are being unjustly challenged to identify and correct Bay model deficiencies. WV has very little full-time staff dedicated to the Bay Program. This information should be scientifically "truthed" before being added.

Agricultural deficiencies identified by WV have included, but not limited to : inaccuracies in land use, nutrient management crediting, phytase reductions, etc.

Response

The Phase 5.3 Chesapeake Bay Watershed Model is developed through an open process with tremendous input from Chesapeake Bay Program partners. Part of this process is the collection of data from sources in state government.

The Chesapeake Bay Program Watershed Model has been in use for over two decades. It has been continually refined over that time period. The Phase 5.3 Watershed Model has been built through collaboration with federal, state, academic, and private partners. Development teams at CBPO and USGS include EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are

open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the Draft TMDL.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed by several of the above groups. In addition, there have been 2 major independent reviews of the Phase 5 Model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board.

Comment ID 0089.1.001.012

Author Name: Hunter J. And M.

Organization:

WV challenges:
--The complexity of getting new BMPs accepted by the Bay Model for nutrient and sediment credit.
--Also, riparian buffers should be credited at a reduced efficiency if they do not meet the Bay width requirements.
--The constant reduction and recalculation of BMP efficiencies- always a moving target making these practices a hard sell to agricultural producers.

Response

EPA can accept additional verified practices for use in the model on an ongoing basis. The Chesapeake Bay Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

The thoroughness of this process is warranted to ensure that the results of the modeling are based on sound science.

Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

The specific example of a smaller buffer with a reduced efficiency could be approved through this process given appropriate available information on effectiveness

BMP efficiencies have been revised twice in the past ten years as more information on the effectiveness of different practices becomes available. In order to improve management within an adaptive management framework, it is necessary to revise estimates as new science is made available.

Comment ID 0101-cp.001.002

Author Name: Guevremont Jon

Organization: Reality Farms

The Chesapeake Bay Model, the basis for nutrient and sediment reductions required by EPA, has been shown to have extensive flaws in the data it utilizes. The EPA even acknowledges this fact. EPA should not move ahead with costly mandates based upon flawed modeling and data. Examples:
--In 2010, Virginia Cooperative Extension conducted a field observation study in the Coastal Plain. They found that 90% of crop acres were planted in no-till. Only 15% of the acres are enrolled in DCR's no-till program.
--Is the model fully accounting for practices that are already mandated by state permitting programs? (ex: mortality control for poultry facilities)
--The model is currently "throwing out" actual, ground-truthed data from Virginia because it does not meet the "modeled" land use data. This is unfair when the practices are meeting all requirements set forth by EPA. Federal actions must be based on accurate information. No additional regulations or penalties should be put on states or industries until the science and data have been proven.

Response

Please refer to the response to comment 0089.1.001.003.

Comment ID 0145.1.001.004

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

we respectfully request that the Scenario Builder program source code and all other modeling programs with corresponding input/output data decks (collectively, the "Programs") be made publicly available and posted to the docket

Response

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the support database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site.

Comment ID 0145.1.001.009

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

We do not believe that the Programs have been sufficiently tested and verified for application in a TMDL (particularly the new Scenario Builder modeling program) and for subsequent implementation. Also, the Scenario Builder modeling program should be subjected to peer review. There are known errors and shortcomings in the Chesapeake Bay Watershed Model including, among others, inaccuracies regarding nutrient application and management as well as suburban land characteristics. See, pp. 2-3 of EPA Region III Administrator Shawn Garvin's letter to the Chesapeake Bay Principals' Staff Committee (highlighted copy attached) [Comment Letter contains additional information in the form of an attachment. See original comment letter 0145.1] outlining plans to update the model next year to address these flaws, with the potential (in reality, the likelihood) of corresponding amendments to the TMDL. See also, the June 18, 2010 EPA news release at <http://yosemite.epa.gov/opa/admpress.nsf/90829d899627a1d98525735900400c2b/3fdbafb849578a4685257746006dac15!OpenDocument>, penultimate paragraph.

Response

The Chesapeake Bay Watershed Model and the input data sets have four formal partnership-driven cycles of development, calibration, verification, and management application since the mid-1980s, supporting programmatic and policy decisions and directions embedded within the 1987 Chesapeake Bay Agreement, 1992 Amendments to the Chesapeake Bay Agreement, the 1997 Nutrient Reevaluation, and the Chesapeake 2000 Agreement. With the development and publication of the Bay TMDL, the partnership has carried out the fifth such cycle supporting management decision-making.

The technical direction for the development, management application, and independent review of the Chesapeake Bay Program Partnership's models is carried out through several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. Descriptions of each of these groups is provided within Section 1 of the final Bay TMDL. Programmatic and policy direction on the application of the models and their use in supporting decision making is undertaken through the partnership's Management Board (previously the Implementation Committee) and the Principals' Staff Committee. All the independent scientific peer reviews of the models are carried by the Chesapeake Bay Program's Scientific and Technical Advisory Committee. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference calls can be found in Appendix C of the final Bay TMDL.

In addition, there have been two independent scientific peer-reviews of the Chesapeake Bay Phase 5 Watershed Model in 2005 and 2008 involving scientists drawn from across the country and overseen by the Scientific and Technical Advisory Committee. These independent peer reviews and the Chesapeake Bay Program partnership's responses can be found at:

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.p

df

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

New data and better scientific understanding will always continue to become available. EPA and its jurisdiction partners have worked collaborated over the past 25 years to undertake four significant revisions to the Chesapeake Bay watershed model to both respond to increasingly specific management needs and requirements as well as to incorporate new data and scientific understanding. As stated in the above referenced letter, EPA has committed to using an adaptive management approach to incorporate new science in the suite of Bay models as it becomes available into the future in timing with the scheduled development of Phase II (2011) and Phase III (2017) Watershed Implementation Plans. EPA has committed to refining the Bay TMDL to reflect requests from the jurisdictions that have undergone public review and comment.

Comment ID 0145.1.001.017

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

As we understand it, the Scenario Builder modeling program contains or performs many calculations that the EPA has used to develop the TMDL. Thus, the EPA must make available for public review all of the source code, the scenario input data that were used, and scenario output results obtained from the Scenario Builder modeling program, which then provides inputs to the Chesapeake Bay Watershed Model program. The EPA has stated that it is relying on these inputs and outputs to determine the conditions and assumptions under which the Watershed Model will predict that water quality standards will be met. These assumptions, though unidentified, are incorporated into the TMDL. See, TMDL Section 8.3.2 and Appendix H. Despite its significance, and unlike the draft Chesapeake Bay Watershed Model, the Scenario Builder code is not even posted with the TMDL documents or otherwise available to the public. In addition, based on statements made during the EPA-hosted public meetings on October 26, 2010 (in Elmira, New York) and October 27, 2010 (in Binghamton, New York), the EPA has not provided the Scenario Builder inputs and outputs to watershed jurisdictions such as New York, nor is there a reference or link to this information in the TMDL. The EPA's Chesapeake Bay Program Office has posted only a "preliminary working draft of the Phase 5 model" with the disclaimer: "Users of this draft information are warned that this information is preliminary, subject to change, and unsubstantiated by full and final reviews." See, <http://www.chesapeakebay.net/model_phase5.aspx?menuitem=26169>. See also, <http://ches.communitymodeling.org/models/CBPhase5/index.php> stating only that "Scenario Data" and "Phase 5 Scenario Results" are "Coming Soon". If stakeholders and the public do not have access to these baseline programs,

datasets, and results, they are unable to provide meaningful, fully-informed comments.

Response

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the support database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site. The Phase 5.3 Chesapeake Bay Watershed Model, used in the development of the Bay TMDL, is available at http://ches.communitymodeling.org/models/CBPhase5/index.php

Comment ID 0158-cp.001.002

Author Name: Holland Fred

Organization: W.T. Holland & Son's, Inc.

I would also like to say the information being plugged into the Bay Model is incorrect from the stand point that acres planted into cover and do not receive cost share dollars are not incuded.

Response

Verified, non-cost shared conservation practices implemented by producers can be accounted for and credited in the Chesapeake Bay Watershed Model, but historically have not been included to a great extent because the vast majority of those practices were never tracked, verified and reported to EPA. Non-cost shared practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These non-cost shared practices are typically funded by producers alone. EPA has already been working closely with U.S. Department of Agriculture (USDA), the U.S. Geological Survey, the National Association of Conservation Districts, the environmental and agricultural agencies of the six Chesapeake Bay watershed states, conservation districts, agribusiness, and the agricultural community at large to put in place the infrastructure necessary to tracking, verify, report and credit nutrient and sediment reductions from non-cost shared practices. As committed to in the President’s Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to ensure that “By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented.”

Comment ID 0169.1.001.005

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

The Phase 5.3 model used to derive the proposed allocations is new, untested, and flawed, In its rush to establish the TMDL by an artificial deadline, EPA has proposed draft allocations without first calibrating the model and verifying the accuracy of the model predictions.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0169.1.001.013

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

The Scenario Builder was supposed to be available to the modeling community as part of the Chesapeake Bay Modeling Program, but has not yet been released outside EPA. Absent the Scenario Builder, modelers must rely on EPA to process the input data to CBWM, and cannot improve the model with local data. In fact, all of the "modeling" that has been done by the State of Virginia to date is in essence "post-processing" of EPA modeling results rather than independent modeling.

Response

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the support database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site. The Phase 5.3 Chesapeake Bay Watershed Model, used in the development of the Bay TMDL, is available at http://ches.communitymodeling.org/models/CBPhase5/index.php.

The Chesapeake Bay Watershed Model and Scenario Builder are accounting tools used to inform the TMDL by comparing loads, load reductions, and reduction capacity across jurisdictions and across sectors. As such, it is necessary to provide similar assumptions and use of data across these jurisdictions and sectors. Stakeholders will not simply enter local data as this could lead to issues in the comparability of data from various sources. All data and methods must be vetted through the technical direction structure. The technical direction and review of the Chesapeake Bay Program partnership’s models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the

Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. The Chesapeake Bay Program's Scientific and Technical Advisory Committee oversees the independent scientific peer reviews of these models and other tools supporting decision making.

Comment ID 0169.1.001.014

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

The Phase 5.3 CBWM has not been calibrated

EPA claims that the Phase 5.3 CBWM model has been calibrated. Yet 920 square miles of urbanized land have been erroneously entered as "forest" in the model. A recalibration effort is expected to begin in October 2010, but will be too late to be adequately addressed by the 31 December 2010 mandated deadline for final publication of the Chesapeake Bay TMDL.

EPA has promoted an "adaptive management approach" in developing this TMDL, thereby creating many moving goalpost situations. There are inherent problems with any calibration effort, and CBWM is no exception. There are many ways to tweak input variables in a complicated model to make the output approximate a series of observed data-a phenomenon known as "equifinality"-and CBWM has a massive amount of input variables.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0169.1.001.015

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

One indication of calibration problems is with sediment loading computations. CBWM cannot adequately match observed data for sediment loading, which held up the release of working sediment limits to the states until a month before their Watershed Implementation Plans (WIPs) were due. To accommodate the schedule, EPA adopted a "pucker factor" approach-to sidestep this problem with the model. If the Phase 5.3 model was adequately calibrated, sediment computations could be handled in a straightforward manner.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0169.1.001.017

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

There are very few (perhaps only three or four) knowledgeable technical persons with meaningful CBWM modeling experience in Virginia. For a model that will be used as the basis for billions of dollars in regulatory mandates, the technical community is lacking the checking and validation that comes from widespread use. There is no significant bug reporting and code fixing occurring, and what little modeling is being performed is being done with data that has been distributed from EPA without enough documentation to check its validity. Other computer models, such as the EPA's own Storm Water Management Model (SWMM), have many years of active, widespread use, and debugging and code fixes occur continuously. The user community helps drive improvements that make SWMM a very well understood and reliable model. Conversely, CBWM is essentially an untested and unapplied model in 2010. The development of CBWM is undoubtedly an ambitious and worthwhile undertaking, but reasonable time has to be given to grow and mature CBWM to the point that it can be reliably used to justify billions of dollars of expense.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0169.1.001.018

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

EPA distributes the CBWM computer program in un-compiled form, meaning that in order to run the model users must obtain a FORTRAN compiler and generate the executable computer programs from the source code. However there is a known and still unresolved problem with CBWM producing different results when compiled on different computers. Identical input data was run on different computers in August 2010 for the James, York, and Rappahannock Rivers, and CBWM produced significantly different results-with variations as high as 36% in the answers. The reliability of CBWM cannot be corroborated until repeatable results can be produced. EPA is working on this problem, but its self-imposed TMDL schedule demands do not allow the time required to produce reliable and scientifically verifiable models and modeling results.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0169.1.001.019

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

Due to the 64,000 square-mile extent of CBWM, there is an inherent problem of scale when addressing BMPs. CBWM is better suited for overarching computations on larger scales, such as evaluating the effects of fertilizer applications on large segments of the Bay watershed, than it is in evaluating the effects of a particular BMP or group of BMPs on specific sites. EPA staff has acknowledged that the effects of individual, site-specific BMPs cannot be directly addressed in CBWM. Because the model is constructed on such a large scale, numerical effects of BMPs are lumped or aggregated in the modeling input data. This scale problem makes it very difficult for local governments to evaluate the feasibility of costly BMPs such as filtration devices and detention and retention basins that will have to be constructed to achieve water quality improvements. A single retention basin can easily cost millions of dollars, yet its effects cannot be directly isolated and evaluated in CBWM.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0169.1.001.020

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

The Phase 5.3 CBWM model was prepared based on satellite photography. Early indications from four Virginia municipalities are that the use of satellite imagery has produced estimates of watershed imperviousness that are approximately 20 percent too low, which has significant implications for the amount of pollution that runs off each watershed. Localities have better imperviousness data in their Geographic Information Systems, but the TMDL development schedule did not allow time for EPA modelers to coordinate and collect this information from the localities. The implication is that if existing watershed imperviousness is underrepresented in CBWM, then so will be the existing pollution from urbanized areas. This inaccuracy could easily result in computed TMDL limits that are unattainable because in order to satisfy their "pollution diet," municipalities will have to reduce pollution based on modeling data that assumes they are substantially (20 percent) less impervious than they actually are. In other words, if their pollution diet starts by assuming that they have 20 percent less pollution-producing impervious cover than they actually have, then in order to meet their TMDL limits they would have to reduce all pollution from that 20 percent plus the reductions mandated by the TMDL-which are themselves very difficult to achieve. Refusal to accept more accurate data as the price of meeting an unrealistic deadline sets the Town of Occoquan up for failure.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0169.1.001.021

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

The absence of a groundwater component to the model is significant because groundwater transport of nutrients is a major source of pollution in the Bay. Ironically, many of the Best Management Practices (BMPs) that will be used to satisfy the TMDLs are based on removal of pollutants by infiltration, which is not addressed in the modeling. This lack of a groundwater component in CBWM means that pollutants that are routed into infiltration BMPs magically disappear from the computational universe-when in reality they are deposited into groundwater that eventually flows into the Bay.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0174.1.001.001

Author Name: Rolband Michael

Organization: Wetland Studies and Solutions, Inc.

EPA should rectify the Chesapeake Bay Model based on the Phase 5.3mod urban acreages and reassess the TMDL load allocations based on the corrected output before the Phase I WIPs are finalized.

Areas for impervious and pervious land will change drastically between version 5.3 (used to develop the current TMDL) and proposed 5.3mod of the Chesapeake Bay Model. Table 1 compares the acres of impervious and pervious surface in the Chesapeake Bay Watershed for the Phase 5.3 and proposed 5.3mod Models [FN1].

[Table 1. Comparison of Impervious and Pervious Surface Areas for the Phase 5.3 and 5.3mod. Please see the original document 0174.1]

Table 1 shows a large increase in the total acres of impervious and pervious surfaces between the Phase 5.3 and 5.3mod versions of the Model. The effect that these changing impervious and pervious areas will have on the current nutrient loading rates and resulting sector loads is concerning. Since prior Model phases were calibrated against real-world data (i.e., mass pollutant loads), it is our understanding that the Model must be a zero-sum game in which the total load from all sources above any monitoring station must remain relatively constant. If,in fact, the loading rates will only "change slightly," [FN2] it is clear that new impervious and pervious areas will affect the Model's load from the urban sector significantly. The magnitude of this effect, however, is unknown.

[FN1] EPA provided WSSI (via e-mail) a memo titled, "Phase 5.3 (modified) 'Developed' and 'Extractive' Land Use Datasets," dated 5/25/2010 which included the data provided in Table 1.

[FN2] Based on an email received from Gary Shenk (EPA) by Mike Rolband (WSSI) on October 27, 2010.

Response

As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the Phase 5.3 Chesapeake Bay Watershed Model will be updated to specifically address the concerns described in the above comment, not for the December 31 2010 TMDL, but for use in support of development of the Phase II Watershed Implementation Plans, which will be due after the 2010 Bay TMDL. In accordance with court documents, EPA does not have the ability to ignore the December 31, 2010 deadline. Within the EPA June 11, 2010 letter can be accessed at http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf, EPA committed to modify the Bay TMDL as necessary based on requests by the jurisdictions that have undergone public review and comment.

Comment ID 0174.1.001.004

Author Name: Rolband Michael

Organization: Wetland Studies and Solutions, Inc.

EPA should use more precise soils source data to resolve upcoming issues with the development of States' local target loads in the Phase II WIPs.

The Chesapeake Bay Model uses NRCS State Soil Geographic (STATSGO) data [FN4], which isn't precise enough for local-level implementation. At the regional level, the use of STATSGO data provides an acceptable level of precision for modeling of the Bay Watershed; however, at the local level, the Model's underlying soils source data needs to be re-examined prior to the development of Phase II WIPs because data is available which provides a considerably higher level of detail at the local level [i.e. Soil Survey Geographic (SSURGO)].

Upon analysis and comparison of the Hydrologic Soil Group (HSG) data in Fairfax County, Virginia for both sources, it is clear that SSURGO provides a considerably more detailed and accurate assessment of the soil types (Exhibit A) [Comment Letter contains additional information in the form of an attachment. See original comment letter 0174.1]. Additionally, when comparing the SSURGO and STATSGO data, it is clear that there are large discrepancies in the data. For example, the STATSGO data indicates that 78% of Fairfax County, Virginia is composed of Type B soils and 9% Type D soils; however, the SSURGO data indicates that Type B and D soils comprise 24% and 42% of the Watershed respectively (Table 2). A similar analysis was performed for the Chesapeake Bay Watershed (Exhibits B and C). [Comment Letter contains additional information in the form of an attachment. See original comment letter 0174.1]

[Table 2. Comparison of STATSGO versus SSURGO Soil Data for Fairfax County. Please see the original document 0174.1]

The differences in soil type composition will affect the runoff characteristics and pollutant loading rates at the local level. A comparison of the STATSGO and SURGO data sets for Fairfax County shows a significant difference in runoff when each soil type is assigned a hydraulic conductivity [FN5] value. The STATSGO data results in a weighted hydraulic conductivity of 2.87 in/hr, while the SSURGO data results in a weighted hydraulic conductivity of 1.02 in/hr for Fairfax County (Table 3).

[Table 3. Comparison of Weighted Hydraulic Conductivity (HC) for Fairfax County Using STATSGO and SSURGO Soil Data. Please see the original document 0174.1]

The analysis in Exhibit C shows that modeling with STATSGO data at the Bay Watershed scale is appropriate, but using the same dataset to model at the local level (i.e. Fairfax County) will not provide appropriate level of precision for runoff and loading calculations. (The variations in data will be even more apparent at the site-specific scale.) For this reason, it will be important to correct this problem before the Phase II WIPs are written which require development of WIPs at the local level.

[FN4] Chesapeake Bay Model Phase 5 Documentation, Chapter 9 Sediment Simulation (downloaded on October 25, 2010, at: ftp://ftp.chesapeakebay.net/modeling/P5Documentation/SECTION%209.pdf) indicates that the soils data used for analysis was derived from the STATSGO Database.

[FN5] Hydraulic conductivity values were assigned using the following source: United States Department of Agriculture, Natural Resources Conservation Service (2007). National Engineering Handbook, Part 630 Hydrology, Chapter 7 Hydrologic Soil Groups. 210-VI-NEH. Where a range of hydraulic conductivity values was given, the average value for that soil group was used. For soil groups A/D, B/D, and C/D the average of the two soil groups was used.

Response

STATSGO was used rather than SSURGO in the Phase 5.3 Chesapeake Bay Watershed Model due to its complete coverage of the entire six-state, 64,000 square mile Chesapeake Bay Watershed. The sole use of these data were to estimate the fraction of sediment size classes, not to estimate the hydraulic conductivity or infiltration rates. Effective hydrologic parameters were found by calibration to the 287 stream flow gauges throughout the Phase 5.3 Bay Watershed Model domain.

Comment ID 0174.1.001.006

Author Name: Rolband Michael

Organization: Wetland Studies and Solutions, Inc.

The Chesapeake Bay Model should be improved based on the following recommendations:

1. Before the Phase I WIPs are finalized, the EPA should rectify the Chesapeake Bay Model based on the Phase 5.3mod urban acreages and reassess the TMDL load allocations based on the corrected output before the Phase I

WIPs are finalized.

Response

As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the Phase 5.3 Chesapeake Bay Watershed Model will be updated to specifically address the concerns described in the above comment, not for the December 31 2010 TMDL, but for use in support of development of the Phase II Watershed Implementation Plans, which will be due after the 2010 Bay TMDL. In accordance with court documents, EPA does not have the ability to ignore the December 31, 2010 deadline. Within the EPA June 11, 2010 letter, which can be accessed at http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf, EPA committed to modify the Bay TMDL as necessary based on requests by the jurisdictions that have undergone public review and comment.

Comment ID 0178.1.001.001

Author Name: Curatolo James

Organization: Upper Susquehanna Coalition

I would like to submit comments on why the TMDL Cap Load Allocations need to be revised.

1. The Bay Model does not have the accuracy necessary to determine the loads. Because of the many assumptions that are used to generate numbers the model's output is only good within a range of accuracy. It has never been tested for accuracy (determination of a confidence interval for the model). For example, the model predicted there were 300 cows in Livingston County. There are none.

2. I personally pointed out an error in one assumption (nitrogen spread on hay- 200 pounds per acre reduced to 80 based on an analysis of 13,000 acres of hayland in NY) that resulted in the load for NY changing from 15.9 m pounds delivered to 10.6.

3. The same number is still being used for WV without confirmation that it is correct.

4. Furthermore, because of extremely poor description of that land use (the land use is called "hay with nutrients" when in fact it is hay that is cut regardless of nutrient input and we were not given the definition until after the model was "locked down") the actual N spread is 46 pounds per acre. The Model is locked down so we are still required to reduce the 80 pound load that does not exist. As there are hundreds of variables there can be other assumptions that too might not be accurate.

Response

The commenter is pointing out specific issues with the input data to Scenario Builder, not the Phase 5.3 Chesapeake Bay Watershed

Model. These input data, along with the rules for operation of Scenario Builder and the Phase 5.3 Chesapeake Bay Watershed Model were developed under the technical direction and review of several groups within the CBP structure over the past five years. The technical direction and review of the Chesapeake Bay Program partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, the Wastewater Workgroup, and the Watershed Technical Workgroup. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups.

As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the Phase 5.3 Chesapeake Bay Watershed Model will be updated to specifically address concerns related to simulation of nutrient management, not for the December 31 2010 TMDL, but for use in support of development of the Phase II Watershed Implementation Plans, which will be due after the 2010 Bay TMDL. In accordance with court documents, EPA does not have the ability to ignore the December 31, 2010 deadline. Within the EPA June 11, 2010 letter can be accessed at http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf, EPA committed to modify the Bay TMDL as necessary based on requests by the jurisdictions that have undergone public review and comment.

EPA and other staff at the Chesapeake Bay Program Office are actively working with colleagues within New York Department of Environmental Conservation, Cornell University, and the Upper Susquehanna Coalition to ensure that the updates to the Phase 5.3 Chesapeake Bay Watershed Model to address partners' concerns about the simulation of nutrient management include addressing the issues raised in the above comment.

Comment ID 0179.1.001.003

Author Name: Curatolo James

Organization: Upper Susquehanna Coalition

Why does NY not get credit for its in-stream nutrient loss nutrient loss? Why must a natural reduction not be taken into account, which is precluded by using "delivered load" instead of generated load?

Response

New York has a higher nutrient allocation because of its in-stream nutrient loss. The allocation method used in development of the Chesapeake Bay TMDL assigns a lower effort for those areas with higher rates of in-stream loss in the non-tidal rivers.

Comment ID 0181.1.001.002

Author Name: Ranck Rebecca

Organization: Wenger's Feed Mill, Inc.

The first reason is the volatility of the Bay Model being used to calculate and form plans on the state level to meet the requirements for the TMDL. The concern with the model is the inability to know exactly how the model is to be calculated and the factors that are unaccounted for when calculating the model. It is very difficult to meet a requirement, when you aren't given all the tools you need to do that task effectively. EPA's refusal to reveal the mathematical sensitivity of the model being used is nonsensical and creates numerous questions as to how states are supposed to meet EPA's requirements for their reduction of sediment and nutrients, when they are not even given the one piece of information they need to do it properly. In order for Pennsylvania's Watershed Implementation Plan (WIP) to pass the EPA's requirements for an implementation plan, those working on the plan need to have a more transparent Bay model to use and understand that accurately and thoroughly accounts for all BMPs and measures already implemented or proposed for implementation.

Response

The Phase 5.3 Chesapeake Bay Watershed Model and the Scenario Builder software that creates the input were developed through an open process with input from numerous stakeholders and experts over the past several years in the case of Scenario Builder and over the past three decades in the case of the Bay watershed model.

The Chesapeake Bay Watershed Model and the input data sets have four formal partnership-driven cycles of development, calibration, verification, and management application since the mid-1980s, supporting programmatic and policy decisions and directions embedded within the 1987 Chesapeake Bay Agreement, 1992 Amendments to the Chesapeake Bay Agreement, the 1997 Nutrient Reevaluation, and the Chesapeake 2000 Agreement. With the development and publication of the Bay TMDL, the partnership has carried out the fifth such cycle supporting management decision-making.

The technical direction for the development, management application, and independent review of the Chesapeake Bay Program Partnership’s models is carried out through several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. Descriptions of each of these groups is provided within Section 1 of the final Bay TMDL. Each has broad representation by federal, state, local, academic, and private groups. Programmatic and policy direction on the application of the models and their use in supporting decision making is undertaken through the partnership’s Management Board (previously the Implementation Committee) and the Principals’ Staff Committee. All the independent scientific peer reviews of the models are carried by the Chesapeake Bay Program’s Scientific and Technical Advisory Committee. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference calls can be found in Appendix C of the final Bay TMDL.

The Phase 5.3 Watershed Model was been developed, calibrated and verified through collaboration with federal, state, academic, and private partners. Development teams at the Chesapeake Bay Program Office (CBPO) and the U.S. Geological Survey (USGS) included EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed and

approved by several of the above groups. All the Phase 5.3 Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf. The Phase 5.3 Chesapeake Bay Watershed Model code can be accessed at http://ches.communitymodeling.org/models/CBPhase5/index.php.

In addition, there have been two independent scientific peer-reviews of the Chesapeake Bay Phase 5 Watershed Model in 2005 and 2008 involving scientists drawn from across the country-Penn State University, Virginia Tech, Duke University, University of North Carolina, University of Maryland Baltimore County, and University of Florida—and overseen by the Scientific and Technical Advisory Committee. These independent peer reviews and the Chesapeake Bay Program partnership's responses can be found at:

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

Best management practice (BMP) and conservation practice effectiveness estimates, which are critical to decision-making, are based on a 2-year study, undertaken by the Mid-Atlantic Water Program, a consortium of the nine major land grant universities, involving extensive peer-reviewed scientific literature, field studies, and input from technical panels comprised of USDA, NRCS, state land grant universities, state agricultural agencies, and key practitioners. Extensive information and documentation regarding the effectiveness estimates is available at http://www.chesapeakebay.net/watershedimplementation plantools.aspx?menuitem=52044.

The technical direction on development and review of the Scenario Builder have been accomplished through collaborative meetings and conference call of several groups within the Chesapeake Bay Program partnership's organizational structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings were open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference calls are be found in Appendix C of the final Bay TMDL. These links provide direct access to the briefing materials prepared in advance of the meeting/conference call, the presentations given during the meeting/conference call, and the summary of decisions/actions coming out of the meeting/conference call.

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the support database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using

Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site.

Clearly, despite this long history of involvement and engagement of partners and stakeholders within development of the Bay Watershed Model, there are still significant concerns about transparency and accessibility. EPA is committed to significantly expand its efforts to reach out and involve a larger, more diverse array of partners and stakeholders into the future as the partnership works to continue to incorporate new data and scientific findings into its collaborative decision making support Bay and watershed restoration. Specific steps to carry out this commitment will be taken as EPA, its partners and the involved stakeholders move into development of the Phase II Watershed Implementation Plans.

Comment ID 0182.1.001.004

Author Name: Rowland Jeremy

Organization: Bion Environmental Technologies, Inc.

Based upon our analysis, our interactions with regulators and scientists at the PA DEP and EPA, as well as hired experts, Bion has determined that EPA's Chesapeake Bay model does not accurately reflect nitrogen loss from livestock.

Response

Thank you for a thoughtful comment letter and especially the cartoon clearly laying out your central argument. EPA agrees that the volatilized ammonia load from agricultural operations which is re-deposited in the watershed is an important load to the Chesapeake Bay. The suite of analysis tools (not just the Chesapeake Bay Watershed Model) used in the development of the Bay TMDL adequately account for this load.

A Penn State University empirical model of historical atmospheric deposition of both oxidized and reduced nitrogen was used to drive the calibration of the Phase 5.3 Chesapeake Bay Watershed Model. The Community Multiscale Air Quality (CMAQ) model is then used to model changes in nitrogen atmospheric deposition due to proposed changes in emissions from various sources, including animal agriculture. States may submit reductions in emissions that go beyond existing state implementation plans as part of their watershed implementation plans. For more detailed documentation, please access the Phase 5.3 Chesapeake Bay Watershed Model report at http://www.chesapeakebay.net/model_phase5.aspx?menuitem=26169.

A separate question in your letter is whether or not the full inventory of livestock was used or simply the permitted CAFO database. The livestock numbers are from the USDA Census of Agriculture. See the Scenario Builder documentation, especially section 3.1

starting on page 3-22, at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/.

Another part of the comment questions the availability of the technical information for review. The phase 5.3 watershed model has been built through collaboration with federal, state, academic, and private partners. Development teams at CBPO and USGS include EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium. The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the Draft TMDL.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed by several of the above groups. In addition, there have been 2 major independent reviews of the Phase 5 model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board.

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the support database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site. The code for the Phase 5.3 Chesapeake Bay Watershed model information is available at http://ches.communitymodeling.org/models/CBPhase5/index.php.

Comment ID 0182.1.001.005

Author Name: Rowland Jeremy

Organization: Bion Environmental Technologies, Inc.

EPAs model contains a large gap in nitrogen lost to the environment from the time the manure is voided to the time the manure gets land applied. Upon an evaluation of nitrogen lost to the environment on a mass balance (as voided) basis, there is a large gap in actual nitrogen loss versus what is modeled by EPA. In PA DEP's WIP for example, it was stated that nitrogen delivered load to the Bay from livestock manure was determined by nutrient loads calculated from the Penn State University Agronomy Guide. While this document has proven to be accurate in proper context, the numbers used in this agronomy guide only include nitrogen content of the manure as it is land applied. Therefore, it does not include the approximately 50% of manure nitrogen that volatizes (primarily as ammonia) and is lost to the environment before land application. Further, Bion has been unable to clearly establish (despite inquiry to DEP and EPA personnel

and consultants) whether the nitrogen loss inventory from livestock was based upon a full inventory of livestock, or simply based upon the database of permitted CAFOs (which, in the Susquehanna Watershed represent a small portion of the total livestock herd).

Response

Please see the response to comment 0182.1.001.004

Approved by Rich B 12.2.10

Comment ID 0182.1.001.006

Author Name: Rowland Jeremy

Organization: Bion Environmental Technologies, Inc.

In practice and on average, 50% of the entire nitrogen content of the manure is lost prior to land application. This loss figure can easily be confirmed by calculating the nitrogen content of the manure as it is voided (or using standard factors from ASABE) and subtracting from that the nitrogen content of the manure as it is land applied, which is regularly measured pursuant to nutrient management planning needs. The difference approximates the amount of nitrogen lost as ammonia in the handling/storage process. This lost ammonia is not regulated, is not accounted for in farm nutrient management plans, and therefore apparently falls between the cracks of EPA's model.

Response

Please see the response to comment 0182.1.001.004

Comment ID 0182.1.001.007

Author Name: Rowland Jeremy

Organization: Bion Environmental Technologies, Inc.

EPA recently published a report entitled "Scientific Assessment of Hypoxia in US Coastal Waters" in which the same as voided/as land applied gap in nitrogen quantification appeared to be embedded. This is not surprising since the Chesapeake Bay models are held up as the top watershed models in the US today. As a result, the problems (and costs) of the EPA's Chesapeake Bay model are being compounded as the methodologies are exported to other coastal waters, including the much larger Gulf of Mexico/Mississippi River Basin.

Response

Please see the response to comment 0182.1.001.004

Comment ID 0182.1.001.009

Author Name: Rowland Jeremy

Organization: Bion Environmental Technologies, Inc.

EPA model categories do not lend themselves to accurate quantification of nitrogen loss via ammonia volatilization. The CAFO nutrient loss category in the EPA model is miniscule compared to actual losses from CAFOs because CAFOs are categorized as zero discharge facilities. The vast majority of nutrient losses from agricultural sources included in EPA's model are from cropping. This category does not include the massive amount of nitrogen loss via ammonia volatilization prior to land application. The EPA models lack any rigorous, science-based, mass balance analysis with respect to livestock nitrogen.

Response

Please see the response to comment 0182.1.001.004

Comment ID 0182.1.001.010

Author Name: Rowland Jeremy

Organization: Bion Environmental Technologies, Inc.

The EPA model may very well be correct for more urban regions (such as Baltimore and Washington DC) where human activity dominates the delivered load. The EPA's overall nitrogen delivered load inventory to the Chesapeake Bay from the Susquehanna Watershed may be correct, as that is a measured number. However, the source allocations in EPA's Chesapeake Bay model for Pennsylvania's Susquehanna Watershed are materially wrong due to the significant underestimation of the nitrogen loading from the livestock industry and downwind misallocations to other allocation categories through which the livestock nitrogen (in dilute form) makes its way to the Bay .

Response

Please see the response to comment 0182.1.001.004

Comment ID 0182.1.001.011

Author Name: Rowland Jeremy

Organization: Bion Environmental Technologies, Inc.

The Susquehanna Watershed is unique in that its primary nitrogen loading is from livestock and not from human activity. The livestock industry in the Susquehanna watershed generates 300-350 million pounds of nitrogen annually based upon the latest USDA livestock census numbers once the airborne nitrogen component is added to the land applied portion.

Response

Please refer to the response to comment 0182.1.001.004.

Comment ID 0182.1.001.012

Author Name: Rowland Jeremy

Organization: Bion Environmental Technologies, Inc.

The Susquehanna Watershed is unique in that its primary nitrogen loading is from livestock and not from human activity. The livestock industry in the Susquehanna watershed generates 300-350 million pounds of nitrogen annually based upon the latest USDA livestock census numbers once the airborne nitrogen component is added to the land applied portion. EPA models do not reflect the entirety of this loss.

Response

Please see the response to comment 0182.1.001.004

Comment ID 0182.1.001.017

Author Name: Rowland Jeremy

Organization: Bion Environmental Technologies, Inc.

However, the inaccurate configuration of EPAs existing Bay model threatens to inappropriately force reductions from downstream conduit sources, such as storm water and forests.

Response

Please see the response to comment 0182.1.001.004

Comment ID 0182.1.001.019

Author Name: Rowland Jeremy

Organization: Bion Environmental Technologies, Inc.

The cost of the existing Chesapeake Bay mandate will be reduced by properly sourcing and allocating the livestock nutrient loadings. Additionally, clean-up at the source will provide significant environmental benefits to the local environments where these livestock operations presently exist including reductions in phosphorous, H2S, NOX, pathogens, endocrine disrupting compounds and odor.

Response

Please refer to the response to comment 0182.1.001.004.

Comment ID 0182.1.001.020

Author Name: Rowland Jeremy

Organization: Bion Environmental Technologies, Inc.

Table 1 below provides a visual description of the mass balance nitrogen loss pathway associated with livestock manure. The EPA's Bay model does not accurately quantify and allocate this pathway.

[Table 1- Visual Representation of Nitrogen Accounting Gap in FPAs Bay Model. Please see page 4 of the original document 0182.1]

Response

Please see the response to comment 0182.1.001.004

Comment ID 0182.1.001.021

Author Name: Rowland Jeremy

Organization: Bion Environmental Technologies, Inc.

Before requiring Pennsylvania rate- and taxpayers to spend inordinate amounts of money that is not available through an ineffective regulatory back stop provision (based upon the load determinations and mandates outlined in the draft TMDL standard), EPA needs to review its modeled characterizations of nitrogen loss from livestock waste and ensure a full and accurate description is included. Once that is completed, then differing model results will highlight that a more cost-effective strategy that is also more friendly to the local environment, will be available.

Response

Please see the response to comment 0182.1.001.004

Comment ID 0193.1.001.006

Author Name: Newsome Michael

Organization: Home Builders Association of Virginia (HBAV)

HBAV also must express a major concern about the number of proven deficiencies in the Chesapeake Bay Model, which will have a significant impact on the pollutant loading of the Watershed Implementation Plans being developed by the Bay states. The independent United States Geological Survey has questioned the accuracy of the impervious surface data in model, and others have questioned the accuracy of the agricultural BMP projections. Those two (2) flawed data points are just a sampling of other significant flaws in the model that are resulting in lower nutrient caps for all Bay states. For this reason alone, the EPA should delay implementing the TMDL. Finalizing the TMDL before finalizing the modeling makes no sense.

Response

As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the Phase 5.3 Chesapeake Bay Watershed Model will be updated to specifically address the concerns described in the above comment, not for the December 31 2010 TMDL, but for use in support of development of the Phase II Watershed Implementation Plans, which will be due after the 2010 Bay TMDL. In accordance with court documents, EPA does not have the ability to ignore the December 31, 2010 deadline. Within the EPA June 11, 2010 letter, which can be accessed at http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf, EPA committed to modify the Bay TMDL as necessary based on requests by the jurisdictions that have undergone public review and comment.

Comment ID 0202.1.001.010

Author Name: Carl Jimmie

Organization: Southern Tier New York WWTP

F. Lack of Confidence with the "Bay Model"

There is a general lack of confidence regarding the Chesapeake Bay Watershed Computer Model, in regards to its ability to accurately predict current nutrient loadings from within the watershed and reductions in nutrient loadings due to contemplated improvements and management programs. large deviations in estimated delivered nutrient loads have occurred from one version of this model to the next. For example, Version P5.2 (2008) of the Model predicted a total annual delivered total nitrogen loading from New York to the Bay of 16.1 million lbs/year, while Version P5.3 is predicting 10.6 million lbs of annual delivered total nitrogen loading. This large variation casts doubt on the ability of this model to be an effective and reasonable planning tool, as well as the basis of establishing TMDLs.

Response

The Chesapeake Bay Program Partnership watershed model has been in use for over 2 decades. It has been continually refined over that time period. The Phase 5.2 version of the Chesapeake Bay Watershed Model was not used in the development of the Bay TMDL. It was never used for management purposes or in any official report. Phase 5.2 was an interim development version of the Bay Watershed Model with known bugs and data inaccuracies that were fixed in the Phase 5.3 version. Interim application of the Phase 5.2 version of the Bay Watershed Model was strictly deliberative to assess a variety of draft allocation methodology options with the Chesapeake Bay Program partners and stakeholders as part of a larger, transparent and collaborative decision making process.

Comment ID 0217.1.001.009

Author Name: Pozgar David

Organization: Logan Township

Given that 48 percent of the nitrogen load in streams in the Bay watershed is transported through ground water and that this information is not included in the Chesapeake Bay Model, how can the current Model have sufficient accuracy?

The accuracy of the Chesapeake Bay model should be in question because the model does not accurately account for ground water as a source of nitrates. The United States Geological Service (USGS) conducted a multi-year study in the Chesapeake watershed of nitrate in ground water. The 2002 report (USGS Fact Sheet FS-091-03) states:

"An average of 48 percent of the nitrogen load in streams in the Bay watershed was transported through ground water, with a range of 17 to 80 percent in different streams."

The study also reports that due to lag time, the median age of this groundwater is 10 years with 25 percent of the samples having an age of 7 years or less and 75 percent of the samples having an age of up to 13 years.

During the March 25 EPA TMDL webinar, a question was asked about whether this ground water nitrate data was accounted for in the Chesapeake Bay model. Mr. Richard Batiuk answered the question stating that it was not currently part of the model but that the model was designed to accommodate that information when it became available.

Response

This is a common misconception and would be a serious flaw if it were the case since, as you point out, the USGS estimates that almost half of the nitrogen that reaches the tidal water flows through the groundwater at some point in its path to the Bay. Groundwater delivery of water and nutrients is simulated in the Phase 5.3 Chesapeake Bay Watershed Model.

Mr. Batiuk correctly pointed out that groundwater lag time is not simulated in HSPF (hydrologic simulation program-fortran),

which is the basis for the Phase 5.3 Chesapeake Bay Watershed Model. Work is underway by USGS colleagues, focused on Delmarva, to develop groundwater lag time model simulation capabilities.

Comment ID 0218.1.001.008

Author Name: Wright Ronald

Organization: Borough of Everett Area Municipal Authority, Bedford County, Pennsylvania

Given that 48 percent of the nitrogen load in streams in the Bay watershed is transported through ground water and that this information is not included in the Chesapeake Bay Model, how can the current Model have sufficient accuracy?

The accuracy of the Chesapeake Bay model should be in question because the model does not accurately account for ground water as a source of nitrates. The United States Geological Service (USGS) conducted a multi-year study in the Chesapeake watershed of nitrate in ground water. The 2002 report (USGS Fact Sheet FS-091-03) states:

"An average of 48 percent of the nitrogen load in streams in the Bay watershed was transported through ground water, with a range of 17 to 80 percent in different streams."

The study also reports that due to lag time, the median age of this groundwater is 10 years with 25 percent of the samples having an age of 7 years or less and 75 percent of the samples having an age of up to 13 years.

During the March 25 EPA TMDL webinar, a question was asked about whether this ground water nitrate data was accounted for in the Chesapeake Bay model. Mr. Richard Batiuk answered the question stating that it was not currently part of the model but that the model was designed to accommodate that information when it became available.

Response

This is a common misconception and would be a serious flaw if it were the case since, as you point out, the USGS estimates that almost half of the nitrogen that reaches the tidal water flows through the groundwater at some point in its path to the Bay. Groundwater delivery of water and nutrients is simulated in the Phase 5.3 Chesapeake Bay Watershed Model.

Mr. Batiuk correctly pointed out that groundwater lag time is not simulated in HSPF (hydrologic simulation program-fortran), which is the basis for the Phase 5.3 Chesapeake Bay Watershed Model. Work is underway by USGS colleagues, focused on Delmarva, to develop groundwater lag time model simulation capabilities.

Comment ID 0227.1.001.011

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

Another public criticism of the model has been that many practices, particularly agricultural ones, implemented voluntarily, are not being accounted for in the model. While this statement is true, in reality, it is not a flaw of the model, but rather a failure to collect the proper input information to feed into the model. The solution to this problem is to provide better accounting, not to change any of the model parameters. In addition, this under-counting of implemented practices does not affect the TMDL load allocations to the states which were based on the relative difference between maximum implementation of practices and no-action.

Response

EPA agrees with the commenter that: 1) non-cost shared, implemented practices are significantly under-counted due to difficulties in reporting, verifying and tracking such practices; 2) “the solution to this problem is to provide better accounting, not to change any of the model parameters; and 3) “this under-counting of implemented practices does not affect the TMDL load allocations to the states which were based on the relative difference between maximum implementation of practices and no-action.”

Comment ID 0230.1.001.043

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

E. EPA Should Assume Better Design, Installation, Operation and Maintenance for Modeled BMPs

It is well known that historically many non-point BMPs have not been accompanied by programs or methods to ensure proper design, installation, operation, or maintenance. It is reasonable that model calibration scenarios should assume, at a minimum, historical "average" management conditions. Any other approach-including the use of conservatively low values-would make the model less accurate and force management decisions that may be more costly and/or provide less benefit. However, it is not necessary for forward-looking management scenarios to retain the assumption of historically-average BMP management. Rather, improvements in the way BMPs are installed, operated, and maintained are a viable implementation component. Modeled TMDL allocations scenarios should reflect the manner in which BMPs should be designed, operated, and maintained, not necessarily how they have historically been managed.

One example of where EPA and the Bay States have assumed a high level of nutrient removal performance is for wastewater treatment plants. The performance expected and used in the model is based on properly installed, operated and maintained facilities. The standard for performance relative to design of any nutrient removal strategy (wastewater plants, BMPs, filter feeders, etc.) used in the Bay model should not be different. [FN73]

These actions would improve the effectiveness of BMPs to reduce loads and improve reasonable assurance of reductions from these sectors.

[FN73] See VAMWA Chesapeake Bay Team Memo re BMP Efficiencies to VAMWA and MAMWA Boards of Directors, January 21, 2009 (attached hereto as Appendix 42).

Response

Please refer to the response to comment 0288.1.001.

Comment ID 0231.1.001.003

Author Name: Boepple Charles

Organization: Upper Occoquan Sewage Authority (dba Upper Occoquan Service Authority)

Summary of Research and Surveillance Results

OWML's research has unequivocally shown that nitrate provides an oxidizing environment in the lower layers of the reservoir during times of thermal stratification. In other words, the Occoquan Reservoir is a natural denitrification system. As summarized in the OWML report entitled An Assessment o/the Water Quality Effects o/Nitrate in Reclaimed Water Delivered to the Occoquan Reservoir, April 2005 [Comment Letter contains additional information in the form of an attachment. See original comment letter 0231.1] , the nitrate-rich UOSA reclaimed water has benefited the Occoquan Reservoir water quality, specifically by:

--Preventing the release of sediment bound phosphorus;
--Reducing the release of ammonia from reservoir sediments;
--Preventing the reduction of sulfate to sulfide in the bottom layers of the reserVOIr;
--Possibly preventing the release of manganese (II) from sediments; and
--Maintaining green algae and diatoms species dominance and preventing the proliferation of less desirable blue-green algae.

The 2005 OWML report was endorsed by the OWMS on June 91h , 2005. A copy of the OWML 2005 report is included as Exhibit 1.

The process by which the UOSA highly nitrified reclaimed water exerts a protective action on the Occoquan is fortuitous and it occurs when the reservoir is thermally stratified. Under thermal stratification the cooler water is kept at the bottom and warmer water in the top layer. Under normal weather conditions these two layers do not mix due to differences in temperature and density and, therefore, dissolved oxygen from the atmosphere does not reach the bottom water layer. As summer progresses, dissolved oxygen is depleted in the bottom layer due to biological activity and, without another source of oxygen, water quality deteriorates. Fortunately, the cooler, nitrate-rich water of Bull Run, where the UOSA effluent is discharged, mixes downward in the reservoir until temperature and density match providing nitrate as an oxygen equivalent to the dissolved oxygen deficient lower layer. Figure I is a schematic showing this natural phenomenon. As long as nitrate persists in the bottom layer of the reservoir, the phosphorus and ammonia supply to the water column is reduced preventing the proliferation of nuisance algae and water quality degradation. The positive effect of nitrate on the control of sediment-bound phosphorus and ammonia has been documented by OWML in both

laboratory scale experiments utilizing reservoir sediments and by data collected at the reservoir over many years. Exhibit 1 provides a summary of OWML's research and long term water quality surveillance.

[Figure 1. See pg 3 of orginal document 0231.1]

Recent Water Quality Effects Due to TN Loads Reduction

Exhibit 2 provides details on detrimental water quality effects recently observed during a period where the UOSA nitrate load to the Occoquan Reservoir was reduced. During 2007 - 2008 UOSA reduced its nitrate load to the Occoquan while operating its nitrogen removal system for the purpose of gaining operational experience. Summer data collected during that period showed near zero nitrate levels in the lower levels of the reservoir and increased levels of nutrients released from the sediments. For example, in the summer of 2007 as the nitrate concentration in the bottom layer of the reservoir was near zero, the Occoquan Laboratory detected a maximum of 5 mg/L of ammonia nitrogen and over 1 mg/L of phosphorus, much of it in the dissolved form. During the fall season circulation (turnover), such conditions are known to cause algae blooms due to nutrient over enrichment, which in turn lead to water quality degradation. The data in Exhibit 2 also indicates that removing nitrates from the reservoir may result in increases of nitrogen and phosphorus delivered to the Potomac River and the Chesapeake Bay.

Response

Thank you for your thoughtful comment and summary of research in the functioning of the Occoquan system. EPA looks forward to working with UOSA and OWML on methods of simultaneously maintaining water quality in the Occoquan reservoir and reducing loads of nutrients to the tidal Potomac River and also on improvements to the technical tools supporting the Bay TMDL in an adaptive management framework.

Comment ID 0231.1.001.017

Author Name: Boepple Charles

Organization: Upper Occoquan Sewage Authority (dba Upper Occoquan Service Authority)

[Exhibit 1- OWML Report. See Exhibit 1 in original document 0231.1]

Response

Please refer to the response to comment 0231.1.001.003.

Comment ID 0231.1.001.018

Author Name: Boepple Charles

Organization: Upper Occoquan Sewage Authority (dba Upper Occoquan Service Authority)

[Exhibit 2-Recent Water Quality Effects Due to TN Loads Reduction. See Exhibit 2 in original document 0231.1]

Response

Please refer to the response to comment 0231.1.001.003.

Comment ID 0238-cp.001.002

Author Name: Pangraze P.

Organization: Holladay Properties, Inc.

The EPA should delay adoption of the TMDL and backstops for at least one year and until no sooner than December 31, 2011 for the following reasons:

The model used to establish the TMDL has three significant flaws: (1) data used for existing impervious surfaces is overstated by a 2.5 magnitude; (2) the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and (3) the model incorrectly accounts for pollutants from different land uses. It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Response

Under the Clean Water Act and existing TMDL regulations, EPA is required to use the best available data and information. Building upon decades of Chesapeake Bay region focused scientific investigations, monitoring of the Bay's tidal waters, watershed and airshed since early 1980s, tracking of implementation practices and technologies for the past 25 years, and application of continually upgraded modeling tools by the partnership since the 1980s, the Bay TMDL was developed consistent with these requirements.

Fluctuations in the extent of developed lands in different versions of the watershed model are due to changing technology and methods for mapping developed lands and inferring change over time using a combination of datasets. For each version of the Chesapeake Bay Watershed Model (now in its fifth version since the early 1980s) , EPA has strived to use the best available data and methods to provide information that is accurate, consistent, and comparable across the watershed and over time.

As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010 (accessible at http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf) EPA recognized the concerns expressed by its jurisdiction partners about the impervious surface estimated. Within that letter, EPA committed to updating the Phase 5.3 Chesapeake Bay Watershed Model, not for the December 31 2010 TMDL, but for the phase II Watershed Implementation Plans, which will be due after the 2010 TMDL. In accordance with court documents, EPA does not have the ability to ignore the December 31, 2010 deadline. Adjustments to the the Bay TMDL allocations, if warranted, would be made at that time.

Verified, non-cost shared conservation practices implemented by producers can be accounted for and credited in the Chesapeake Bay Watershed Model, but historically have not been included to a great extent because the vast majority of those practices were never tracked, verified and reported to EPA. Non-cost shared practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These non-cost shared practices are typically funded by producers alone. However, under accounting of these non-cost shared practices does not effect the development of allocations under the Bay TMDL. It does directly effect our collective understanding of how much further reductions are required to achieve the TMDL's allocations.

EPA has already been working closely with U.S. Department of Agriculture (USDA), the U.S. Geological Survey, the National Association of Conservation Districts, the environmental and agricultural agencies of the six Chesapeake Bay watershed states, conservation districts, agribusiness, and the agricultural community at large to put in place the infrastructure necessary to tracking, verify, report and credit nutrient and sediment reductions from non-cost shared practices. As committed to in the President's Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to ensure that "By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented."

BMP and conservation practice effectiveness estimates, which are critical to decision-making, are generally based on a 2-year study lead by the Mid-Atlantic Water Program—a consortium of the region's nine land grant universities—involving extensive peer-reviewed scientific literature, field studies, and input from technical panels comprised of USDA, NRCS, state land grant universities, state agricultural agencies, and key practitioners.

EPA can accept additional verified practices for use in the model on an ongoing basis. The Phase 5.3 Chesapeake Bay Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through the Chesapeake Bay Program partnership's protocol. The protocol is available at http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf. Because this formal BMP credit approval process takes two or more months to finalize, EPA allowed the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. This EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

The analysis tools that are used in the TMDL consider all sectors including waste water, forest, agriculture, runoff from developed areas, and atmospheric deposition. See section 5 of the final Bay TMDL.

The Chesapeake Bay Program Partnership watershed model has been in use for over 2 decades. It has been continually refined over that time period. The Phase 5.3 Chesapeake Bay Watershed Model has been built through collaboration with federal, state, academic, and private partners. Development teams at CBPO and USGS include EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of

several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. The range of loads from land use types and the sensitivity to inputs are informed by a great deal of peer-reviewed research was used and the input of these groups. All of these meetings are open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the final Bay TMDL.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed by several of the above groups. In addition, there have been 2 major independent reviews of the Phase 5 model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board.

Comment ID 0245-cp.001.002

Author Name: Coulter Laurie

Organization: Virginia Crop Production Association, Inc. (VACPA)

The Chesapeake Bay Model, the basis for nutrient and sediment reductions required by EPA, has been shown to have extensive flaws in the data it utilizes. EPA even acknowledges this fact. EPA should not move ahead with costly mandates based upon flawed modeling and data. In 2010, Virginia Cooperative Extension conducted a field observation study in the Coastal Plain. They found that 90% of crop acres were planted in no-till. Only 15% of the acres are enrolled in DCR's no-till program. The model is currently "throwing out" actual, ground-truthed data from Virginia because it does not meet the "modeled" land use data. This is unfair when the practices are meeting all requirements set forth by EPA. Federal actions must be based on accurate information. No additional regulations or penalties should be put on states or industries until the science and data have been proven.

Response

Please refer to the response to comment 0089.1.001.003.

Comment ID 0249.1.001.008

Author Name: Mixell John

Organization: Fort Littleton Wastewater

Given that 48 percent of the nitrogen load in streams in the Bay watershed is transported through ground water and that this information is not included in the Chesapeake Bay Model, how can the current Model have sufficient accuracy?

The accuracy of the Chesapeake Bay model should be in question because the model does not accurately account for

ground water as a source of nitrates. The United States Geological Service (USGS) conducted a multi-year study in the Chesapeake watershed of nitrate in ground water. The 2002 report (USGS Fact Sheet FS-091-03) states:

"An average of 48 percent of the nitrogen load in streams in the Bay watershed was transported through ground water, with a range of 17 to 80 percent in different streams."

The study also reports that due to lag time, the median age of this groundwater is 10 years with 25 percent of the samples having an age of 7 years or less and 75 percent of the samples having an age of up to 13 years.

During the March 25 EPA TMDL webinar, a question was asked about whether this ground water nitrate data was accounted for in the Chesapeake Bay model. Mr. Richard Batiuk answered the question stating that it was not currently part of the model but that the model was designed to accommodate that information when it became available.

Response

Please see the response to comment 0217.1.001.009

Comment ID 0250-cp.001.003

Author Name: Eberly C.

Organization:

The proposed TMDL computer model does not take into account the many conservation practices such as nutrient management plans that farmers have already implemented. The model does not account for Best Management Practices already in place.

Response

EPA agrees with the commenter that non-cost shared practices are likely under-counted due to difficulties in data collection

Verified non-cost shared practices can be accepted in the model, but historically have not been included to a great extent because the information has not been made available to the Chesapeake Bay Program. Voluntary practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These voluntary practices are typically funded by farmers alone. EPA is committed to working with USDA, NACD, state environmental and agricultural agencies, conservation districts, and agricultural community at large to credit nutrient and sediment reductions from voluntary practices. As committed to in the Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to “By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented.”

Comment ID 0251.1.001.006

Author Name: Duckett Robert

Organization: Peninsula Housing & Builders Association (PHBA)

PHBA members also have significant concerns about proven deficiencies in the Chesapeake Bay Model. Data from the model significantly affect the pollutant loading of the Watershed Implementation Plans being developed by the Bay states. The independent United States Geological Survey has questioned the accuracy of the impervious surface data in the model, and others have questioned the accuracy of the agricultural BMP projections. Those two (2) flawed data points are just a sampling of other significant flaws in the model that are resulting in lower nutrient caps for all Bay states. For this reason alone, the EPA should delay implementing the TMDL. If the model is deficient, the final pollutant loads will be deficient.

Response

Please refer to the response to comment 0238-cp.001.002.

Comment ID 0253.1.001.007

Author Name: Hazelett Virgil

Organization: County of Henrico, Virginia

The manner in which EPA incorporated computer modeling into its decision-making process also resulted in less than acceptable regulatory transparency. The Phase 5.3 Chesapeake Bay Watershed Model computer model (CBWM) is enormous, and has been described as one of the world's largest environmental models. The 64,000 square-mile watershed spans roughly one-quarter of the East coast of the United States. However, CBWM is only a component in the larger Chesapeake Bay Program suite of models. Four major modeling components are used to develop the input data for CBWM. A substantial amount of nitrogen is deposited from the atmosphere into the Bay, and land use changes have significant implications for nutrient and sediment loading. All of this data is pre-processed in antecedent models, and then aggregated in a tool called the "Scenario Builder."

The Scenario Builder was supposed to be available to the modeling community as part of the Chesapeake Bay Modeling Program, but has not yet been released outside EPA. Absent the Scenario Builder, modelers must rely on EPA to process the input data to CBWM, and cannot improve the model with local data. In fact, all of the 'modeling' that has been done by the State of Virginia to date is in essence 'post-processing' of EPA modeling results rather than independent modeling.

To date EPA has not been able to document the tremendous amount of input data required for the TMDL modeling effort. The Virginia Department of Conservation and Recreation requested mapping from the Chesapeake Bay Program Office (CBPO) that would indicate locations of various urban land use categories (such as Impervious High Intensity, Impervious Low Intensity, Pervious High Intensity, and Pervious Low Intensity) used in the Phase 5.3 TMDL modeling. CBPO indicted that significant effort would be required to produce such mapping. Likewise, there is very little documentation that would allow modelers outside EPA to ascertain how the data was collected and synthesized, which

makes working with CBWM a highly unreliable proposition at the state and local levels. More thorough disclosure of documentation is sorely needed, not merely on the model, but just as importantly on the data. The County will defend vigorously any claim of waiver due to failure to submit comments to the TMDLs on the basis that EPA withheld pertinent inforn1ation to evaluate the program.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0253.1.001.009

Author Name: Hazelett Virgil

Organization: County of Henrico, Virginia

i. The Phase 5.3 CBWM has not been calibrated

EPA claims that the Phase 5.3 CBWM model has been calibrated. Yet 920 square miles of urbanized land have been erroneously entered as 'forest' in the model. A recalibration effort was expected to begin in October 20 I0, but will be too late to be adequately addressed by the 31 December 2010 mandated deadline for final publication of the Chesapeake Bay TMDL. EPA has promoted an "adaptive management approach" in developing this TMDL, thereby creating many moving goalpost situations. There are inherent problems with any calibration effort, and CBWM is no exception. There are many ways to tweak input variables in a complicated model to make the output approximate a series of observed data-a phenomenon known as 'equifinality'-and CBWM has a massive amount of input variables.

One indication of calibration problems is with sediment loading computations. CBWM cannot adequately match observed data for sediment loading, which held up the release of working sediment limits to the states until a month before their Watershed Implementation Plans (WIPs) were due. To accommodate the schedule, EPA adopted a "pucker factor" approach-to sidestep this problem with the model. If the Phase 5.3 model was adequately calibrated, sediment computations could be handled in a straightforward manner.

Many of the TMDL limits are targeted to pollutant reduction levels that are considerably less than the margin of uncertainty in the modeling process itself. Dr. Kathy Boomer of the Smithsonian Institute has conducted specific research and concluded that the margin of uncertainty in the TMDL models was much greater than the reductions being sought in pollutant loading. Dr. Ken Reckhow of Duke University (who chaired the Chesapeake Bay TMDL Review Committee for the National Academy) has repeatedly cautioned regulators against reporting modeling results without stipulating the uncertainty. Dr. Reckhow notes that TMDL prediction uncertainty is high, and Chesapeake Bay modelers have had issues with political decision makers being able to understand uncertainty. However, Section 5 of the Draft TMDL states:

"Models have some inherent uncertainty. Because of the amount of data and resources taken to develop, calibrate, and verify the accuracy of the Bay models, the uncertainly of the suite of models is minimized."

Quite the opposite is true - the amount of data and complexity of the system work to increase the uncertainty, particularly when the source and content of the data have not been disclosed. Such a statement cannot be substantiated, and certainly not with vague assurances that the model is based on "good" or "strong" science.

It is important to note that the mathematical equation for a TMDL is:

TMDL = Sum of Wasteload Allocations + Sum of Load Allocations + Margin of Safety

and the margin of safety is supposed to account for uncertainty in ensuring that the TMDL is effective, but there are errors and uncertainties in the computation of the load allocations themselves.

There are very few (perhaps only three or four) knowledgeable technical persons with meaningful CBWM modeling experience in Virginia. For a model that will be used as the basis for billions of dollars in regulatory mandates, the technical community is lacking the checking and validation that comes from widespread use. There is no significant bug reporting and code fixing occurring, and what little modeling is being performed is being done with data that has been distributed from EPA without enough documentation to check its validity. Other computer models, such as the EPA's own Storm Water Management Model (SWMM), have many years of active, widespread use, and debugging and code fixes occur continuously. The user community helps drive improvements that make SWMM a very well understood and reliable model. Conversely, CBWM is essentially an untested and unapplied model in 2010. The development of CBWM is undoubtedly an ambitious and worthwhile undertaking, but reasonable time has to be given to grow and mature CBWM to the point that it can be reliably used to justify billions of dollars of expense.

ii. The Phase 5.3 CBWM does not produce reliable modeling results

EPA distributes the CBWM computer program in un-compiled form, meaning that in order to run the model users must obtain a FORTRAN compiler and generate the executable computer programs from the source code. However there is a known and still unresolved problem with CBWM producing different results when compiled on different computers. Identical input data was run on different computers in August 2010 for the James, York, and Rappahannock Rivers, and CBWM produced significantly different results-with variations as high as 36% in the answers. The reliability ofCBWM cannot be corroborated until repeatable results can be produced. EPA is working on this problem, but its self-imposed TMDL schedule demands do not allow the time required to produce reliable and scientifically verifiable models and modeling results.

iii. EPA is using the CBWM on a scale that is beyond its predictive capability

Due to the 64,000 square-mile extent of CBWM, there is an inherent problem of scale when addressing BMPs. CBWM is better suited for overarching computations on larger scales, such as evaluating the effects of fertilizer applications on large segments of the Bay watershed, than it is in evaluating the effects of a particular BMP or group of BMPs on specific sites. EPA staff has acknowledged that the effects of individual, site-specific BMPs cannot be directly addressed in CBWM. Because the model is constructed on such a large scale, numerical effects of BMPs are lumped or aggregated in the modeling input data. This scale problem makes it very difficult for local governments to evaluate the feasibility of costly BMPs such as filtration devices and detention and retention basins that will have to be constructed to achieve water quality improvements. A single retention basin can easily cost millions of dollars, yet its effects cannot be directly isolated and evaluated in CBWM.

iv. Existing imperviousness is underestimated in the CBWM

The Phase 5.3 CBWM model was prepared based on satellite photography. Early indications from four Virginia municipalities are that the use of satellite imagery has produced estimates of watershed imperviousness that are approximately 20 percent too low, which has significant implications for the amount of pollution that runs off each watershed. Localities, including Henrico County, have better imperviousness data in their Geographic Information Systems, but the TMDL development schedule did not allow time for EPA modelers to coordinate and collect this information from the localities. The implication is that if existing watershed imperviousness is underrepresented in CBWM, then so will be the existing pollution from urbanized areas. This inaccuracy could easily result in computed TMDL limits that are unattainable because in order to satisfy their "pollution diet," municipalities will have to reduce pollution based on modeling data that assumes they are substantially (20 percent) less impervious than they actually are. In other words, if their pollution diet starts by assuming that they have 20 percent less pollution-producing impervious cover than they actually have, then in order to meet their TMDL limits they would have to reduce all pollution from that 20 percent plus the reductions mandated by the TMDL-which are themselves very difficult to achieve. Refusal to accept more accurate data as the price of meeting an unrealistic deadline is a recipe for failure as well as a violation of the spirit, if not the letter, of the Administrative Process Act.

v. There is no groundwater component in the CBWM

The absence of a groundwater component to the model is significant because groundwater transport of nutrients is a major source of pollution in the Bay. Ironically, many of the Best Management Practices (BMPs) that will be used to satisfy the TMDLs are based on removal of pollutants by infiltration, which is not addressed in the model ing. This lack of a groundwater component in CBWM means that pollutants that are routed into infiltration BMPs magically disappear from the computational universe-when in reality they are deposited into groundwater that eventually flows into the Bay.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0253.1.001.018

Author Name: Hazelett Virgil

Organization: County of Henrico, Virginia

The Model results that are the basis for the proposed allocations are clearly lacking in the level of precision and certainty required to justify the resulting bi Jlions of dollars in costs. EPA professes to be taking an adaptive management approach to the TMDLs; but in reality, EPA is taking a legal and regulatory approach to the TMDLs by establishing the TMDLs based on incomplete and flawed science and then seeking to supply the missing documentation after the fact.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0265.1.001.020

Author Name: Clark, Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Hampton, Virginia

Particularly significant is EPA's failure to make critical components of its TMDL decision support system, such as the Scenario Builder software and reliable Phase 5.3 Model source codes and data, available to the modeling community outside of EPA. Without access to these components, modelers retained by stakeholders such as the Hampton Roads Localities must blindly accept model inputs from EPA and must rely upon EPA to stitch together various patches and workarounds to get the Model to run. This has the effect of making an already inadequate 45-day comment period even shorter as modelers outside of EPA are forced to wait for EPA to run the Model and produce the results, leaving them without adequate time to evaluate and understand the data. Under these circumstances, there is little that the modeling community can do to apply the Phase 5.3 Model in any independent or meaningful manner within the very limited period of time provided by the comment period.

Further, although experts have previously reviewed portions of the Phase 5.3 Model code and data, substantial amounts of the current modeling code and data have been produced at breakneck speed with little or no verification either by the experts who checked portions of earlier versions of the code or by engineers or scientists in academia or the private sector. EPA's blind adherence to an artificial schedule and rollout of the Model and data has effectively prevented-and will continue to prevent-modelers outside of EPA from using the Model to:

• Understand how the complex physical processes are being modeled, • Validate or check model input or output data,

• Use the Model to analyze pollution treatment alternatives such as BMPs, or

• Contribute to debugging and improving the Phase 5.3 Model through any meaningful testing and feedback processes.

Additionally, as explained below in Section VI, EPA's failure to make available post-processing performed on all of the chlorophyll-a modeling scenario runs has made it extremely difficult for the Localities' consultants to evaluate and comment on the differences in the model runs.

Finally, EPA has not mapped the data used in the Model despite requests for such mapping from the Virginia Department of Conservation and Recreation. The requested mapping would indicate locations of various urban land use categories (such as Impervious High Intensity, Impervious Low Intensity, Pervious High Intensity, and Pervious Low Intensity) used in the Phase 5.3 modeling. Likewise, there is very little documentation that would allow modelers outside of EPA to ascertain specifically how the data was collected and synthesized, which makes working with the Phase 5.3 Model a shot-in-the-dark proposition at the state and local levels. A single scenario run of the Phase 5.3 Model involves hundreds of input data files and produces some 60,000 intermediate and output files. Geographic Information System

technology is best used to map this type of data to its sources, but without mapping, there is no way to ensure that sheep are not modeled as grazing in downtown areas, or that urban areas are not modeled as forest (both of which anomalies have been discovered in the Phase 5 model).

Response

Watershed model development process

The Chesapeake Bay Watershed Model and the input data sets have had four formal partnership-driven cycles of development, calibration, verification, and management application since the mid-1980s, supporting programmatic and policy decisions and directions embedded within the 1987 Chesapeake Bay Agreement, 1992 Amendments to the Chesapeake Bay Agreement, the 1997 Nutrient Reevaluation, and the Chesapeake 2000 Agreement. With the development and publication of the Bay TMDL, the partnership has carried out the fifth such cycle supporting management decision-making.

The technical direction for the development, management application, and independent review of the Chesapeake Bay Program Partnership's models is carried out through several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. Descriptions of each of these groups is provided within Section 1 of the final Bay TMDL report. Each has broad representation by federal, state, local, academic, and private groups. Programmatic and policy direction on the application of the models and their use in supporting decision making is undertaken through the partnership's Management Board (previously the Implementation Committee) and the Principals' Staff Committee. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. All the independent scientific peer reviews of the models are carried by the Chesapeake Bay Program's Scientific and Technical Advisory Committee. Links to records of these meetings and conference calls can be found in Appendix C of the final Bay TMDL.

The Phase 5.3 Watershed Model was been developed, calibrated and verified through collaboration with federal, state, academic, and private partners. Development teams at the Chesapeake Bay Program Office (CBPO) and the U.S. Geological Survey (USGS) included EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed and approved by several of the above groups. All the Phase 5.3 Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf.

The Chesapeake Community Modeling Program, an organization supported by and staffed by academic institutions across the Chesapeake Bay watershed, hosts the open-source code of the Chesapeake Bay Phase 5.3 Watershed Model on its website. This model code has been accessed by and is being used by numerous academic institutions, states and others in supporting local, regional and state-wide decision making. The Phase 5.3 Watershed Model's code can be accessed at the Chesapeake Community Modeling Program's website at http://ches.communitymodeling.org/models/CBPhase5/datalibrary.php.

In addition, there have been two independent scientific peer-reviews of the Chesapeake Bay Phase 5 Watershed Model in 2005 and 2008 involving scientists drawn from across the country-Penn State University, Virginia Tech, Duke University, University of

North Carolina, University of Maryland Baltimore County, and University of Florida—and overseen by the Scientific and Technical Advisory Committee. These independent peer reviews and the Chesapeake Bay Program partnership's responses can be found at:

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

Scenario Builder availability, production, and review
Best management practice (BMP) and conservation practice effectiveness estimates, which are critical to decision-making, are based on a 2-year study, undertaken by the Mid-Atlantic Water Program, a consortium of the nine major land grant universities, involving extensive peer-reviewed scientific literature, field studies, and input from technical panels comprised of USDA, NRCS, state land grant universities, state agricultural agencies, and key practitioners. Extensive information and documentation regarding the effectiveness estimates is available at
http://www.chesapeakebay.net/watershedimplementationplantools.aspx?menuitem=52044.

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the support database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site.

Urban land use estimations and Use of local data
The Chesapeake Bay Watershed Model and Scenario Builder are accounting tools used to inform the TMDL by comparing loads, load reductions, and reduction capacity across jurisdictions and across sectors. As such, it is necessary to provide similar assumptions and use of data across these jurisdictions and sectors. All data and methods must be vetted through the technical direction structure.

Fluctuations in the extent of developed lands (impervious and pervious) in different versions of the watershed model are due to changing technology and methods used for mapping developed lands and for inferring change over time. Changes have also been prompted by concerns expressed by the States, local governments, and other interested parties. For each version of the Chesapeake Bay Watershed Model, the Chesapeake Bay Program Office strives to use the best available data and methods to provide information that is accurate, consistent, and comparable across the watershed and over time. A new version of the Watershed Model, Phase 5.3.2, will be coming out soon and will include an extent of impervious surface greater than that used in any previous version of the model due to the inclusion of impervious surfaces associated with all roads and single-detached housing units outside

of dense urban areas.

The Chesapeake Bay Phase 5.3 Watershed Model is used to set the TMDL and also account for implementation progress. The data used in the model calibration, running TMDL scenarios, development of the Watershed Implementation Plans (WIPs), and assessment of implementation progress is self-consistent. The point of this consistency is to avoid the issue raised within the comment. The computed TMDL limits are by definition attainable through implementation of practices as long as the same assumptions are used for all scenarios. Substituting new data after the calibration, TMDL scenarios, and WIPs would create situations where the goals were easier or more difficult to achieve based on a different data source, rather than an actual change in land use or management.

Over the past six months, the US Geological Survey (USGS) has conducted additional ground-truthing of assumptions and data used to estimate the extent of impervious surface in the watershed. In addition, the analytical methods have undergone review by the Chesapeake Bay Program's Scientific and Technical Advisory Committee and are currently in review by USGS.

Even though local land use data are often more accurate than the generalized land use/cover data used to calibrate the Watershed Model, introducing local data for some but not all jurisdictions may impact the equity of the allocations. In addition, few jurisdictions have comparable digital land use data spanning the 20-year hydrologic period used to calibrate the Watershed Model and some local accuracy will likely be lost through translating local land classes into the more generalized land use dataset used in the Watershed Model. In spite these caveats, the Chesapeake Bay Program Office Land Data Team will work with the Urban Stormwater Workgroup to try and resolve these issues and to develop methods for incorporating local data into the land use dataset used to calibrate future versions of the Watershed Model (post Phase 5.3.2).

Phase 5.3 watershed model and SWMM

The Chesapeake Bay Phase 5.3 Watershed Model is an implementation of HSPF (hydrologic simulation program - Fortran). In the same way that SWMM has many years of active widespread use, HSPF has been in use since the 1970s as an open source code, supported by multiple agencies and an active user group.

Watershed model portability

EPA is working on the issue of the Chesapeake Bay Phase 5.3 Watershed Model producing different results on different operating system platforms. It was been verified that the computer code in use in the TMDL is running correctly at the CBPO. Some partners and stakeholders are finding that there are errors in reading some of the binary files upon download and installation on their facility’s operating system platforms.

Large scale of WSM makes it difficult to use to evaluate a single BMP

The Chesapeake Bay Phase 5.3 Watershed Model is best used in decision making across the Chesapeake Bay watershed at the major tributary basin, 92 Chesapeake Bay segment watersheds, and county scales, where consistency in the input data is important to ensure equity in allocations across sources and state and local jurisdictions. Local information and models would be more useful in choosing between different technologies and locations in a specific local area. Thank you for the suggestion that the EPA assist local governments with development of a tool relevant to the TMDL and to local users. EPA will consider this during the Phase II and Phase III WIP development.

Groundwater

EPA agrees that the U.S. Geological Survey (USGS) estimates that approximately 50% of the nitrogen that reaches the tidal water flows through the groundwater at some point in its path to the Chesapeake Bay. Groundwater delivery of water and nutrients is simulated in the Phase 5.3 watershed model. Please see the Phase 5.3 Chesapeake Bay Watershed Model report at http://www.chesapeakebay.net/model_phase5.aspx?menuitem=26169 for more details.

Uncertainty or equifinality

Equifinality is a known issue with all deterministic watershed models, however few models are analyzed to account for this. The modified Monte Carlo or GLUE methods most often used as tools to address equifinality are not feasible to implement on a watershed model of this complexity.

The Chesapeake Bay Phase 5.3 Watershed Model was adequately calibrated for flow, nutrients, and sediment in March 2010. All the Phase 5.3 Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf.

As stated in section 5 of the TMDL report, the complexity in the case works to decrease the uncertainty in the decision. In empirical modeling, increasing parameters generally increases the uncertainty of a given parameter, not of the prediction. However, in this type of deterministic modeling where the watershed model is used as an accounting tool, the removal of components to simplify the modeling would not improve the decision-making process. For example, it is clear that using fewer calibration stations, gathering less BMP information, eliminating land use types, etc would almost certainly result in a decrease in accuracy of the model and fairness of the allocations.

As described in section 6.2.3 of the Draft TMDL document, the implicit margin of safety in the nutrient allocations due to conservative TMDL and modeling assumptions accounts for uncertainty in the models. Due to additional uncertainty in the sediment modeling, an additional explicit margin of safety was adopted which reduced the available loading for Load Allocation and Waste Load Allocation.

Relationship of uncertainty to sediment allocations

The timing of the sediment versus the nutrient allocations was procedural. EPA and its jurisdictional partners needed to establish the basinwide and major river basin by jurisdiction nitrogen and phosphorus allocations needed to achieve the jurisdictions' dissolved oxygen and chlorophyll a water quality standards first. Given that water clarity is influenced by the level of algae within the water column and growth of algae on the surface of the underwater bay grasses, both fueled by too much nitrogen and phosphorus loads, the nitrogen and phosphorus allocations had to be set first. Then, any further reductions in sediment loads needed to be achieved to meet the jurisdictions' underwater bay grasses/water clarity standards could then be determined.

As the described in detail in Section 6 of the final Bay TMDL, it was recognized uncertainty in the Chesapeake Bay Water Quality and Sediment Transport Model's simulation of shallow-water water clarity conditions and resultant grow of underwater bay grasses (not the Chesapeake Bay Watershed Model's simulation of sediment loads) that led EPA to apply an explicit margin of safety in deriving the sediment load allocations.

Adaptive management approach

As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the phase 5.3 will be updated, not for the December 31 2010 TMDL, but in support of development of the Phase II Watershed Implementation Plans, which will be due after the 2010 TMDL. EPA has clearly stated that adjustments may be made to the allocations at that time and reflected in amendments to the 2010 Bay TMDL. Changes to the model generated numbers are a direct result of improving inputs data and simulation methods.

The same Shawn Garvin letter states "prior to 2017, EPA plans to review the full suite of the partnership's Bay models based on the best available science and decision-support tools and consider whether updated models should be developed to support phase III implementation plans and potential modifications to the Bay TMDL allocations." New data and science will always continue to become available and, as stated in the above mentioned letter, EPA is using an adaptive management approach to incorporate new information as it becomes available with scheduled upgrades during 2011 and 2017. There is no anticipation of jurisdictions over-controlling nutrients in the interim.

Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf.

EPA is promoting an adaptive management approach, but towards the same goal post as the Bay TMDL—restored Chesapeake Bay water quality as defined by Delaware, Maryland, Virginia, and the District of Columbia's Chesapeake Bay water quality standards regulations.

Comment ID 0265.1.001.022

Author Name: Clark, Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Hampton, Virginia

B. The Model does not produce consistent, reliable results.

The Localities are not suggesting that there must be absolute precision in the Model's predictive capability. However, given the significant widespread financial consequences of even small changes in the Model's outputs, the Localities have every right to expect the accuracy of the Model inputs to be verified and the Model to be fully calibrated so that it produces consistent predictions within a reasonable margin of certainty before the Model is used to develop the TMDL.

The Model's inability to produce consistent predictions is further evidence that it is not ready to be used for TMDL development. EPA distributes the Phase 5.3 Model program in un-compiled form, meaning that in order to run the model users must obtain a FORTRAN compiler and generate the executable computer programs from the source code. However, there is a known and still unresolved problem with the Model producing different results when compiled on different computers. Identical input data was run on different computers in August 2010 for the James, York, and Rappahannock river basins, and the Phase 5.3 Model produced significantly different results, with variations in the answers as high as 36 percent. The reliability of the Model cannot be corroborated until repeatable results can be produced. EPA indicates that it is working on this problem, but again, the demands of EPA's self-imposed deadline to establish the TMDL far exceed the time required to produce a reliable watershed model and modeling results. Development of the Phase 5.3 Model is undoubtedly an ambitious and worthwhile undertaking, but a reasonable

amount of time has to be devoted to testing and refining the Model to the point where it can be reliably used to justify billions of dollars in expenditures.

The implications of EPA's rush to establish the TMDL before the Model and model inputs are significant. Many of the allocations are targeted to pollutant reduction levels that are considerably less than the margin of uncertainty in the modeling process itself. As a consequence, the TMDL likely will burden the Localities and many others with extraordinary costs that do not produce a measurable water quality response. Dr. Kathy Boomer [FN 10] of the Smithsonian Environmental Research Center has conducted specific research and noted that the margin of uncertainty in the TMDL component models was much greater than the pollutant loading reductions being sought. Dr. Ken Reckhow with Duke University [FN 11] (who chairs the National Academy of Sciences Panel on the Evaluation of Chesapeake Bay Progress Implementation for Nutrient Reduction to Improve Water Quality) notes that TMDL prediction uncertainty is high, and has repeatedly cautioned regulators against reporting modeling results without stipulating the uncertainty. The Localities request that EPA report the uncertainty of the model in the documentation submitted with the final TMDL.

Unfortunately, it is apparent that EPA is intent on papering over the uncertainty in the modeling results and its consequences as reflected in the following from Section 5 of the TMDL Report:

Models have some inherent uncertainty. Because of the amount of data and resources taken to develop, calibrate, and verify the accuracy of the Bay models, the uncertainly of the suite of models is minimized.

Quite the opposite is true - the amount of data and complexity of the system work to increase the uncertainty.

[FN 10] See http://vimeo.com/12080139

[FN 11] See http://www.rti.org/page.cfm?objectid=8C8E7BCD-5056-B100-0CC50391AF13C8C4

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0265.1.001.023

Author Name: Clark, Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Hampton, Virginia

C. The Model does not accurately predict the true extent of the TMDL's burdens on the Localities and resulting water quality benefits.

As explained above, the average 54 percent (James River) and 59 percent (York River) load reduction needed to achieve the backstop allocation for phosphorus would require treatment of approximately 68 to 74 percent of the urban area in the Hampton Roads Localities at a total estimated cost of approximately $9.8 billion plus the costs of land

acquisition. EPA concludes from its modeling predictions that this and the other load reductions called for in the TMDL will achieve compliance with the applicable water quality standards, but an analysis of the Model and its inputs indicates that the modeling predictions underestimate the extent of the load reductions that will be required of the Localities' MS4s and overestimate the resulting water quality benefits.

1. Existing imperviousness is underestimated in the Phase 5.3 Model.

EPA has acknowledged the inaccuracies in the land use data used in the Model by setting aside the five percent allocation reserve discussed above. However, this reserve hardly begins to account for the inaccuracies in the data. An analysis of representative Geographic Information System (GIS) land use data from eight of the Localities shows that the satellite imagery used by EPA for its land use inputs to the Model underestimates the extent of imperviousness in the Hampton Roads region by an average of approximately 48 percent. See Exhibit D. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0265.1] The imperviousness data in the Localities' GIS systems is more accurate than the satellite imagery relied on by EPA, but EPA's TMDL development schedule did not allow time for EPA modelers to coordinate and collect this information from the Localities.

The implications of the underestimated extent of imperviousness are significant because it means that the Localities will have to reduce their urban runoff loads based on modeling data that assumes that they are substantially less impervious than they actually are. In other words, the land area that will have to be treated in order to attain the allocations is considerably greater than the approximate 68 to 74 percent of urban land area assumed in the financial impact analysis described above as will the costs and time required to attain the allocations.

2. Groundwater is a substantial transport mechanism for nutrients into the Bay, but the Phase 5.3 Model lacks a groundwater transport capability.

The Phase 5.3 Model does not contain a groundwater transport component - a significant deficiency because groundwater transport of nutrients is a major source of nitrogen loads discharged to the Bay. As noted on the Chesapeake Bay Program's web site [FN 12]: According to a 1998 study by the U.S. Geological Survey (USGS), groundwater contributed nearly half (48 percent) of the total nitrogen load to streams in the Bay watershed.Groundwater contributes to river flow, or the amount of fresh water flowing from streams and rivers into the Bay. In a 1998 study, the USGS found that in an average year, of the 50 billion gallons of streamflow that enter the Bay each day, nearly 27 billion gallons are from groundwater. It can take years for groundwater - and the pollutants it may carry - to slowly travel through aquifers before reaching the streams and rivers that flow to the Bay. This "lag time" can make it difficult to determine whether efforts to reduce pollution throughout the Bay watershed are having a positive effect on the Bay's health. Ironically, many of the controls that will be employed to achieve the urban runoff load reductions needed to comply with the allocations in the TMDL are based on removal of pollutants by infiltration. Nitrogen and phosphorous are elements, and as such, they persist in nature. The absence of a groundwater component in the Model means that nutrient loads that are routed into infiltration BMPs magically disappear from the computational universe, when, in reality, they are deposited into groundwater that eventually flows into the Bay.

[FN 12] Source: http://www.chesapeakebay.net/groundwater.aspx?menuitem=14716

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0265.1.001.030

Author Name: Clark, Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Hampton, Virginia

Finally due to the 64,000 square-mile extent of the Model, there is an inherent problem of scale when addressing urban runoff controls. The Model is better suited for overarching computations on larger scales, such as evaluating the effects of fertilizer applications on large segments of the Bay watershed, than it is in evaluating the effects of a particular control or group of controls on specific sites. EPA has acknowledged that the effects of individual, site-specific controls cannot be directly addressed in the Phase 5.3 Model. [FN 18] Therefore, we recommend that EPA develop guidance for localities that will allow them to evaluate specific alternative controls consistent with the Phase 5.3 modeling. Such guidance would require EPA to overcome the inherent scale problem in the Phase 5.3 model, problems with BMP efficiency rates, problems with sorting out and correcting the modeling data, and would allow the Localities and other localities with MS4s to make informed, intelligent decisions without requiring them to translate this very complicated technology completely on their own.

[FN 18] EPA Chesapeake Bay TMDL March 25, 2010 Webinar

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0269.1.001.008

Author Name: Mixell John

Organization: Forbes Road School District

Given that 48 percent of the nitrogen load in streams in the Bay watershed is transported through ground water and that this information is not included in the Chesapeake Bay Model, how can the current Model have sufficient accuracy?

The accuracy of the Chesapeake Bay model should be in question because the model does not accurately account for ground water as a source of nitrates. The United States Geological Service (USGS) conducted a multi-year study in the Chesapeake watershed of nitrate in ground water. The 2002 report (USGS Fact Sheet FS-091-03) states:

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The study also reports that due to lag time, the median age of this groundwater is 10 years with 25 percent of the

samples having an age of 7 years or less and 75 percent of the samples having an age of up to 13 years.

During the March 25 EPA TMDL webinar, a question was asked about whether this ground water nitrate data was accounted for in the Chesapeake Bay model. Mr. Richard Batiuk answered the question stating that it was not currently part of the model but that the model was designed to accommodate that information when it became available.

Response

Please see the response to comment 0217.1.001.009.

Comment ID 0272.2.001.012

Author Name: Pippel Julie

Organization: Maryland Association of Municipal Wastewater Agencies, Inc. (MAMWA)

EPA's Approach to Modeled BMPs Should Be Improved

EPA's decision to model BMPs for forward-looking management scenarios based upon historically-average BMP management is inadequate. It is well known that historically many nonpoint source BMPs have not been accompanied by programs or methods to ensure proper design, installation, operation, or maintenance. It is reasonable that model calibration scenarios should assume, at a minimum, historical "average" management conditions. Any other approach-including the use of conservatively low values-would make the model less accurate and force management decisions that may be more costly and/or provide less benefit. However, it is neither necessary nor reasonable for forward-looking management scenarios to retain the assumption of historical averages, i.e., simply accept poor performance of the past. Rather, improvements in the way BMPs are installed, operated, and maintained should be considered and incorporated in the TMDL and underlying modeling. In other words, modeled TMDL allocations scenarios should reflect the manner in which BMPs should be designed, operated, and maintained, not necessarily how they have historically been managed.

One example of where EPA and the Bay States have assumed a high level of nutrient removal performance is for wastewater treatment plants. The performance expected and used in the model is based on properly installed, operated and maintained facilities. The standard for performance relative to design of other nutrient removal strategies (e.g., BMPs, filter feeders, etc.) used in the Bay model should not be allowed to drop to a lesser standard.

For these reasons, MAMWA requests that EPA revise its modeling approach to incorporate this suggestion.

Response

The conservative estimate of effectiveness is part of the implicit margin of safety that you specifically recognize in part VII.C of your comment.

EPA does not agree that it is reasonable to assume that future management practices will have better design, installation, and operation and maintenance than past experience indicates. A specific program to improve these practices would be viewed as a separate, additional BMP. An example in the current phase 5.3 model is that "Dry Extended Detention Ponds" have a higher efficiency than "Dry Detention Ponds" due to an improved design.

EPA can accept additional verified practices for use in the model on an ongoing basis. The Chesapeake Bay Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

Comment ID 0278-cp.001.001

Author Name: Comment Anonymous

Organization:

The model used to establish the TMDL has three significant flaws: (1) data used for existing impervious surfaces is overstated by a 2.5 magnitude; (2) the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and (3) the model incorrectly accounts for pollutants from different land uses. It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Basing regulations while knowingly using flawed data is not in the best interest of the Citizens or the Environment.

Response

Please see the response to comment 0238-cp.001.002

Comment ID 0282-cp.001.001

Author Name: Tabb Lyle

Organization: Lyle C. Tabb & Sons, Inc.

My concern with the current proposed TMDL and future requirement for practices such as stream fencing, buffers, cover crops, no till, nutrient management, etc. is that this eastern panhandle area of West Virginia is already way ahead of the curve on all these things plus many others. This area has been preaching and practicing progressive environmental practice for at least 40 years. Extension Service, Soil Conservation Districts, NRCS, FSA, Chesapeake

Bay Foundation, WV Department of Agriculture, SARE, and RC&D have all been promoting and implementing practices to save soil, prevent nutrient loss and prevent water pollution. The ag sector in this area was sequestering nutrients before the term was coined. It's been called cover crops and crop rotation along with no till production. Pasture management is another tool that has been used with regularity.

At this time, the first problem with your amounts of N, P and sediment for agriculture is that all amounts as presented at the Martinsburg, WV meeting of November 3, 2010 are calculated amounts, not actual measured amounts. I would ask the reader of this letter (if it gets read) to consider being accused of something and sentenced to a penalty without proof of what you were accused of. My point is that models established by people that have never been on the land, the streams or sampled discharge from farms are not valid.

Response

The commenter addresses two points, the incorporation of existing BMPs and the validity of the modeling.

EPA agrees that significant progress has been made in implementation of management practices to reduce nitrogen, phosphorus, and sediment over the past 2-3 decades and this has resulted in observed decreases in nitrogen, phosphorus, and sediment concentration independent of flow in many areas of the watershed. The commenter is referred to the following for clear illustrations of this progress:

http://www.chesapeakebay.net/status_flowadjustednitrogen.aspx?menuitem=50308

http://www.chesapeakebay.net/status_flowadjustedphosphorus.aspx?menuitem=50309

http://www.chesapeakebay.net/status_flowadjustedsediment.aspx?menuitem=50310

However, the state's Chesapeake Bay water quality standards have not been met and the TMDL is a requirement under federal law and responds to consent decrees in Virginia and Washington D.C. dating back to the late 1990s.

While it is clearly impossible to monitor the nutrient output of each source on a small scale, the watershed model uses water quality monitoring data from over 100 stations in the watershed as well as over 100 published papers on the relative release of nutrients from different land use types.

The Chesapeake Bay Watershed Model and the input data sets have four formal partnership-driven cycles of development, calibration, verification, and management application since the mid-1980s, supporting programmatic and policy decisions and directions embedded within the 1987 Chesapeake Bay Agreement, 1992 Amendments to the Chesapeake Bay Agreement, the 1997 Nutrient Reevaluation, and the Chesapeake 2000 Agreement. With the development and publication of the Bay TMDL, the partnership has carried out the fifth such cycle supporting management decision-making.

The technical direction for the development, management application, and independent review of the Chesapeake Bay Program Partnership's models is carried out through several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban

Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. Descriptions of each of these groups is provided within Section 1 of the final Bay TMDL. Each has broad representation by federal, state, local, academic, and private groups. Programmatic and policy direction on the application of the models and their use in supporting decision making is undertakend through the partnership's Management Board (previously the Implementation Committee) and the Principals' Staff Committee. All the independent scientific peer reviews of the models are carried by the Chesapeake Bay Program's Scientific and Technical Advisory Committee. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference calls can be found in Appendix C of the final Bay TMDL.

The Phase 5.3 Chesapeake Bay Watershed Model was been developed, calibrated and verified through collaboration with federal, state, academic, and private partners. Development teams at the Chesapeake Bay Program Office (CBPO) and the U.S. Geological Survey (USGS) included EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed and approved by several of the above groups. All the Phase 5.3 Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf.

In addition, there have been two independent scientific peer-reviews of the Chesapeake Bay Phase 5 Watershed Model in 2005 and 2008 involving scientists drawn from across the country-Penn State University, Virginia Tech, Duke University, University of North Carolina, University of Maryland Baltimore County, and University of Florida—and overseen by the Scientific and Technical Advisory Committee. These independent peer reviews and the Chesapeake Bay Program partnership's responses can be found at:

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

Best management practice (BMP) and conservation practice effectiveness estimates, which are critical to decision-making, are based on a 2-year study, undertaken by the Mid-Atlantic Water Program, a consortium of the nine major land grant universities, involving extensive peer-reviewed scientific literature, field studies, and input from technical panels comprised of USDA, NRCS, state land grant universities, state agricultural agencies, and key practitioners. Extensive information and documentation regarding the effectiveness estimates is available at http://www.chesapeakebay.net/watershedimplementationplantools.aspx?menuitem=52044.

In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the final

Bay TMDL.

Comment ID 0288.1.001.025

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

E. EPA Should Assume Better Design, Installation, Operation and Maintenance for Modeled BMPs

It is well known that historically many non-point BMPs have not been accompanied by programs or methods to ensure proper design, installation, operation, or maintenance. It is reasonable that model calibration scenarios should assume, at a minimum, historical "average" management conditions. Any other approach-including the use of conservatively low values-would make the model less accurate and force management decisions that may be more costly and/or provide less benefit. However, it is not necessary for forward-looking management scenarios to retain the assumption of historically-average BMP management. Rather, improvements in the way BMPs are installed, operated, and maintained are a viable implementation component. Modeled TMDL allocations scenarios should reflect the manner in which BMPs should be designed, operated, and maintained, not necessarily how they have historically been managed.

One example of where EPA and the Bay States have assumed a high level of nutrient removal performance is for wastewater treatment plants. The performance expected and used in the model is based on properly installed, operated and maintained facilities. The standard for performance relative to design of any nutrient removal strategy (wastewater plants, BMPs, filter feeders, etc.) used in the Bay model should not be different.[FN73]

These actions would improve the effectiveness of BMPs to reduce loads and improve reasonable assurance of reductions from these sectors.

[FN73] See VAMWA Chesapeake Bay Team Memo re BMP Efficiencies to VAMWA and MAMWA Boards of Directors, January 21, 2009 (attached hereto as Appendix 42). [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A42]

Response

See response to 0288.1.001.021

Comment ID 0291-cp.001.008

Author Name: Koch E.

Organization: North Middleton Authority

Given that 48 percent of the nitrogen load in streams in the Bay watershed is transported through ground water and that this information is not included in the Chesapeake Bay Model, how can the current Model have sufficient accuracy?

The accuracy of the Chesapeake Bay model should be in question because the model does not accurately account for ground water as a source of nitrates. The United States Geological Service (USGS) conducted a multi-year study in the Chesapeake watershed of nitrate in ground water. The 2002 report (USGS Fact Sheet FS-091-03) states:

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The study also reports that due to lag time, the median age of this groundwater is 10 years with 25 percent of the samples having an age of 7 years or less and 75 percent of the samples having an age of up to 13 years.

During the March 25 EPA TMDL webinar, a question was asked about whether this ground water nitrate data was accounted for in the Chesapeake Bay model. Mr. Richard Batiuk answered the question stating that it was not currently part of the model but that the model was designed to accommodate that information when it became available.

Response

Please see response to comment 0217.1.001.009.

Comment ID 0297.1.001.006

Author Name: Swailes Anna

Organization: Metal Township Municipal Authority

Given that 48 percent of the nitrogen load in streams in the Bay watershed is transported through ground water and that this information is not included in the Chesapeake Bay Model, how can the current Model have sufficient accuracy?

The accuracy of the Chesapeake Bay model should be in question because the model does not accurately account for ground water as a source of nitrates. The United States Geological Service (USGS) conducted a multi-year study in the Chesapeake watershed of nitrate in ground water. The 2002 report (USGS Fact Sheet FS-091-03) states:

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The study also reports that due to lag time, the median age of this groundwater is 10 years with 25 percent of the samples having an age of 7 years or less and 75 percent of the samples having an age of up to 13 years.

Response

Please see response to comment 0217.1.001.009.

Comment ID 0298.2.001.002

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC)

The Phase 5.3 model used to derive the proposed allocations is new, untested, and flawed, In its rush to establish the TMDL by an artificial deadline, EPA has proposed draft allocations without first calibrating the model and verifying the accuracy of the model predictions. In fact, EPA has effectively acknowledged that the model and model inputs are incomplete by announcing its intention to conduct additional model calibration after the TMDL is established.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0298.2.001.011

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC)

B. Scenario Builder

The Scenario Builder was supposed to be available to the modeling community as part of the Chesapeake Bay Modeling Program, but has not yet been released outside EPA. Absent the Scenario Builder, modelers must rely on EPA to process the input data to CBWM, and cannot improve the model with local data. In fact, all of the 'modeling‘ that has been done by the State of Virginia to date is in essence post-processing‘ of EPA modeling results rather than independent modeling.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0298.2.001.012

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC)

FLAWS IN THE MODEL USED TO DERIVE THE PROPOSED ALLOCATIONS

A. The Phase 5.3 CBWM has not been calibrated

EPA claims that the Phase 5.3 CBWM model has been calibrated. Yet 920 square miles of urbanized land have been erroneously entered as 'forest' in the model. A recalibration effort is expected to begin in October 2010, but will be too late to be adequately addressed by the 31 December 2010 mandated deadline for final publication of the Chesapeake Bay TMDL. EPA has promoted an "adaptive management approach" in developing this TMDL, thereby creating many moving goalpost situations. There are inherent problems with any calibration effort, and CBWM is no exception. There are many ways to tweak input variables in a complicated model to make the output approximate a series of observed data (a phenomenon known as equifinality‘) and CBWM has a massive amount of input variables.

One indication of calibration problems is with sediment loading computations. CBWM cannot adequately match observed data for sediment loading, which held up the release of working sediment limits to the states until a month before their Watershed Implementation Plans (WIPs) were due. To accommodate the schedule, EPA adopted a "pucker factor" approach-to sidestep this problem with the model. If the Phase 5.3 model was adequately calibrated, sediment computations could be handled in a straightforward manner.

Many of the TMDL limits are targeted to pollutant reduction levels that are considerably less than the margin of uncertainty in the modeling process itself. Dr. Kathy Boomer of the Smithsonian Institute has conducted specific research and concluded that the margin of uncertainty in the TMDL models was much greater than the reductions being sought in pollutant loading. Dr. Ken Reckhow of Duke University (who chaired the Chesapeake Bay TMDL Review Committee for the National Academy) has repeatedly cautioned regulators against reporting modeling results without stipulating the uncertainty. Dr. Reckhow notes that TMDL prediction uncertainty is high, and Chesapeake Bay modelers have had issues with political decision makers being able to understand uncertainty. However, Section 5 of the Draft TMDL states:

"Models have some inherent uncertainty. Because of the amount of data and resources taken to develop, calibrate, and verify the accuracy of the Bay models, the uncertainly of the suite of models is minimized."

Quite the opposite is true-the amount of data and complexity of the system work to increase the uncertainty, particularly when the source and content of the data have not been disclosed. Such a statement cannot be substantiated, and certainly not with vague assurances that the model is based on "good" or "strong" science.

It is important to note that the mathematical equation for a TMDL is:

TMDL = Sum of Wasteload Allocations + Sum of Load Allocations + Margin of Safety

and the margin of safety is supposed to account for uncertainty in ensuring that the TMDL is effective, but there are errors and uncertainties in the computation of the load allocations themselves.

There are very few (perhaps only three or four) knowledgeable technical persons with meaningful CBWM modeling experience in Virginia. For a model that will be used as the basis for billions of dollars in regulatory mandates, the technical community is lacking the checking and validation that comes from widespread use. There is no significant bug reporting and code fixing occurring, and what little modeling is being performed is being done with data that has been distributed from EPA without enough documentation to check its validity. Other computer models, such as the EPA's own Storm Water Management Model (SWMM), have many years of active, widespread use, and debugging and code fixes occur continuously. The user community helps drive improvements that make SWMM a very well understood and reliable model. Conversely, CBWM is essentially an untested and unapplied model in 2010. The development of CBWM is undoubtedly an ambitious and worthwhile undertaking, but reasonable time has to be given to grow and mature CBWM to the point that it can be reliably used to justify billions of dollars of expense.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0298.2.001.013

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC)

B. The Phase 5.3 CBWM does not produce reliable modeling results

EPA distributes the CBWM computer program in un-compiled form, meaning that in order to run the model users must obtain a FORTRAN compiler and generate the executable computer programs from the source code. However there is a known and still unresolved problem with CBWM producing different results when compiled on different computers. Identical input data was run on different computers in August 2010 for the James, York, and Rappahannock Rivers, and CBWM produced significantly different results-with variations as high as 36% in the answers. The reliability of CBWM cannot be corroborated until repeatable results can be produced. EPA is working on this problem, but its self-imposed TMDL schedule demands do not allow the time required to produce reliable and scientifically verifiable models and modeling results.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0298.2.001.014

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC)

EPA is using the CBWM on a scale that is beyond its predictive capability

Due to the 64,000 square-mile extent of CBWM, there is an inherent problem of scale when addressing BMPs. CBWM is better suited for overarching computations on larger scales, such as evaluating the effects of fertilizer applications on large segments of the Bay watershed, than it is in evaluating the effects of a particular BMP or group of BMPs on specific sites. EPA staff has acknowledged that the effects of individual, site-specific BMPs cannot be directly addressed in CBWM. Because the model is constructed on such a large scale, numerical effects of BMPs are lumped or aggregated in the modeling input data. This scale problem makes it very difficult for local governments to evaluate the feasibility of costly BMPs such as filtration devices and detention and retention basins that will have to be constructed to achieve water quality improvements. A single retention basin can easily cost millions of dollars, yet its effects cannot be directly isolated and evaluated in CBWM.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0298.2.001.015

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC)

Existing imperviousness is underestimated in the CBWM

The Phase 5.3 CBWM model was prepared based on satellite photography. Early indications from four Virginia municipalities are that the use of satellite imagery has produced estimates of watershed imperviousness that are approximately 20 percent too low, which has significant implications for the amount of pollution that runs off each watershed. The City of Newport News is one of those four localities. The City has better imperviousness data in their Geographic Information Systems, but the EPA modelers refused to consider, coordinate and collect this information from the localities due to the unrealistic time frame it set.

If existing watershed imperviousness is underrepresented in CBWM, and we know for a fact it is in the City of Newport News, then so will be the existing pollution from its urbanized areas. This inaccuracy could easily result in computed TMDL limits that are unattainable because in order to satisfy their "pollution diet," municipalities will have to reduce pollution based on modeling data that assumes they are substantially (20 percent) less impervious than they actually are. In other words, if their pollution diet starts by assuming that they have 20 percent less pollution-producing impervious cover than they actually have, then in order to meet their TMDL limits they would have to reduce all pollution from that 20 percent plus the reductions mandated by the TMDL-which are themselves very difficult to achieve. Refusal to accept more accurate data as the price of meeting an unrealistic deadline sets up the City for failure.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0298.2.001.016

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC)

There is no groundwater component in the CBWM

The absence of a groundwater component to the model is significant because groundwater transport of nutrients is a major source of pollution in the Bay. The Chesapeake Bay Program's website estimates that up to 48% of the nitrogen in the Bay can be traced to groundwater. Ironically, many of the Best Management Practices (BMPs) that will be used to satisfy the TMDLs are based on removal of pollutants by infiltration, which is not addressed in the modeling. This lack of a groundwater component in CBWM means that pollutants that are routed into infiltration BMPs disappear from the computational universe-when in reality they are deposited into groundwater that eventually flows into the Bay and this contribution to Bay pollution is thus ignored.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0298.2.001.017

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC)

THE FLAWS AND UNCERTAINTY IN EPA'S MODELED PREDICTIONS DO NOT JUSTIFY ALLOCATIONS FOR THE JAMES RIVER MORE STRINGENT THAN THOSE ESTABLISHED IN THE 2005 TRIBUTARY STRATEGY

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0301.1.001.008

Author Name: Pappas Peter

Organization: Middletown Borough Authority

Given that 48 percent of the nitrogen load in streams in the Bay watershed is transported through ground water and that this information is not included in the Chesapeake Bay Model, how can the current Model have sufficient accuracy?

The accuracy of the Chesapeake Bay model should be in question because the model does not accurately account for ground water as a source of nitrates. The United States Geological Service (USGS) conducted a multi-year study in the Chesapeake watershed of nitrate in ground water. The 2002 report (USGS Fact Sheet FS-091-03) states:

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The study also reports that due to lag time, the median age of this groundwater is 10 years with 25 percent of the samples having an age of 7 years or less and 75 percent of the samples having an age of up to 13 years.

During the March 25 EPA TMDL webinar, a question was asked about whether this ground water nitrate data was accounted for in the Chesapeake Bay model. Mr. Richard Batiuk answered the question stating that it was not currently part of the model but that the model was designed to accommodate that information when it became available.

Response

Please see response to comment 0217.1.001.009.

Comment ID 0312-cp.001.002

Author Name: Nguyen Vinh

Organization: Northern Virginia Association of Realtors (NVAR)

• Correcting flawed information on impervious surfaces and pollution sources included in current watershed models;

Response

The Chesapeake Bay Watershed Model and Scenario Builder are accounting tools used to inform the TMDL by comparing loads, load reductions, and reduction capacity across jurisdictions and across sectors. As such, it is necessary to provide similar assumptions and use of data across these jurisdictions and sectors. All data and methods must be vetted through the technical direction structure.

Fluctuations in the extent of developed lands (impervious and pervious) in different versions of the watershed model are due to changing technology and methods used for mapping developed lands and for inferring change over time. Changes have also been

prompted by concerns expressed by the States, local governments, and other interested parties. For each version of the Chesapeake Bay Watershed Model, the Chesapeake Bay Program Office strives to use the best available data and methods to provide information that is accurate, consistent and comparable across the watershed and over time. A new version of the Chesapeake Watershed Model, Phase 5.3.2, will be coming out in the spring of 2011 and will include an extent of impervious surface greater than that used in any previous version of the model due to the inclusion of impervious surfaces associated with all roads and single-detached housing units outside of dense urban areas.

Over the past six months, the US Geological Survey (USGS) has conducted additional ground-truthing of assumptions and data used to estimate the extent of impervious surface in the watershed. In addition, the analytical methods have undergone review by the Chesapeake Bay Program's Scientific and Technical Advisory Committee and are currently in review by USGS.

Even though local land use data are often more accurate than the generalized land use/cover data used to calibrate the Watershed Model, introducing local data for some but not all jurisdictions may impact the equity of the allocations. In addition, few jurisdictions have comparable digital land use data spanning the 20-year hydrologic period used to calibrate the Watershed Model and some local accuracy will likely be lost through translating local land classes into the more generalized land use dataset used in the Watershed Model. In spite these caveats, the Chesapeake Bay Program Office Land Data Team will work with the Urban Stormwater Workgroup to try and resolve these issues and to develop methods for incorporating local data into the land use dataset used to calibrate future versions of the Watershed Model (post Phase 5.3.2).

Comment ID 0313-cp.001.008

Author Name: Opalisky Larry

Organization: Curwensville Municipal Authority

Given that 48 percent of the nitrogen load in streams in the Bay watershed is transported through ground water and that this information is not included in the Chesapeake Bay Model, how can the current Model have sufficient accuracy? The accuracy of the Chesapeake Bay model should be in question because the model does not accurately account for ground water as a source of nitrates. The United States Geological Service (USGS) conducted a multi-year study in the Chesapeake watershed of nitrate in ground water. The 2002 report (USGS Fact Sheet FS-091-03) states:

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Response

Please see response to comment 0217.1.001.009.

Comment ID 0314.001.003

Author Name: Santulli Thomas

Organization: Southern Tier Central Regional Planning and Development Board (STCRPDB)

- Lack of confidence in the "Bay Watershed Model": There is a general lack of confidence regarding the Chesapeake Bay Watershed Computer Model in regards to its ability to accurately represent current nutrient and sediment loads from within the watershed and predict reductions in those loads due to proposed improvements and management programs. Large deviations in estimated delivered nutrient loads have occurred from one version of this model to the next. This casts doubt on the ability of this model to be an effective and reasonable planning tool, as well as the basis for establishing TMDLs.

Response

Please refer to the response to comment 0202.1.001.010.

Comment ID 0319.1.001.003

Author Name: Butler Nina

Organization: Smurfit-Stone Container Corporation

2. Inorganic Forms Of Nitrogen and Phosphorus. Like Those In Effluent From Smurfit-Stone's Virginia Mills. Are Not Readily Bioavailable:

Soluble inorganic forms of nitrogen ("N") and phosphorous ("P") have a more direct link to the growth of aquatic plants because they are generally more bio-available than organic and particulate forms of N and P, which comprise a large and often majority fraction of the Total Nitrogen and Total Phosphorus in many flowing waters. Studies demonstrate that only bio-available forms of N and P contribute to aquatic plant growth that can cause impairments. This is an important consideration for pulp and paper mill effluents.

Unlike municipal effluent, most of the nitrogen in pulp and paper mill effluents is tied up in organic compounds. Based on a study by the National Council on Air and Stream Improvement (NCASI) of nitrogen in pulp and paper mill effluents, approximately 59 percent of the organic nitrogen in effluent generated by these mills is considered refractory (i.e., it degrades to inorganic forms at a rate that is an order of magnitude slower than the labile rate). As such^ the nitrogen in pulp and paper mill effluents is not readily bio-available and, thus, does not impact the ability of receiving waters to achieve their designated uses. In the Proposed TMDL, EPA has failed to distinguish between forms of nitrogen and phosphorus, and has not accounted for the fact that inorganic forms of these nutrients are not readily bio-available when discharged in pulp and paper mill effluents.

Response

The refractory nature of some types of nutrients is generally relevant to the calculation of water quality impairments in non-tidal rivers. However, the Chesapeake Bay has a residence time for water on the order of one year. Nutrients may have longer residence times as they can become trapped in sediments and later released in inorganic forms. Therefore, almost all discharged nutrients, whether considered labile or refractory will have an eventual effect on algal growth and water quality in the Chesapeake Bay.

Comment ID 0319.1.001.008

Author Name: Butler Nina

Organization: Smurfit-Stone Container Corporation

In conclusion, Smurfit-Stone recommends that EPA modify the Proposed TMDL to address the significant issues raised by the company, VMA and AF&PA, and prevent unintended consequences by:

--Taking into consideration the bioavailability of the nutrients in general and in particular those associated with pulp and paper effluents;

Response

Please refer to the response to comment 0319.1.001.003.

Comment ID 0327.1.001.003

Author Name: Stewart Steve

Organization: Baltimore County

• Urban Loading Rates: The Phase 5 Model does break out high density and low-density urban pervious and impervious land cover, which is an improvement over the Phase 4 Model. This improvement in the Model is negated by having practically identical nitrogen and phosphorus loadings for low-density and high-density impervious and pervious cover. The low-density impervious cover has a lower percentage of directly connected impervious, with open channel drainage, sheet flow over pervious land, and few storm drain systems. This will result in not only some treatment of the urban drainage, but will also reduce the amount of storm flow in the streams. The low-density pervious urban will be less compacted than the high-density pervious urban and will allow greater infiltration and treatment of storm water runoff. The urban loading rates need to be adjusted to account for the differences between high-density urban and low-density urban.

Response

The original intention of the Chesapeake Bay Program partnership in setting up the phase 5.3 model was to have differential loading rates between high and low density urban. However, no difference in nitrogen or phosphorus concentration could be supported by the literature. Differential loading rates between high and low density urban areas are predicted primarily by the impervious fraction, which is implicit in the calculations. These assumptions were discussed in the Chesapeake Bay Program Urban Stormwater Workgroup and Modeling Subcommittee, among other groups.

Comment ID 0331.1.001.011

Author Name: Wilson B.

Organization: City of Virginia Beach, Virginia

III. OVERVIEW OF MODELS AND MODELING USED TO DERIVE THE PROPOSED URBAN RUNOFF ALLOCATIONS

The Phase 5.3 Chesapeake Bay Watershed Model computer model (CBWM) is enormous, and has been described as one of the world‘s largest environmental models. The 64,000 square-mile watershed spans roughly one-quarter of the East coast of the United States. However, CBWM is only a component in the larger Chesapeake Bay Program suite of models.

Four major modeling components are used to develop the input data for CBWM. A substantial amount of nitrogen is deposited from the atmosphere into the Bay, and land use changes have significant implications for nutrient and sediment loading. All of this data is pre-processed in antecedent models, and then aggregated in a tool called the "Scenario Builder."

IV. EPA HAS FAILED TO PROVIDE THE CITY OF VIRGINIA BEACH, VIRGINIA WITH ACCESS TO INFORMATION NEEDED TO FULLY EVALUATE AND COMMENT ON THE PROPOSED URBAN RUNOFF ALLOCATIONS

A. CBWM Input Mapping Data

To date EPA has not been able to document the tremendous amount of input data required for the TMDL modeling effort. The Virginia Department of Conservation and Recreation requested mapping from the Chesapeake Bay Program Office (CBPO) that would indicate locations of various urban land use categories (such as Impervious High Intensity, Impervious Low Intensity, Pervious High Intensity, and Pervious Low Intensity) used in the Phase 5.3 TMDL modeling. CBPO indicted that significant effort would be required to produce such mapping. Likewise, there is very little documentation that would allow modelers outside EPA to ascertain how the data was collected and synthesized, which makes working with CBWM a highly unreliable proposition at the state and local levels. More thorough disclosure of documentation is sorely needed, not merely on the model, but just as importantly on the data. The City will defend vigorously any claim of waiver due to failure to submit comments to the TMDLs on the basis that EPA withheld pertinent information to evaluate the program.

B. Scenario Builder

The Scenario Builder was supposed to be available to the modeling community as part of the Chesapeake Bay Modeling Program, but has not yet been released outside EPA. Absent the Scenario Builder, modelers must rely on EPA to process the input data to CBWM, and cannot improve the model with local data. In fact, all of the 'modeling' that has been done by the State of Virginia to date is in essence 'post-processing' of EPA modeling results rather than independent modeling.

V. FLAWS IN THE MODEL USED TO DERIVE THE PROPOSED ALLOCATIONS

A. The Phase 5.3 CBWM has not been calibrated

EPA claims that the Phase 5.3 CBWM model has been calibrated. Yet 920 square miles of urbanized land have been erroneously entered as 'forest' in the model. A recalibration effort is expected to begin in October 2010, but will be too late to be adequately addressed by the 31 December 2010 mandated deadline for final publication of the Chesapeake Bay TMDL. EPA has promoted an "adaptive management approach" in developing this TMDL, thereby creating many moving goalpost situations. There are inherent problems with any calibration effort, and CBWM is no exception. There are many ways to tweak input variables in a complicated model to make the output approximate a series of observed data-a phenomenon known as 'equifinality'-and CBWM has a massive amount of input variables.

One indication of calibration problems is with sediment loading computations. CBWM cannot adequately match observed data for sediment loading, which held up the release of working sediment limits to the states until a month before their Watershed Implementation Plans (WIPs) were due. To accommodate the schedule, EPA adopted a "pucker factor" approach-to sidestep this problem with the model. If the Phase 5.3 model was adequately calibrated, sediment computations could be handled in a straightforward manner.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0331.1.001.013

Author Name: Wilson B.

Organization: City of Virginia Beach, Virginia

There are very few (perhaps only three or four) knowledgeable technical persons with meaningful CBWM modeling experience in Virginia. For a model that will be used as the basis for billions of dollars in regulatory mandates, the technical community is lacking the checking and validation that comes from widespread use. There is no significant bug reporting and code fixing occurring, and what little modeling is being performed is being done with data that has been distributed from EPA without enough documentation to check its validity. Other computer models, such as the EPA's own Storm Water Management Model (SWMM), have many years of active, widespread use, and debugging and code fixes occur continuously. The user community helps drive improvements that make SWMM a very well understood and reliable model. Conversely, CBWM is essentially an untested and unapplied model in 2010. The development of CBWM is undoubtedly an ambitious and worthwhile undertaking, but reasonable time has to be given to grow and mature

CBWM to the point that it can be reliably used to justify billions of dollars of expense.

B. The Phase 5.3 CBWM does not produce reliable modeling results

EPA distributes the CBWM computer program in un-compiled form, meaning that in order to run the model users must obtain a FORTRAN compiler and generate the executable computer programs from the source code. However there is a known and still unresolved problem with CBWM producing different results when compiled on different computers. Identical input data was run on different computers in August 2010 for the James, York, and Rappahannock Rivers, and CBWM produced significantly different results-with variations as high as 36% in the answers. The reliability of CBWM cannot be corroborated until repeatable results can be produced. EPA is working on this problem, but its self-imposed TMDL schedule demands do not allow the time required to produce reliable and scientifically verifiable models and modeling results.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0331.1.001.015

Author Name: Wilson B.

Organization: City of Virginia Beach, Virginia

D. Existing imperviousness is underestimated in the CBWM

The Phase 5.3 CBWM model was prepared based on satellite photography. Early indications from four Virginia municipalities are that the use of satellite imagery has produced estimates of watershed imperviousness that are approximately 20 percent too low, which has significant implications for the amount of pollution that runs off each watershed. Localities have better imperviousness data in their Geographic Information Systems, but the TMDL development schedule did not allow time for EPA modelers to coordinate and collect this information from the localities. The implication is that if existing watershed imperviousness is underrepresented in CBWM, then so will be the existing pollution from urbanized areas. This inaccuracy could easily result in computed TMDL limits that are unattainable because in order to satisfy their "pollution diet," municipalities will have to reduce pollution based on modeling data that assumes they are substantially (20 percent) less impervious than they actually are. In other words, if their pollution diet starts by assuming that they have 20 percent less pollution-producing impervious cover than they actually have, then in order to meet their TMDL limits they would have to reduce all pollution from that 20 percent plus the reductions mandated by the TMDL-which are themselves very difficult to achieve. Refusal to accept more accurate data as the price of meeting an unrealistic deadline sets the City for failure.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0331.1.001.016

Author Name: Wilson B.

Organization: City of Virginia Beach, Virginia

E. There is no groundwater component in the CBWM

The absence of a groundwater component to the model is significant because groundwater transport of nutrients is a major source of pollution in the Bay. Ironically, many of the Best Management Practices (BMPs) that will be used to satisfy the TMDLs are based on removal of pollutants by infiltration, which is not addressed in the modeling. This lack of a groundwater component in CBWM means that pollutants that are routed into infiltration BMPs magically disappear from the computational universe-when in reality they are deposited into groundwater that eventually flows into the Bay.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0332.1.001.002

Author Name: McNeal Brian

Organization: Rebkee Company

We at the Rebkee Company have great concerns with the draft TMDL and backstops proposed by the EPA, many of which have already been raised by Governor McDonnell and Secretary Domenech

o The model used to establish the TMDL has three significant flaws: (1) data used for existing impervious surfaces is overstated by a 2.5 magnitude; (2) the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and (3) the model incorrectly accounts for pollutants from different land uses. It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Response

Please see the response to comment 0238-cp.001.002.

Comment ID 0334.1.001.005

Author Name: Troutman John

Organization: Buchart Horn, Inc.

EPA should provide clear scientific data to show why delivery ratios have changed or allow DEP to use existing values. If the model is constantly updated by EPA, a set of standards need to be developed to successfully allow states progress in reductions to be admitted.

Response

Delivery factors are calculated outputs of the modeled streams in the Phase 5.3 Watershed Model. They are the pounds of material that make it to tidal water for every pound put in to the river at an upstream point. These factors are calculated for each scenario based on model delivery for that scenario. Generally, as lower loads of one nutrient are put into the stream, the delivery factor for the other increases due to uptake limitation. For example, putting less phosphorus in the water limits the amount of algal growth in the streams, which decreases the amount of nitrogen taken up, increasing the delivery factor.

In the phase 4.3 model, 26 segments (river reaches) were completely or partially in PA. Many of those had a small section that were in PA, so the entire Susquehanna in PA was essentially simulated with about 10 segments. Our edge-of-stream (EOS) loads represented the load from a point in the watershed that made it to one of these large simulated rivers so there were stream and riverine processes built into our EOS estimates.

The phase 5.3 model has 242 segments completely or partially in PA with 214 of these simulating the Susquehanna. The EOS loads are higher because more of the riverine processes are simulated in the river portion of the model.

Point sources are always assumed to be on the main river simulated in each segment. For most of the large WWTP simulated in Phase 4.3 Bay Watershed Model, this was an accurate assumption. Some of the smaller sources were probably off the simulated river. For the Phase 5.3 Bay Watershed Model, we are simulating all rivers with a flow greater than 100 cfs, so the assumption that the WWTP are on the simulated river is reasonable.

Comment ID 0335-cp.001.003

Author Name: Halprin William

Organization: Tidewater Builders Association (TBA)

We strongly urge EPA to set up a public website dedicated to the modeling effort done for the Chesapeake Bay TMDL, post all past and new documents related to the modeling effort, and allow the public to review and comment on past and future decisions regarding the modeling. As we mentioned earlier, a lot of work has been done in eastern Virginia that we believe is not represented in the modeling. For instance, for years we have been installing 100-foot buffers and other BMP measures to reduce nutrient runoff into the bay and comply with the Chesapeake Bay Preservation Act and to our knowledge, NONE of this has been inventoried and accounted for in the modeling.

Response

The Chesapeake Bay Watershed Model and the input data sets have four formal partnership-driven cycles of development, calibration, verification, and management application since the mid-1980s, supporting programmatic and policy decisions and directions embedded within the 1987 Chesapeake Bay Agreement, 1992 Amendments to the Chesapeake Bay Agreement, the 1997 Nutrient Reevaluation, and the Chesapeake 2000 Agreement. With the development and publication of the Bay TMDL, the partnership has carried out the fifth such cycle supporting management decision-making.

The technical direction for the development, management application, and independent review of the Chesapeake Bay Program Partnership's models is carried out through several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. Descriptions of each of these groups is provided within Section 1 of the final Bay TMDL. Each has broad representation by federal, state, local, academic, and private groups. Programmatic and policy direction on the application of the models and their use in supporting decision making is undertakend through the partnership's Management Board (previously the Implementation Committee) and the Principals' Staff Committee. All the independent scientific peer reviews of the models are carried by the Chesapeake Bay Program's Scientific and Technical Advisory Committee. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference calls can be found in Appendix C of the final Bay TMDL.

The Phase 5.3 Watershed Model was been developed, calibrated and verified through collaboration with federal, state, academic, and private partners. Development teams at the Chesapeake Bay Program Office (CBPO) and the U.S. Geological Survey (USGS) included EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed and approved by several of the above groups. All the Phase 5.3 Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf.

In addition, there have been two independent scientific peer-reviews of the Chesapeake Bay Phase 5 Watershed Model in 2005 and 2008 involving scientists drawn from across the country-Penn State University, Virginia Tech, Duke University, University of North Carolina, University of Maryland Baltimore County, and University of Florida—and overseen by the Scientific and Technical Advisory Committee. These independent peer reviews and the Chesapeake Bay Program partnership's responses can be found at:

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

Best management practice (BMP) and conservation practice effectiveness estimates, which are critical to decision-making, are based on a 2-year study, undertaken by the Mid-Atlantic Water Program, a consortium of the nine major land grant universities, involving extensive peer-reviewed scientific literature, field studies, and input from technical panels comprised of USDA, NRCS, state land grant universities, state agricultural agencies, and key practitioners. Extensive information and documentation regarding the effectiveness estimates is available at http://www.chesapeakebay.net/watershedimplementation plantools.aspx?menuitem=52044.

In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the draft TMDL.

In reference to the commenter's point that installed BMPs are not being counted: State reporting agencies report to EPA on-the-ground practices they track annually. Non-cost shared practices or practices not enrolled in state programs are not held to standards required for the efficiency credited in the suite of Chesapeake Bay models. Additionally, some state standards do not meet the standard for the BMP efficiency in the models.

The standards for all model-approved BMPs prevent the state reporting agencies from reporting some installed BMPs because the standards are not met. The exclusion of practices not meeting standards prevents over-estimates of pollution reduction from BMPs in the models.

Please refer to Scenario Builder documentation for the current model standards for all BMPs here: http://archive.chesapeakebay.net/pubs/SB_Documentation_Final_V22_9_16_2010.pdf.

EPA can accept additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of “interim efficiencies” of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

Verified non-cost shared practices can be accepted in the model, but historically have not been included to a great extent because the information has not been made available to the Chesapeake Bay Program. Voluntary practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These voluntary practices are typically funded by farmers alone. EPA is committed to working with USDA, NACD, state environmental and agricultural agencies, conservation districts, and agricultural community at large to credit nutrient and sediment reductions from voluntary practices. As committed to in the Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to “By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented.”

Comment ID 0340.1.001.004

Author Name: Miner Steven

Organization: Accomack County, Virginia

We are also very much concerned that the model being used to allocate nutrient reductions. The model was created on a landscape level that encompasses the entire Chesapeake Bay drainage area. Allocating specific nutrient reduction targets to the community or watershed level is beyond the capabilities of the model and will certainly result in arbitrary allocations that will be prejudicial to poor, rural counties that lack the technical resources to objectively address the inadequacies of the model never tested or proven at this scale.

Response

The watershed model and scenario builder are accounting tools used to inform the TMDL by comparing loads, load reductions, and reduction capacity across jurisdictions and across sectors. As such, it is necessary to provide similar assumptions and use of data across these jurisdictions and sectors. Stakeholders will not simply enter local data as this could lead to issues in the comparability of data from various sources. All data and methods must be vetted through the technical direction structure. The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. This process is specifically intended to produce fair allocations that are not biased toward higher-resource areas.

Comment ID 0345-cp.001.003

Author Name: D'Ardenne Dwayne

Organization: City of Roanoke, Virginia

- The Chesapeake Bay Model, the basis for nutrient and sediment reductions required by EPA, has been shown to have extensive flaws in the data it utilizes. EPA even acknowledges this fact. EPA should not move ahead with costly mandates based upon flawed modeling and data. ("EPA has not yet conducted the modeling necessary to estimate the amount of N applied to turf that actually reaches the Chesapeake Bay through runoff or groundwater" (Page 3-127))

I work in the Green Industry because I cherish the environment. The Green Industry has been a willing partner in making environmental progress-and have proven it with actions, time and time again. I appreciate this opportunity for input.

Response

EPA does not agree that there are extensive flaws in the data. There will always be opportunities for improvement in data collection and we are continuing our efforts in that regard.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. All of these groups have been providing data and modeling instructions for at least the past five years and in some cases much longer.

EPA agrees with the commenter that non-cost shared implemented practices are likely under-counted due to difficulties in data collection

Verified non-cost shared practices can be accepted in the model, but historically have not been included to a great extent because the information has not been made available to the Chesapeake Bay Program. Voluntary practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These voluntary practices are typically funded by farmers alone. EPA is committed to working with USDA, NACD, state environmental and agricultural agencies, conservation districts, and agricultural community at large to credit nutrient and sediment reductions from voluntary practices. As committed to in the Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to "By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented."

Non-cost shared practices or practices not enrolled in state programs are not held to standards required for the efficiency credited in the suite of Chesapeake Bay models. Additionally, some state standards do not meet the standard for the BMP efficiency in the models. The standards for all model-approved BMPs prevent the state reporting agencies from reporting some installed BMPs because the standards are not met. The exclusion of practices not meeting standards prevents over-estimates of pollution reduction from BMPs in the models.

Please refer to Scenario Builder documentation for the current model standards for all BMPs here: http://archive.chesapeakebay.net/pubs/SB_Documentation_Final_V22_9_16_2010.pdf.

EPA can accept additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the

model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

Comment ID 0358-cp.001.004

Author Name: Hassinger Mark

Organization: WestDulles Properties

The EPA should delay adoption of the TMDL and backstops for at least one year and until no sooner than December 31, 2011 for the following reasons:

--The model used to establish the TMDL has three significant flaws: (1) data used for existing impervious surfaces is overstated by a 2.5 magnitude; (2) the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and (3) the model incorrectly accounts for pollutants from different land uses. It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Response

Please see the response to comment 0238-cp.001.002.

Comment ID 0360-cp.001.004

Author Name: Wells Eric

Organization: WestDulles Properties

The EPA should delay adoption of the TMDL and backstops for at least one year and until no sooner than December 31, 2011 for the following reasons:

--The model used to establish the TMDL has three significant flaws: (1) data used for existing impervious surfaces is overstated by a 2.5 magnitude; (2) the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and (3) the model incorrectly accounts for pollutants from different land uses. It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Response

Please see the response to comment 0238-cp.001.002.

Comment ID 0362-cp.001.002

Author Name: Chillemi A.

Organization:

The EPA should delay adoption of the TMDL and backstops for at least one year and until no sooner than December 31, 2011 for the following reasons:

• The model used to establish the TMDL has three significant flaws: (1) data used for existing impervious surfaces is overstated by a 2.5 magnitude; (2) the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and (3) the model incorrectly accounts for pollutants from different land uses. It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Response

Please see the response to comment 0238-cp.001.002.

Comment ID 0366-cp.001.003

Author Name: Melchione Pete

Organization: Southland Corporation

The model used to establish the TMDL has three significant flaws: (1) data used for existing impervious surfaces is overstated by a 2.5 magnitude; (2) the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and (3) the model incorrectly accounts for pollutants from different land uses. It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Response

Please see the response to comment 0238-cp.001.002.

Comment ID 0368-cp.001.008

Author Name: Myers Kenneth

Organization: Borough of Huntingdon

Given that 48 percent of the nitrogen load in streams in the Bay watershed is transported through ground water and that this information is not included in the Chesapeake Bay Model, how can the current Model have sufficient accuracy?

The accuracy of the Chesapeake Bay model should be in question because the model does not accurately account for ground water as a source of nitrates. The United States Geological Service (USGS) conducted a multi-year study in the Chesapeake watershed of nitrate in ground water. The 2002 report (USGS Fact Sheet FS-091-03) states:

"An average of 48 percent of the nitrogen load in streams in the Bay watershed was transported through ground water, with a range of 17 to 80 percent in different streams."

The study also reports that due to lag time, the median age of this groundwater is 10 years with 25 percent of the samples having an age of 7 years or less and 75 percent of the samples having an age of up to 13 years.

During the March 25 EPA TMDL webinar, a question was asked about whether this ground water nitrate data was accounted for in the Chesapeake Bay model. Mr. Richard Batiuk answered the question stating that it was not currently part of the model but that the model was designed to accommodate that information when it became available.

Response

Please see the response to comment 0217.1.001.009

Comment ID 0374-cp.001.004

Author Name: Hartgrove Charles

Organization: Town of Ashland, Virginia

We understand that Draft TMDL has technical flaws. Computer modeling deficiencies are documented in VAMSA's comments. We request that EPA fully consider and address VAMSA's comments, which we support and hereby incorporate by reference as if fully set forth herein.

Response

Please see responses to VAMSA’s comments: 0293.1.001.1-27.

Comment ID 0374.1.001.005

Author Name: Hartgrove Charles

Organization: Town of Ashland, Virginia

Finally, we understand that the Draft TMDL is materially flawed as a technical matter. Serious computer modeling deficiencies are documented in the comments of VAMSA. We request that EPA fully consider and address all of VAMSA's comments, which we generally support and hereby incorporate by reference as if fully set forth herein.

Response

Please refer to the response to comment 0293.1.001.001

Comment ID 0375-cp.001.002

Author Name: Wells Kyle

Organization: WestDulles Properties

The EPA should delay adoption of the TMDL and backstops for at least one year and until no sooner than December 31, 2011 for the following reasons:

• The model used to establish the TMDL has three significant flaws: (1) data used for existing impervious surfaces is overstated by a 2.5 magnitude; (2) the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and (3) the model incorrectly accounts for pollutants from different land uses. It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Response

Please see the response to comment 0238-cp.001.002

Comment ID 0376.1.001.012

Author Name: Smith Brooks

Organization: Virginia Manufacturers Association VMA

The Virginia WIP established TN and TP allocations that Virginia DEQ believed would achieve the allocations established by EPA. The fact that EPA's model runs determined that Virginia's allocations were slightly above EPA's target allocations raises concerns about whether the input decks provided by Virginia were accurately used in the model. It is VMA's hope that Virginia and EPA will continue to work together to determine the basis for the discrepancy in output data.

Response

EPA works with jurisdictions on a continual basis to ensure the accuracy of the input decks.

Comment ID 0376.1.001.022

Author Name: Smith Brooks

Organization: Virginia Manufacturers Association VMA

As a general matter, EPA's proposed TMDL does not provide information about whether and how delivery factors were used to establish the proposed allocations. This impacts the allocations within individual tributaries, but also across industry sectors. As noted in the sections above addressing TSS, the make up of constituents at different facilities have different water quality impacts. The delivery factors for TSS from industrial point sources, based on the organic nature of the TSS loads from such sources, should be very low.

Additionally, EPA failed to share the inputs generated by the "Scenario Builder," which were then used in the Chesapeake Bay Watershed Model. See Draft TMDL, Section 8 and Appendix H. Despite the significance of this information, EPA did not make the Scenario Builder input decks and outputs for the partial backstop and full backstop scenarios and for EPA' s evaluation of Virginia's WIP available until November 2, 2010. This was 39 days into the 45 day comment period. This is hardly enough time for stakeholders to meaningfully comment on such critical aspects of the modeling data.

Response

Delivery factors are properties of rivers, not individual sources. The deliver factor is the same from every source in a given watershed. TSS loads from industrial discharges are generally low. The modeling process also accounts for the difference in TSS and fixed solids by subtracting calculated volatile solids from the TSS load.

As noted, the scenario builder software and database was made available during the comment period. This was in response to comments received.

Comment ID 0384-cp.001.002

Author Name: Page T.

Organization:

The EPA should delay adoption of the TMDL and backstops for at least one year and until no sooner than December 31, 2011 for the following reasons:

• The model used to establish the TMDL has three significant flaws: (1) data used for existing impervious surfaces is overstated by a 2.5 magnitude; (2) the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and (3) the model incorrectly accounts for pollutants from different land uses. It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Response

Please see the response to comment 0238-cp.001.002

Comment ID 0389.1.001.008

Author Name: Iwanowicz Peter

Organization: New York State Department of Environmental Conservation

Bay Watershed modeling
• Seriously underestimates urban land, especially to the benefit of MD, VA and D.C.
• Relies on estimates the tidal loads discharged below the fall line to the Bay by MD, VA, and D.C.
• Use of county scale information for assessing farming data is problematic and does not work in NY.
• Variations in river delivery factors that EPA cannot explain or justify scientifically

Response

Please refer to the response to comment 0389.1.001.025.

Comment ID 0389.1.001.013

Author Name: Iwanowicz Peter

Organization: New York State Department of Environmental Conservation

D. The Long Island Sound TMDL Is Based on Actual Discharges, while the Draft Chesapeake Bay TMDL Is Based on Designed Discharges

The LI TMDL is based on the actual average monthly flow of nitrogen into the Sound, as of the year 1990. Use of actual flow has had the benefit of the reductions called for under the TMDL being based on actual measurements of pollutants into the impaired water body. But it also has had the disadvantage of essentially requiring New York and Connecticut to cap point source discharges into the Sound at 1990 levels, which has obviously made it difficult for the two States to deal with increased population and sewage discharges during that time frame.

By contrast, the Draft Chesapeake Bay TMDL is based on the design -- not actual -- flow of pollutants into the Bay. In other words, the Bay TMDL considers the capacity of all point sources -- such as sewage treatment plants -- rather than the actual average flow of these sources over a particular time period. This has created a perverse incentive for certain States within the Bay watershed to vastly increase and otherwise grow new capacity at sewage treatment plants, much of which remains under-utilized today. For example, as of 2008, Virginia's design wastewater load was 426 million gallons per day (mgd) greater than its actual load. That difference alone is six times the amount of New York's actual load. [FN13] [Comment Letter contains additional information in the form of an attachment. See original comment letter 0389.1] The vast sewage treatment plant expansions in the Bay states provide Maryland and Virginia with a larger percentage of the total nutrient cap. New York is at a disadvantage because it cannot justify the expansion of sewage treatment plants in a population decline, nor can New York obtain the paper reduction credits given to the Bay states.

[FN13] Moreover, the Bay States have vastly increased their actual wastewater load since entry into the "1983 Chesapeake Bay Agreement," wherein they agreed that the Bay was in the midst of "an historical decline ... and that a cooperative approach is needed address the extent, complexity, and sources of pollutants entering the Bay." For

example, between 1985 and 2008, the States of Maryland and Virginia have increased their actual loads by 47% and 34%, respectively. See EPA Data Tables attached as Exhibit 1. While New York's actual load has very slightly increased, much of that increase is due to sewage treatment plants being expanded to treat additional stormwater flow with more stringent treatment methods; e.g., the Binghamton-Johnson City wastewater treatment facility.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0389.1.001.025

Author Name: Iwanowicz Peter

Organization: New York State Department of Environmental Conservation

B. Bay Watershed modeling

The Accuracy of the Model has not been Tested.

The extremely accelerated timeframe during which the TMDL was developed necessitates that EPA make unjustifiable compromises in quality and science. Locking the model down just a few months before the WIP submittal deadline has left states with only a few "runs" to base major decisions and milestone projections on for the next 15 years. This "rush" to finalize a TMDL disregards state requests for time to involve the public in this process and violates due process principles. The restoration of the Bay depends upon an accurate model, not a rushed model. For example: the initial nitrogen target provided to NY by EPA on November 2009 was 10.54 million pounds per year, yet on July 1, 2010, NY was informed by EPA that its nitrogen allocation was 8.23 million pounds per year, about 30% less, making model accuracy questionable and pre-planning impossible. For additional context, 10.54 is now the 2009 baseline from which the 60% reduction by 2017 is calculated.

I. Agricultural Concerns

The Model does not Accurately Depict In-Field Conditions.

The Bay Watershed model makes assumptions of pollutant loads that are not accurate in New York. The category "hay with nutrients" was originally modeled at 200 lbs nitrogen/acre. In March, 2010 New York's Upper Susquehanna Coalition (USC) expressed to EPA that this number was too high but EPA needed to generate an estimate very quickly. ,The model was then set at 80 lbs nitrogen/acre for "hay with nutrients" for New York. To confirm this estimate, USC surveyed 13,000 acres of hay land and found the rate of application to be 79 lbs nitrogen/acre. In September, 2010 EPA was finally able to provide New York with a definition of "hay with nutrients", this was different than what was originally understood and is actually hay that is cut regardless if it had nutrients applied. With that new definition, the model should attribute 46 lbs nitrogen I acre applied for the category "hay with nutrients," at least for New York, because such a value is based on actual data. Ignoring data while deferring to an out-dated estimate renders EPA's model results unscientific and arbitrary. Other states have maintained that 200 lbs nitrogen I acre is accurate which

leads to the assumption that the type of agriculture in those states is significantly different than that in New York or that other states have not taken the time or invested the resources to understand the actual contributions from agricultural sources. Consequently, when these states do make these measurements they will be credited with reductions in Chesapeake Bay loading that reflects no additional environmental protection efforts. This scenario, which is a paperwork nutrient reduction and not an actual nutrient reduction, and others like it, will not result in Chesapeake Bay restoration. Furthermore, the restoration of the Bay depends upon an accurate model, not a rushed model.

The Model does not Accurately Reflect the New York Portion of the Watershed.

No county in New York is wholly within the Chesapeake Bay Watershed. By proportioning animal numbers for partial counties, based on the portion of the agricultural land of those counties in the contributing drainage area, the model includes inaccuracies in the estimate of agricultural load to New York. EPA then compounds these inaccuracies by trying to apply county based statistics to farm specific situation such as AFOs and nutrient balances for manure spreading. This is part of the reason why there is no credit for basic "nutrient management" in v5.3 of the watershed model. The v5.3 model needs to be fixed so that when manure nutrients are applied agronomically on a farm, the model gives credit.

The Model does not Recognize the Differences between the Technical Standards for Agriculture in New York versus other Bay states.

As part of EPA's oversight responsibilities of the State NPDES programs for CAFOs, the Water Permits Division in EPA's Office of Water is currently reviewing all State approved technical standards. EPA plans to complete this national review of State technical standards by December 31, 2010. In a May 21, 2010 letter from Jeff Gratz, EPA Region 2, to Mark Klotz, NYSDEC Director for the Division of Water (see Exhibit 2 as attached) [Comment Letter contains additional information in the form of an attachment. See original comment letter 0389.1], EPA acknowledges that proper technical standards are needed to ensure proper implementation of the concentrated animal feeding operations (CAFOs) National Pollutant Discharge Elimination System (NPDES) rules. Each State Director was required by 40CFR Part 123.36 to establish technical standards that meet the requirements of 40CFR 412.4(c)(2) by 2005. New York appreciates this effort by EPA to promote technical consistency as other States work to achieve the level of CAFO implementation and compliance accomplished in New York. However, this national recognition by EPA of inconsistencies between states must be reflected in the Chesapeake Bay TMDL model. The current model erroneously assigns the same generic loads to agricultural best management practices in New York as other states. This does not reflect the superiority of New York's technical standards Clearly recognized by EPA Region 2, or, more importantly, the very real differences in our farming systems here in NYS as compared to many other Bay states.

Providing alternative BMPs for credit in the model is an arduous and time-consuming process.

The EPA-approved protocol described in the April 2, 2010 Guide for EPA's Evaluation of Phase I Watershed Implementation Plans, sets up a process that would necessitate state field compliance staff be re-deployed to submit voluminous paperwork in an "EPA-approved" format for New York to be properly credited for the already documented environmental stewardship happening on New York farms. As this is EPA's model, EPA must shoulder the responsibility of assuring model accuracy before the model is used to place additional regulatory controls on states.

Agricultural Census Data is Seriously Flawed

Because farming data is derived from the USDA agricultural census which is only developed at the county scale, using the model at anything less than county scale is seriously flawed. EPA has not provided any site specific information to quantify loads from AFO/CAFO (barnyards), but has instead used assumptions of average size of barnyard without any verification of the estimates.

II. Other Bay Watershed Modeling Deficiencies

Urban Land Use Problems

EPA's review of its urban land cover data shows that both pervious and impervious urban land uses are underestimated by a factor of 3 and 2, respectively. EPA has indicated that it is planning a fix to the Watershed Model next year, but because this fix would not occur prior to promulgation of this proposed TMDL, EPA has stated plans to modify the TMDL to include the fix. Because Bay states have much higher percentages of urban land, this model now underestimates their load and makes NY look like a relatively large contributor.

Most of urban land in Maryland and Virginia, is located below the fall line of major tributaries where the River Input Monitoring (RIM) stations are located. Therefore, runoff from small watersheds near the Bay with high levels of development or concentrated agriculture are not directly monitored. Because only the RIM stations are used to calibrate the watershed model, the uncertainty of significant inputs below the fall line adds a the level of inaccuracy to the model. This is methodology unfair to NY because NY's load is measureable load, whereas urban loading below the fall line is only estimated, which is unscientific and arbitrary.

The underestimation of urban load is compounded by model outputs which inexplicably show no change in nitrogen export from impervious urban land, when atmospheric deposition loads are lower in the future. Although the USEPA Region 3 Watershed model shows a substantial decrease in nontidal water deposition with atmospheric deposition controls in place, it shows no change to the nitrogen load from impervious surfaces. Because a main source of nitrogen on impervious surface is atmospheric deposition, it would be reasonable to expect a decrease in the exported loads from these surfaces. There is negligible opportunity for any biological processing of wet deposition that falls on hard surfaces which are directly piped to streams. The Chesapeake Bay watershed model estimates the combined delivered load from impervious surfaces in just two states, Virginia and Maryland to exceed 3 million lbs N/year, so any inaccuracies are not insignificant, which biases the results by making NY appear to be a larger contributor.

EPA also attempts to use the model to estimate MS4 loads, by small watersheds, despite the issues above with estimates of the urban land area, and without any information on storm sewersheds (the land actually drained to the constructed conveyances (discharges) to which the permit would apply.) If EPA intends to increase requirements for MS4 to specify a load reduction, EPA should first document the areas directly drained through the MS4s. The estimation of MS4 loading is not only inaccurate but may be inconsistent with what NY requires in its MS4 General Permit.

EPA has been unable to Verify Calibration of the Model

EPA needs to acknowledge that the accuracy and precision of the Watershed model varies with scale. While the entire Susquehanna can be calibrated to a RIM station, the closest station for calibration of nutrients from New York is located

at Towanda, PA, with just enough data to cover a ten-year timeframe. This station is not directly representative of load originating solely from NY as only about 80 per cent of the watershed contributory to this station is in NY. Subwatershed with USGS gages do allow some hydrologic calibration, but recent NY water quality data from the five Chesapeake Bay Program stations NY jointly maintains with the Susquehanna River Basin Commission should be used for validation. Has EPA conducted this verification and if so, what are results of how well the model predicted the monitored data? EPA should demonstrate that the Watershed model is properly calibrated by providing NY with verification that it compared real water quality data to modeled estimates of NY's nutrient loading in the Susquehanna and Chemung River basins. Without this demonstration by EPA, the model is not scientifically validated.

The Model's Delivery Factors are Unpredictable

New York has repeatedly questioned the functioning of delivery factors, such as the science behind changes in the Phosphorus delivery factor and some unanticipated variations in Nitrogen delivery factors as edge of stream (input) loads are reduced. The model now predicts that as the Susquehanna River becomes cleaner in Pennsylvania, more of New York's load is delivered to the Bay. EPA has yet to provide New York with a rational explanation or scientific justification for these changes in delivery factors. New York has requested that delivery factors be established and held constant to facilitate because variations in the delivery factors make it difficult for New York to assign suballocations for point and nonpoint sources.

Response

B. watershed model
In response to the general comment about a rushed model, please refer to the response to comment 0169.1.001.005.
In response to changing loads between development and final model versions, please refer to the response to comment 0202.1.001.010.

I. Agricultural concerns
In response to the comments on agricultural concerns, .lease refer to the response to comment 0103-cp.001.004.

In addition, in response to the commenter's concern that the BMP process is arduous and time-consuming, EPA maintains that this process is necessary to ensure a strong scientific backing for the model inputs. EPA has devoted significant resources to this issue but clearly cannot proactively anticipate every BMP that each jurisdiction would like to account for or modify.

II other issues
Urban land: As the commenter points out, EPA is planning a modification for urban land. The comment is incorrect in that more than 100 water quality monitoring stations are used in the calibration, rather than just the RIM stations. This list includes stations in the coastal plain below the RIM stations. While a good portion of the coastal plain is unmonitored, the estimation of load from those areas is based on the areas that are monitored. This is not a disadvantage to New York.

Thank you for the comment on the insensitivity of urban impervious to atmospheric deposition. Including this sensitivity will be part of the urban land modification.

MS4s

EPA agrees that accurate mapping of MS4 areas and storm sewers is important for appropriate assignment of loading. Estimates of storm sewersheds and MS4 areas were requested from the jurisdictions over the past several years. The areas were compiled and vetted back through the jurisdictions. EPA will continue to work with the jurisdictions to ensure the accuracy of these areas.

Monitoring in New York

The comment is correct that about 80 percent of the watershed to the Towanda, PA gauging station is from New York. This compares favorably with other jurisdictions. As pointed out previously in this comment, other states have large unmonitored areas in the coastal plain. In general, monitoring stations are not located on states lines and large river basins do not terminate on state lines.

All available monitoring data use used for calibration of the phase 5.3 watershed model. IN addition to the Towanda, PA station, data from 01531000 (Chemung River at Chemung, NY), and 01503000 (Susquehanna River at Conklin, NY), and 01515000 (Susquehanna River near Waverly, NY) were used to calibrate. The calibration results are available. All the Phase 5.3 Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf.

Delivery Factors

Delivery factors are calculated outputs of the modeled streams in the Phase 5.3 Chesapeake Bay Watershed Model. They are the pounds of material that make it to tidal water for every pound put in to the river at an upstream point. These factors are calculated for each scenario based on model delivery for that scenario. Generally, as lower loads of one nutrient are put into the stream, the delivery factor for the other increases due to uptake limitation. For example, putting less phosphorus in the water limits the amount of algal growth in the streams, which decreases the amount of nitrogen taken up, increasing the delivery factor. EPA uses delivery factors as modeled rather than assigning delivery factors from a single scenario to scenarios with alternate loadings.

Comment ID 0390-cp.001.008

Author Name: Fultz Fred

Organization: Municipal Authority of the Township of Union, Pennysylvania

Given that 48 percent of the nitrogen load in streams in the Bay watershed is transported through ground water and that this information is not included in the Chesapeake Bay Model, how can the current Model have sufficient accuracy?

The accuracy of the Chesapeake Bay model should be in question because the model does not accurately account for ground water as a source of nitrates. The United States Geological Service (USGS) conducted a multi-year study in the Chesapeake watershed of nitrate in ground water. The 2002 report (USGS Fact Sheet FS-091-03) states:

"An average of 48 percent of the nitrogen load in streams in the Bay watershed was transported through ground water, with a range of 17 to 80 percent in different streams."

The study also reports that due to lag time, the median age of this groundwater is 10 years with 25 percent of the

samples having an age of 7 years or less and 75 percent of the samples having an age of up to 13 years.

During the March 25 EPA TMDL webinar, a question was asked about whether this ground water nitrate data was accounted for in the Chesapeake Bay model. Mr. Richard Batiuk answered the question stating that it was not currently part of the model but that the model was designed to accommodate that information when it became available.

Response

Please see the response to comment 0217.1.001.009.

Comment ID 0394.001.009

Author Name: Heavner Brad

Organization: Environment America et al.

At the same time, the EPA should incorporate soil P-saturation in its Chesapeake Bay model so that the phosphorus levels are accurate. When the EPA includes P-saturation in the model, phosphorus loads will rise due to the phosphorus already present in some soils. And then states will get credit for reducing the saturation level in soils - i.e., by restoring phosphorus balance in the soils.

But for now, as long as the EPA does not include P-saturation in its model, the EPA must give credit to states that take steps to restore phosphorus balance in soils. Otherwise, those steps would not result in load reductions in the EPA's model. Therefore, these measures that would restore phosphorus balance and help restore water quality in the Chesapeake Bay would receive no credit from the EPA for reducing the phosphorus load. In the TMDL the EPA should therefore explain this problem, urge states to begin accounting for the phosphorus imbalance in certain soils, and give credit to states that take action to reduce P-saturation.

Response

Thank you for your comment. EPA will review recent research and data and consider incorporating phosphorus saturation of soils in future models.

As the current watershed model is calibrated to observed in-stream data, it is unlikely that incorporating phosphorus saturation will affect overall phosphorus loads. It may affect the balance between sources, however. If real reduction actions are taken on the ground, it is EPA's policy to reflect those reductions in the model.

EPA can accept additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here:

http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf. Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

Comment ID 0397-cp.001.001

Author Name: Comment Anonymous

Organization:

Concerning NEIEN and BayTAS:

While NEIEN is a complex system to report BMP data there are pollution reduction strategies that can not be reported via NEIEN. Many source reduction strategies are not reportable such as Air reductions in Power Plants, Residential Lawn Care Management, or even small scale reductions such as gas to electric lawn mowers.

BayTAS relies on NEIEN and the CBP Watershed Model. If there are reduction strategies that are not reportable via NEIEN or if they can not be run in the CBP Watershed Model then a load reduction will not be shown.

Response

NEIEN and BayTAS were not used in the TMDL, but will be important in tracking implementation progress going forward. NEIEN and BayTAS were developed to be flexible enough to accommodate and BMP description. In the initial implementation, there will be gaps between the list of BMPs acceptable by NEIEN and those that are acceptable by Scenario Builder and the phase 5.3 Watershed Model as NEIEN is still in development stage.

EPA will accept additional BMPs as needed outside of the NEIEN framework to be incorporated into the Scenario Builder.

Comment ID 0399.001.011

Author Name: Comment Anonymous

Organization: Town of Erwin, New York

WHEREAS, the TMDL allocations imposed by the EPA are based on a flawed model which does not even reflect the actual discharge values taken at the United States Geological Survey (USGS) gauging station in Towanda, PA; and has demonstrated drastic fluctuations in predicted nutrient loadings between model versions such as the 34% difference in predicted delivered total nitrogen loads between model version 5.2 and model version 5 .3

Response

The Chesapeake Bay Watershed Model and the input data sets have four formal partnership-driven cycles of development, calibration, verification, and management application since the mid-1980s, supporting programmatic and policy decisions and directions embedded within the 1987 Chesapeake Bay Agreement, 1992 Amendments to the Chesapeake Bay Agreement, the 1997 Nutrient Reevaluation, and the Chesapeake 2000 Agreement. With the development and publication of the Bay TMDL, the partnership has carried out the fifth such cycle supporting management decision-making.

The technical direction for the development, management application, and independent review of the Chesapeake Bay Program Partnership's models is carried out through several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. Descriptions of each of these groups is provided within Section 1 of the final Bay TMDL. Each has broad representation by federal, state, local, academic, and private groups. Programmatic and policy direction on the application of the models and their use in supporting decision making is undertakend through the partnership's Management Board (previously the Implementation Committee) and the Principals' Staff Committee. All the independent scientific peer reviews of the models are carried by the Chesapeake Bay Program's Scientific and Technical Advisory Committee. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference calls can be found in Appendix C of the final Bay TMDL.

The Phase 5.3 Watershed Model was been developed, calibrated and verified through collaboration with federal, state, academic, and private partners. Development teams at the Chesapeake Bay Program Office (CBPO) and the U.S. Geological Survey (USGS) included EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed and approved by several of the above groups. All the Phase 5.3 Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf.

In addition, there have been two independent scientific peer-reviews of the Chesapeake Bay Phase 5 Watershed Model in 2005 and 2008 involving scientists drawn from across the country-Penn State University, Virginia Tech, Duke University, University of North Carolina, University of Maryland Baltimore County, and University of Florida—and overseen by the Scientific and Technical Advisory Committee. These independent peer reviews and the Chesapeake Bay Program partnership's responses can be found at:

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

Best management practice (BMP) and conservation practice effectiveness estimates, which are critical to decision-making, are based on a 2-year study, undertaken by the Mid-Atlantic Water Program, a consortium of the nine major land grant universities, involving extensive peer-reviewed scientific literature, field studies, and input from technical panels comprised of USDA, NRCS, state land grant universities, state agricultural agencies, and key practitioners. Extensive information and documentation regarding the effectiveness estimates is available at http://www.chesapeakebay.net/watershedimplementation plantools.aspx?menuitem=52044.

In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the draft TMDL. The draft TMDL document has lists of additional TMDL-related meetings in Appendix V.

The watershed model is, in fact, calibrated to observations at Towanda, PA, for discharge, nitrogen, phosphorus, and sediment.

The Phase 5.2 version of the Chesapeake Bay Watershed Model was not used in the development of the Bay TMDL. It was never used for management purposes or in any official report. Phase 5.2 was an interim development version of the Bay Watershed Model with known bugs and data inaccuracies that were fixed in the Phase 5.3 version. Interim application of the Phase 5.2 version of the Bay Watershed Model was strictly deliberative to assess a variety of draft allocation methodology options with the Chesapeake Bay Program partners and stakeholders as part of a larger, transparent and collaborative decision making process.

Comment ID 0402.001.003

Author Name: Campaign Mass

Organization:

I am a farmer in Rockingham County, Virginia. I am also a member of the Mennonite faith. I'm concerned that several issues being discussed will affect my lifestyle and potentially my ability to farm. Please understand I choose not to participate in the legislative process or government programs for my personal financial benefit in accordance with my religious beliefs. That said I sincerely hope the following information will be considered when developing and implementing both the TMDL and the Watershed Improvement Plan for the State of Virginia.

Third : Nutrient reduction has been achieved through the voluntary practices we've already put in place . Many of the nutrient loading levels being discussed are based on research that is not yet proven . The models need to accurately reflect nutrient use from field crops . Average yields used in models are out of date with current yields generated on our farms. We hope any new;regulatory burdens will be based on sound science with accurate yield models. We also need time to allow each incremental improvement to be evaluated.

Response

EPA agrees with the commenter that non-cost shared implemented practices are likely under-counted due to difficulties in data collection

Verified non-cost shared practices can be accepted in the model, but historically have not been included to a great extent because the information has not been made available to the Chesapeake Bay Program. Voluntary practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These voluntary practices are typically funded by farmers alone. EPA is committed to working with USDA, NACD, state environmental and agricultural agencies, conservation districts, and agricultural community at large to credit nutrient and sediment reductions from voluntary practices. As committed to in the Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to "By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented."

In 2009, EPA provided all watershed states with the opportunity to review all pertinent agricultural input data and to supply state-specific or county-specific values. Some states chose to revise portions of the agricultural data at that time.

Additionally, the model development process has ample opportunity for input as the technical direction for the development, management application, and independent review of the Chesapeake Bay Program Partnership's models is carried out through several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. Descriptions of each of these groups is provided within Section 1 of the final Bay TMDL. Each has broad representation by federal, state, local, academic, and private groups. Programmatic and policy direction on the application of the models and their use in supporting decision making is undertaken through the partnership's Management Board (previously the Implementation Committee) and the Principals' Staff Committee. All the independent scientific peer reviews of the models are carried by the Chesapeake Bay Program's Scientific and Technical Advisory Committee. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference calls can be found in Appendix C of the final Bay TMDL.

Comment ID 0408-cp.001.003

Author Name: Koon Teresa

Organization: West Virginia Department of Environmental Protection and West Virginia Department Agriculture

Changing Delivery Factors - Throughout the process, we have experienced numerous changes in delivery factors. It is not clear to West Virginia how delivery factors are calculated and it is frustrating to see that our delivered load increases as we install best management practices (BMPs) over time. We seem to be chasing after an ever moving target.

Response

Delivery factors are calculated outputs of the modeled streams in the Phase 5.3 Chesapeake Bay Watershed Model. They are the pounds of material that make it to tidal water for every pound put in to the river at an upstream point. These factors are calculated for each scenario based on model delivery for that scenario. Generally, as lower loads of one nutrient are put into the stream, the delivery factor for the other increases due to uptake limitation. For example, putting less phosphorus in the water limits the amount of algal growth in the streams, which decreases the amount of nitrogen taken up, increasing the delivery factor.

Comment ID 0410.1.001.029

Author Name: Pujara Karuna

Organization: Maryland State Highway Administration (SHA)

SHA has significant concems about urban stormwater assessment and assumptions of the Model regarding the efficiency of trees versus other types of vegetation to reduce sediment and nutrient loading. SHA acknowledges the effectiveness of trees, however raises concern that there may be no benefits projected by the Model for meadow vegetation, dense shrubs and turfgrass.

a) Shrubs and Improved Turfgrass:
A significant proportion of land managed by SHA is turfgrass, and much of this area must remain in turfgrass for reasons of motorist safety and operational. maintenance. SHA requests that the Model recognize and address the importance and contributions of soil improvements, turfgrass, meadow and other vegetation types so enhancements that capture or reduce sediment and nutrient loads are given appropriate allocations and credit in the WIP.

SHA believes that the ability of shrubs to provide many of the benefits of trees also requires analysis in the Model and TMDL. The addition of trees to roadside areas has significant implications to motorist safety, future system maintenance and disposal costs. The addition of trees to roadside areas also has implications to future regulatory compliance since tree and forest removals are regulated under state law, and their losses must be mitigated.

However, because shrubs are not as hazardous to motorists, are less costly to maintain SHA requests that the Model be reviewed and modified to consider the use of shrubs as an acceptable alternative to trees in roadside areas, and particularly in those areas where their presence is a potential hazard to motorists. Overall, SHA believes that the opportunities for shrub installation in areas with limited right of way and along high speed roadways are far greater than for tree installation.

Therefore, SHA proposes the use of shrubs as an effective strategy to reduce sediment and nutrient pollution to offset the WLA for SHA, and requests that the efficiencies of shrub cover be explored and developed for the Model and TMDL, with appropriate allocations and credit for shrub installation in the WIP. SHA believes that the expanded use of shrubs is appropriate and will significantly enhance the ability of SHA to meet the goals of the TMDL within its existing right of way.

Response

EPA acknowledges the comment and suggestions. EPA can accept additional verified practices for use and crediting within the Chesapeake Bay Watershed Model on an ongoing basis. The Bay Watershed Model can accommodate any practice and program across all pollutant source sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nitrogen, phosphorus, and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated and approved by the partnership following the Chesapeake Bay Program's protocol available at http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

Because this formal best management practice review and approval process takes two or more months to finalize, EPA allowed the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance on these interim efficiencies is available at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

Comment ID 0411.1.001.006

Author Name: Moon Michael

Organization: Public Works and Utilities, City of Manassas, Virginia

5. The science being used is questionable. Taking the Bay's TMDL model (Phase 5.3) for a seven state, 64,000 square mile area and scaling it down to a 10 sq. mile City is problematic. The City has supported the efforts of the Occoquan Watershed Monitoring Lab (OWML), Virginia Tech, for almost thirty years and has real data vs. untested assumptions on the watershed model for the City as it affects the downstream water supply in Fairfax County. The model has not been calibrated with this local data. Waste Load Allocations (WLA) should reflect the work of Dr. Tom Grizzard, Virginia Tech, Director of the Occoquan Watershed Monitoring Laboratory, with the needs to the Occoquan Water Supply.

Response

The Chesapeake Bay Phase 5.3 Watershed Model is best used in decision making across the Chesapeake Bay watershed at the major tributary basin, 92 Chesapeake Bay segment watersheds, and county scales, where consistency in the input data is important to ensure equity in allocations across sources and state and local jurisdictions. Local information and models would be more useful in choosing between different technologies and locations in a specific local area.

The Chesapeake Bay TMDL is for water quality in the tidal Chesapeake, which includes the tidal Potomac River. Loading targets are set to meet water quality in the tidal area, not the Occoquan reservoir, where research for the OWML is focused.

Comment ID 0412.1.001.002

Author Name: Lohr Matthew

Organization: Virginia Dept. of Agriculture and Consumer Services

Such an initiative also deserves to be based on an a well-calibrated Chesapeake Bay Watershed Model that uses up-to-date agricultural census and land use data, accounts for voluntarily implemented best management practices, and provides accurate and reliable predictions. These model input flaws, as well as other assumptions incorporated into the model should be remedied before the completion of the development of the Chesapeake Bay TMDL.

Response

The Chesapeake Bay Watershed Model and the input data sets have four formal partnership-driven cycles of development, calibration, verification, and management application since the mid-1980s, supporting programmatic and policy decisions and directions embedded within the 1987 Chesapeake Bay Agreement, 1992 Amendments to the Chesapeake Bay Agreement, the 1997 Nutrient Reevaluation, and the Chesapeake 2000 Agreement. With the development and publication of the Bay TMDL, the partnership has carried out the fifth such cycle supporting management decision-making.

The technical direction for the development, management application, and independent review of the Chesapeake Bay Program Partnership's models is carried out through several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. Descriptions of each of these groups is provided within Section 1 of the final Bay TMDL. Each has broad representation by federal, state, local, academic, and private groups. Programmatic and policy direction on the application of the models and their use in supporting decision making is undertaken through the partnership's Management Board (previously the Implementation Committee) and the Principals' Staff Committee. All the independent scientific peer reviews of the models are carried by the Chesapeake Bay Program's Scientific and Technical Advisory Committee. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference calls can be found in Appendix C of the final Bay TMDL.

The Phase 5.3 Watershed Model was been developed, calibrated and verified through collaboration with federal, state, academic, and private partners. Development teams at the Chesapeake Bay Program Office (CBPO) and the U.S. Geological Survey (USGS) included EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed and approved by several of the above groups. All the Phase 5.3 Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf.

In addition, there have been two independent scientific peer-reviews of the Chesapeake Bay Phase 5 Watershed Model in 2005 and 2008 involving scientists drawn from across the country-Penn State University, Virginia Tech, Duke University, University of North Carolina, University of Maryland Baltimore County, and University of Florida—and overseen by the Scientific and Technical Advisory Committee. These independent peer reviews and the Chesapeake Bay Program partnership's responses can be found at:

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

Best management practice (BMP) and conservation practice effectiveness estimates, which are critical to decision-making, are based on a 2-year study, undertaken by the Mid-Atlantic Water Program, a consortium of the nine major land grant universities, involving extensive peer-reviewed scientific literature, field studies, and input from technical panels comprised of USDA, NRCS, state land grant universities, state agricultural agencies, and key practitioners. Extensive information and documentation regarding the effectiveness estimates is available at http://www.chesapeakebay.net/watershedimplementation plantools.aspx?menuitem=52044.

In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the final Bay TMDL report.

In 2009, EPA provided all watershed states with the opportunity to review all pertinent agricultural input data and to supply state-specific or county-specific values. Some states chose to revise portions of the agricultural data at that time.

Comment ID 0414.1.001.012

Author Name: Myers George

Organization: Milton Regional Sewer Authority

Lack of Model Data Limits Public Comment

Watershed model data has been unavailable for review or has been available only in extremely complex and large data sets that are unusable to the public. Beginning in mid-summer, numerous requests have been made to DEP to release the 5.3 delivery ratios. DEP has never provided that data saying that they could not obtain it from EPA. It has only been in the last 3 days that EPA has furnished the delivery ratios, first in a file that contained over 1.4 million lines of data, then in tables which included all PA NPDES permits, but not sorted for significant point sources and not identifying the phase 1, 2, and 3 POTW's or not providing the facility names. Delivery ratios are critical to evaluating compliance paths for POTW's.

1. Is the modeling so incomplete that moving forward with the TMDL is unwise?
2. What is the status of completion of the 5.3 model?
3. Will each new model run in the future necessitate changing the TMDL and all the policy, regulation, programs, etc. that result from the TMDL?
4. Do delivery ratios decline with reduced nutrient loadings? If that is the case, have reduced delivery ratios been forecast in the model to decline in future years? This question is based on the demonstrated tendency for lower concentrations of nutrients to be consumed nearer the point of discharge than the instance where large concentrations are discharged.
5. Do delivery ratios change with climate change and has this been forecast in the model?

Response

Delivery ratios by watershed model segment have been available upon request for all scenarios run. It appears that the commenter would like delivery ratios by permit number, which can be linked to the watershed model segment in which they reside. To answer the numbered questions:

Questions 1 and 2
The technical direction for the development, management application, and independent review of the Chesapeake Bay Program Partnership's models is carried out through several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. Descriptions of each of these groups is provided within Section 1 of the final Bay TMDL. Each has broad representation by federal, state, local, academic, and private groups. Programmatic and policy direction on the application of the models and their use in supporting decision making is undertaken through the partnership's Management Board (previously the Implementation Committee) and the Principals' Staff Committee. All the independent scientific peer reviews of the models are carried by the Chesapeake Bay Program's Scientific and Technical Advisory Committee. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference calls can be found in Appendix C of the final Bay TMDL.

The Phase 5.3 Watershed Model was been developed, calibrated and verified through collaboration with federal, state, academic, and private partners. Development teams at the Chesapeake Bay Program Office (CBPO) and the U.S. Geological Survey (USGS) included EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed and approved by several of the above groups. All the Phase 5.3 Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf.

Question 3
As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, "prior to 2017, EPA plans to review the full suite of the partnership's Bay models based on the best available science and decision-support tools and consider whether updated models should be developed to support phase III implementation plans and potential modifications to the Bay TMDL allocations."

New data and science will always continue to become available and, as stated in the above mentioned letter, EPA is using an adaptive management approach to incorporate new information as it becomes available with scheduled upgrades during 2011 and 2017. There is no anticipation of jurisdictions over-controlling nutrients in the interim. Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf.

Question 4
Delivery factors are calculated outputs of the modeled streams in the Phase 5.3 Watershed Model. They are the pounds of material

that make it to tidal water for every pound put in to the river at an upstream point. These factors are calculated for each scenario based on model delivery for that scenario. Generally, as lower loads of one nutrient are put into the stream, the delivery factor for the other increases due to uptake limitation. For example, putting less phosphorus in the water limits the amount of algal growth in the streams, which decreases the amount of nitrogen taken up, increasing the delivery factor.

Question 5
Climate change was not explicitly considered in the Bay TMDL. See section 5-11 of the final Bay TMDL for more details.

Comment ID 0430-cp.001.002

Author Name: Owens James

Organization: Hampton Roads Association for Commercial Real Estate

The EPA should delay adoption of the TMDL and backstops for at least one year and until no sooner than December 31, 2011 for the following reasons:

· The model used to establish the TMDL has three significant flaws: (1) data used for existing impervious surfaces is overstated by a 2.5 magnitude; (2) the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and (3) the model incorrectly accounts for pollutants from different land uses. It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Response

Please see the response to comment 0238-cp.001.002.

Comment ID 0432.1.001.009

Author Name: William Neilson John Bell and

Organization: Pennsylvania Farm Bureau

We also believe there are several categories of best management practices for pollution control and reduction that are not currently recognized and credited in the Model and that should be. The most recent research continues to make a strong scientific case that legacy sediment is a major factor in nutrient and sediment pollution in Pennsylvania.

Finally, we must express strong objection to the Model's failure to recognize any environmental credit for implementation of cover crops in areas which any winter manure application is performed. We believe that such discrediting in the Model is not scientifically or agronomically defensible.

Response

So-called 'legacy' sediments and other erosion from the river system are inherently included in the calculation of sediment loads from the watershed in the watershed model. Based on the recommendation of the Chesapeake Bay Program's Sediment Work Group, jurisdictions can get nutrient and sediment credit in their implementation plans for performing in-stream erosion control practices. The sediment work group is well aware of the research on legacy sediment.

As discussed in the Chesapeake Bay Program Sediment workgroup, the total flux of sediment generally decreases from sources on the landscape to a point downstream in a river of 4th or 5th order. In other words, the stream network is net sink of sediment. Of course, there are localized areas where this is not the case. Stream erosion is implicitly considered in the simulation in that there would be a lot more reduction of edge-of-stream sediment if there were no stream erosion. In simulated rivers (generally greater than 100 cubic feet per second) erosion and scour are explicitly simulated, however, "legacy" issues are generally on streams smaller than this, however.

In addition, "legacy" sediment issue can be addressed in the states' Watershed Implementation Plans which receive nutrient and sediment credit for stream erosion control practices.

In response to the comment on the specific BMP of cover crops under winter manure application, BMP and conservation practice effectiveness estimates, which are critical to decision-making, are generally based on a 2-year study involving extensive peer-reviewed scientific literature, field studies, and input from technical panels comprised of USDA, NRCS, state land grant universities, state agricultural agencies, and key practitioners.

EPA can accept additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf. Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

Comment ID 0435.1.001.008

Author Name: Lentz Kristen

Organization: Department of Public Works, City of Norfolk, Virginia

Bay 5.3 Computer Model

Comment:

The Bay model is currently flawed and will continue to need refinement by the EPA in 2011. Portions of the model have not been made public in order to be included in this public review. Notwithstanding, the sheer size and complexity of the

model makes it impossible for the localities and the general public to comprehend its details in 45 days. Consequently, neither the localities nor the general public will be able to determine the full implications of the pollutant loading reductions, much less be able to comment intelligently on them.

Since the WLA is established based on this model, it is extremely important that whatever version of the Bay Model being utilized by the EPA be as accurate as possible and understood by the localities and general public. The pollutant load reductions established by the model can then be enforced throughout the Bay watershed through the TMDL and other Clean Water Act permitting programs.

It is unclear how the EPA is proposing to mandate that states and local governments meet WLAs set by a flawed model. As proposed by the EPA, the revisions being made to the Bay Model in upcoming years will adjust for flaws in the current computer model,version 5.3. This implies that EPA will change the WLAs for individual states and local governments. Without accurate WLAs and reduction targets, the states, local governments, and private interests have no clear metric to anticipate how they intend to meet them.

The model lacks adequate information on groundwater nutrient cycling and detailed information at the jurisdictional level including storm water BMPs, both structural and non-structural, currently incorporated to meet water quality standards. Also, the EPA used satellite imagery to determine impervious area verses taking the time to acquire accurate information from the state or local governments. The EPA has admitted that the satellite imagery process used has included nearly 1,000 acres of misclassified land within the model.

The current computer model also fails to take into account the location of each state and watershed relative to the overall Bay watershed. Hampton Roads, specifically the James River watershed, clearly has minimal impact to water quality in the upper reaches of the Bay by its proximity alone.

Recommendations:

The City suggests that the EPA adopt nutrient reductions based on the Tributary Strategies until the Phase 5.3 Bay Model can be revised and calibrated to properly set the nutrient allocations. The EPA should also utilize data collected from state and local governments to ensure accurate information is inputted into the database system. The model should also include consistent simulations of the chlorophyll standards as set for the James River and also include ground water nutrient cycling. Lastly, the EPA should provide the model, a detailed explanation of the model, and adequate time for public review prior to the closing of the public comment period or implementation of the TMDL.

Response

Please refer to the response to comment 0265.1.001.020.

An additional point in this comment relative to other from Virginia municipalities is that the modeling fails to take into account the location of each state and watershed relative to the overall Bay watershed. EPA disagrees with this comment and specifically addressed this point in the allocation methodology, giving higher allocations to areas with lower relative effectiveness. Please see section 6 of the final Bay TMDL report.

Comment ID 0436.1.001.020

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Chesapeake, Virginia

Particularly significant is EPA's failure to make critical components of its TMDL decision support system, such as the Scenario Builder software and reliable Phase 5.3 Model source codes and data, available to the modeling community outside of EPA. Without access to these components, modelers retained by stakeholders such as the Hampton Roads Localities must blindly accept model inputs from EPA and must rely upon EPA to stitch together various patches and workarounds to get the Model to run. This has the effect of making an already inadequate 45-day comment period even shorter as modelers outside of EPA are forced to wait for EPA to run the Model and produce the results, leaving them without adequate time to evaluate and understand the data. Under these circumstances, there is little that the modeling community can do to apply the Phase 5.3 Model in any independent or meaningful manner within the very limited period of time provided by the comment period.

Further, although experts have previously reviewed portions of the Phase 5.3 Model code and data, substantial amounts of the current modeling code and data have been produced at breakneck speed with little or no verification either by the experts who checked portions of earlier versions of the code or by engineers or scientists in academia or the private sector. EPA's blind adherence to an artificial schedule and rollout of the Model and data has effectively prevented-and will continue to prevent-modelers outside of EPA from using the Model to:
• Understand how the complex physical processes are being modeled,
• Validate or check model input or output data,
• Use the Model to analyze pollution treatment alternatives such as BMPs, or
• Contribute to debugging and improving the Phase 5.3 Model through any meaningful testing and feedback processes.

Additionally, as explained below in Section VI, EPA's failure to make available post-processing performed on all of the chlorophyll-a modeling scenario runs has made it extremely difficult for the Localities' consultants to evaluate and comment on the differences in the model runs.

Finally, EPA has not mapped the data used in the Model despite requests for such mapping from the Virginia Department of Conservation and Recreation. The requested mapping would indicate locations of various urban land use categories (such as Impervious High Intensity, Impervious Low Intensity, Pervious High Intensity, and Pervious Low Intensity) used in the Phase 5.3 modeling. Likewise, there is very little documentation that would allow modelers outside of EPA to ascertain specifically how the data was collected and synthesized, which makes working with the Phase 5.3 Model a shot-in-the-dark proposition at the state and local levels. A single scenario run of the Phase 5.3 Model involves hundreds of input data files and produces some 60,000 intermediate and output files. Geographic Information System technology is best used to map this type of data to its sources, but without mapping, there is no way to ensure that sheep are not modeled as grazing in downtown areas, or that urban areas are not modeled as forest (both of which anomalies have been discovered in the Phase 5 model).

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0436.1.001.022

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Chesapeake, Virginia

B. The Model does not produce consistent, reliable results.

The Localities are not suggesting that there must be absolute precision in the Model's predictive capability. However, given the significant widespread financial consequences of even small changes in the Model's outputs, the Localities have every right to expect the accuracy of the Model inputs to be verified and the Model to be fully calibrated so that it produces consistent predictions within a reasonable margin of certainty before the Model is used to develop the TMDL.

The Model's inability to produce consistent predictions is further evidence that it is not ready to be used for TMDL development. EPA distributes the Phase 5.3 Model program in un-compiled form, meaning that in order to run the model users must obtain a FORTRAN compiler and generate the executable computer programs from the source code. However, there is a known and still unresolved problem with the Model producing different results when compiled on different computers. Identical input data was run on different computers in August 2010 for the James, York, and Rappahannock river basins, and the Phase 5.3 Model produced significantly different results, with variations in the answers as high as 36 percent. The reliability of the Model cannot be corroborated until repeatable results can be produced. EPA indicates that it is working on this problem, but again, the demands of EPA's self-imposed deadline to establish the TMDL far exceed the time required to produce a reliable watershed model and modeling results. Development of the Phase 5.3 Model is undoubtedly an ambitious and worthwhile undertaking, but a reasonable amount of time has to be devoted to testing and refining the Model to the point where it can be reliably used to justify billions of dollars in expenditures.

The implications of EPA's rush to establish the TMDL before the Model and model inputs are significant. Many of the allocations are targeted to pollutant reduction levels that are considerably less than the margin of uncertainty in the modeling process itself. As a consequence, the TMDL likely will burden the Localities and many others with extraordinary costs that do not produce a measurable water quality response. Dr. Kathy Boomer [FN 10] of the Smithsonian Environmental Research Center has conducted specific research and noted that the margin of uncertainty in the TMDL component models was much greater than the pollutant loading reductions being sought. Dr. Ken Reckhow with Duke University [FN 11] (who chairs the National Academy of Sciences Panel on the Evaluation of Chesapeake Bay Progress Implementation for Nutrient Reduction to Improve Water Quality) notes that TMDL prediction uncertainty is high, and has repeatedly cautioned regulators against reporting modeling results without stipulating the uncertainty. The Localities request that EPA report the uncertainty of the model in the documentation submitted with the final TMDL.

Unfortunately, it is apparent that EPA is intent on papering over the uncertainty in the modeling results and its consequences as reflected in the following from Section 5 of the TMDL Report:

Models have some inherent uncertainty. Because of the amount of data and resources taken to develop, calibrate, and verify the accuracy of the Bay models, the uncertainly of the suite of models is minimized.

Quite the opposite is true - the amount of data and complexity of the system work to increase the uncertainty.

[FN 10] See http://vimeo.com/12080139
[FN 11] See http://www.rti.org/page.cfm?objectid=8C8E7BCD-5056-B100-0CC50391AF13C8C4

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0436.1.001.023

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Chesapeake, Virginia

C. The Model does not accurately predict the true extent of the TMDL's burdens on the Localities and resulting water quality benefits.

As explained above, the average 54 percent (James River) and 59 percent (York River) load reduction needed to achieve the backstop allocation for phosphorus would require treatment of approximately 68 to 74 percent of the urban area in the Hampton Roads Localities at a total estimated cost of approximately $9.8 billion plus the costs of land acquisition. EPA concludes from its modeling predictions that this and the other load reductions called for in the TMDL will achieve compliance with the applicable water quality standards, but an analysis of the Model and its inputs indicates that the modeling predictions underestimate the extent of the load reductions that will be required of the Localities' MS4s and overestimate the resulting water quality benefits.

1. Existing imperviousness is underestimated in the Phase 5.3 Model.

EPA has acknowledged the inaccuracies in the land use data used in the Model by setting aside the five percent allocation reserve discussed above. However, this reserve hardly begins to account for the inaccuracies in the data. An analysis of representative Geographic Information System (GIS) land use data from eight of the Localities shows that the satellite imagery used by EPA for its land use inputs to the Model underestimates the extent of imperviousness in the Hampton Roads region by an average of approximately 48 percent. See Exhibit D [Comment Letter contains additional information in the form of an attachment. See original comment letter 0436.1]. The imperviousness data in the Localities' GIS systems is more accurate than the satellite imagery relied on by EPA, but EPA's TMDL development schedule did not allow time for EPA modelers to coordinate and collect this information from the Localities.

The implications of the underestimated extent of imperviousness are significant because it means that the Localities will have to reduce their urban runoff loads based on modeling data that assumes that they are substantially less impervious than they actually are. In other words, the land area that will have to be treated in order to attain the

allocations is considerably greater than the approximate 68 to 74 percent of urban land area assumed in the financial impact analysis described above as will the costs and time required to attain the allocations.

2. Groundwater is a substantial transport mechanism for nutrients into the Bay, but the Phase 5.3 Model lacks a groundwater transport capability.

The Phase 5.3 Model does not contain a groundwater transport component - a significant deficiency because groundwater transport of nutrients is a major source of nitrogen loads discharged to the Bay. As noted on the Chesapeake Bay Program's web site [FN 12]:

According to a 1998 study by the U.S. Geological Survey (USGS), groundwater contributed nearly half (48 percent) of the total nitrogen load to streams in the Bay watershed.

Groundwater contributes to river flow, or the amount of fresh water flowing from streams and rivers into the Bay. In a 1998 study, the USGS found that in an average year, of the 50 billion gallons of streamflow that enter the Bay each day, nearly 27 billion gallons are from groundwater. It can take years for groundwater - and the pollutants it may carry - to slowly travel through aquifers before reaching the streams and rivers that flow to the Bay. This "lag time" can make it difficult to determine whether efforts to reduce pollution throughout the Bay watershed are having a positive effect on the Bay's health.

Ironically, many of the controls that will be employed to achieve the urban runoff load reductions needed to comply with the allocations in the TMDL are based on removal of pollutants by infiltration. Nitrogen and phosphorous are elements, and as such, they persist in nature. The absence of a groundwater component in the Model means that nutrient loads that are routed into infiltration BMPs magically disappear from the computational universe, when, in reality, they are deposited into groundwater that eventually flows into the Bay.

[FN 12] Source: http://www.chesapeakebay.net/groundwater.aspx?menuitem=14716

Response

Please refer to the response to comment 0265.1.001.023.

Comment ID 0436.1.001.030

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Chesapeake, Virginia

Finally due to the 64,000 square-mile extent of the Model, there is an inherent problem of scale when addressing urban runoff controls. The Model is better suited for overarching computations on larger scales, such as evaluating the effects of fertilizer applications on large segments of the Bay watershed, than it is in evaluating the effects of a particular control or group of controls on specific sites. EPA has acknowledged that the effects of individual, site-specific controls

cannot be directly addressed in the Phase 5.3 Model.[FN 18] Therefore, we recommend that EPA develop guidance for localities that will allow them to evaluate specific alternative controls consistent with the Phase 5.3 modeling. Such guidance would require EPA to overcome the inherent scale problem in the Phase 5.3 model, problems with BMP efficiency rates, problems with sorting out and correcting the modeling data, and would allow the Localities and other localities with MS4s to make informed, intelligent decisions without requiring them to translate this very complicated technology completely on their own.

[FN 18] EPA Chesapeake Bay TMDL March 25, 2010 Webinar

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0438.1.001.003

Author Name: Johnson Roger

Organization: National Farmers Union (NFU)

Specifically, I am concerned that data inputs to the Scenario Builder tool will improperly allocate pollutant loads to various sectors in the watershed. We are concerned the tool makes inappropriate assumptions regarding nutrient management, and that it does not fully account for benefits of agricultural Best Management Practices (BMP) in place that are not cost-shared through government programs.

The draft Watershed Implementation Plan (WIP) developed by the state of Pennsylvania articulates similar concerns, saying that a "significant number of agricultural and other BMPs that have been implemented in Pennsylvania have not been ‘tracked' and entered into the Chesapeake Bay Model." The Pennsylvania WIP goes on to say "as much as 84 percent of some implemented BMPs have not been entered into the Bay model, resulting in potentially significant nutrient and sediment reductions not being accounted for in the reductions attributable to Pennsylvania."[FN4]

[FN 4] Pennsylvania Watershed Implementation Plan, p. 73.

Response

Please refer to the response to comment 0452-cp.001.001.

Comment ID 0442.1.001.008

Author Name: Drzyzgula Cathy

Organization: Metropolitan Washington Council of Governments (COG)

Another issue of concern is the complexity and potential lack of accuracy of the Bay Program's WSM when used to generate load estimates at the county or land-river segment level. We do not believe that the WSM should be the main tool to determine accountability at the local level (ref. Section 5.8 Phase 5 Chesapeake Bay WSM).

Recommendation #6C: Provide for Tools other then the WSM to Gauge Implementation Progress
The states and EPA should allow local governments to use other approaches than use of the WSM to assess their implementation progress.

Response

The Chesapeake Bay Watershed Model and Scenario Builder are accounting tools used to inform the TMDL by comparing loads, load reductions, and reduction capacity across jurisdictions and across sectors. As such, it is necessary to provide similar assumptions and use of data across these jurisdictions and sectors. Stakeholders will not simply enter local data as this could lead to issues in the comparability of data from various sources. All data and methods must be vetted through the technical direction structure. The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups.

Comment ID 0443.2.001.009

Author Name: Moore Shannon

Organization: Frederick County Government

Frederick County also echoes the concerns of the Maryland Association of Counties on the following points: • Need for Bay Model Refinement

Response

As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the phase 5.3 will be updated, not for the December 31 2010 TMDL, but for the phase II Watershed Implementation Plans, which will be due after the 2010 TMDL. Adjustments to the allocations, if warranted, will be made at that time. Changing modeling numbers are a result of improving inputs data and methods.

In the same letter, "prior to 2017, EPA plans to review the full suite of the partnership's Bay models based on the best available science and decision-support tools and consider whether updated models should be developed to support phase III implementation plans and potential modifications to the Bay TMDL allocations."

New data and science will always continue to become available and, as stated in the above mentioned letter, EPA is using an

adaptive management approach to incorporate new information as it becomes available with scheduled upgrades during 2011 and 2017. There is no anticipation of jurisdictions over-controlling nutrients in the interim. Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf.

Comment ID 0449.1.001.001

Author Name: Farry K.

Organization: Excalibur Farms

As an engineer with a doctorate, I was particularly concerned by the EPA's heavy reliance on modeling for contributions from non-point sources. It's very hard for me to see how the resolution and accuracy of the model can justify sweeping regulatory actions such as "near total exclusion of livestock from streambeds" (Virginia WIP) hundreds of miles from the measurement points used to calibrate the models. Furthermore, the great majority of references cited are EPA or other government reports. The percentage of refereed journal articles (for example) listed as references is disappointing for a foundation of such sweeping regulatory authority.

Response

Monitoring non-point sources on a small scale is not feasible. Modeling is required to equitably distribute the loadings to various sources in the watershed. The watershed model is calibrated to more than 100 water quality monitoring stations and nearly 300 flow gauging stations.

The TMDL document describes the process by which the TMDL was developed and relies on many technical tools and antecedent documents. These are more often based on peer-reviewed literature. For examples, see the scenario builder documentation ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/ or one of the criteria documents http://www.chesapeakebay.net/content/publications/cbp_51366.pdf.

Comment ID 0449.1.001.004

Author Name: Farry K.

Organization: Excalibur Farms

Please craft this policy and the derivative WIPs to emphasize increased granularity of water quality measurement to pin-point agriculture-related problem sources and allow solutions tailored to livestock species, farming technique, specific crops, soil types, and terrain.

Response

Thank you for your comment. EPA will consider this approach as part of the adaptive management framework. Increased and

targeted non-tidal monitoring would aid in management. See the report from the Chesapeake Bay Program's Scientific and Technical Advisory Committee http://www.chesapeake.org/stac/Pubs/swmreport.pdf.

More on the adaptive management approach
As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the phase 5.3 will be updated, not for the December 31 2010 TMDL, but in support of development of the Phase II Watershed Implementation Plans, which will be due after the 2010 TMDL. EPA has clearly stated that adjustments may be made to the allocations at that time and reflected in amendments to the 2010 Bay TMDL. Changes to the model generated numbers are a direct result of improving inputs data and simulation methods.

The same Shawn Garvin letter states "prior to 2017, EPA plans to review the full suite of the partnership's Bay models based on the best available science and decision-support tools and consider whether updated models should be developed to support phase III implementation plans and potential modifications to the Bay TMDL allocations." New data and science will always continue to become available and, as stated in the above mentioned letter, EPA is using an adaptive management approach to incorporate new information as it becomes available with scheduled upgrades during 2011 and 2017. Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf.

EPA is promoting an adaptive management approach, but towards the same goal post as the Bay TMDL—restored Chesapeake Bay water quality as defined by Delaware, Maryland, Virginia, and the District of Columbia's Chesapeake Bay water quality standards regulations.

Comment ID 0450.1.001.002

Author Name: Yates J.

Organization:

1. Model integrity, validation and watershed representation. The model evaluation conducted January 23-25, 2008 can be found at the following:
http://www.chesapeake.org/stac/Pubs/2ndPhaseVReportFinal.pdf
Most notably this review has a disclaimer statement, and I quote: "The reader should be aware that model documentation required for this review was incomplete and this review is based solely on the information provided. Improved and continuous documentation of the model and data environment should be implemented as soon as possible." This review also points out the need for validation of the model, which is sorely lacking. Additionally, the review calls into question several segments of the model that lack integrity. First, the need for uncertainty analysis as a margin of safety must be addressed. While I respect that simulation runs are demanding upon time and resources within the program, so is implementation of costly and egregious limitations on individual rights that this model will invoke. Therefore, this is not a valid reason for the lack of uncertainty analysis as a potential validation and calibration technique. After all, if you intend to enforce backstop measures that will hamper the very life of those inhabiting the watershed, it seems the least someone could do is ensure those limitations are based on accurate assessments. Long term validation is also questioned by the relatively short period of time chosen to set up model parameters. Instead, there is real doubt about the model's ability to and I quote: "this approach does not account for long-term changes and

stability of the model parameters over a period that may have significant change in climate, land use and management options."

Best management practices and their efficiency rating are also questioned. The model could over estimate or under estimate efficiency ratings for practices. Also, the track record for US EPA approving efficiencies is dismal. They continue to take too long to acknowledge new BMP's and are notoriously slow at changing efficiencies for recognized BMP's. Lastly, the entire model gives credit for transferring waste out of the watershed. This does not help anybody. First, it passes the "problem" to someone else. This is not the way to deal with issues. Secondly, and most important, we should utilize the waste within the watershed on soils that test nutrient deficient. This increases the biological ability of the flora present to act as natural nutrient sinks. Secondly, we see increased ability of the soil holding capabilities of much more of the watershed's land mass. Finally, the idiocy of the model is shown in the fact that litter transferred out of the state is "gone". Even though we can ship it right across the state line, where it does not have to be accounted for nor credited to any land mass. Let's keep that fertility local, where it does not add to the carbon footprint by increasing emissions due to fossil fuel consumption to haul the waste out of the watershed in the first place.

Finally, related to the model is the fact that the non-tidal monitoring program only accounts for roughly 31-44% of the land mass for the state of West Virginia's contribution to the Chesapeake Bay drainage area. Furthermore, those four streams represent, what I contend is a skewed data set. Opequeon Creek has serious pollution issues and is not offset by watersheds (in the sampling streams) that can balance and represent a true picture of the state's contribution to the bay pollution load.

Moving along let me say also that based on these comments, the modeling data can be easily and rightfully questioned. Other assumptions made in the modeling load and background inputs only strengthen the argument. Wildlife populations continue to grow, and are increasingly being concentrated on the stream bank due to proliferation of riparian buffer zones. We have large populations of other wildlife that inhabit the watershed that are not being adequately controlled. Additional populations that cannot be "offset" include the 1.2 million human inhabitants projected to make up the net influx of people residing within the Chesapeake Bay Watershed. While I know the US EPA does not have the authority to implement basin wide comprehensive zoning ordinances, if offsets are going to be required I suggest you begin to obtain that ability.

Response

The validation procedures were modified after the 2008 review to reflect the recommendations of the Chesapeake Bay Program's Scientific and Technical Advisory Committee's Phase 5.3 Chesapeake Bay Watershed Model independent scientific peer review panel. The calibration and validation of the Phase 5.3 Chesapeake Bay Watershed Model was completed and approved in March, 2010. The Phase 5.3 Chesapeake Bay Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf.

Equifinality is a known issue with all deterministic watershed models, however few models are analyzed to account for this. The modified Monte Carlo or GLUE methods most often used as tools to address equifinality are not feasible to implement on a watershed model of this complexity. As described in section 6.2.3 of the Draft TMDL document, the implicit margin of safety in the nutrient allocations due to conservative TMDL and modeling assumptions accounts for uncertainty in the models. Due to additional uncertainty in the sediment modeling, an additional explicit margin of safety was adopted which reduced the available

loading for Load Allocation and Waste Load Allocation.

EPA can accept additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

The TMDL does not require removal of manure from the watershed, however it is clear that moving manure out of a watershed that has an excess of manure relative to the available cropland will reduce the over application of that manure.

The non-tidal monitoring program accounts for 100% of the Chesapeake drainage in West Virginia in that all of the West VA Potomac drains to several stations on the Potomac in Maryland. The West VA loads are not set based on the limited monitoring data within WV, but an overall calibration to all monitoring stations in the Potomac.

Wildlife load is inherently part of the forest load. While it is common to consider wildlife in bacterial TMDLs, it is uncommon to consider wildlife in nutrient TMDLs.

On the issue of comprehensive zoning, EPA does not have the ability to expand its own authority.

Comment ID 0450.1.001.003

Author Name: Yates J.

Organization:

US EPA's notion that it can further regulate large, medium and small CAFO's and AFO's to obtain additional reductions in water nutrient loadings and sediment deposition is ridiculous. Where those problems exist, then work with us to correct them. What you do not understand is the fact that all the low hanging fruit in the agricultural world has been picked. We will soon reach a point of dimensioning returns. (some contend we are already there) Precision feed management for all animals in WV will not work to decrease nutrient loading. Since no one on the WV presentation team could identify what this practice is, I question the knowledge that led to it inclusion as a backstop for the WV WIP. I know what it entails, so it is your duty now to answer, within the response to this document, how it will help nutrient loading to the bay. Please include peer-reviewed scientific studies that conclude this BMP will work on the following animal populations:

1. Mature beef cows, during the second tri-master of pregnancy.
2. Stocker cattle (steers and heifers) being fed for both maximum gain and spring grass markets.

3. All ewes and does within the watershed during the entire winter feeding phase 4. Horses being fed for maintenance during the winter and those being fed for normal work conditions.
5. Mature beef cows in fall calving herds that are nursing suckling calves.

Response

The animal populations referenced in the comment are subsets of the larger animal types. The Scenario Builder accounts for BMPs for populations at an average condition. This is why the estimates for animals units were chosen accounting for the largest subset of the population in the Ag Census or an average of all the subsets in the Ag Census. Scenario Builder bases its estimates of manure production and nutrient content on large scale peer reviewed literature. This excludes bovine raised for specialty markets or at different production stages which represent only a small portion of their time in the watershed. If the animal categories mentioned in the comment represent a significant portion of animals within the populations and are tracked separately on a regional scale, then it may not be appropriate to have precision feeding as a BMP apply to these subsets of the animal populations. The county's animals as a whole may be modeled as having a BMP applied when it is only some animals getting the benefit, but this is one reason conservative estimates are applied with respect to effectiveness and coverage of a BMP.

Comment ID 0450.1.001.004

Author Name: Yates J.

Organization:

Let me conclude my comments with a few simple thoughts:

1. There are serious and long term implications tied to the TMDL implementation for the Chesapeake Bay. Model accuracy and validation concerns are compounded by serious questions about the number of and accurate representation for the four streams in the non tidal monitoring system.
2. BMP's are not being adequately captured, or credited for West Virginia and many other states. Other related problems entail a lack of partial credit grass buffers or those that do not meet the minimum 35 foot requirement. Furthermore, the bay program has a poor record of timely implementation of new BMP's or adjustment of existing efficiencies. Also, some practices seem to question logic, such as transferring litter out of the watershed, where it becomes someone else's responsibility, or worse, simply disappears when it crosses state lines.

Response

Please refer to the response to comment 0450.1.001.002.

Comment ID 0450.1.001.010

Author Name: Yates J.

Organization:

The model has serious issues, as pointed out by the EPA's own review. In fact, the entire evaluation is premised by the statement that it is based on incomplete data. Additionally, there are questions about the number of streams and percentage of the watershed represented in the non tidal monitoring system. The process has been fraught with BMP standstills for years. Even in the face of good science, the BMP team refused, for years to recognize the value of some practices (rotational grazing for example).

Response

Please refer to the response to comment 0450.1.001.002.

Comment ID 0450.1.001.012

Author Name: Yates J.

Organization:

Finally, you must address the scientific and technical issues I have raised with regard to the model, BMP efficiencies and definitions. Also, the non tidal monitoring system has serious reliability issues due to inadequate representation and possibly skewed data sets. A "beat the model" game benefits no one and only hampers real efforts to improve the health of the bay and the productivity of WV lands. The litter transfer program is indicative of this game. While I understand it is a key to my own state's plan, please understand that in an effort to truly address the issue at hand, I reject its potential to make a positive overall impact on the bay or our greater environment. Instead, utilize those nutrients within the watershed, where they can aid nutrient deficient soils, making them healthier and better positioned to play a larger role in helping maintain the integrity of the Potomac Headwaters.

Finally I challenge all involved to work together to find real solutions to one of the greatest problems to face the modern world. We all want clean and abundant water. Agriculture plays a key role in meeting that need. Our society faces many great obstacles; the least among them needs to be where our next meal will come from. In fact, when it even makes the list that is the beginning to the end of the greatest nation on the face of the earth!

Response

Please refer to the response to comment 0450.1.001.002

EPA agrees with the commenter that clean and abundant water is a desired outcome and that "agriculture plays a key role in meeting that need", and also that continued dialogue is an appropriate way to find solutions. The Chesapeake Bay Program partnership-based restoration effort has fostered that dialogue for well over two decades.

Comment ID 0452-cp.001.001

Author Name: Atkinson Dick

Organization: Virginia Soybean Association

Producers in/around the Bay are concerned that their voluntary efforts have not been captured by the present Bay Model, and must be rectified prior to the Bay TMDL's can be implemented. These voluntary efforts include fencing cattle from streams, conservaion tillage, using proper nutrient management practices, and buffer strips.

Response

EPA agrees with the commenter that non-cost shared implemented practices are likely under-counted due to difficulties in data collection

Verified non-cost shared practices can be accepted in the model, but historically have not been included to a great extent because the information has not been made available to the Chesapeake Bay Program. Voluntary practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These voluntary practices are typically funded by farmers alone. EPA is committed to working with USDA, NACD, state environmental and agricultural agencies, conservation districts, and agricultural community at large to credit nutrient and sediment reductions from voluntary practices. As committed to in the Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to "By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented."

Comment ID 0457.1.001.006

Author Name: Zaepfel Patrick

Organization:

8. The Draft TMDL is a model-driven regulation. Models are, by their nature, imperfect representations of reality and are inordinately capable of manipulation. The Draft TMDL naively reduces the complexity of the model to discharge specific cap loads, which will likely be translated into mass limits to be applied through NPDES permits. The parsing of a model for direct application to dischargers without an opportunity for each individual permittee to examine the basis for the model is contrary to traditional notions of fair play and violates the due process clause and the APA.

In addition, we understand that the model itself fails to accommodate the reality of the Bay ecosystem. The United States Geological Service (USGS) conducted a multi-year study in the Chesapeake watershed of nitrate in ground water. The 2002 report (USGS Fact Sheet FS-091-03) states:

An average of 48 percent of the nitrogen load in streams in the Bay watershed was transported through ground water, with a range of 17 to 80 percent in different streams.

The report also found that, due to lag time, the median "age" of the pollution in this groundwater is 10 years, with 25

percent of the samples having an age of 7 years or less and 75 percent of the samples having an age of up to 13 years. If the model does not accommodate the fact that 48 percent of the nitrogen load in streams in the Bay watershed is transported through ground water, one must wonder what other factors were missed in the modeling exercise. Failing to include groundwater flow in the modeling exercise is arbitrary and capricious.

Response

This is a common misconception and would be a serious flaw if it were the case since, as you point out, the USGS estimates that almost half of the nitrogen that reaches the tidal water flows through the groundwater at some point in its path to the Bay. Groundwater delivery of water and nutrients is simulated in the Phase 5.3 Chesapeake Bay Watershed Model.

Groundwater lag time is not simulated in HSPF (hydrologic simulation program-fortran), which is the basis for the Phase 5.3 Chesapeake Bay Watershed Model. Work is underway by USGS colleagues, focused on Delmarva, to develop groundwater lag time model simulation capabilities.

Comment ID 0458-cp.001.002

Author Name: Cooper Michael

Organization: Brandywine Realty Trust

2)The model used to establish the TMDL has three significant flaws.

Response

Without more specific information, EPA cannot provide a response to the comment.

Comment ID 0464.1.001.003

Author Name: Bush J.

Organization: Virginia Forest Products Association (VFPA)

In the early 1970's, the forest industry supported the development of Virginia's Reforestation of Timberlands program, funded primarily by a tax on our industry (with matching funds from the State) which provides costshare assistance for landowners to continue using their lands to produce timber. This program, the first of its kind in the nation, served as a model for many other states as well as the Federal government. We have concerns that these many actions over the past 40 years have not been "counted" or provided consideration by EPA in the various models being considered.

Response

Please refer to the response to comment 0452-cp.001.001.

Comment ID 0464.1.001.004

Author Name: Bush J.

Organization: Virginia Forest Products Association (VFPA)

Our second serious concern is the Chesapeake Bay Model, the basis for nutrient and sediment reductions required by EPA, has been shown to have extensive flaws in the data it utilizes. EPA even acknowledges this fact. EPA should not move ahead with costly mandates based upon flawed modeling and data.

Some examples of these flaws include:
• In 2010, Virginia Cooperative Extension conducted a field observation study in the Coastal Plain. They found that 90% of crop acres were planted in no-till. Yet, only 15% of the acres are enrolled and recognized in the Virginia Department of Conservation and Recreation's (DCR) no-till program.
• Is the model fully accounting for practices that are already mandated by state permitting programs?
• The model is currently "throwing out" actual, ground-truthed data from Virginia because it does not meet the "modeled" land use data. This is unfair when the practices are meeting all requirements set forth by EPA.

Federal actions must be based on accurate information. No additional regulations or penalties should be put on states or industries until the science and data have been proven.

Response

Please refer to the response to comment 0089.1.001.003.

Comment ID 0465.1.001.003

Author Name: Marks Martha

Organization: NAIOP (Commercial Real Estate Development Association) Northern Virginia Chapter

• Data is flawed.
The EPA has agreed that the model used to establish the TMDL has significant flaws and it is astonishing that the proposal continues to move forward. The data is flawed as follows:

o data used for existing impervious surfaces is overstated by a 2.5 magnitude;
o the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and,

o the model incorrectly accounts for pollutants from different land uses.

It is arbitrary and most likely illegal for the EPA to establish a TMDL for the Chesapeake Bay using incorrect and error prone data. The model must be fixed such that policy can be adopted that is based on solid technical data. This is bad policy making.

Response

Please see the response to comment 0238-cp.001.002.

Comment ID 0469-cp.001.002

Author Name: Richardson Bruce

Organization: Association of Virginia Potato and Vegetable Growers

Unfortunately, the model used to both assess the problem and perscribe the soloution is seriously flawed. The model only counts the acres that are cost shared under USDA cost share programs. That is only a small percentage of the amount of conservation tillage and BMPs that Virginia farmers have implemented over the years. Numerous professionals, including members of our Association, estimate that the current model understates the actual number acres in conservation tillage and BMPs by over 50%!
The TMDL process is going to be an extremely expensive process for both the government and our farmers. We need to be sure that both the farmer's and the taxpayer's money are well spent.
We feel strongly that regulating agriculture using the existing model is unfair and unwise. We urge you to work with the Agricultural community to correct the model before implementing regulations that will force some of our members out of business. We will be happy to work with anyone to correct the flaw(s) in the model.

Response

Please refer to the response to comment 0452-cp.001.001.

Comment ID 0473.1.001.016

Author Name: Pechart Michael

Organization: Pennsylvania Department of Environmental Protection and Department of Agriculture

• Pennsylvania is concerned that there are significant deficiencies in EPA's Chesapeake Bay Watershed Model and Scenario Builder. These problems relate to nutrient management, continuous no-till, and urban acres issues. The model used to establish the draft TMDL does not take into account all of the agricultural BMPs that have been installed, including those that have not been reported and those that have been under-reported.

Response

Please refer to the response to comment 0238-cp.001.002.

Comment ID 0475.1.001.007

Author Name: Frazier Katie

Organization: Virginia Agribusiness Council

The Chesapeake Bay Model, the basis for nutrient and sediment reductions required by EPA, has been shown to have extensive flaws in the data it utilizes. EPA even acknowledges this fact. EPA should not move ahead with costly mandates based upon flawed modeling and data. Examples include:

• In 2010, Virginia Cooperative Extension conducted a field observation study in Eastern Virginia. They found that 90% of crop acres were planted in no-till. Only 15% of the acres are enrolled in DCR's no-till program. This equates to 75% of no-till acreage unaccounted for in the current Bay Model.
• It is our understanding that the Bay Model does not fully account for practices that are already mandated by state regulatory, permitting, and enforcement programs, including the Chesapeake Bay Preservation Act, the Agricultural Stewardship Act, and the Virginia Pollution Abatement Permitting program, to name a few.
• The model is currently "throwing out" actual, ground-truthed data from Virginia because it does not meet the "modeled" land use data. This is a misuse of funds and data when the practices are meeting all requirements set forth by EPA.

Federal actions must be based on accurate information. No additional regulations or penalties should be placed on states or industries until the science and data have been fully proven.

Conclusion

As the number one industry in the Commonwealth, the economic survival of agriculture and forestry must be the top priority. We embrace the need for clean water as a fundamental goal of our agribusiness industry. As an integral part of this goal, we believe that policies, programs, and incentives implemented to achieve water quality benefits, in particular Chesapeake Bay restoration, must balance this need for clean water with the world's need for food, feed, fiber, and fuel. Our industry is seriously concerned about the potential negative impacts that some proposals may have on the 500,000 direct jobs, the 1.5 jobs supported elsewhere in Virginia from each agribusiness job, and the almost $80 billion in annual economic impact that our industry contributes to the Commonwealth's economy.

Response

Please refer to the response to comment 0089.1.001.003.

Comment ID 0478-cp.001.002

Author Name: Fleury Thomas

Organization: Cityline Partners

We respectfully request that you delay any action on adoption and implementation of TMLD measures for the Chesapeake Bay until 12/31/13 based on the following rationale:

2) The model being used is at best flawed, and at worse gives the appearance of being articficially manipulated. The correlation between urban redevelopment non point polution and rural farming non point is , even to a layman, illogical.

Response

Please refer to the response to comment 0169.1.001.005.

Comment ID 0482.1.001.006

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

2. EPA Has Not Provided Sufficient Access to the Data Relied Upon to Develop the Draft TMDL.

Among the most significant pieces of information relied upon by EPA to develop the Draft TMDL are the inputs to and outputs from a model called "Scenario Builder." EPA relied on these inputs to determine the assumptions under which the model predicts that water quality standards will be met. EPA then incorporated those assumptions into the Draft TMDL. See Draft TMDL, section 8 and Appendix H.

Scenarios representing different nutrient and sediment loading conditions were run using the Chesapeake Bay Phase 5.3 Watershed Model and the resultant model scenario output was fed as input into the Chesapeake Bay Water Quality Model to evaluate the response of critical water quality parameters, specifically dissolved oxygen, water clarity, underwater bay grasses and chlorophyll a. Draft TMDL, Appendix H, at 1.

For EPA's backstop allocations, EPA used the same process in reverse, first establishing the allocations, and then trying to find a combination of scenarios that could achieve the allocations:

After applying all the backstop allocations that EPA determined were necessary, EPA ran the combination of specific practices and allocations through the Scenario Builder, Watershed Model and WQSTM to ensure that the allocations provided in the Chesapeake Bay TMDL would result in attainment of WQS. Draft TMDL, at 8-5.

To allow for meaningful public review of the Draft TMDL, EPA must make available to the public the data and scenario results that are the inputs and outputs of the "Scenario Builder" model that provides inputs to the Chesapeake Bay

Watershed model. EPA has not done so.

The Draft TMDL purports to provide information on Scenario Builder: "Additional information related to Scenario Builder and its application in Bay TMDL development (USEPA 2010d) is at http://www.chesapeakebay.net/modeling.aspx?menuitem=19303". Draft TMDL, at 4-33 and 5-26. However, no information on Scenario Builder is available at that link. By chance, we were able to find a link to the Scenario Builder documentation in the caption to figure 5-12 on page 5-26 of the Draft TMDL. See C. Brosch, "Estimates of County-Level Nitrogen and Phosphorus Data For Use in Modeling Pollutant Reduction, Documentation for Scenario Builder Version 2.2 (September 2010) (hereinafter Brosch 2010). However, that documentation does not provide the specific inputs to and outputs from the model that were relied upon by EPA to develop the TMDL, as described above. Further, that document makes it clear the Scenario Builder model is not available for public review. In fact, it is still under development. Brosch 2010, at 8.

Watershed jurisdictions may have been provided with scenario inputs and outputs when they were developing their draft WIPs. However, that information is not available to the public on any of the websites that are referenced in the Draft TMDL. In fact, EPA's primary modeling website states that scenario data and Phase 5 scenario results are "coming soon." See, e.g., http://ches.communitymodeling.org/models/CBPhase5/index.php (accessed Nov. 8, 2010).

Further, while EPA has provided outside reviewers with the code for its Watershed Model, until last week, EPA has provided no opportunity to review the Scenario Builder model, even though that model provides all the inputs to the Watershed Model. Thus, no one outside EPA has had the opportunity to evaluate the Scenario Builder model by running it themselves. Instead, it has been a black box.

On Nov. 2, 2010, six days before the end of the comment period for the Draft TMDL, James Curtin of EPA's Office of General Counsel made links to the scenario data and scenario results available to four persons, via an email. We have not been able to find those links in the administrative record for the Draft TMDL. In addition, the websites listed link to the Chesapeake Bay Program website, not the EPA Region III website that offers the opportunity to review and comment on the Draft TMDL. Thus, it does not appear that the public has been provided with this information. Further, six days is clearly insufficient to review the code for the Scenario Builder model and the inputs to and outputs from the model that were used to develop the Draft TMDL. Accordingly, the Nov. 2, 2010, email from Mr. Curtin does not cure EPA's failure to provide the public with notice of and a meaningful opportunity to comment on the Draft TMDL.

EPA's failure to make adequate information about this important model available for public review is not only a violation of the APA, as discussed above, it is a violation of 40 C.F.R. 130.7(c)(1)(ii), which requires that calculations used to establish TMDLs be subject to public review. To cure these deficiencies in providing the public notice of and an opportunity to comment on the Draft TMDL, EPA must make the Scenario Builder model, as well as all the inputs and outputs used to develop the Draft TMDL, publicly available and reopen the comment period to allow for public comment on this critical information.

Response

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the support database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at

ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site. The Phase 5.3 Chesapeake Bay Watershed Model, used in the development of the Bay TMDL, is available at http://ches.communitymodeling.org/models/CBPhase5/index.php.

Comment ID 0482.1.001.009

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

C. The Inputs to EPA's Watershed Model Are Not Rationally Connected to the Results and Conclusions.

We are very concerned that the inputs to EPA's Watershed Model do not accurately reflect pollutant loadings to the Chesapeake Bay. The inputs to EPA's Watershed Model are based on a stand-alone pre-processor called "Scenario Builder." Scenario Builder quantifies nutrient loads based on different assumptions and then allocates them spatially and temporally across the Chesapeake Bay watershed. This information is then fed into the Watershed Model and is used to allocate pollutant loadings to different sources and sectors.

EPA has not made the inputs to and the outputs from Scenario Builder available for public review. This issue is particularly important to the undersigned, because Scenario Builder is being used to estimate loadings from and establish allocations to agriculture and forestry land uses. Draft TMDL, at 5-26. Based on the limited information available from reviewing information that EPA has failed to include in the docket, it is clear that many inputs to the Watershed Model are not accurate.

For example, based on recent United States Geological Service (USGS) data, the amount of impervious surface in the watershed may be more than twice as much as what EPA has assumed in its model. See http://archive.chesapeakebay.net/pubs/calendar/47751_10-28- 10_Handout_2_11032.pdf . Some of that land may be in the model as forests or agricultural land. According to West Virginia:

The state of West Virginia must work to verify and correct agricultural practices and land uses that are misrepresented in the Chesapeake Bay Model. It is believed that a significant amount of agricultural baseline data in the model does not reflect reality causing practices that have been installed (i.e., low till and no till) to receive no credit and land uses that are over reported (such as assumed AFO land that does not exist) to appear as large agricultural loadings when they do not exist. Draft West Virginia WIP, at 82.

EPA also has made inaccurate assumptions regarding the use of nutrients by the agriculture community. In fact, at the Dec. 11, 2009, Chesapeake Bay public meeting in Wye Mills, Md., EPA acknowledged that its loading numbers for agriculture were based on "mis-information" related to fertilizer application rates. Agricultural nutrient management issues were summarized in a Briefing Paper dated April 16, 2010, prepared by David Hansen, University of Delaware, cochair of the Water Quality Goal Implementation Team. Nutrient Management Briefing Paper (attachment 2) [Comment Letter contains additional information in the form of an attachment. See original comment letter 0482.3]. This

paper summarizes concerns raised by the Agriculture Work Group regarding how the model handles manure and nutrient application rates. In particular, the model assumes that excess manure is simply transferred to an adjacent county. In addition, the model assumes that manure is applied at non-nutrient management rates. See Nutrient Management Briefing Paper, and the presentations cited therein.

However, EPA has not corrected the deficiencies identified by the Agriculture Work Group. The model still assumes that no manure is transported out of the watershed and that manure is applied at non-agronomic rates. Draft TMDL, at 4-34; Brosch 2010. States objected to this decision rule at the April 28-29, 2010, meeting of the Principals Staff Committee. Minutes, Principals' Staff Committee Meeting, April 28-29, 2010, at 10. However, that assumption remains in the model.

Watershed jurisdictions have continued to raise this concern in the draft WIPs. For example, Delaware reports in its Draft WIP that in nine years over 655,000 tons of excess poultry litter were either relocated either out of the watershed or directed to alternative use projects. Draft Delaware WIP, at 80. Delaware also reports that 100 percent of Delaware farmland is required to have a nutrient management plan. Id. at 94. According to New York State, CAFOs in the New York portion of the Chesapeake Bay Watershed do not have excess manure because they are in compliance with nutrient management practices. Ammonia losses also are controlled. Draft New York WIP, at 17. In Pennsylvania, all agriculture operations that generate manure are subject to nutrient management requirements. Draft Pennsylvania WIP, at 61. Moreover, all Chesapeake drainage county conservation districts in Pennsylvania report the export of manure from the county, of which 227,527 tons left the Chesapeake Bay watershed. Id. at 85. In West Virginia, NRCS has worked with the West Virginia conservation districts to implement a successful litter transfer program. Draft West Virginia WIP, at 63. Thus, EPA's modeling assumptions regarding manure transport and nutrient application rates are inaccurate and any TMDL based on those assumptions is arbitrary and capricious.

Another concern is the failure of the model to account for agriculture BMPs. This issue is raised in many of the state WIPs. Currently, only cost-shared BMPs are accounted for in the model, failing to account for voluntary and regulatory BMPs. Maryland now has information on all BMPs, but those data have not been included. Draft Maryland WIP, at 6-3. Similarly, Virginia is developing better data on BMP implementation to address "the growing recognition that farmers are voluntarily implementing significant quantities of priority practices and other BMPs without acceptance of incentives from state or federal programs." "In other cases, there are practices in place currently required by laws and regulations which have not been fully accounted for in state progress reporting." Draft Virginia WIP, at 59. According to West Virginia: "Farmers in West Virginia have historically worked to maintain and improve water quality on their operations. Many farmers also install practices without federal or state cost share dollars and these were unaccounted for by the state of West Virginia or the Chesapeake Bay Program." Draft West Virginia WIP, at 67. The Draft Pennsylvania WIP raises the same concerns:

A significant number of agricultural and other best management practices that have been implemented in Pennsylvania have not been ‘tracked' and entered into the Chesapeake Bay Model. A significant level of interest in this deficiency was expressed by Pennsylvania's Agricultural Watershed Implementation Plan workgroup. Pennsylvania pilot project efforts in Lancaster and Bradford counties, as well as preliminary evaluation of data from NASS indicates that as much as 84 percent of some implemented BMPs have not been entered into the Bay model, resulting in potentially significant nutrient and sediment reductions not being accounted for in the reductions attributable to Pennsylvania. Draft Pennsylvania WIP, at 73.

The same concern is raised regarding forestry BMPs. According to Pennsylvania, "[m]any of the forested acres are managed with best management practices that are not currently recognized or counted in the Bay model." Draft Pennsylvania WIP, at 115. In reality, forestry BMPs are implemented on about 89 percent of forested lands.[FN9] Generally, implementation rates are increasing over time.[FN10] Further, these BMPs can reduce pollution loads to streams by as much as 80 to 90 percent. [FN11] Yet, EPA's model does not include the benefits of currently implemented forestry BMPs.

EPA's model also makes inaccurate assumptions regarding runoff. For example, EPA assumes that 15 percent to 21 percent of all manure at animal feeding operations (AFOs) is not managed properly and is left on impervious surfaces where it runs off into the Bay. Draft TMDL, at 4-34. EPA provides no basis for assuming that 100s of tons of manure are "lost" and assuming that the "lost" manure is applied at the edge of streams where it immediately runs off into tributaries of the Chesapeake Bay. See Brosch 2010, at 6-49.

With respect to runoff from forested lands, the Watershed Model differentiates between harvested and un-harvested forest lands and makes greatly different assumptions regarding runoff of nitrogen, phosphorus, and sediment. Draft TMDL, at 4-39. However, according to Pennsylvania, "the model is fundamentally flawed" because "even a clear-cut forest using no BMPs would not load nutrients and sediments at 100 percent as if it were a paved parking lot." Draft Pennsylvania WIP, at 115. Further, Pennsylvania believes that the efficiency rate for forestry BMPs should be much greater. Id. at 116. It appears that for the forestry BMPs that the model assumes will be implemented in the future, Scenario Builder credits them with only a 50- 60 percent efficiency rate. Brosch 2010, at 10-108. These efficiencies are not consistent with available data, including the data cited by EPA in Brosch 2010. The result is that the forest management scenarios used in the Bay Watershed Model will lead users to incorrectly conclude that forest management is a significant source of nutrient and sediment pollution, leading to inaccurate allocations in the TMDL.

It also appears that EPA's models treat forests differently based on who owns the land, rather than how it is being managed or whether it is being harvested. Specifically, it appears that publicly owned forests received different assumptions than privately owned forests. Brosch 2010. EPA offers no justification for this arbitrary distinction.

States also have raised concerns about the efficiencies assigned to agriculture BMPs. Draft West Virginia WIP, at 70.

Empirical research has demonstrated that the assumptions that EPA is using in its modeling are inaccurate. Dr. Kathy Boomer of the Smithsonian Environmental Research Center has compared sediment losses predicted by the Revised Universal Soil Loss Equation (RUSLE), with actual losses measured at over 100 locations in the Chesapeake Bay. Dr. Boomer found that the predicted losses exceeded the actual losses by over 100 percent. Dr. Boomer concludes that all variations of this model are not reliable tools for predicting sediment loss. Boomer et al.: USLEbased Empirical Models Fail to Predict Sediment Discharges, J. Environ. Qual. 37:79-89 (2008). Notwithstanding this definitive study, the Scenario Builder Model uses RUSLE to predict sediment losses from a variety of land uses. See Brosch 2010 (repeatedly citing RUSLE as a source of data).

Finally, it appears that the Watershed Model does not include any inputs associated with groundwater, the 4.5 million cubic yards of sediment that is stirred up during navigation dredging each year, or vessel discharges. The model also does not include the benefits associated with filter feeders. See Draft New York WIP, at 4. These inputs could have a significant effect on the outputs of the model.

Given all of these flaws, it is clear that EPA's model cannot be used to accurately reflect existing pollutant loadings or potential reductions based on implementation measures.

[FN9] Ice, G.G., E.B. Schilling, and J. Vowell. 2010. Trends for forestry best management practices implementation. Journal of Forestry 108(6):267-273.
[FN10] Ice, G.G., E.B. Schilling, and J. Vowell. 2010. Trends for forestry best management practices implementation. Journal of Forestry 108(6):267-273; National Council for Air and Stream Improvement, Inc. (NCASI). 2009. Compendium of forestry best management practices for controlling nonpoint source pollution in North America. Technical Bulletin No. 966. Research Triangle Park, N.C.: National Council for Air and Stream Improvement, Inc.
[FN11] Ice, G. 2004. History of innovative Best Management Practice development and its role in addressing water quality limited waterbodies. Journal of Environmental Engineering 130(6):684-689

Response

The availability of Scenario Builder
EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the support database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/.

The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/.

As new management scenarios are developed using Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site.

The Phase 5.3 Chesapeake Bay Watershed Model, used in the development of the Bay TMDL, is available at http://ches.communitymodeling.org/models/CBPhase5/index.php.

Urban land revisions
Fluctuations in the extent of developed lands (impervious and pervious) in different versions of the watershed model are due to changing technology and methods used for mapping developed lands and for inferring change over time. Changes have also been prompted by concerns expressed by the States, local governments, and other interested parties. For each version of the Chesapeake Bay Watershed Model, the Chesapeake Bay Program Office strives to use the best available data and methods to provide information that is accurate, consistent and comparable across the watershed and over time. A new version of the Watershed Model, Phase 5.3.2, will be coming out soon and will include an extent of impervious surface greater than that used in any previous version of the model due to the inclusion of impervious surfaces associated with all roads and single-detached housing units outside of dense urban areas.

Over the past six months, the US Geological Survey (USGS) has conducted additional ground-truthing of assumptions and data used to estimate the extent of impervious surface in the watershed. In addition, the analytical methods have undergone review by the Chesapeake Bay Program's Scientific and Technical Advisory Committee and are currently in review by USGS.

For a general comment on using the scenario builder and watershed model, please refer to the response to comment 0169.1.001.005.

For under-reported or voluntary practices, please refer to the response to comment0452-cp.001.001.

Phase 5.3.2 Watershed Model
The comment mentions several meetings where changes to the handling of nutrients in scenario builder and the watershed model were discussed in April of 2010. The changes requested in those meetings are to be included in the phase 5.3.2 watershed model in the phase II WIPs. As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the phase 5.3 will be updated, not for the December 31 2010 TMDL, but for the phase II Watershed Implementation Plans, which will be due after the 2010 TMDL. Adjustments to the allocations, if warranted, might be made at that time. Changing modeling numbers are a result of improving inputs data and methods.
Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf.

The comment goes on to detail the manure transport and other agricultural practices that are contained in the WIPs. States submit these practices as part of the WIPs and these practices are counted as planned progress toward the goals of the TMDL.

Please refer to the response to comment 0452-cp.001.001 on voluntary practices.

Also, please refer to the response to comment 0410.1.001.029 on accepting new practices or revising practice effectiveness values.

AFOs
All assumptions of the AFO simulation are agreed upon by the then-active Nutrient and Sediment Subcommittee which had broad representation by federal, state, local, academic, and private groups. Discussions on this topic are contained within the meeting minutes some of which are located here: http://www.chesapeakebay.net/committee_nsc_meetings.aspx?menuitem=16598.

On forested loads and BMPs
The assumptions of forest loading rate from disturbance are based on 15 peer-reviewed papers which collectively indicate a large increase in loads from harvesting, generally due to the disturbance of the soil and mobilization of part of the large organic nitrogen storage. Again, please refer to the response to comment 0410.1.001.029 on revising practice effectiveness values.

Forest ownership
Ownership is not a factor in the models’ accounting of forest. EPA cannot respond more specifically without a more specific reference.

RUSLE
RUSLE and other USLE-based estimations are commonly used in watershed models as initial estimates of load and as a way to distinguish between various land-based sources. The phase 5.3 watershed model is calibrated at over 100 river monitoring locations and so these land-based loads and riverine scour and deposition combine to match observations, unlike the Boomer, et al paper which used USLE-based models uncalibrated to in-stream data.

Groundwater

Please refer to the response to comment 0217.1.001.009.

Tidal issues
The Chesapeake Bay Water Quality and Sediment Transport Model (WQSTM) simulates input loads of sediment from the watershed, shoreline erosion, resuspension due to wave energy, and ocean inputs. Currently total suspended sediment loads resuspended by maintenance dredging in tidal waters is absent in the WQSTM as a model input. If warranted, this input load can be considered in the next generation Bay Model that will assess the Bay Program's TMDL progress in 2017.

The WQSTM fully simulates the effects of oyster and menhaden filter feeders on water quality and demonstrates that at restored resource levels water quality benefits from these filter feeders are substantial.

Comment ID 0482.1.001.010

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

D. The Results Derived From the Watershed Model Have No Relationship to the Reality They are Supposed to Represent.

1. The Watershed Model Itself is Flawed.

Given the flaws in the inputs to the Watershed Model, it cannot accurately reflect the pollutant loadings to the Bay. This would be true even if the Watershed Model worked perfectly. Unfortunately, it does not. EPA has made the Watershed Model available to the public in an uncompiled form. When a person wants to run the model, they must use a FORTRAN compiler to produce executable computer programs. However, the model produces different results when identical input data are run on different compilers. The variability can reach as high as 36 percent.

Additional examples of the flaws in the model can be found in Appendix M to the Draft TMDL. That Appendix provides spreadsheets predicting the percentage of segments that are in nonattainment under various loading assumptions. In some cases, the model predicts that the number of segments in nonattainment will increase as pollutant loadings decrease.

Some modeling errors may be attributable to the fact that the EPA's model assumes all BMPs are intended to reduce nitrogen, when in fact many nutrient management plans are phosphorusbased. This problem with the model has not been resolved.

2. The Watershed Model Cannot Provide Accurate Information at the County or Farm Scale.

The Chesapeake Bay Watershed model provides information on the scale of individual river segments. That information is divided into counties, but that division is based on simulated information about land use types in each county. Draft TMDL, at 5-29; Brosch 2010, at 9. As a result, the model does not provide accurate information at the county level, much less the level of an individual farm. Some states addressed this issue in their WIPs by developing load allocations

for sectors, not counties or localities.

These limitations were pointed out to EPA in the 2008 peer review of the Chesapeake Bay Model. The lowest level of segmentation possible in the Watershed Model is the "local watershed scale" which is 66 square miles. According to the peer reviewers:

We agree with the team that the current CBWM implementation is not appropriate for development and implementation of TMDLs at the local watershed scale. A major barrier appears to be the scale of information built into the CBWM, which is based on the county level data and river reach segmentation at the 100 cfs threshold and designed for full watershed or major tributary scale analysis. … We believe that it is inappropriate to use the existing CBWM county and subwatershed data sets for local-scale modeling applications. Data must be disaggregated at a finer scale for local scale applications. 2008 STAC review, at 5, 6.

Notwithstanding these concerns of the peer reviewers, in its backstop allocations EPA is inappropriately using its model to allocate loadings to very small sectors and even to very small individual sources. See Draft TMDL, at Appendix Q. The results are necessarily arbitrary and capricious, given the limitations of the model.

3. The Watershed Model Outputs Are in Some Cases Demonstrably Inaccurate.

In general, in the Draft TMDL EPA assumes the results from the Watershed Model are completely accurate and can be used to make implementation decisions costing tens of billions of dollars. However, in some cases, EPA could not get the model to predict that water quality standards will be achieved, no matter what inputs EPA used. In these cases (and only in these cases), EPA admits there is a poor correlation between the model and reality. Draft TMDL, at 6- 38 and 6-39. This admission allows EPA to assume away nonattainment of water quality standards.

For example, EPA's model shows persistent 1% nonattainment, no matter what assumptions are made. To address this issue, EPA redefined what attainment means. This means that EPA decided to ignore the outputs of the model when the model cannot be manipulated to show attainment. But in all other instances EPA presumes the model to be valid. Draft TMDL, at 6- 11.

For example, EPA admits the Chesapeake Bay model is not reliable for predicting levels of chlorophyll a in the James River, the Potomac River, or the Anacostia River. Draft TMDL, at 6- 40 (the model predicts nonattainment but monitoring data generally show attainment). EPA also admits that the model is not reliable for predicting levels of submerged aquatic vegetation. Draft TMDL, at 6-48 to 6-49.

When the model did not show attainment even based on an assumption of complete reforestation of the watershed, EPA scrutinized its data more closely. In those circumstances where EPA looked more closely and compared the modeled results to actual monitoring data, it found errors. (6-49).

It is arbitrary and capricious for EPA to rely on the model when it agrees with EPA's assumptions and disregard it when it does not. If the model cannot be relied on in some instances, there is no reason to assume it is valid for others.

4. The Watershed Model Has Not Been Fully Calibrated.

EPA claims that the Watershed Model has been calibrated. Draft TMDL, at iv. However, that is not accurate. At a September 9, 2010, meeting of the National Research Council committee that is tasked with evaluating Chesapeake Bay TMDL implementation, committee members raised the lack of calibration of the TMDL model as an issue. Committee Chair Dr. Kenneth Reckhow asked EPA why they did not follow the recommendations regarding model calibration made in reviews by previous NAS committees as well as the Chesapeake Bay Program Science and Technical Advisory Committee. See 2008 STAC review, at 3 (noting that the panel did not believe adequate calibration of the model had been achieved).

It is clear from the Draft TMDL itself that little actual calibration has occurred. For example, the water quality data used is based on data inputs to the SPARROW model from 1980, the early 1990s, and the late 1990s. EPA used the SPARROW model to estimate edge of stream data that was then used to calibrate the Chesapeake Bay watershed model. Draft TMDL, at 5-25. Thus, EPA is using results from one model to calibrate another.

Lack of calibration is due to insufficient data. The Chesapeake Bay watershed monitoring network measures the discharge of nutrient and sediment loads from only 85 sites in watersheds larger than 1,000 square kilometers. Draft TMDL, at 5-11.

Furthermore, as noted above, EPA already knows that its data inaccurately predict the amount of impervious surfaces. This is not surprising given the fact that these numbers were calibrated with actual data from only 15 counties. Draft TMDL, at 5-23.

All of the information about Chesapeake Bay water quality is modeled. The model outcomes were compared to observed data from 1991-2000. Draft TMDL, at 6-7. The calibration for dissolved oxygen and chlorophyll a is based on 1985 to 1994 data. Id. Thus, even where calibration to actual data occurred, it was not based on current data.

EPA's data on the amount of agriculture land in the watershed (as well as data on forested land, the number of sewer systems, the number of septic systems, and the amount of developed land) are extrapolated from 1990 and 2000 satellite data. These data are at direct odds with data supplied by the U.S. Department of Agriculture's National Agricultural Statistics Service (NASS), as reported by the Natural Resources Conservation Service (NRCS) in a recent review draft report assessing the effects of agricultural conservation practices in the Bay watershed.

EPA reports that the Bay watershed has more than 87,000 farm operations and 6.5 million acres of cropland, and that agricultural lands account for 22 percent of the watershed. Draft TMDL, at 4-31. Yet NRCS cites in its report NASS data from the 2007 Census of Agriculture that indicates there are only 83,755 farms in the region, with only 4.6 million acres of cropland constituting about 10 percent of the region's land use. Pasture, hay and range land in the Bay amount to another 18 percent of the land use, at 7.7 million acres. NRCS 2010, table 1. [For attachment see comment letter 0482.2]

Other important differences exist between EPA's model estimates and those generated by NRCS for the region. For example, EPA estimates that about 55 percent of the total loads of nitrogen delivered to the Bay by all sources is coming from agriculture. Calculated from the PowerPoint presentation by Jeff Corbin to the NAS on Sept 9, 2010, slide 14 (hereinafter Corbin) (attachment 3) [For attachment see comment letter 0482.4]. NRCS estimates that the amount of nitrogen coming from cropland and delivered to the Bay is on the order of 30 percent. NRCS, table 29 [Comment Letter contains additional information in the form of an attachment. See original comment letter 0482.2]. While some of the

difference in the EPA and NRCS estimate could be due to the hay and pasture land loads that are not included in the NRCS estimate, nitrogen loss from such lands is relatively small and certainly would not account for the fact that NRCS's 30 percent estimate would have to be almost doubled to equal that of EPA's.

In the case of phosphorous, EPA estimates that about 56 percent of the total baseline load delivered to the Bay comes from agriculture (Corbin, slide 15), while NRCS estimates the amount coming from cropland to be about 24 percent. NRCS 2010, table 33. As in the case of nitrogen, phosphorous loads from hay and pasture occur, but at a rate far less than from cropland, and therefore would not explain the fact that EPA's estimate is about 2.3 times greater than that of NRCS. It is worth noting that the absolute value of NRCS's estimate of the phosphorous loadings coming from cropland and delivered to the Bay (3.54 million pounds a year), is about one half of the load allocation assigned to agriculture by EPA in the draft TMDL in total, across all 92 tributaries (6.2 million pounds).[FN12]

In the case of sediment, we have been unable to identify EPA's estimated baseline load coming from agriculture as a share of all sources in the Bay. But we do note that EPA's draft TMDL allocation to all of agriculture across the entire Bay is 3.96 billion pounds, 62 percent of all the loads assigned to all sources for the Bay. This is significantly more than the 1.1 billion pounds that NRCS identifies as coming from cropland in its baseline condition, which represents only 8 percent of NRCS's estimate of the total sediment load from all sources, 13.7 billion pounds. This bears repeating - NRCS estimates that cropland has about 8 percent of the total baseline sediment loadings that reach the Bay, and EPA assigns to agriculture responsibility for 62 percent of the total load reaching the Bay.[FN13]

As a result of the lack of calibration of EPA's Bay model, the very real possibility exists that if EPA finalizes the TMDL sediment allocations to agriculture at the levels in the proposal, agriculture would not only have to reduce its sediment loads to zero, but would also somehow have to withdraw from the tributaries and the Bay another 2.86 billion pounds of sediment a year. The former is impossible, and the latter is absurd and nonsensical. The dearth of calibration using actual monitoring data and the gross discrepancy between NRCS data and EPA's modeled assumptions call into question all the outputs of the Chesapeake Bay Watershed model.

[FN12] The phosphorous loading value estimated by NRCS to come from agriculture was calculated from the data presented in Table 33; 24 percent of the NRCS estimate of the total load from all sources is equal to 3.54 million pounds. The phosphorous allocation to agriculture across the 92 Bay tributaries is calculated from the draft TMDL allocations in Appendix Q1, and is the sum of all loadings assigned to agriculture and CAFOs in that table.
[FN13] As in the case of phosphorous, the sediment loading value estimated by NRCS to come from agriculture was calculated from the data presented in Table 26; 8 percent of the NRCS estimate of the total load from all sources is equal to 1.1 billion pounds. The sediment load allocations to agriculture and all sources across the 92 Bay tributaries is calculated from the draft TMDL allocations in Appendix Q1.

Response

Variability in the compiled watershed model code
EPA is working on the issue of the phase 5.3 watershed model producing different results on some different platforms. It was been verified that the code in use in the TMDL is internally consistent. Some other installations are finding that there are errors in reading some of the binary files on those systems only.

Appendix M

In the vast majority of cases, the modeled non-attainment decreases as loading decreases. In a few cases small, shallow segments, which were not used to set the overall loadings, do not respond as expected. These cases are covered in Appendix N of the draft TMDL. Additionally, scenarios which are similar in loading may vary in attainment if the fraction of load from different basins changes between the scenarios. The relative effectiveness of loads from different basins is covered in section 6.3 of the draft TMDL documentation.

There is no assumption in the watershed model or scenario builder that all BMPs are intended to reduce nitrogen. Each individual type of BMP can be given a separate reduction efficiency for nitrogen, phosphorus, and sediment.

Scale

EPA agrees that watershed model is not applicable at the scale of an individual farm. Input data are generally at the county scale. The point in this comment about the 2008 peer review was addressed in the response: http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf.

To summarize the main points

Consistency of data is an important feature of the phase 5.3 model in that it is used to fairly inform the allocation of loads among different jurisdictions and watersheds. The Phase 5.3 Watershed Model development process considered all available input data at the finest consistent scale possible within the Bay watershed using comparable level of accuracy for all watersheds. The phase 5.3 model was also calibrated at the finest scale of observed stream data available. Therefore the phase 5.3 watershed model uses the best available information that is consistent across jurisdictions and watersheds.

A requirement of the TMDL is for individual waste load allocations and the EPA is using the watershed model as the best available information.

D3

Again, EPA does not assume that the Phase 5.3 Chesapeake Bay Watershed Model is completely accurate, but that it is the best available information to assist in making allocations decisions. The remainder of section 3 of the comment is not in any way related to the watershed model, but rather the estuarine Water Quality and Sediment Transport Model (WQSTM) and the criteria assessment procedures.

As clearly outlined in appendix I, the EPA found reduced sensitivity to load reduction at 1% non-attainment and maintains that this is an appropriate exercise of discretion. Appendix N details the instances where the WQSTM or the criteria assessment procedures did not adequately describe the effects of nutrient controls and the reasoning behind these findings.

D4.

Ken Reckhow's question

The NAS committee is not charged with the question of model calibration and there is no mention of this topic on the agenda. NAS committees have not made recommendations on model calibration. At the time of the 2008 STAC review, calibration had not been completed. Since that time, calibration has been completed, incorporating suggestions from the 2008 STAC review.

The Chesapeake Bay Phase 5.3 Watershed Model was adequately calibrated for flow, nutrients, and sediment in March 2010. All the Phase 5.3 Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf.

SPARROW and calibration method

The USGS SPARROW model is an empirical model of loads from the watershed and as such is a useful check against the deterministic Phase 5.3 Chesapeake Bay Watershed Model. It was used in conjunction with literature values from syntheses and individual papers which collectively represented over 100 peer-reviewed journal articles to estimate initial loading from different land use types. Subsequent to the initial estimates from the SPARROW empirical model and the literature, the watershed model was calibrated to more than 100 water quality monitoring stations and nearly 300 flow gauging stations. As noted in the comment, the number of current water quality monitoring stations is 85, however the calibration period of 1985-2005 included data from stations that are no longer current. EPA does not agree that this is insufficient to calibrate the watershed model.

Impervious surfaces again

Page 5-23 reports on the land change model, not the estimate of impervious. Counties were selected based on the availability of high-quality data. EPA maintains that the calibration is appropriate.

WQSTM calibration

EPA does not agree that all information on Chesapeake Bay water quality is modeled. Monitoring data are used to assess attainment. On page 6-7 of the draft TMDL it clearly states that the change in water quality predicted by the estuarine WQSTM is applied to the actual monitored data. The calibration of the WQSTM is 1993-2000. 1985-1994 is in the title of the document describing the calibration method.

Agriculture

The data on the amount of agricultural land used by EPA are not in direct odds with the USDA NASS Census of Agriculture. The Census of Agriculture is directly used for agricultural land use data. Differences between EPA and NRCS-CEAP summary data are due to differences in aggregation. This is not a criticism of the NRCS-CEAP report in the attachments to this comment, but table 1 and table 5 differ in the amount of total cropland, as noted in the footnote of table 1. The 6.5 million acres of cropland reported on 4-31 of the draft TMDL include hay, so the number is higher than the cultivated cropland in the NRCS-CEAP report, which does not.

EPA does not agree with the calculation of agricultural nitrogen load using the Corbin presentation. Using the referenced attachment and the 2009 scenario 109.4/247.5 = 44% of the total nitrogen load from agriculture. Table 29 in the NRCS-CEAP report shows that 30% of the nitrogen loads are estimated to come from cultivated cropland in excess of background loads that would originate from that same land if it were not cultivated. The total load from cultivated cropland cannot be calculated from table 29. Table 28 gives the totals that are delivered to the end of each 8-digit HUC and includes all three NRCS-CEAP agricultural categories. Adding cultivated cropland, hayland, and pasture and grazing land together, the NRCS-CEAP estimate is that 50% of the total nitrogen load is from agriculture.

Again in the case of phosphorus, using the Corbin presentation and the 2009 scenario, 7.25/16.62 = 44% of the total phosphorus

load from agriculture. Using the same explanation as above and table 32 of the NRCS-CEAP report, the estimate is 43%.

In the case of sediment, the 2009 run of the phase 5.3 watershed model has agriculture accounting for 65% of the terrestrial sources. Using table 24 in the NRCS-CEAP report, the estimate is 41%. The draft TMDL document notes increased uncertainty in sediment modeling relative to nutrients and accounts for this with an explicit margin of safety.

The agreement between the two modeling assessments which used different models, methods, and data is striking, particularly in the case of nitrogen and phosphorus. EPA maintains that the phase 5.3 watershed model is well-calibrated, using observations from over 100 water quality stations. The NRCS-CEAP modeling study does not mention the calibration other than to direct users to a web site. No information on the riverine water quality calibration was found on that site, however the spatial scale of the NRCS-CEAP model is similar to the 1994 EPA Phase 2 watershed model (HUC-8), which was calibrated at the 16 sites available on that scale.

EPA does not follow the commenter's logic on the point of agriculture having to reduce sediment loads to zero or produce negative loads. There is no such requirement in the TMDL.

Comment ID 0483.1.001.004

Author Name: Wood Heather

Organization: Virginia Port Authority (VPA), Norfolk, Virginia

Modeling framework of insufficient resolution for local facility allocations:
The USEPA should not assign wasteload allocations to individual industrial facilities, nor require the states to allocate to this level in the Phase 2 WIPs. The Bay's watershed model is of insufficient resolution and accuracy for such numbers to be meaningful.

Response

EPA maintains that the modeling is sufficient for individual waste load allocations to industrial facilities that are well-characterized in the input data set.

For more general information on the quality of the Chesapeake Bay Watershed Model, Please refer to the response to comment 0169.1.001.005.

Comment ID 0495.1.001.003

Author Name: Long Jim

Organization: Mattawoman Watershed Society

It should be of concern to those structuring the Bay TMDL that a disturbingly large discrepancy exists between the Army Corps' modeling (a 50% increase in nutrients) and that conducted by Charles County for the state-mandated Water Resource Element (WRE) to its Comprehensive Plan (a 20%-25% decrease) [WRE, 2010]. The WRE incorporated land-use loads from the Chesapeake Bay Program (CBP) Phase 4.3 model, the predecessor to the current Phase 5 model. Because loadings in the two phases are comparable (notwithstanding the greater number of land-use categories in Phase 5) it is natural to ask if a calibrated Mattawoman-scale model would sharpen the accuracy of, or identify deficiencies in, the model being used for the Bay TMDL.

Response

Without the specifics of the two modeling scenarios and the Army Corps' model, EPA cannot comment on the difference in scenario predictions. In general, local scale models are useful for local issues. The Chesapeake Bay Phase 5.3 Watershed Model and the Scenario Builder are accounting tools used to inform the TMDL and also account for implementation progress by comparing loads, load reductions, and reduction capacity across jurisdictions and across sectors. The data and models used in the model calibration, running TMDL scenarios, development of the Watershed Implementation Plans (WIPs), and assessment of implementation progress are consistent across sectors, jurisdictions, and scenario. The point of this consistency is to provide a decision tool that accounts fairly for all sources.

Comment ID 0496.1.001.017

Author Name: Allsbrook Lynn

Organization: City of Hampton, Virginia, Department of Public Works

Particularly significant is EPA's failure to make critical components of its TMDL decision support system, such as the Scenario Builder software and reliable Phase 5.3 Model source codes and data, available to the modeling community outside of EPA. Without access to these components, modelers retained by stakeholders such as the Hampton Roads Localities must blindly accept model inputs from EPA and must rely upon EPA to stitch together various patches and workarounds to get the Model to run. This has the effect of making an already inadequate 45-day comment period even shorter as modelers outside of EPA are forced to wait for EPA to run the Model and produce the results, leaving them without adequate time to evaluate and understand the data. Under these circumstances, there is little that the modeling community can do to apply the Phase 5.3 Model in any independent or meaningful manner within the very limited period of time provided by the comment period.

Further, although experts have previously reviewed portions of the Phase 5.3 Model code and data, substantial amounts of the current modeling code and data have been produced at breakneck speed with little or no verification either by the experts who checked portions of earlier versions of the code or by engineers or scientists in academia or the private sector. EPA's blind adherence to an artificial schedule and rollout of the Model and data has effectively prevented-and will continue to prevent-modelers outside of EPA from using the Model to:

• Understand how the complex physical processes are being modeled,
• Validate or check model input or output data,
• Use the Model to analyze pollution treatment alternatives such as BMPs, or
• Contribute to debugging and improving the Phase 5.3 Model through any meaningful testing and feedback processes.

Additionally, as explained below in Section VI, EPA's failure to make available post-processing performed on all of the chlorophyll-a modeling scenario runs has made it extremely difficult for the Localities' consultants to evaluate and comment on the differences in the model runs.

Finally, EPA has not mapped the data used in the Model despite requests for such mapping from the Virginia Department of Conservation and Recreation. The requested mapping would indicate locations of various urban land use categories (such as Impervious High Intensity, Impervious Low Intensity, Pervious High Intensity, and Pervious Low Intensity) used in the Phase 5.3 modeling. Likewise, there is very little documentation that would allow modelers outside of EPA to ascertain specifically how the data was collected and synthesized, which makes working with the Phase 5.3 Model a shot-in-the-dark proposition at the state and local levels. A single scenario run of the Phase 5.3 Model involves hundreds of input data files and produces some 60,000 intermediate and output files. Geographic Information System technology is best used to map this type of data to its sources, but without mapping, there is no way to ensure that sheep are not modeled as grazing in downtown areas, or that urban areas are not modeled as forest (both of which anomalies have been discovered in the Phase 5 model).

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0496.1.001.019

Author Name: Allsbrook Lynn

Organization: City of Hampton, Virginia, Department of Public Works

B. The Model does not produce consistent, reliable results.

The Localities are not suggesting that there must be absolute precision in the Model's predictive capability. However, given the significant widespread financial consequences of even small changes in the Model's outputs, the Localities have every right to expect the accuracy of the Model inputs to be verified and the Model to be fully calibrated so that it produces consistent predictions within a reasonable margin of certainty before the Model is used to develop the TMDL.

The Model's inability to produce consistent predictions is further evidence that it is not ready to be used for TMDL development. EPA distributes the Phase 5.3 Model program in un-compiled form, meaning that in order to run the model users must obtain a FORTRAN compiler and generate the executable computer programs from the source code. However, there is a known and still unresolved problem with the Model producing different results when compiled on different computers. Identical input data was run on different computers in August 2010 for the James, York, and

Rappahannock river basins, and the Phase 5.3 Model produced significantly different results, with variations in the answers as high as 36 percent. The reliability of the Model cannot be corroborated until repeatable results can be produced. EPA indicates that it is working on this problem, but again, the demands of EPA's self-imposed deadline to establish the TMDL far exceed the time required to produce a reliable watershed model and modeling results. Development of the Phase 5.3 Model is undoubtedly an ambitious and worthwhile undertaking, but a reasonable amount of time has to be devoted to testing and refining the Model to the point where it can be reliably used to justify billions of dollars in expenditures.

The implications of EPA's rush to establish the TMDL before the Model and model inputs are significant. Many of the allocations are targeted to pollutant reduction levels that are considerably less than the margin of uncertainty in the modeling process itself. As a consequence, the TMDL likely will burden the Localities and many others with extraordinary costs that do not produce a measurable water quality response. Dr. Kathy Boomer [FN10] of the Smithsonian Environmental Research Center has conducted specific research and noted that the margin of uncertainty in the TMDL component models was much greater than the pollutant loading reductions being sought. Dr. Ken Reckhow with Duke University [FN11] (who chairs the National Academy of Sciences Panel on the Evaluation of Chesapeake Bay Progress Implementation for Nutrient Reduction to Improve Water Quality) notes that TMDL prediction uncertainty is high, and has repeatedly cautioned regulators against reporting modeling results without stipulating the uncertainty. The Localities request that EPA report the uncertainty of the model in the documentation submitted with the final TMDL.

Unfortunately, it is apparent that EPA is intent on papering over the uncertainty in the modeling results and its consequences as reflected in the following from Section 5 of the TMDL Report:

Models have some inherent uncertainty. Because of the amount of data and resources taken to develop, calibrate, and verify the accuracy of the Bay models, the uncertainly of the suite of models is minimized.

Quite the opposite is true - the amount of data and complexity of the system work to increase the uncertainty.

[FN10] See http://vimeo.com/12080139
[FN11] See http://www.rti.org/page.cfm?objectid=8C8E7BCD-5056-B100-0CC50391AF13C8C4

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0496.1.001.020

Author Name: Allsbrook Lynn

Organization: City of Hampton, Virginia, Department of Public Works

C. The Model does not accurately predict the true extent of the TMDL's burdens on the Localities and resulting water quality benefits.

As explained above, the average 54 percent (James River) and 59 percent (York River) load reduction needed to achieve the backstop allocation for phosphorus would require treatment of approximately 68 to 74 percent of the urban area in the Hampton Roads Localities at a total estimated cost of approximately $9.8 billion plus the costs of land acquisition. EPA concludes from its modeling predictions that this and the other load reductions called for in the TMDL will achieve compliance with the applicable water quality standards, but an analysis of the Model and its inputs indicates that the modeling predictions underestimate the extent of the load reductions that will be required of the Localities' MS4s and overestimate the resulting water quality benefits.

1. Existing imperviousness is underestimated in the Phase 5.3 Model.

EPA has acknowledged the inaccuracies in the land use data used in the Model by setting aside the five percent allocation reserve discussed above. However, this reserve hardly begins to account for the inaccuracies in the data. An analysis of representative Geographic Information System (GIS) land use data from eight of the Localities shows that the satellite imagery used by EPA for its land use inputs to the Model underestimates the extent of imperviousness in the Hampton Roads region by an average of approximately 48 percent. See Exhibit D. The imperviousness data in the Localities' GIS systems is more accurate than the satellite imagery relied on by EPA, but EPA's TMDL development schedule did not allow time for EPA modelers to coordinate and collect this information from the Localities.

The implications of the underestimated extent of imperviousness are significant because it means that the Localities will have to reduce their urban runoff loads based on modeling data that assumes that they are substantially less impervious than they actually are. In other words, the land area that will have to be treated in order to attain the allocations is considerably greater than the approximate 68 to 74 percent of urban land area assumed in the financial impact analysis described above as will the costs and time required to attain the allocations.

2. Groundwater is a substantial transport mechanism for nutrients into the Bay, but the Phase 5.3 Model lacks a groundwater transport capability.

The Phase 5.3 Model does not contain a groundwater transport component - a significant deficiency because groundwater transport of nutrients is a major source of nitrogen loads discharged to the Bay. As noted on the Chesapeake Bay Program's web site [FN12]:

According to a 1998 study by the U.S. Geological Survey (USGS), groundwater contributed nearly half (48 percent) of the total nitrogen load to streams in the Bay watershed. Groundwater contributes to river flow, or the amount of fresh water flowing from streams and rivers into the Bay. In a 1998 study, the USGS found that in an average year, of the 50 billion gallons of streamflow that enter the Bay each day, nearly 27 billion gallons are from groundwater. It can take

years for groundwater - and the pollutants it may carry - to slowly travel through aquifers before reaching the streams and rivers that flow to the Bay. This "lag time" can make it difficult to determine whether efforts to reduce pollution throughout the Bay watershed are having a positive effect on the Bay's health.

Ironically, many of the controls that will be employed to achieve the urban runoff load reductions needed to comply with the allocations in the TMDL are based on removal of pollutants by infiltration. Nitrogen and phosphorous are elements, and as such, they persist in nature. The absence of a groundwater component in the Model means that nutrient loads that are routed into infiltration BMPs magically disappear from the computational universe, when, in reality, they are deposited into groundwater that eventually flows into the Bay.

[FN12] Source: http://www.chesapeakebay.net/groundwater.aspx?menuitem=14716

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0496.1.001.026

Author Name: Allsbrook Lynn

Organization: City of Hampton, Virginia, Department of Public Works

Finally due to the 64,000 square-mile extent of the Model, there is an inherent problem of scale when addressing urban runoff controls. The Model is better suited for overarching computations on larger scales, such as evaluating the effects of fertilizer applications on large segments of the Bay watershed, than it is in evaluating the effects of a particular control or group of controls on specific sites. EPA has acknowledged that the effects of individual, site-specific controls cannot be directly addressed in the Phase 5.3 Model. [FN18] Therefore, we recommend that EPA develop guidance for localities that will allow them to evaluate specific specific alternative controls consistent with the Phase 5.3 modeling. Such guidance would require EPA to overcome the inherent scale problem in the Phase 5.3 model, problems with BMP efficiency rates, problems with sorting out and correcting the modeling data, and would allow the Localities and other localities with MS4s to make informed, intelligent decisions without requiring them to translate this very complicated technology completely on their own.

[FN18] EPA Chesapeake Bay TMDL March 25, 2010 Webinar

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0510.1.001.006

Author Name: Haterius Stephen

Organization: National Association of State Departments of Agriculture (NASDA)

In fact, the policy choices adopted in the Draft TMDL are all driven by sets of assumptions that were built in to various "scenarios" that were fed into a model called "Scenario Builder," the output of which was then fed into the Chesapeake Bay Watershed Model (hereinafter "Watershed Model"). EPA turns the crank and determines if a certain scenario leads to a prediction that water quality standards will be met. If the answer is yes, then the assumptions that went into that scenario are elevated to the level of regulatory policy. Thus, in the Draft TMDL, the anonymous and unaccountable modelers who put together the various scenarios that are fed in to "Scenario Builder" are the people who are determining the regulatory controls that EPA is attempting to impose on the Chesapeake Bay watershed. This is not an appropriate way to make decisions that will cost billions of dollars.

Response

EPA does not agree with this assessment of procedure. The suite of models used as tools in the TMDL can estimate the effects of a set of management actions on water quality, however the scenarios are put together by senior state and federal policy makers, not by the modelers. Also, there are many scenarios that would meet water quality standards. The choice among these scenarios is made by policy makers. See Section 1 of the final Bay TMDL report for a clear accounting of the Bay TMDL decision making process and the roles and responsibilites of the committees and teams within the Chesapeake Bay Program partnership. Appendix A provides an inventory of the hundreds of individuals involved in the decision making processes over the past five years leading up to the final Bay TMDL.

Comment ID 0510.1.001.008

Author Name: Haterius Stephen

Organization: National Association of State Departments of Agriculture (NASDA)

The allocations that make up the Draft TMDL are based on a version of the Chesapeake Bay watershed model (5.3) that has only been functional since June 2010. Parts of this model update were made available for public review on June 2, 2010. Other parts of this model are not available for public review. For example, scenario data and scenario results remain unavailable. In an October 15, 2010 letter to the agency, NASDA requested that EPA make available for public review the scenario data and scenario results that are the inputs and outputs of the "Scenario Builder" model that provides inputs to the Chesapeake Bay Watershed model. It is imperative that the agriculture community have access to the data and assumptions that are driving the agency's policy choices in the Draft TMDL so that agricultural stakeholders are able to provide the agency meaningful comments during the comment period. On November 2, 2010 the agency released portions of this data and committed to providing the Scenario Builder code by the end of that week. While we appreciate EPA releasing portions of the requested data, it is unreasonable and unacceptable to expect stakeholders to determine if all of the data and Scenario Builder components requested were made available and to then evaluate the data and the Scenario Builder tool for the calibration as well as all of the scenarios used to develop

the TMDL prior to the comment docket closing on November 8. Furthermore, EPA has admitted that its model is flawed and plans to make changes to the model in 2011. See letter dated June 11, 2010, from Shawn Garvin, Regional Administrator, EPA Region III, to the Principal's Staff Committee.

Even though EPA knows that its target loadings are inaccurate, EPA nevertheless has required (using threats of retaliatory actions) the six states in the Chesapeake Bay watershed and the District of Columbia to develop implementation plans for these inaccurate loadings in a very short period of time. The target loadings for phosphorus and sediment were provided on July 1, 2010. The target loadings for sediment were made available to watershed jurisdictions on August 13, 2010. EPA then demanded that watershed jurisdictions submit implementation plans based on these inaccurate loadings by September 1, 2010, allowing 62 days to develop plans for nutrients and only 19 days to develop plans for sediments, to implement what EPA acknowledges is the largest and most complex TMDL ever attempted.

Response

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the support database during the period 11/1-11/5/2010. The documentation, code, and database are publicly available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/.

The scenario builder inputs and outputs are publicly available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using Scenario Builder and run as input decks through the

Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publicly accessible through the same FTP site. The Phase 5.3 Chesapeake Bay Watershed Model, used in the development of the Bay TMDL, is available at http://ches.communitymodeling.org/models/CBPhase5/index.php.

For several months, EPA worked closely with the states and the District of Columbia to strengthen the draft Watershed Implementation Plans submitted to EPA in early September 2010. EPA had numerous constructive meetings and conference calls with each of the jurisdictions and reviewed preliminary WIP submissions. EPA continued to work with each of the jurisdictions after their submittal of their final WIPs to minimize or eliminate the possibility of federal backstop measures. The Watershed Implementation Plans are not part of the Bay TMDL. The review processes for the WIPs were determined by the individual states and the District of Columbia.

Comment ID 0510.1.001.012

Author Name: Haterius Stephen

Organization: National Association of State Departments of Agriculture (NASDA)

If EPA proceeds as planned, this final TMDL will make allocations to both point sources and nonpoint sources based on data that EPA knows are inaccurate. If EPA finalizes the Draft TMDL without first revising its modeling, that final agency action will be arbitrary and capricious under the APA.

We are very concerned that the inputs to EPA's Watershed Model do not accurately reflect pollutant loadings to the Chesapeake Bay. The inputs to EPA's Watershed Model are based on a stand-alone pre-processor called "Scenario Builder." Scenario Builder quantifies nutrient loads based on different assumptions and then allocates them spatially and temporally across the Chesapeake Bay watershed. This information is then fed into the Watershed Model and is used to allocate pollutant loadings to different sources and sectors.

Another concern is the failure of the model to account for agriculture BMPs. This issue is raised in many of the state watershed implementation plans (WIPs). Currently, only cost-shared BMPs are accounted for in the model, failing to account for voluntary and regulatory BMPs. While work is underway to identify and quantify BMPs that have been implemented outside of federal or state cost share programs, this is not yet complete. Until the model is able account for these agriculture BMPs, it is categorically inappropriate to use the model for anything other than an academic exercise.

Response

Scenario Builder and the Phase 5.3 watershed model were constructed through a transparent process over years of development. Please refer to the response to comment 0169.1.001.005 for a description of this process. Please also refer to the response to comment 0452-cp.001.001 for a description of the process to credit voluntary practices.

As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the phase 5.3 will be updated, not for the December 31 2010 TMDL, but in support of development of the Phase II Watershed Implementation Plans, which will be due after the 2010 TMDL. EPA has clearly stated that adjustments may be made to the allocations at that time and reflected in amendments to the 2010 Bay TMDL. Changes to the model generated numbers are a direct result of improving inputs data and simulation methods.

The same Shawn Garvin letter states "prior to 2017, EPA plans to review the full suite of the partnership's Bay models based on the best available science and decision-support tools and consider whether updated models should be developed to support phase III implementation plans and potential modifications to the Bay TMDL allocations." New data and science will always continue to become available and, as stated in the above mentioned letter, EPA is using an adaptive management approach to incorporate new information as it becomes available with scheduled upgrades during 2011 and 2017. There is no anticipation of jurisdictions over-controlling nutrients in the interim. Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf.

Comment ID 0513.1.001.001

Author Name: Hoot Lynne

Organization: Maryland Grain Producers Association (MGPA)

Maryland Grain Producers Association (MGPA) offers the following comments on the Draft Chesapeake Bay Total Maximum Daily Load (Draft TMDL), released for public comment on September 24, 2010, 75 Fed. Reg. 57776 (Sept. 22, 2010) (Docket Number EPA-R03-OW-2010-0736) (hereinafter Draft TMDL).

The Chesapeake Bay TMDL is the largest, most complex TMDL in the country, covering a 64,000-square-mile area in seven jurisdictions. EPA is proposing two separate sets of load allocations and waste load allocations for Phosphorus, Nitrogen and Sediment in 92 water body segments or 552 TMDLs across the Bay watershed. In Maryland alone, this represents 52 water bodies and over 250 water body segments.

We are extremely concerned that the process to undertake this tremendous task is being rushed and is being guided by the Bay Model that is known to be flawed.

Response

Please refer to the response to comment 0169.1.001.005.

Comment ID 0513.1.001.003

Author Name: Hoot Lynne

Organization: Maryland Grain Producers Association (MGPA)

Maryland farmers are concerned that they are not being given credit for the progress that they have made to date. We have learned that we cannot include best management practices that were installed prior to 2005 and yet these practices are in place today and are making improvements to water quality. If they cannot be added - how can the Bay model provide accurate information on what has been achieved and what still needs to be achieved?

Response

The Chesapeake Bay Watershed Model predicts changes in loads due to changes in management actions. If a change in management is reported, such as additional BMPs, then modeled loads will reflect that. EPA's policy is to guard against load changes in the model without real load changes in the system by requiring that only BMPs that were implemented since the watershed model was calibrated are included in scenarios.

EPA is working with states and other federal agencies to incorporate additional BMPs that were implemented before 2005 into future phases of the Chesapeake Bay Watershed Model.

Comment ID 0514.1.001.003

Author Name: Schwartz Jerry

Organization: American Forest & Paper Association (AF&PA) and National Alliance of Forest Owners (NAFO)

As discussed in all three sets of comments, some of the most significant pieces of information relied on by EPA to

develop the TMDL are the inputs to and outputs from a model called "Scenario Builder." Among other things, the outputs from Scenario Builder were used as inputs into the Chesapeake Bay Watershed model, another critical component of the overall modeling framework for the Bay. EPA has not made these inputs and outputs available for public review, which is a violation of due process considering the critical role they play in EPA's overall decision-making process.

Response

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the support database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/.

The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/.

As new management scenarios are developed using Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site.

Comment ID 0514.1.001.004

Author Name: Schwartz Jerry

Organization: American Forest & Paper Association (AF&PA) and National Alliance of Forest Owners (NAFO)

Among the many assumptions in Scenario Builder are assumptions regarding the effectiveness of forestry best management practices (BMPs). Forestry activities in the United States are now conducted under a comprehensive program of BMPs. All states with significant forest management activities have developed either regulatory or nonregulatory BMP programs to achieve water quality goals. Research results overwhelmingly document that properly installed and maintained forestry BMPs can reduce pollution loads to streams by as much as 80 to 90%.[FN1] A key factor in effectiveness is the rate at which the BMPs are implemented.

As discussed in the NCASI comments, EPA has used implementation values that are much lower than those in a study it appeared to rely on for such values in the TMDL. Moreover, the values in the study also appear to underestimate forestry BMP implementation, and therefore effectiveness, as demonstrated in numerous forestry BMP effectiveness studies conducted around the country, including several in the Chesapeake Bay watershed. By incorrectly underestimating BMP effectiveness, the resulting forest management scenarios used in the Bay Watershed Model will lead users to incorrectly conclude that forest management is a significant source of nutrient and sediment pollution, in turn leading EPA to seek unwarranted changes in BMPs from forest landowners in the Bay, including AF&PA and NAFO members.

[FN1] See comments filed by the National Council for Air and Stream Improvement, Inc. , "Techncial Review, Draft

Chesapeake Bay Total Maximum Daily Load, Docket Number EPAR03OW20100736," Erik B. Schilling, George G. Ice, and T. Bently Wigley, November 5, 2010 ("NCASI Comments").

Response

This comment references another, more complete comment. Please refer to the response to comment 0323.1.001.001.

Comment ID 0514.1.001.009

Author Name: Schwartz Jerry

Organization: American Forest & Paper Association (AF&PA) and National Alliance of Forest Owners (NAFO)

The Chesapeake Bay Model used by EPA appears to underestimate BMP efficiency.

Nutrient loading values estimated by the Bay Model appear to be based on literature values calculated by Edwards and Williard (2010). In their paper the authors state, "For sediment, BMP efficiencies ranged from 53 to 94% during harvest and up to 1-year after harvesting. For nutrients, BMP efficiencies were higher for total nitrogen (60-80%) and phosphorus (85-86%), which included particulate and sediment bound forms, than for nitrate-nitrogen (12%) which occurs primarily in the dissolved phase." However, values published in the documentation for Scenario Builder Version 2.2 (Brosch 2010) under the section of forest harvesting practices (see table, page 10-108) have BMP efficiencies that are lower than the range of values estimated by Edwards and Williard (e.g., total N = 50%, total P = 60% and sediment = 60%). Thus, it appears that BMP efficiencies used in Scenario Builder were derived through expert opinion and are more conservative than those identified by Edwards and Williard (2010).

If nutrient and sediment removal efficiencies used in Scenario Builder were based solely on the three referenced studies in Edwards and Williard (2010), data from a substantial number of forestry BMP effectiveness studies conducted in the eastern US (see BMP effectiveness resources and specific research noted above) have been unnecessarily ignored. There are literally hundreds of paired watershed studies and other controlled experiments that have tested or are testing the effectiveness of contemporary forest practices and BMPs (Ice 2004, Ice and Stednick 2004, Ice et al. 2007). Some of these, such the Piedmont Watershed Studies (Williams et al. 1999), the Alto Watershed Study in East Texas (McBroom et al. 2008), and the Alsea Watershed Study and Watersheds Research Cooperative in Oregon (OFRI 2009), have measured or are measuring improvements in water quality from managed forests for contemporary practices compared to historic impacts. Unfortunately, the forest management scenarios used in the Bay Watershed Model will lead users to incorrectly conclude that forest management is a significant source of nutrient and sediment pollution.

Response

Please refer to the response to comment 0323.1.001.001.

Comment ID 0518.1.001.003

Author Name: DuVal Barry

Organization: Virginia Chamber of Commerce (VCC)

VCC also must express a major concern about the number of proven deficiencies in the Chesapeake Bay Model, which will have a significant impact on the pollutant loading of the Watershed Implementation Plans being developed by the Bay states. The independent United States Geological Survey has questioned the accuracy of the impervious surface data in the model, and others have questioned the accuracy of the agricultural BMP projections. Those two (2) flawed data points are just a sampling of other significant flaws in the model that are resulting in lower nutrient caps for all Bay states. For this reason alone, the EPA should delay implementing the TMDL.

Response

Fluctuations in the extent of developed lands in different versions of the watershed model are due to changing technology and methods for mapping developed lands and inferring change over time using a combination of datasets. For each version of the WSM, the CBPO strives to use the best available data and methods to provide information that is accurate, consistent, and comparable across the watershed and over time.

As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the phase 5.3 will be updated, not for the December 31 2010 TMDL, but for the phase II Watershed Implementation Plans, which will be due after the 2010 TMDL. In accordance with court documents, EPA does not have the ability to ignore the December 31, 2010 deadline. Adjustments to the allocations, if warranted, might be made at that time.
Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf.

BMP and conservation practice effectiveness estimates, which are critical to decision-making, are generally based on a 2-year study involving extensive peer-reviewed scientific literature, field studies, and input from technical panels comprised of USDA, NRCS, state land grant universities, state agricultural agencies, and key practitioners.

EPA can accept additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf. Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of “interim efficiencies” of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

The analysis tools that are used in the TMDL consider all sectors including waste water, forest, agriculture, runoff from developed areas, and atmospheric deposition. See section 5 of the draft TMDL documentation.

The Chesapeake Bay Program Partnership watershed model has been in use for over 2 decades. It has been continually refined over that time period. The Phase 5.3 Chesapeake Bay Watershed Model has been built through collaboration with federal, state, academic, and private partners. Development teams at CBPO and USGS include EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. The range of loads from land use types and the sensitivity to inputs are informed by a great deal of peer-reviewed research was used and the input of these groups. All of these meetings are open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the Draft TMDL.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed by several of the above groups. In addition, there have been 2 major independent reviews of the Phase 5 model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board.

Comment ID 0528.1.001.011

Author Name: Barnes C.

Organization: County of Spotsylvania, Virginia

III. OVERVIEW OF MODELS AND MODELING USED TO DERIVE THE PROPOSED URBAN RUNOFF ALLOCATIONS

The EPA models assume that urban development and agricultural activity caused the currently observed levels of phosphorus, nitrogen, and sediment in the Chesapeake Bay. Having assumed a cause, the EPA went out and found data to Support the assumption. Whether or not some other cause would have explained more precisely the effect on the Chesapeake Bay was not investigated. Nor did the EPA examine or consider whether current levels are outside the range of historic variation.

The Phase 5.3 Chesapeake Bay Watershed Model computer model (CBWM) is enormous, and has been described as one of the world's largest environmental models. The 64,000 square-mile watershed spans roughly one-quarter of the East coast of the United States. However, CBWM is only a component in the larger Chesapeake Bay Program suite of models.

Four major modeling components are used to develop the input data for CBWM. A substantial amount of nitrogen is deposited from the atmosphere into the Chesapeake Bay, and land use changes have significant implications for nutrient and sediment loading. All of this data is pre-processed in antecedent models, and then aggregated in a tool

called the "Scenario Builder."

IV. EPA HAS FAILED TO PROVIDE THE HOME RULE LOCALITIES WITH ACCESS TO INFORMATION NEEDED TO FULLY EVALUATE AND COMMENT ON THE PROPOSED URBAN RUNOFF ALLOCATIONS

A. CBWM Input Mapping Data

To date EPA has not been able to document the tremendous amount of input data required for the TMDL modeling effort. The Virginia Department of Conservation and Recreation requested mapping from the Chesapeake Bay Program Office (CBPO) that would indicate locations of various urban land use categories (such as Impervious High Intensity, Impervious Low Intensity, Pervious High Intensity, and Pervious Low Intensity) used in the Phase 5.3 TMDL modeling. CBPO indicted that significant effort would be required to produce such mapping. Likewise, there is very little documentation that would allow modelers outside EPA to ascertain how the data was collected and synthesized, which makes working with CBWM a highly unreliable proposition at the state and local levels. More thorough disclosure of documentation is sorely needed, not merely on the model, but just as importantly on the data. Spotsylvania will defend vigorously any claim of waiver due to failure to submit comments to the TMDLs on the basis that EPA withheld pertinent information to evaluate the program.

B. Scenario Builder

The Scenario Builder was supposed to be available to the modeling community as part of the Chesapeake Bay Modeling Program, but has not yet been released outside EPA. Absent the Scenario Builder, modelers must rely on EPA to process the input data to CBWM, and cannot improve the model with local data. In fact, all of the 'modeling' that has been done by the State of Virginia to date is in essence 'post-processing' of EPA modeling results rather than independent modeling.

V. FLAWS IN THE MODEL USED TO DERIVE THE PROPOSED ALLOCATIONS

A. The Phase 5.3 CBWM has not been calibrated

EPA claims that the Phase 5.3 CBWM model has been calibrated. Yet 920 square miles of urbanized land have been erroneously entered as "forest" in the model. A recalibration effort was expected to begin in October 2010 however, this will be an inadequate amount of time to appropriately address the issues by the December 31, 2010 mandated deadline for final publication of the Chesapeake Bay TMDL. EPA has promoted an "adaptive management approach" in developing this TMDL, thereby creating many moving goalpost situations. There are inherent problems with any calibration effort, and CBWM is no exception. There are many ways to fine tune input variables in a complicated model to make the output approximate a series of observed data - a phenomenon known as 'equifinality'.

One indication of calibration problems is with sediment loading computations. CBWM cannot adequately match observed data for sediment loading, which held up the release of working sediment limits to the states until a month before their Watershed Implementation Plans (WIPs) were due. To accommodate the schedule, EPA adopted a "pucker factor" approach in order to sidestep this problem with the model. If the Phase 5.3 model was adequately calibrated, sediment computations could be handled in a straightforward manner.

Many of the draft TMDL limits are targeted to pollutant reduction levels that are considerably less than the margin of uncertainty in the modeling process itself. Dr. Kathy Boomer of the Smithsonian Institute has conducted specific research and concluded that the margin of uncertainty in the TMDL models was much greater than the reductions being sought in pollutant loading. Dr. Ken Reckhow of Duke University (who chaired the Chesapeake Bay TMDL Review Committee for the National Academy) has repeatedly cautioned regulators against reporting modeling results without stipulating the uncertainty. Dr. Reckhow notes that TMDL prediction uncertainty is high, and Chesapeake Bay modelers have had issues with political decision makers being able to understand this uncertainty. Notwithstanding, Section 5 of the draft TMDLs states:

"Models have some inherent uncertainty. Because of the amount of data and resources taken to develop, calibrate, and verify the accuracy of the Bay models, the uncertainty of the suite of models is minimized."

In fact, quite the opposite is true. The amount of data and complexity of the system work to increase the uncertainty, particularly when the source and content of the data have not been disclosed. The above statement from the draft TMDLs cannot be substantiated with vague assurances that the model is based on good, sound or strong science.

It is also interesting to note that the mathematical equation for a TMDL incorporates "margin of safety".

TMDL = Sum of Wasteload Allocations + Sum of Load Allocations + Margin of Safety

While the margin of safety is supposed to account for uncertainty in ensuring that the TMDL is effective, the errors and uncertainties in the computation of the load allocations themselves are not integrated.

There are very few (perhaps only three or four) knowledgeable technical persons with meaningful CBWM modeling experience in Virginia. For a model that will be used as the basis for billions of dollars in regulatory mandates, the technical community lacks the checking and validation that results from widespread use of a model. There is no significant bug reporting and code fixing occurring, and what little modeling is being performed is being done with data that has been distributed from EPA without enough documentation to check its validity. Other computer models, such as the EPA's own Storm Water Management Model (SWMM), have many years of active, widespread use, debugging and code fixes that occur continuously. The user community helps drive improvements that make SWMM a very well understood and reliable model. Conversely, CBWM is essentially an untested and unapplied model in 2010. The development of CBWM is undoubtedly an ambitious and worthwhile undertaking, but reasonable time has to be given to grow and mature CBWM to the point that it can be unfailingly used to justify the significant expense.

B. The Phase 5.3 CBWM does not produce reliable modeling results

EPA distributes the CBWM computer program in un-compiled form, meaning that in order to run the model users must obtain a FORTRAN compiler and generate the executable computer programs from the source code. However there is a known and still unresolved problem with CBWM producing different results when compiled on different computers. Identical input data was run on different computers in August 2010 for the James, York, and Rappahannock Rivers, and CBWM produced significantly different results - with variations as high as 36% in the answers. The reliability of CBWM cannot be confirmed until repeated results can be produced. EPA is working on this problem, but its self-imposed TMDL schedule demands do not provide the time required to produce reliable and scientifically verifiable models and modeling results.

C. EPA is using the CBWM on a scale that is beyond its predictive capability

Due to the 64,000 square-mile extent of CBWM, there is an inherent problem of scale when addressing Best Management Practices (BMPs). CBWM is better suited for overarching computations on larger scales, such as evaluating the effects of fertilizer applications on large segments of the Chesapeake Bay watershed, than it is in evaluating the effects of a particular BMP or group of BMPs on specific sites. EPA staff has acknowledged that the effects of individual, site-specific BMPs cannot be directly addressed in CBWM. Because the model is constructed on such a large scale, numerical effects offbeats are lumped or aggregated in the modeling input data. This scale problem makes it very difficult for local governments to evaluate the feasibility of costly BMPs such as, filtration devices and detention and retention basins, which will have to be constructed to achieve water quality improvements. A single retention basin can easily cost millions of dollars, yet its effects cannot be directly isolated and evaluated in CBWM.

D. Existing imperviousness is underestimated in the CBWM

The Phase 5.3 CBWM model was prepared based on satellite photography. Early indications from four Virginia municipalities are that the use of satellite imagery has produced estimates of watershed imperviousness that are approximately 20 percent too low, which has significant implications for the amount of pollution that runs off each watershed. Localities have better imperviousness data in their Geographic Information Systems, but the TMDL development schedule did not provide time for EPA modelers to coordinate and collect this information from the localities. The implication is that if existing watershed imperviousness is underrepresented in CBWM, then so will be the existing pollution from urbanized areas. This inaccuracy could easily result in computed TMDL limits that are unattainable because in order to satisfy their "pollution diet," municipalities will have to reduce pollution based on modeling data that assumes they are substantially (20 percent) less impervious than they actually are. In other words, if their "pollution diet" starts by assuming that they have 20 percent less pollution-producing impervious cover than they actually have, then in order to meet their TMDL limits they would have to reduce all pollution from that 20 percent plus the reductions mandated by the TMDL - which are themselves very difficult to achieve. Refusal to accept more accurate data as the price of meeting an unrealistic deadline sets the County of Spotsylvania up for failure.

E. There is no groundwater component in the CBWM

The absence of a groundwater component to the model is significant because groundwater transport of nutrients is a major source of pollution in the Chesapeake Bay. Ironically, many of the BMPs that will be used to satisfy the TMDLs are based on removal of pollutants by infiltration, which is not addressed in the modeling. This lack of a groundwater component in CBWM means that pollutants that are routed into infiltration BMPs magically disappear from the computational universe - when in reality they are deposited into groundwater that eventually flows into the Chesapeake Bay.

Response

Please refer to the response to comment 0265.1.001.020.

Comment ID 0531.1.001.004

Author Name: Abraham Phillip

Organization: Virginia Association for Commercial Real Estate (VACRE)

We also agree with Secretary Domenech that the model upon which the TMDL is based has "fundamental flaws" and "assumes a level of precision far beyond what the model is capable of and without regard for the economic consequences."

Response

We do not agree that there are fundamental flaws in the model. There will always be opportunities for improvement in data collection and we are continuing our efforts in that regard.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. All of these groups have been providing data and modeling instructions for at least the past five years and in some cases much longer.

As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the phase 5.3 will be updated, not for the December 31 2010 TMDL, but in support of development of the Phase II Watershed Implementation Plans, which will be due after the 2010 TMDL. EPA has clearly stated that adjustments may be made to the allocations at that time and reflected in amendments to the 2010 Bay TMDL. Changes to the model generated numbers are a direct result of improving inputs data and simulation methods.

The same Shawn Garvin letter states "prior to 2017, EPA plans to review the full suite of the partnership's Bay models based on the best available science and decision-support tools and consider whether updated models should be developed to support phase III implementation plans and potential modifications to the Bay TMDL allocations." New data and science will always continue to become available and, as stated in the above mentioned letter, EPA is using an adaptive management approach to incorporate new information as it becomes available with scheduled upgrades during 2011 and 2017. There is no anticipation of jurisdictions over-controlling nutrients in the interim. Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf.

EPA is promoting an adaptive management approach, but towards the same goal post as the Bay TMDL—restored Chesapeake Bay water quality as defined by Delaware, Maryland, Virginia, and the District of Columbia's Chesapeake Bay water quality standards regulations.

In regard to the comment on economic consequences, Please refer to the response to comment 0139.1.001.017.

Comment ID 0531.1.001.006

Author Name: Abraham Phillip

Organization: Virginia Association for Commercial Real Estate (VACRE)

VACRE urges EPA to delay adoption of the TMDL and any decision to impose backstops on the states for at least one year and until no sooner than December 31, 2011. We ask for this for the following four reasons:

Second, as evidenced in the comments filed by Michael S. Rolband, the model used to establish the TMDL has three significant flaws: (1) The data used for existing impervious surfaces is overstated by a 2.5 magnitude; (2) The model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and (3) The model incorrectly accounts for pollutants from different land uses (See November 1, 2010 comments of Michael S. Rolband which were filed in this docket). It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed. Once again, delaying adoption of the TMDL until December 31, 2011 will allow for these flaws to be fixed and allow for production of an allocation that can achieve buy-in and support from many more stakeholders.

Response

Please see the response to comment 0238-cp.001.002.

Comment ID 0535.1.001.004

Author Name: Perkinson Russ

Organization: Virginia Department of Conservation and Recreation

Phase 5.3.0 Watershed Model (WSM)

o The definition of the so called E3 scenario (theoretical maximum implementation or everyone doing everything everywhere) eliminates all acres of the animal feeding operation, nursery, harvested forest, barren or constructive, and extractive or surface mining land uses. These land uses are simulated as hay without nutrients or forest. How does one have an animal feeding operation that produces run-off characteristics similar to a pristine environment?

Recommendation: Redefine E3 as it is applied to the following land use categories: animal feeding operation, nursery, harvested forest, barren or constructive, and extractive such that these land uses still would exist and be treated with high levels of BMPs rather than eliminate the individual land use and its associated industry or sector.

o Some assumptions governing the use and outputs of the phase 5.3.0 WSM are not clearly documented. There is no documentation of the model code changes EPA has done to the phase 5.3.0 WSM since they declared it a calibrated model.

Recommendation: EPA needs to provide better documentation of phase 5.3.0 WSM assumptions and processes.

o Urban Land uses appear to be mischaracterized. There is a significant difference between simulated urban acres and what localities have records of actually existing in relation to impervious surface acreages. This is in the order of 600,000 acres of urban lands being simulated as forest in the Virginia Bay drainage. This has significant potential impact on MS4 WLAs estimated from the watershed model (WSM). Acknowledged as a significant error by EPA and will require a new calibration to address. Since the loadings and land use acres are a sum zero game by definition EPA has mischaracterized all nonpoint loading sources (land uses) in this model.

Recommendation: EPA needs develop and utilize more accurate methods to closely reflect actual land uses.

o Agricultural nutrient management (NM) produced approximately 20% of all nonpoint source reductions in the Tributary Strategies. Agricultural NM in the phase 5.3.0 WSM produces a reduction in three Virginia Counties (Accomack, Rockingham, and Page) only with application to all other counties having no effect or slight increases in loadings. This change in the estimated impacts of this BMP was done by EPA in complete disregard to the established EPA protocol for BMPs in EPA's Chesapeake Bay watershed modeling. In response to the concern expressed by Virginia and other states in the watershed, EPA suggested using enhanced NM and decision agriculture as surrogate BMPs to represent nutrient management in model runs. These are poor replacements. Additionally, how the scenario builder model handles these surrogates appears to be incorrect. These are BMPs that are should be added onto an existing NM plan. Scenario Builder treats these BMPs as land use change BMPs instead of an efficiency added onto the NM BMP.

Recommendation: EPA needs to modify the model and scenario builder to reflect the reduction benefit of nutrient management. EPA needs to treat nutrient management as an efficiency BMP rather than a land use change.

o The percentage cover by land use used in the calibrations are not logical for all land use categories. This reduces confidence in the calibrated sediment loadings and associated nutrients particularly total phosphorus. An example in the current phase 5.3.0 WSM is the degraded stream corridor land use has identical percentage cover (total interceptive surface) to pasture. Pasture should have a higher percent cover than degraded stream corridor.

Recommendation: Reduce the percent cover for the degraded stream corridor as compared to the standard pasture land use.

Response

E3 definitions

Multiple E3 scenarios have been developed to help states build their WIPs. The TMDL version of E3 reflects a condition where the relatively high loading target landuses like AFO, harvested forest, barren, nursery and extractive mimic a “zero discharge” condition. This is consistent with the NPDES permits issued to CAFOs, which before permitting were very high loading areas on the land. This precedent was used to develop a condition where most of these high loading landuses were given resulting loads similar to the load from forest. The development of the TMDL’s E3 scenario was approved by the Water Quality Goal Implementation Team for use in the TMDL. The commenter’s recommendation has already been incorporated in one E3 scenario result released to stakeholders for information purposes.

Model documentation
Please refer to the response to comment 0169.1.001.005.

The commenter was involved in several of these groups over a period of years. Modeling documentation is nearing finalization.

Urban Land use
Fluctuations in the extent of developed lands (impervious and pervious) in different versions of the watershed model are due to changing technology and methods used for mapping developed lands and for inferring change over time. Changes have also been prompted by concerns expressed by the States, local governments, and other interested parties. For each version of the Chesapeake Bay Watershed Model, the Chesapeake Bay Program Office strives to use the best available data and methods to provide information that is accurate, consistent and comparable across the watershed and over time. A new version of the Watershed Model, Phase 5.3.2, will be coming out soon and will include an extent of impervious surface greater than that used in any previous version of the model due to the inclusion of impervious surfaces associated with all roads and single-detached housing units outside of dense urban areas.

Over the past six months, the US Geological Survey (USGS) has conducted additional ground-truthing of assumptions and data used to estimate the extent of impervious surface in the watershed. In addition, the analytical methods have undergone review by the Chesapeake Bay Program's Scientific and Technical Advisory Committee and are currently in review by USGS.

Nutrient Management
The current nutrient management simulation in the Phase 5.3 Chesapeake Bay Watershed Model is in accordance with recommendations from the Chesapeake Bay Program’s Agricultural Nutrient and Sediment Reduction Workgroup (ANSRW) at the time of the calibration. Post the Phase 5.3 Chesapeake Bay Watershed Model calibration, the ANSRW revised the recommendations. As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the phase 5.3 will be updated, not for the December 31 2010 TMDL, but for the phase II Watershed Implementation Plans, which will be due after the 2010 TMDL. Adjustments to the allocations, if warranted, might be made at that time. Changing modeling numbers are a result of improving inputs data and methods.
Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf.

The recommendation is nutrient management be treated as a BMP rather than a land use change is a reasonable argument. It is in opposition to the comments of the 2008 STAC review of the watershed model, however. Links to the review and Chesapeake Bay Program response are at:

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

The ANSRW would be an appropriate venue to argue this point within the adaptive management framework.

Percentage Cover

The commenter brings up a reasonable point. Again, the ANSRW is the appropriate venue for this discussion which must result in specific recommendations for future model refinements. For the specific example of degraded riparian pasture having a high cover percentage, modifying this cover percentage and recalibrating would have no effect as the model is calibrated to a given target and the percent cover on this land use is not modified.

Comment ID 0541.1.001.002

Author Name: Knapp Leslie

Organization: Maryland Association of Counties (MACo)

Need for Bay Model Refinement: The Chesapeake Bay Phase 5 Watershed Model continues to show improvements and refinements over previous versions, but ultimately the Model is still limited, being subject to inaccuracies and "best guess" estimates. Given that the Model is still imperfect but that State and county governments are being asked to undertake precise nutrient reduction tracking, the Environmental Protection Agency (EPA) must commit to further refining the Model AND show some flexibility in allowing States and counties to present data and that may not be incorporated or accounted for by the Model. In short, the Model should not be the sole measure of data analysis.

Response

Please refer to the response to comment 0611.1.001.001.

Comment ID 0551-cp.001.002

Author Name: Horton William

Organization: Hurt & Poffitt, Inc.

The EPA should delay adoption of the TMDL and backstops for at least one year and until no sooner than December 31, 2011 for the following reasons:

The model used to establish the TMDL has three significant flaws: (1) data used for existing impervious surfaces is overstated by a 2.5 magnitude; (2) the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and (3) the model incorrectly accounts for pollutants from different land uses. It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Response

Please see the response to comment 0238-cp.001.002.

Comment ID 0553.1.001.002

Author Name: Uzupis John

Organization: Synagro Technologies, Inc.

• There are significant disagreements about the levels of conservation practices implemented by agriculture. For example, a recent Virginia Tech study showed that over 90 percent of state row crop land is in conservation-tillage, primarily no-till. Moreover, a related study showed that 37 percent of the acreage is in a winter cover or small grain crop. However, EPA counts only 15 percent of row crop land to be in conservation-tillage in its guidelines being used to develop TMDL discharge levels.

Response

EPA does not agree that there are extensive flaws in the data. There will always be opportunities for improvement in data collection and we are continuing our efforts in that regard.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. All of these groups have been providing data and modeling instructions for at least the past five years and in some cases much longer.

EPA agrees with the commenter that non-cost shared implemented practices are likely under-counted due to difficulties in data collection

Verified non-cost shared practices can be accepted in the model, but historically have not been included to a great extent because the information has not been made available to the Chesapeake Bay Program. Voluntary practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These voluntary practices are typically funded by farmers alone. EPA is committed to working with USDA, NACD, state environmental and agricultural agencies, conservation districts, and agricultural community at large to credit nutrient and sediment reductions from voluntary practices. As committed to in the Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to "By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented."

Non-cost shared practices or practices not enrolled in state programs are not held to standards required for the efficiency credited in the suite of Chesapeake Bay models. Additionally, some state standards do not meet the standard for the BMP efficiency in the models. The standards for all model-approved BMPs prevent the state reporting agencies from reporting some installed BMPs because the standards are not met. The exclusion of practices not meeting standards prevents over-estimates of pollution reduction from BMPs in the models.

Please refer to Scenario Builder documentation for the current model standards for all BMPs here:

http://archive.chesapeakebay.net/pubs/SB_Documentation_Final_V22_9_16_2010.pdf.

Comment ID 0555.1.001.002

Author Name: Shadowen H.

Organization: Brandywine Realty Trust

The EPA should delay adoption of the TMDL and backstops for at least one year and until no sooner than December 31, 2011 for the following reasons:

The model used to establish the TMDL has three significant flaws: (1) data used for existing impervious surfaces is overstated by a 2.5 magnitude; (2) the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and (3) the model incorrectly accounts for pollutants from different land uses. It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Response

Please see the response to comment 0238-cp.001.002

Comment ID 0561-cp.001.001

Author Name: Flathers George

Organization: Meadowdean Farm

I would like to register my strong opposition to the referenced EPA initiatives to establish federally-mandated TMDL backstop limits, because ... they are predicated on a highly-flawed "Chesapeake Bay Model", which effectively throws out actual, ground-truthed data from Virginia simply because it doesn't fit within the EPA's "modeled" land use data;

Response

EPA does not agree that there are extensive flaws in the data. There will always be opportunities for improvement in data collection and we are continuing our efforts in that regard.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. All of these groups have been providing data and modeling instructions for at least the past five years and in some cases much longer.

EPA agrees with the commenter that non-cost shared implemented practices are likely under-counted due to difficulties in data collection. Verified non-cost shared practices can be accepted in the model, but historically have not been included to a great extent because the information has not been made available to the Chesapeake Bay Program. Voluntary practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These voluntary practices are typically funded by farmers alone. EPA is committed to working with USDA, NACD, state environmental and agricultural agencies, conservation districts, and agricultural community at large to credit nutrient and sediment reductions from voluntary practices. As committed to in the Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to "By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented."

Non-cost shared practices or practices not enrolled in state programs are not held to standards required for the efficiency credited in the suite of Chesapeake Bay models. Additionally, some state standards do not meet the standard for the BMP efficiency in the models. The standards for all model-approved BMPs prevent the state reporting agencies from reporting some installed BMPs because the standards are not met. The exclusion of practices not meeting standards prevents over-estimates of pollution reduction from BMPs in the models.

Please refer to Scenario Builder documentation for the current model standards for all BMPs here: http://archive.chesapeakebay.net/pubs/SB_Documentation_Final_V22_9_16_2010.pdf.

EPA can accept additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

Comment ID 0573-cp.001.001

Author Name: Tabb B.

Organization:

For five generations my family has been farming in Jefferson County WV. Like most other farmers my family takes pride in being good stewards of our land and water.
As new practices have evolved my family has installed proper manure handling,nutrient management,notil planting and cover crops.Most of these BMP's were started prior tp 1985.
It appears that the EPA does not believe any BMP's were in place prior to 1985.

Response

Thank you for the comment and your commitment to responsible management.

To answer your comment directly, throughout the modeling process, states have had the opportunity to provide BMP implementation data and they generally have done so. BMPs for 1985 are included in the watershed model, including in Jefferson County, WV. We don't make any predictions prior to 1985.

More information on the watershed model and data collection follows.

In 2009, EPA provided all watershed states with the opportunity to review all pertinent agricultural input data and to supply state-specific or county-specific values. Some states chose to revise portions of the agricultural data at that time.

Additionally, the model development process has ample opportunity for input as the technical direction for the development, management application, and independent review of the Chesapeake Bay Program Partnership's models is carried out through several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. Descriptions of each of these groups is provided within Section 1 of the final Bay TMDL. Each has broad representation by federal, state, local, academic, and private groups. Programmatic and policy direction on the application of the models and their use in supporting decision making is undertaken through the partnership's Management Board (previously the Implementation Committee) and the Principals' Staff Committee. All the independent scientific peer reviews of the models are carried by the Chesapeake Bay Program's Scientific and Technical Advisory Committee. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference calls can be found in Appendix C of the final Bay TMDL.

The Chesapeake Bay Watershed Model and the input data sets have four formal partnership-driven cycles of development, calibration, verification, and management application since the mid-1980s, supporting programmatic and policy decisions and directions embedded within the 1987 Chesapeake Bay Agreement, 1992 Amendments to the Chesapeake Bay Agreement, the 1997 Nutrient Reevaluation, and the Chesapeake 2000 Agreement. With the development and publication of the Bay TMDL, the partnership has carried out the fifth such cycle supporting management decision-making.

The Phase 5.3 Watershed Model was been developed, calibrated and verified through collaboration with federal, state, academic, and private partners. Development teams at the Chesapeake Bay Program Office (CBPO) and the U.S. Geological Survey (USGS) included EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed and approved by several of the above groups. All the Phase 5.3 Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf.

In addition, there have been two independent scientific peer-reviews of the Chesapeake Bay Phase 5 Watershed Model in 2005 and

2008 involving scientists drawn from across the country-Penn State University, Virginia Tech, Duke University, University of North Carolina, University of Maryland Baltimore County, and University of Florida—and overseen by the Scientific and Technical Advisory Committee. These independent peer reviews and the Chesapeake Bay Program partnership's responses can be found at:

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

Best management practice (BMP) and conservation practice effectiveness estimates, which are critical to decision-making, are based on a 2-year study, undertaken by the Mid-Atlantic Water Program, a consortium of the nine major land grant universities, involving extensive peer-reviewed scientific literature, field studies, and input from technical panels comprised of USDA, NRCS, state land grant universities, state agricultural agencies, and key practitioners. Extensive information and documentation regarding the effectiveness estimates is available at http://www.chesapeakebay.net/watershedimplementation plantools.aspx?menuitem=52044.

In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the final Bay TMDL.

Comment ID 0580.1.001.001

Author Name: Pomeroy Christopher

Organization: Virginia Municipal Stormwater Association, Inc. (VAMSA)

VAMSA objects to overreliance on unstable models to the single percentage point of output, such that environmental policies are undermined with each new model run. Following are examples of problematic modeling issues that should cause EPA to shy away from major disruptions to state regulations/policy on the basis of single-digit shifts in model output:

1. Lack of full model validation and peer review: The Scientific and Technical Advisory Committee (STAC) has placed a strong emphasis on the need for model validation (STAC, 2006), calling validation "an essential and a required step in model development, particularly if the model is to be used for TMDL development purposes" (STAC, 2008b).1

[FN 1] Attachment A to this Appendix. Additional References Include: Scientific and Technical Advisory Committee. 2006. Modeling in the Chesapeake Bay Program: 2010 and Beyond. STAC Publication 06-001. 42 p. Scientific and Technical Advisory Committee. 2008a. Review of the Phase V Community Chesapeake Bay Watershed Model. STAC

Publication 08-003 Scientific and Technical Advisory Committee. 2008b. Second Review of the Phase V Community Chesapeake Bay Watershed Model. STAC Publication 08-003.

Although the watershed model (WSM) appears to have been subjected to some kind of validation, the public documentation of the validation is very poor. Moreover, it is unclear if the Water Quality and Sediment Transport Model (WQSTM) has been validated in any manner. It also appears that the STAC reviews of the WQSTM have focused on the sediment, clarity, and SAV components, and there may not have been a complete peer review of the latest version of the full eutrophication and D.O. simulation.

2. The model is being extrapolated beyond the observed range of management controls and living resources: The model framework has been calibrated using data from years with widely varying hydrologic conditions. However, none of the calibration data are representative of management controls or living resources that being called for as part of the Bay TMDL and related goals. Therefore, there is simply no way to verify that the Bay system will respond precisely as predicted. The model predictions of attainment are best characterized as rough approximations rather than highly precise predictions.

3. An estimate of model uncertainty should be used to determine the essential equivalence of model scenarios: EPA was correct to implement an interpretive rule (the "1% rule") by which model-predicted non-attainment is considered indistinguishable from zero. However; the one-percent magnitude underestimates the model error and overestimates, the precision of both the model and monitoring data. Based on the analysis of Bell (2010b), segments that are close to attainment would require spatial D.O. violation rates that differ by 4% or more before they would be statistically distinguishable from one another. EPA's justification for the 1% magnitude was not based on calibration or validation statistics, but by an analysis of the sensitivity of simulated to DO attainment to simulated load reductions.2

[FN 2] Batiuk, R. and Shenk, G., 20 IO. Technical Rationale for Documenting Attainment for 1% Non-attainment Dissolved Oxygen Criteria Values. Attachment C2 for State/District Co-Regulators June 14, 2010 Conference Can (Attachment B to this Appendix).

It is recommended that the EPA further evaluate the statistical power of the model and monitoring to distinguish between non-attainment rates of differing magnitude. With the information in hand, VAMSA concludes that the "1% rule" should be a "4% rule" at minimum.

4. Inaccuracy of groundwater inputs: The model handles groundwater inputs/loads in a very simplistic manner that is dissimilar to physical reality. Or as stated by STAC (2008a), "the model does not represent the full coupling of the groundwater to the surface water system on a regional scale." Considering that 50% of the total freshwater flow to the Bay is derived from groundwater (Bachman and others, 1998), this is a major model limitation and source of uncertainty for management scenarios.

5. Lack of criteria for acceptance of model predictions: Predictions of dissolved oxygen and chlorophyll-a in some segments are characterized by anomalies (e.g., counterintuitive trends with decreasing loads. EPA recognized many of the most obvious problems, and used poor model behavior as a justification for not using DO or chlorophyll-a attainment in many segment-seasons (e.g., Keisman, 2010a; Keisman 2010b). However, in most of these cases, the underlying cause(s) were not identified, and full implications of these problems for the model were not explored. The same problems that caused obviously poor model behavior in some segment-seasons might be also causing more

widespread but less obvious problems in other segment-seasons. We see no evidence that the CBPO developed objective criteria for the acceptance or rejection of model results in these circumstances. Poor behavior of the James River chlorophyll-a model is discussed in the VAMSA comments at Section V.

6. Poor chlorophyll-a calibration: The chlorophyll-a calibration is obviously very poor in many segments (e.g., tidal freshwater James), and EPA has not demonstrated that the model is a useful predictor of annual changes in chlorophyll-a in other key segment-seasons. This comment is discussed in more detail in Section V.

7. Instability and inaccuracy in urban land use assumptions: The watershed model suffers from questions regarding accuracy of the urban land use acreages. Urban land use breakdowns have been very unstable between model versions and even subversions, varying with different derivation methods and assumptions. For example, the urban land use breakdown varied by millions of acres between model version 5.2 and 5.3. It is unclear whether the latest version is accurate or has been adequately ground-truthed. Urban stormwater loads and implementation costs are highly sensitive to the assumptions regarding urban land use breakdown.3

[FN 3] Materials at Attachment C to this Appendix.

8. Missing point sources: VAMSA has learned from VAMWA that the current version of the model framework does not include 139 active Virginia point sources. Further, EPA is aware of this error, however it has not been corrected due to a lack of time until EPA's self-imposed December 31, 2010 deadline.

9. Inappropriate application of watershed model to local level. In their review of the Phase 5 watershed model, STAC (2008) clearly stated that the model was not appropriate for use at the local level, and would need recalibration/resegmentation for this application. It is unclear, then, why the Bay Program is continuing to promote the application of the model to determine local-level loads and allocations, and why EPA is calling for such values in the Phase 2 WIPs.

10.Overparamterized modeling framework: The model combined modeling framework is so complex and highly parameterized that there are no unique calibration solutions; it is easy to obtain the "right" answer for the "wrong" reason. Calibration also relies on regional calibration factors that act as "black box" knobs, divorcing the model result from physical understanding of the processes. While necessary for calibration, these factors introduce yet another source of uncertainty into model predictions.

11. Inconsistent watershed Model results: We understand that a consultant retained by another stakeholder has run the watershed model has obtained widely different results on different computers. We encourage the Bay Program to fully investigate the reasons and implications of this finding.

B. EPA's Critical Period Is Appropriate VAMSA concurs with EPA's decision to use 1993-95 as the critical period for the nutrient TMDL.4

[FN 4] See July 16, 2009 Technical Memorandum from C. Bell to C. Pomeroy (Analysis of January-May Inflows to the Chespeake Bay during the 1996-98 Period) and other materials (Attachment D to this Appendix).

This period had relatively high winter-spring inflows, but not so extreme that the TMDL would be based on an extremely

rare hydrologic event. A TMDL based on 1993-95 hydrology will be protective under the great majority of hydrologic conditions.

C. EPA's Use of an Implicit Margin of Safety Is Appropriate

The Draft TMDL depends on a very complex framework of water quality standards, assessment methodologies, and models to derive allocations; each with its own environmental conservatism. This combined framework results in a sum level of conservatism reflecting all of the contributing sources of conservatism. For example, the water quality criteria themselves are conservative, as stated in the original criteria document (EPA CBPO, 2003):

...these criteria were developed with conservative (protective) assumptions, allowing a small percentage of circumstances in which the criteria may be exceeded will still fully protect the tidal-water designated uses.

The assessment methodology includes several conservative elements, such as the fact that any exceedance of the cumulative frequency distribution ("CFD") reference curve is considered a potential violation, even if the segment being assessed has a lower total violation rate in time-space (i. e., area under the CFD curve) than the reference condition. The use of the default 10-percent reference curve for some criteria is also conservative in that Bay sites that are believed to be complying with standards are being found not to be in compliance based on conservative assumptions of the TMDL. The fact that the TMDL is developed for a critical 3-year condition, instead of average conditions, provides another layer of conservatism.

Furthermore, although the model is not designed to be explicitly conservative, a review of the UMD/MAWP Year 1 and Year 2 BMP efficiency reports revealed many examples of where conservatively low BMP efficiencies were selected for use with the Phase 5 watershed model. For example:

BMP Conservative Assumption from Year 1 & 2 BMP Efficiency Reports [Please see page 4 of the original letter (Docket ID 0581.1.001.001).]

The Bay Program Office has identified specific sources of environmental conservatism that are built into the analysis that justify an implicit margin of safety for the TMDL:

• The fact that allocations to achieve D.O. standards are driven by a relatively small area in the Bay (segment CB4), and that most of the rest of the Bay system would achieve DO standards under higher nutrient loading levels.

• The fact that 100% of point sources are assumed in model scenarios to operate at their maximum permissible loading levels, which is highly unlikely to ever occur.

Given the multiple layers of conservatism in the TMDL allocation process, VAMSA supports EPA's decision to use an implicit margin of safety.

D. EPA's Failure to Recognize Essential Equivalency in Its Target Load Options is Unreasonable

In the determination of basin nutrient loadings (190 TN and 12.7 TP) EPA utilized the 1% rule to determine compliance (with the exception of certain problem segments). VAMWA's consultant, Clifton Bell of Malcolm Pirnie, performed a statistical "power analysis" to evaluate the minimum difference in D.O. that would be statistically detectable in the Chesapeake Bay Monitoring Program.5

[FN 5] See Attachment E to this Appendix.

Based on the results of this analysis, segments that are close to attainment would require spatial D.O. violation rates that differ by 4% or more before they would be statistically distinguished from one another. The management implications are that Bay model D.O. scenario results with differences less than 4% should be considered "essentially equivalent." This is not the case in the current TMDL. Based on the above referenced "power analysis," the scenario associated with Target load Option A produces results that are "essentially equivalent" to EPA's recommended basin target loads of 190 mpy/yr TN and 12.7 mpy/yr TP. At this level of nutrient loading the key Bay segments of CB4MH, CB5MH, MD5MH, and VA5MH are predicted to be in attainment or be within 2% of attainment. It is recognized that Target load Option A would not immediately address attainment in some of the side segments. However, effectively addressing these side segments would require separate, locally oriented modeling analysis with tools better adapted to evaluating local conditions. The Target Load Option A to comply with D.O. standards in the main bay is essentially equivalent to the more stringent and costly to attain allocations associated with 190 TN and 12.7 TP and the TMDL; this must be recognized in the TMDL.

E. EPA Should Assume Better Design, Installation, Operation and Maintenance for Modeled BMPs

(It is well known that historically many non-point BMPs have not been accompanied by programs or methods to ensure proper design, installation, operation, or maintenance. It is reasonable that model calibration scenarios should assume, at a minimum, historical "average" management conditions. Any other approach-including the use of conservatively low values-would make the model less accurate and force management decisions that may be more costly and/or provide less benefit. However, it is not necessary for forward-looking management scenarios to retain the assumption of historically-average BMP management. Rather, improvements in the way (BMPs are installed, operated, and maintained are a viable implementation component. Modeled TMDL allocations scenarios should reflect the manner in which BMPs should be designed, operated, and maintained, not necessarily how they have historically been managed.

One example of where EPA and the Bay States have assumed a high level of nutrient removal performance is for wastewater treatment plants. The performance expected and used in the model is based on properly installed, operated and maintained facilities. The standard for performance relative to design of any nutrient removal strategy (wastewater plants, BMPs, filter feeders, etc.) used in the Bay model should not be different.6

[FN 6] See VAMWA Chesapeake Bay Team Memo re BMP Efficiencies to VAMWA and MAMWA Boards of Directors, January 21, 2009 (Attachment F to this Appendix).

These actions would improve the effectiveness of BMPs to reduce loads and improve reasonable assurance of reductions from these sectors.

Response

See response to 0288.1.001.021

Comment ID 0587.1.001.006

Author Name: Watts George

Organization: U.S. Poultry & Egg Association, National Turkey Federation (NTF), and National Chicken Council (NCC)

There have been a number of comments raised on the state's WIPs regarding the agricultural sector. Because of the linkage to the draft TMDL, and EPA's role in these issues, they are outlined below. Practices that are validated to show their effectiveness for conservation and improving water quality are largely included in the Natural Resource Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP). A review of the model documentation indicates that some of the practices included in EQIP are giving credit for reducing the generation and transport of nitrogen, phosphorus and sediment. However, we are concerned that EPA is not allowing into the model the benefits from several on-farm best management practices. In fact, even within EPA there is disparity in positions. For instance, EPA enforcement personnel stress the desirability to use heavy use pads, constructed of concrete, at the ends of poultry houses, but individuals developing the TMDL within EPA do not accept them as useful and thus do not allow their water quality benefits to be included in the model. This is in spite of the fact that heavy use pads are included within the EQIP program in the states of Maryland and Delaware. EPA should provide pollution reduction credit for all on-farm practices whether they receive NRCS and conservation district cost-share dollars or not.

Additionally, the use of phytase in poultry feed has had a significant impact on phosphorus reduction. The expectation of additional water quality improvements through the use of phytase must be based on realistic conditions and must not create requirements that the poultry producers cannot meet. The Scenario Builder documentation indicates that for implementation, the values used are reported by the Chesapeake Bay jurisdictions each year as part of their annual progress reports. Although there are BMP effectiveness values included in the documentation, it is not clear what effectiveness values are actually used in the modeling and if the values were constant or if they vary by state. As poultry integrators in the various watershed jurisdictions have varying efficiencies, EPA should use state-specific efficiencies to ensure that those with higher efficiencies receive the credit that is applicable to them.

Response

State reporting agencies report to EPA on-the-ground practices they track annually. These practices must be verified to avoid over-estimates of pollution reduction from BMPs in the watershed model.

Practices that are cost-shared or enrolled in state programs are held to standards required for the efficiency credited in the suite of Chesapeake Bay models. BMPs outside of these programs or with different standards can be included in the modeling and assigned a different efficiency appropriate for a given level of verification.

Please refer to Scenario Builder documentation for the current model standards for all BMPs here:
http://archive.chesapeakebay.net/pubs/SB_Documentation_Final_V22_9_16_2010.pdf.
EPA can accept additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here:
http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

Heavy use pads were considered but not credited because of insufficient scientific evidence of their effectiveness in reducing nutrients.

Different states report different levels of phytase. This is directly credited in the model as reported to the state. States can submit the amount of poultry that receive phytase and the amount of phosphorus decreased in the feed. Currently the model receives values from states between 10 and 33%.

Comment ID 0587.1.001.008

Author Name: Watts George

Organization: U.S. Poultry & Egg Association, National Turkey Federation (NTF), and National Chicken Council (NCC)

4. Incomplete Documentation and Availability of the Tools and Models Used to Develop the TMDL

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) package published on September 24, 2010 did not include complete documentation of the tools and models used to develop the TMDL. The public and the Chesapeake Bay stakeholders are entitled to have access to the Scenario Builder documentation, the Watershed Model Phase 5.3 (WSM Phase 5.3), and the Chesapeake Bay Water Quality and Sediment Transport Model (WQSTM) referenced in the draft TMDL and used to develop the TMDL. The lack of documentation prevents stakeholders from providing EPA with informed scientific and technical feedback on the use of the modeling tools in the development of the TMDL. This lack of transparency represents a critical flaw in the TMDL study conducted by EPA, as it effectively denies public oversight and comment on the technical effort that was conducted to develop the TMDL. Consequently, stakeholders receiving load allocations under the TMDL cannot have confidence that their allocations are realistic and appropriate with respect to the TMDL scenario assumptions. Below is a detailed description of the incomplete documentation.

Scenario Builder Documentation is Not Available for Public Review

The Scenario Builder tool has been referred to by EPA in the draft TMDL (p. 5-26) as a standalone pre-processor and as a model (p. 1-2) that is used to quantify sediment and nutrient loads and allocate them spatially and temporally across the Chesapeake Bay watershed. The sediment and nutrient loads generated by Scenario Builder can be input to the Chesapeake Bay Watershed Model to allow for a comprehensive simulation of water, sediment, and nutrient transport throughout the Chesapeake Bay watershed, culminating in the calculation of sediment and nutrient loadings to the Chesapeake Bay system. The role of the Scenario Builder tool is highly significant and consequential in the development of the TMDL as it provides the sediment and nutrient load inputs to the Chesapeake Bay Watershed Model l for a given source.

The Scenario Builder documentation referenced in the draft TMDL (p. 4-30, 4-31, 5-2, and 5-26) is not available for

review. The Scenario Builder documentation cited in the draft TMDL reference section (p. 12-13) is referenced as:

USEPA (U.S. Environmental Protection Agency). 2010d. Estimates of County Level Nitrogen and Phosphorus Data for Use in Modeling Pollutant Reductions. September 2010 (Draft). U.S. Environmental Protection Agency, Region 3 Chesapeake Bay Program Office, Annapolis, MD.

The draft TMDL (p. 1-2) states that the technical documentation for each model is provided via a URL in Section 5:

Technical documentation for each of the Chesapeake Bay TMDL models-airshed, land change, Scenario Builder, SPARROW, watershed, Bay water quality/sediment transport, oyster filter feeder and menhaden filter feeder-are provided via URL in Section 5.

However, the links provided in the draft TMDL to the Scenario Builder documentation are incorrect. It is not possible for the reader to locate the Scenario Builder documentation using the links provided in the draft TMDL document. For example, on p. 4-31 of the draft TMDL the following is stated:

Additional information related to Scenario Builder and its application in Bay TMDL development (USEPA 2010d) is at http://www.chesapeakebay.net/modeling.aspx?menuitem=19303

The link provided [accessed October 27, 2010] does not take the reader to the referenced Scenario Builder documentation. The link provided directs the reader to the Chesapeake Bay Program "Modeling" web page where there is no mention or link to the Scenario Builder documentation referenced in the draft TMDL.

A second example of an incorrect link to the Scenario Builder documentation can be found on p. 4-35 of the draft TMDL where the following is stated:

For additional information related to representation of biosolids in the Phase 5.3 Chesapeake Bay Watershed Model, see Section 7 of the Scenario Builder Documentation at http://www.chesapeakebay.net/model_phase5.aspx?menuitem=26169

The link provided [accessed October 27, 2010] does not take the reader to the referenced Scenario Builder documentation. The link provided directs the reader to the Chesapeake Bay Program "Phase 5 Watershed Model" web page where there is no mention or link to the Scenario Builder documentation referenced in the draft TMDL.

A third example of an incorrect link to the Scenario Builder documentation can be found on p. 5-26 of the draft TMDL where the following is stated:

Additional information related to Scenario Builder and its application in Bay TMDL development (USEPA 2010d) is at http://www.chesapeakebay.net/modeling.aspx?menuitem=19303

The link provided [accessed October 27, 2010] does not take the reader to the referenced Scenario Builder documentation. The link provided directs the reader to the Chesapeake Bay Program "Modeling" web page where there is no mention or link to the Scenario Builder documentation referenced in the draft TMDL.

A 2010 version of the Scenario Builder documentation is referenced in the draft TMDL as a footnote in Figure 5-12 (p. 5-26).

http://archive.chesapeakebay.net/pubs/SB_Documentation_Final_V22_9_16_2010.pdf

However, the document reference information (e.g., author, affiliation, title) does not directly correspond to the reference citation provided in the draft TMDL (p. 12-13) and it is unclear whether this document reflects the version of the Scenario Builder tool used in the development of the TMDL.

The public and the Chesapeake Bay stakeholders are entitled to have access to the Scenario Builder documentation referenced in the draft TMDL. The lack of documentation prevents stakeholders from providing EPA with informed scientific and technical feedback on the use of the Scenario Builder tool in the development of the TMDL. This lack of transparency represents a critical flaw in the TMDL study conducted by EPA, as it effectively denies public oversight and comment on the technical effort that was conducted to develop the TMDL. While a 2010 version of the document is available, it not known whether the document provides accurate information on the version of the Scenario Builder tool used in the development of the TMDL. Consequently, stakeholders receiving load allocations under the TMDL cannot have confidence that their allocations are realistic and appropriate with respect to the TMDL scenario assumptions.

The Scenario Builder Tool is not Available for Public Review

The Scenario Builder tool is not available for testing or review by third parties. It is not possible to evaluate all of the data, assumptions and calculations in the Scenario Builder tool used to generate nutrient load inputs to the WSM Phase 5.3 for a given source.

The most recent version of the Scenario Builder documentation (Brosch 2010, p. 1-7) acknowledges that the development of the tool was and is not transparent:

Since the Bay Program staff will also use this tool, the methods used for tracking progress will become more transparent.

In order to fully evaluate the Scenario Builder tool, all of the components that comprise the tool, which includes the source code, the database, the inputs and outputs, and complete up-to-date documentation for the calibration as well as all of the scenarios used to develop the TMDL should have been provided by EPA for public review.

After several requests, by various stakeholders, were made to EPA to provide the complete Scenario Builder tool, EPA responded on November 3, 2010 by providing the following information and files in an e-mail to the stakeholders (Subject: Chesapeake Bay Modeling Data, From: James Curtin, To: Paul Bredwell, Susan Parker Bodine, Stephen Haterius, Glynn Roundtree, Sent: Tuesday, November 2, 2010 at 9:53 AM):

Thank you for your interest in, and comments on, the draft Chesapeake Bay TMDL. On October 15, 2010, you requested that EPA make public additional modeling information supporting the draft TMDL.

Specificially, you requested that EPA include, as part of the TMDL public record, the Scenario Builder code, as well as Scenario Builder inputs and outputs for the draft WIP and TMDL scenarios.

This email is to inform you that yesterday EPA made publicly available on its ftp site the Scenario Builder input decks and outputs for the Hybrid Backstop TMDL, the Full Backstop TMDL, and the Bay jurisdictions' draft Phase I Watershed Implementation Plans (WIPs) submitted to EPA on September 1-3. This information can be found at:

ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/DraftWip_DraftTMDL_Inputs_OutPuts/

At that site you will find sub folders for each of seven Watershed Jurisdictions and for the two EPA backstop scenarios: EPA19 (Hybrid Backstop) and EPA20 (Full Backstop). These sub folders have Scenario Builder Input Decks, Scenerio Builder outputs, and Watershed Model outputs for each of the Draft WIP scenarios and EPA Backstop Scenarios 19 and 20.

EPA is working to make the Scenario Builder code and requirements available for download by the end of this week. I'll send you a followup email as soon as that information is posted. This information will be found at:

ftp://ftp.chesapeakebay.net/modeling/ScenarioBuilder/ScenarioBuilderSource/

In addition to this new information, the following modeling information supporting the draft Bay TMDL was previously made available for public review:

Scenario Builder model documentation:

http://www.chesapeakebay.net/watershedimplementationplantools.aspx?menuitem=52044#52

Scenario Builder documentation posted in mid-September:

http://archive.chesapeakebay.net/pubs/SB_Documentation_Final_V22_9_16_2010.pdf

Phase 5.3 Watershed Model:

http://www.chesapeakebay.net/watershedimplementationplantools.aspx?menuitem=52044#5

After performing a cursory review of the Scenario Builder input decks and outputs for the Hybrid Backstop TMDL, the Full Backstop, and Draft WIP scenarios that were provided by EPA, it was clear that it would not be possible to review the new data in the six days that remained between the time EPA posted the new information (November 3, 2010) and the end of the comment period (November 8, 2010). In addition, not all of the information that was requested in regard to the Scenario Builder tool had been provided by EPA (e.g., source code, database, inputs/outputs for the calibration and all of the scenarios used in the development of the TMDL). The Scenario Builder tool has been in development since 2003 (Chesapeake Bay Program Office (CBPO), 2009, Slide 35, History of Scenario Builder). It is unreasonable and unacceptable of EPA to expect stakeholders to determine if all of the data and Scenario Builder components requested were produced and to then evaluate the data and the Scenario Builder tool for the calibration as well as all of the scenarios used to develop the TMDL over the span of six days.

The inclusion of the data and the complete Scenario Builder tool with the Chesapeake Bay TMDL package is vital and

without it, a complete review of the Chesapeake Bay TMDL is not possible. Stakeholders receiving load allocations under the TMDL cannot have confidence that their allocations are realistic and appropriate with respect to the TMDL without the opportunity to review the data, assumptions, calculations, and the sediment and nutrient loads generated by the Scenario Builder tool for input to the watershed model in a realistic time frame.

Phase 5.3 Chesapeake Bay Watershed Model Documentation is Not Available for Public Review

The Chesapeake Bay Watershed Model (WSM) Phase 5.3 code and calibration inputs/outputs have been made available to the public by EPA (ftp://ftp.chesapeakebay.net/Modeling/phase5/community/P53/ [Accessed October 27, 2010]; however, the documentation of this version of the model is not available for review. The draft TMDL report references the WSM Phase 5.3 model documentation (p. 12-13) as follows:

USEPA (U.S. Environmental Protection Agency). 2010j. Phase 5.3 Chesapeake Bay Watershed Model Documentation. U.S. Environmental Protection Agency, Region 3 Chesapeake Bay Program Office, Annapolis, MD.

The draft TMDL (p. 1-2) states that the technical documentation for each model is provided via a URL in Section 5:

Technical documentation for each of the Chesapeake Bay TMDL models-airshed, land change, Scenario Builder, SPARROW, watershed, Bay water quality/sediment transport, oyster filter feeder and menhaden filter feeder-are provided via URL in Section 5.

The draft TMDL report provides a link to the WSM Phase 5.3 documentation on p. 4-39, 4-41, 5-20, 5-24, 5-30, and 5-34. For example, on p. 4-39 the following information and link is provided for the WSM Phase 5.3 documentation:

For additional information related to the representation of forest lands, see the Phase 5.3 Chesapeake Bay watershed model documentation at http://www.chesapeakebay.net/model_phase5.aspx?menuitem=26169.

The link provided directs the reader to the Chesapeake Bay Program "Phase 5 Watershed Model" web page. The watershed model documentation provided on the web page is outdated and does not reflect the WSM Phase 5.3 documentation referenced in the draft TMDL. The documentation provided on the web page contains draft sections of the WSM Phase 5 that primarily dates back to 2008. Based on the document dates listed (latest draft March 21, 2008), most of the documentation (Section 3, Section 4, Section 7, and Section 9) was written two years before the WSM Phase 5.3 model calibration was completed and prior to the WSM Phase 5.2 model that EPA discarded in 2009. There are two Sections (Section 1 and Section 2) of the document that appear to be more current based on the document dates listed (latest draft dated March 1, 2010); however, the documentation does not appear to reflect the WSM Phase 5.3 calibration. Finally, sections of the outdated draft documentation may be missing entirely as several Sections (Section 5, Section 6, and Section 8) were not listed on the web page.

The public and the Chesapeake Bay stakeholders are entitled to have access to the WSM Phase 5.3 documentation, given that EPA cites this as an existing document in the draft TMDL report. The lack of documentation prevents stakeholders from providing EPA with informed scientific and technical feedback on the adequacy of the WSM model calibration and its application to support the development of the TMDL. The lack of transparency represents a critical flaw in the TMDL study conducted by EPA, as it effectively denies public oversight and comment on the technical effort that was conducted to finalize the calibration and application of this important modeling tool. While the model itself may

be available, it is of little value for review purposes without proper documentation of the model development, calibration, and application. Documentation is essential to provide context and understanding for how the model was developed, the assumptions made, the inherent limitation and the overall modeling effort that was conducted. EPA has denied stakeholders the opportunity to provide informed comments on the technical and scientific merits of the WSM Phase 5.3 model that was used in development of the TMDL simply due to the lack of model documentation. As such, many stakeholders receiving load allocations under the TMDL cannot have confidence that their allocations are realistic and appropriate with respect to the TMDL.

Response

Testing and Verification/Validation of Scenario Builder
The commenter makes a reasonable comment given the documentation provided. The Scenario Builder documentation does not adequately describe the verification procedures, however. The input data are validated on an on-going basis. Please refer to the response to comment 0743.001.004 for a description of the process. Additionally, the team programming scenario builder has an extensive verification protocol utilizing test cases calculated outside of the software. Thank you for pointing out this suggested improvement in the documentation. It will be reflected in future versions.

The Internal, External, and Peer Review of Scenario Builder
The technical direction and review of the Scenario Builder is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the final Bay TMDL report. In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the final Bay TMDL.

Scenario Builder is a is a database used to formalize a system of data handling rules for input to the watershed model and a tool that helps inform EPA on the allocation. The Scenario Builder is based on good science and, as described above, has been developed in a transparent manner with tremendous stakeholder input. While there has not been a formal peer review of Scenario Builder, all the Bay models used in the TMDL that simulate physical systems have been peer reviewed.

Scenario Builder as a 'Model'
Scenario Builder is not a model in the same sense as the watershed or estuarine models. It does not simulate environmental processes. It is a database application that organizes data and performs calculations for input to the watershed model. It is a model in the sense that it is a representation of a physical system. Not all models that fit this description need peer review. Certainly a simple linear regression model would not.

The Scale of Scenario Builder
The quoted section on page 1-9 of the Scenario Builder documentation can be improved and is a little clearer if combined with the preceding paragraph. EPA agrees with the comment that the scenario builder and watershed model are not applicable at the farm or field scale. Neither the scenario builder nor the Phase 5.3 Chesapeake Bay Watershed Model contains the assumption that a county

is a single farm or has only farm land. All counties contain estimates of all simulated land use types. Additionally, the Scenario Builder does not extrapolate a single farm to the county level.

The point of this section in the Scenario Builder Documentation is to assist the user in conceptualizing the Scenario Builder process. A different way to put this is to conceptualize that all farms in a given county are under the same operator and that generated manure is applied in the same manner on each acre of a given crop. For example, all non-riparian pasture not under nutrient management within a given county is simulated as a single land use. The application rate of directly-deposited manure is the total available manure, based on a calculation of animals in pasture, divided by the total acres of that land use.

Poultry Manure Loss rate of 15 percent
The loss rate was presented to the workgroup as a best professional judgment suggestion from the Scenario Builder development staff for discussion. Best professional judgment is often used by the Chesapeake Bay Program to supplement a lack of scientific literature that exists for estimates required of modeling an estuary of this scale. The group approved the recommendation. The meeting materials (presentations and minutes) for the 12-11-2008 Agriculture Nutrient Sediment Reduction Workgroup (AgNSRWg) and the Watershed Technical Workgroup (WTWg)
link to the minutes and presentations: http://archive.chesapeakebay.net/calendar.cfm?EventDetails=9981.

The loss rate is based on a No BMP condition which is close to a worst case condition. In order to properly credit all the practices implemented by farmers and especially vertically integrated poultry producers, the bad actors of the sector must be simulated as a baseline condition to correctly simulate the "No BMP" scenario, which is used in the the allocation process (see section 6.3.1 of the draft TMDL document).

Practices detailed in the comment such as the vegetative cover and conveyor belt are all efforts to help reduce loss of manure. They should be quantified in the model and counted as part of each states annual progress for BMPs. Stormwater treatment strips is one BMP that the Chesapeake Bay Program recognizes is going to be proposed to enter the BMP protocol in the near future. The “impervious classification” is just a comparison for understanding the modeling. These acres are inundated with nutrients for years because the sacrifice areas are consistently used for manure handling and storage. The capacity of any remaining compacted soil on this land to store nutrients is extremely low. Therefore AFO acres are simulated as having the entirety of the nutrient and sediment load being at the streams’ edge. The nutrient and sediment load can be abated by BMPs, but where there are AFO acres without BMPs installed, the loss of poultry litter is 15% of that produced in confinement.

Please refer to the response to comment 0410.1.001.029 for information on introducing new BMPs into the Bay modeling process.

The broiler litter produced in Scenario Builder uses literature values from USDA and ASAE for amount produced and nutrient content on a per animal or animal unit basis (as cited in Brosch, 2010). The animals present on the Delmarva are taken from Ag Census data. These values are combined to quantify the amount of manure produced in the watershed. The method for quantifying the manure produced and the amount loss due to storage and handling has been vetted with the Agriculture Nutrient and Sediment Reduction Workgroup as well as the Watershed Technical Workgroup.

Manure transport assumptions
The recommendation from the AgNSRWg is to eliminate automatic transport of manure in the model to accommodate crop need in

neighboring counties. The public workgroup submitted a resolution to allow only state reported manure transport in the models. This change is slated for the next version of Scenario Builder and is not included in version 2.2, the current version for the TMDL. To clarify the explanation in SB documentation portions of the comment, the automatic transport in the Scenario Builder is only made when there is an excess of manure produced in one county that can reduce a deficiency of manure nutrients in a neighboring county of the same state. If all these criteria are not met, the manure remains in the county it was produced and is applied according to the disposal rules outlined in the Scenario Builder documentation. Please note that the disposal sequence is not engaged often and it will change based on the above recommendation from the AgNSRWg.

We think the confusion expressed in the comment is resolved by understanding there are 2 types of transport in the model. The first is automatic and will be removed in the next version, the second is BMP based. The BMP based transport is state reported and includes county to county transfers as well as out of the watershed transfers. Automatic transport only happens in special cases as previously outlined in this response.

Manure on a nitrogen-based plan
Nutrient Management is a BMP reported to the Bay Program by the state reporting agencies. The state reports whether this BMP is nitrogen or phosphorus based. The models can accommodate both scenarios. Historically, states have chosen to report all nutrient management as N-based, but more recently states hav reported P-based nutrient management. The calibration of the model version 5.3 was completed with N-based nutrient management for the period 1984-2004. Few states, if any, have their nutrient management plans based on phosphorus during that time so the current calibration has N-based nutrient management. Model runs subsequent to 2004 can have either NM strategy credited, depending on the data submission by the states.

Accounting for nutrient management practices in the models
As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the phase 5.3 will be updated, not for the December 31 2010 TMDL, but in support of development of the Phase II Watershed Implementation Plans, which will be due after the 2010 TMDL. EPA has clearly stated that adjustments may be made to the allocations at that time and reflected in amendments to the 2010 Bay TMDL. Changes to the model generated numbers are a direct result of improving inputs data and simulation methods.

The same Shawn Garvin letter states "prior to 2017, EPA plans to review the full suite of the partnership's Bay models based on the best available science and decision-support tools and consider whether updated models should be developed to support phase III implementation plans and potential modifications to the Bay TMDL allocations." New data and science will always continue to become available and, as stated in the above mentioned letter, EPA is using an adaptive management approach to incorporate new information as it becomes available with scheduled upgrades during 2011 and 2017. There is no anticipation of jurisdictions over-controlling nutrients in the interim. The link to the letter is http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf.

EPA is promoting an adaptive management approach, but towards the same goal post as the Bay TMDL—restored Chesapeake Bay water quality as defined by Delaware, Maryland, Virginia, and the District of Columbia's Chesapeake Bay water quality standards regulations.

Thank you for pointing out the error in table 5-2 on page 5.30. Excess nutrients are applied to pasture, not nutrient management pasture.

AFO as impervious surface

As discussed earlier in this response, the base AFO simulation is a case with no BMPs, not the normal case with installed practices. The simulation as an impervious surface is to generate load that has a flashy temporal characteristic. The method of simulation affects the timing, not the absolute amount of load.

As-excreted manure assumption

That sentence and the context in the documentation are referencing a data source for an old version of Scenario Builder. It has been removed for the final version of the Scenario Builder documentation. As previously explained in this response: The broiler litter produced in Scenario Builder uses literature values from USDA and ASAE for amount produced and nutrient content on a per animal or animal unit basis (as cited in Brosch, 2010). The animals present on the Delmarva are taken from Ag Census data. These values are combined to quantify the amount of manure produced in the watershed. The method for quantifying the manure produced and the amount loss due to storage and handling has been vetted with the Agriculture Nutrient and Sediment Reduction Workgroup as well as the Watershed Technical Workgroup.

Revision in Quantity of Manure Generated by Poultry

As explained to USPOULTRY in the meeting between USPOULTRY, USDA, and EPA (March 22, 2010, Washington, D.C), some of the values in the Scenario Builder documentation were not reflective of the values in the model as new sources of information were discovered and incorporated. The sources of this data were correctly cited in Devereux, 2009, but the data from the sources did not match the table in that document. The table was updated to match the figures in the literature and the model for Brosch, 2010.

Phytase Implementation and BMP Effectiveness

Phytase is available as a BMP for all states to report. In the calibration of the model, the implementation of this practice was phased in from 1997 where no poultry has Phytase to 2002 when all poultry received some credit for Phytase. The 2002 year credited 21% P reduction from Phytase on pullets and layers and 16% P reduction was applied to broilers and turkeys. This was applied across the watershed, but based on manure concentration data supplied to CBPO from MD and VA. In the TMDL states could chose their proposed Phytase level for poultry and swine as well as the percent of poultry and swine that receive the feed additive.

Comment ID 0587.1.001.010

Author Name: Watts George

Organization: U.S. Poultry & Egg Association, National Turkey Federation (NTF), and National Chicken Council (NCC)

5. Substantive Concerns Raised During the Chesapeake Bay TMDL Webinar for the Agricultural Community (March 22, 2010, Washington, D.C.) were not Addressed in the TMDL

EPA has identified animal agriculture and associated manure impacts as having some of the greatest relative responsibility for pollution loads to Chesapeake Bay (USEPAa 2010, p. 4-32).The association's are committed to full involvement in providing better data to inform these assumptions and participating in the development of the TMDL. USPOULTRY met with EPA Chesapeake Bay Program Office and EPA Region 3 on March 22, 2010 in Washington, D.C., along with senior USDA staff, to discuss questions and concerns USPOULTRY and USDA had in regard to the data, assumptions, and methods used to calculate sediment and nutrient input loads from the agriculture sector. During the meeting, EPA was able to provide answers to some of the questions that were posed; however, several issues and concerns that were raised during the meeting have not been addressed and consequently, have an impact on the development of load allocations for the agriculture sector. Below is a description of the issues that were raised during the March 22nd meeting, but have not been addressed to date.

Testing and Verification/Validation of Scenario Builder is Inadequate

Detailed testing and validation of the sediment and nutrient loads generated by the Scenario Builder tool has not been conducted and the level of testing to date is inadequate. The level of testing and validation described in the Scenario Builder document (Brosch 2010, p. 9-94) is as follows (emphasis added in bold):

There were no set quality assurance procedures and no predetermined acceptable level of variability among the data. Data were compared to those that were produced from the Watershed Model Phase 4.3. However, no acceptable level of variability was determined in advance. There was no set procedure for evaluating the Scenario Builder data.

Test cases were developed and conducted parallel to the actual Watershed Model-HSPF calibration. The data from the Agricultural Census was spot checked by John Clune of USGS. His analysis was presented at the aforementioned joint workgroup meeting on 12/11/2009.

Further quality control and quality assurance procedures could not be implemented due to deadlines that were set for this project completion.

Based on the Scenario Builder documentation, the only validation effort undertaken for the Scenario Builder tool was to compare data to results produced from an outdated version of the watershed model (WSM Phase 4.3) and some "spot checking" by a single USGS staff member. The findings from these minimal efforts are not incorporated into the Scenario Builder tool. EPA has failed to demonstrate to stakeholders that the current version of the Scenario Builder tool is a properly functioning data pre-processor and modeling tool. Scenario Builder may be an adequately performing tool; however, this has not be demonstrated with either previous documentation (Devereux 2009) or current documentation (Brosch 2010). In addition, stakeholders have no way to test the tool themselves since the complete Scenario Builder tool is not available for public review.

During the meeting between USPOULTRY, USDA, and EPA (March 22, 2010, Washington, D.C) this issue was raised by USPOULTRY. The action item from the meeting was that EPA would provide documentation to USPOULTRY on the process and steps undertaken to test and verify Scenario Builder output; however, the documentation has not been provided by EPA.

Given that the Scenario Builder tool is an integral factor in the development of the draft TMDL with respect to both the calibration of the other models and the development of TMDL scenarios, stakeholders receiving load allocations under

the TMDL cannot have confidence that their allocations are realistic and appropriate with respect to the TMDL.

The Internal and External Review of Scenario Builder is Inadequate

Based on the Brosch (2010) Scenario Builder documentation, the level of internal and external review conducted for the Scenario Builder tool is inadequate. A brief summary of the internal and external review process is provided in the Scenario Builder documentation (Brosch 2010, p. 9-93 to 9-94). The document does not provide a comprehensive description of the internal and external review efforts. The documentation indicates that the reviews consisted of "internal reviews" and "external guidance" (p. 9-93), which suggests the Scenario Builder tool, has only undergone internal review. The internal review information provided in the documentation is insufficient and it is not possible to determine if an adequate internal review was conducted. In addition, the external review information provided in the documentation indicates that there has not been an external review of the complete Scenario Builder tool and that only external guidance was provided on the data sources and calculation methods during the development process.

The Scenario Builder tool plays a prominent role in developing loading estimates for input to the Chesapeake Bay Watershed Model Phase 5.3 (WSM Phase 5.3). Given the apparent lack of internal and external review of the Scenario Builder tool, many stakeholders receiving load allocations under the TMDL cannot have confidence that their allocations are realistic and appropriate with respect to the TMDL.

The Scenario Builder Tool has not been Subjected to a Peer Review

The Scenario Builder tool has not undergone a comprehensive, detailed, and objective peer review. The level of external or outside review that has been conducted for the Scenario Builder tool is inadequate given the essential and important role the tool serves in providing sediment and nutrient load inputs to the watershed model. EPA describes the Scenario Builder as a tool used to provide inputs to the watershed model (p. 1-7):

The Scenario Builder is also used to provide the inputs to the Chesapeake Bay Program's Watershed Model - Hydrological Simulation Program in Fortran (HSPF), which was recently updated to Phase 5.3. In order to take advantage of the improvements in the Phase 5 Watershed Model, the intent is to have the model inputs fully developed in Scenario Builder.

However, the Scenario Builder is also described as a process-based model and not just a simple data preprocessor in the most recent documentation (Brosch 2010, p. 1-7, 1-9, 4-25, 4-29, 5-33, 5-35, 5-40, etc.). For example, on p. 1-7 the following is stated:

The underlying model to the Nutrient and Sediment Scenario Builder is process-based.

In addition, Section 1.3 in the Scenario Builder documentation (Brosch 2010, p. 1-8) is titled "Process-Based Model". This section describes how the tool was designed to follow the nutrient generation process from the animal through storage and application and model farm scale operations.

The draft TMDL (p. 1-2) also lists the Scenario Builder as model:

Technical documentation for each of the Chesapeake Bay TMDL models-airshed, land change, Scenario Builder,

SPARROW, watershed, Bay water quality/sediment transport, oyster filter feeder and menhaden filter feeder-are provided via URL in Section 5.

As a "model", the Scenario Builder tool should be peer reviewed and should have been developed in accordance with an EPA approved modeling Quality Assurance Project Plan (QAPP), which EPA requires for other modeling studies that utilize EPA funds. As a "model", the Scenario Builder tool should be subjected to the same level of peer review as the watershed model and the water quality model.

During the meeting between USPOULTRY, USDA, and EPA (March 22, 2010, Washington, D.C) this issue was raised by USPOULTRY. EPA acknowledged that the Scenario Builder tool has not undergone or received any level peer review. EPA stated that the assumptions, data, and calculations that go into the Scenario Builder tool have been peer reviewed and felt that the review that occurred during the development process constituted a sufficient review. EPA stated that they believe it is not necessary to have a peer review of the Scenario Builder tool. EPA also stated that there will be at least three more phases of development for the tool and are not sure how to conduct a peer review.

The Scenario Builder tool is not simply a model pre-processing utility or a data preprocessor, but is a tool that incorporates mass balance principles and represents mechanistic processes to construct input files for WSM Phase 5.3. However, even if the tool was a simple data preprocessor, it should still be subjected to a comprehensive, detailed, and objective peer review given the significant role the tool serves in generating sediment and nutrient inputs to the watershed model. Stakeholders receiving load allocations under the TMDL cannot have confidence that their allocations are realistic and appropriate with respect to the TMDL given the lack of a peer review of the Scenario Builder tool.

The Scale of Resolution in Scenario Builder is on the County Level or Greater

The scale and resolution of the Scenario Builder tool is not representative of a single farm; however, the tool is intended to be used to evaluate farm scale practices. It is unrealistic to assume that farm scale and field scale operations can be accurately represented and modeled on a county level basis. The Scenario Builder documentation describes the model scale and assumptions made in regard to single farms in the Scenario Builder tool on p. 1-9 in Brosch (2010) (emphasis added in bold):

Even though the model is at a county scale or greater, these more specific questions may be asked if we assume a county as a single farm. This is not an optimal solution to the lack of a farm scale model, but it does provide an interim tool until such a model is available.

County land areas are significantly larger and different from the land areas of individual farms or fields and do not accurately represent the hydrology, soils, and topography of the fields from which sediment and nutrient loads actually originate. For example, the total area of Lancaster County, Pennsylvania is 983 square miles (629,119 acres) (US Census Bureau 2000). In contrast, the average area of a farm in Lancaster County, Pennsylvania is 0.12 square miles (78 acres) (USDA 2007). In another example, the Center for Agricultural and Natural Resource Policy (University of Maryland) conducted a study where data were collected and summarized for broiler farms within the Delmarva Peninsula. The average area of a county in the state of Delaware is 830 square miles (531,200 acres) compared to the average area of a farm, which was found to be 1.9 square miles (1,215 acres) (Lichtenbert et. al 2002). Comparison between county size and farm size in this region clearly shows the discrepancy in assuming a county can be used to represent a farm.

A field scale model assumes that a field (or a single farm) has the same land use, soil, precipitation, and agricultural practices, which is a reasonable assumption for a single farm. However, the assumption that the area of a county can be used to represent a single farm is unrealistic and unreasonable. In the real world, the area of a single county would be comprised of different land uses (e.g., urban, forest, pasture), soils, precipitation, and agricultural practices. The area of a county is too large to accurately represent the local conditions that would influence nonpoint source runoff of sediment and nutrients to edges of individual fields and consequently, cannot accurately represent nonpoint source runoff from local sources.

It is completely unrealistic to extrapolate a single farm or field scale area to a county area. The consequence of this assumption is that sediment and nutrient loads from agricultural sources may be inaccurate and not representative of the actual source load to the Chesapeake Bay watershed.

The Assumed Poultry Manure Loss Rate of 15 Percent is Unrealistic and Erroneous

The assumption that 15percent of poultry manure is lost during handling and storage is unrealistic and erroneous. The most recent version of the Scenario Builder documentation (Brosch 2010, p. 5-32) states that 15 percent of all poultry manure generated is assumed to be lost during storage (emphasis added in bold):

Loss of manure and other nutrient sources occurs during storage due to physical processes. The physical loss occurs when some manure falls out of the bucket of a front-end loader, leaks out of a spreader in unintended locations, or inadvertently slips off a concrete pad where it is stored. However, storage loss is most common when manure is absorbed or incorporated into the soil in animal concentration areas (Doug Goodlander, PA DEP, personal communication, 2008).

Storage loss will vary by animal type, since management practices associated with animal concentration areas and storage facilities vary by animal type. Storage loss does not account for the type of storage system used on any particular farm or the angle of repose for dry heaps of manure. Rather, storage loss applies the average annual loss across the dominant storage systems in use throughout the simulation period.

For all poultry and swine, 15 percent of manure is lost during storage. For beef, dairy, sheep and lambs, goats, and horses, 20 percent is lost (CBP Watershed Technical Workgroup and CBP Agricultural and Nutrient Sediment Reduction Workgroup approval, 2008).

The mass of nutrients lost during storage and handling is applied to the land use that includes the animal production area (animal feeding operation, or AFO).

The scientific basis and rationale for the selection of the 15 percent loss factor for poultry litter lost during storage is not provided in the documentation and the only support provided for the use of the 15 percent loss rate is approval in 2008 from a Chesapeake Program Technical Workgroup and a Chesapeake Bay Program Agricultural and Nutrient Sediment Reduction Workgroup (Brosch 2010, p. 5-32). No reference or information is provided in the documentation on what was discussed during these workgroups, how the workgroups arrived at the 15 percent loss rate, or the scientific basis to support the 15 percent loss rate. During the meeting between USPOULTRY, USDA, and EPA (March 22, 2010, Washington, D.C.) this issue was raised by USPOULTRY. The action item from the meeting was that EPA would direct

USPOULTRY to the meeting minutes where the 15 percent loss rate was discussed and decided upon to provide documentation of the 15 percent loss rate for use in the modeling effort; however, the documentation has not yet been provided by EPA.

The assumption of a 15 percent loss rate is of critical importance given that all manure lost during storage is applied to the Animal Feeding Operation (AFO) land surface, where it is subsequently made available for runoff and transport to receiving streams. The assumption of the 15 percent loss rate is unfounded and biased. EPA assumes that 15 percent of the poultry litter generated each year on a farm is "lost" (e.g., land applied) in the "production area" around the houses. For example, if you assume a poultry house generates approximately 120 tons of poultry litter per year, the model currently assumes 18 tons is lost and applied to the AFO land area. This means a volume of litter that measures 10 foot by 10 foot by 10 foot is "lost" during cleanout per house if you assume a density of roughly 34 pounds per cubic foot. In addition to the unfounded 15 percent loss rate and application of poultry litter to the AFO, the watershed model represents AFO land areas as "impervious." This means that the watershed model is simulating hundreds of tons of litter per acre applied each year on pavement. When it rains, the model essentially routes this exaggerated load directly to the streams as indicated in the Scenario Builder documentation (Brosch 2010, p. 6-49):

Manure is applied to AFO in the county in which it was produced and 100 % of the nutrients in lost manure are applied to the edge of stream load where no BMPs exist.

These assumptions, which include the 15 percent loss rate, the impervious AFO land use classification, and the lost manure applied to the edge of stream load where no BMPs exist, is erroneous and unfounded and contradicts standard practices in which litter spillage is minimized during cleanout. In fact, direct experience has found that in the "cake-out" procedure (where a machine is pulled through the poultry house separating large pieces of litter from fine litter) there is little loss of the "cake" material as it is moved to a storage barn or spread directly on agricultural or forest land. The rate of loss is less than one to two percent.

In a situation where litter is loaded directly from growing barns or storage barns to large 18-wheeler transport trucks or spreader trucks, there can be some loss of litter. This is very dependent on how the operation is carried out. Typically the litter is moved from the grow barn into a large stack or pile using some kind of "skid steer loader". The litter is then loaded on the large transports trailers using a large wheel loader or some type of conveyor belt (i.e., Chandler Litter Conveyor). There is usually some loss around the hopper end of the litter conveyor. Depending on how this operation is organized and the skill of the machine operators the loss can be less than one or two percent.

Additionally, litter that is lost around the grow barns would not go directly to a creek or water way. There is usually very good vegetative cover around the grow out barns and this would act as a vegetative filter strip, preventing most, if not all, of the litter from spills or loss from reaching a creek. Regardless of practices used at a poultry facility the 15 percent loss rate is too high. Real world losses would be closer to one to two percent maximum and this would not all go to a nearby stream. The monetary value of the litter and the desire of the grower to "not have a pile of wet litter at the end of a grow-out barn helps insure that losses are very low.

The Center for Agriculture and Natural Resource Policy at the University of Maryland compiled data on broilers in the Delmarva Peninsula for 2000. In this study, the number of farms, the number of broilers, and the amount of poultry litter was quantified.

Delmarva Peninsula Broiler Data, Lichtenberg et. al. 2002 [Please see the table on page 17 of the original letter (Docket ID 0587.010).]

Based on the Delmarva data, if you assume that 388 tons of litter per farm is generated over the span of one year and a 15 percent loss rate, it would mean that 58 tons of poultry litter is lost at each farm in the region in a single year, which is clearly not possible. The assumption that there is an automatic 15 percent loss of poultry litter due to storage and handling significantly overestimates the contribution of poultry litter to nutrient loading in the Chesapeake Bay watershed. Consequently, the nutrient loads attributed to poultry litter are potentially inaccurate, erroneous and inflated as a result of this incorrect assumption

Manure Transport Assumptions are Contradictory and Indecipherable

During the meeting between USPOULTRY, USDA, and EPA (March 22, 2010, Washington, D.C) the issue was raised by USPOULTRY that the approach described in the Scenario Builder documentation (Devereux 2009, p. 6-56) did not consider the potential for transport of poultry manure across state lines or outside of the Chesapeake Bay watershed. EPA noted that the Agriculture Workgroup had a meeting scheduled on March 29, 2010 to discuss manure transport and nutrient management versus non-nutrient management application rates.

Based on the presentations from the Agriculture Workgroup meeting (Hansen 2010a; Hansen 2010b; Shenk 2008), it appears that manure transport assumptions may have been revised in an updated version of the Scenario Builder tool from the previous version described in Devereux (2009). The comments made by the Agriculture Workgroup regarding manure "model" transport assumptions in Scenario Builder included the following (Hansen 2010a);

There should not be "model" (automatic) transport of manure to adjacent counties -

Manure should stay in the originating county unless transport is reported by the state
If there is "model" transport it should consider transportation-related differences between wet (e.g. liquid dairy) and dry (e.g. poultry litter)

However, despite the indication that manure transport assumptions have been revised in an updated version of Scenario Builder, the description of manure transport assumptions in the most recent version of the Scenario Builder documentation (Brosch 2010, p. 6-51) is essentially unchanged from the description in Devereux (2009, p. 6-56) with the exception of the following paragraph:

Manure is more likely to be applied in the county in which it was produced. Should excess manure be available after all application rates are met, manure is no longer eligible for in model transport. This transport function is not the same as, and is subsequent to, any manure transport reported by the Chesapeake Bay Program's regional partners as a best management practice.

Based on the paragraph above, it is not clear what assumptions are being made in regard to manure transport. The text seems to indicate that manure transport is not allowed or accounted for in the model. However, this contradicts several other statements made in the Scenario Builder documentation and is inconsistent with present-day practices within the Chesapeake Bay watershed, which includes the transport of poultry litter to locations outside the Chesapeake Bay watershed.

In addition to the unclear and contradictory assumptions referenced above, the Scenario Builder documentation contains several other statements regarding manure transport assumptions that are contradictory and indecipherable.

On p. 6-51 of the Scenario Builder documentation (Brosch 2010) the following is stated in regard to transport outside the watershed:

Manure is transported only to another county if it shares a county border and is in the home state. Manure may not be transported across state lines in this function.

In contrast, on p. 8-78 of the Scenario Builder documentation (Brosch 2010) the following is stated in regard to manure transport outside the watershed as a BMP:

Manure is transported by truck from the county of origin to another or out of the watershed. Manure transported to another county in the watershed results in increased manure mass in the receiving county.

Also, on p. 10-96 of the Scenario Builder documentation (Brosch 2010) the following is stated in regard to manure transport outside the watershed:

Manure transport cannot cross state lines.

The Scenario Builder documentation contains contradictory and indecipherable statements on the assumptions made regarding manure transport outside the watershed. It is not possible, based on this documentation, to determine with complete certainty whether that manure is allowed to be transported across counties, across state lines, or outside the watershed. It is also not clear what assumptions were made regarding manure transport in the calibration of the watershed model and in the TMDL scenarios. It is important for stakeholders to understand the assumptions made regarding manure transport in order to have confidence that manure transport is accounted for in the modeling and that the assumptions are an accurate representation of real-world practices. If the manure transport assumptions are incorrect, there is potential to significantly overestimate the amount of poultry manure applied to cropland areas within the Chesapeake Bay watershed.

Manure is Applied on a Nitrogen Based Nutrient Plan

Manure is applied to the land on a nitrogen based nutrient management plan for the calibration of the watershed model. On p. 6-52 of the Scenario Builder documentation (Brosch 2010) the following is stated (emphasis added in bold):

Manure nutrients may be applied on either an N or P-based nutrient management plan acres. Depending on whether an N or P-based plan is selected, then the opposite nutrient (P for an N-based plan) may be over or under applied depending on manure content of an animal type and crop application rate requirements.

Manure and biosolids are applied on an N-based plan for calibration of the Watershed Model-HSPF. The nitrogen application mass is compared to the plant available nitrogen applied. Phosphorus can be over or under applied. Remaining phosphorus need is only considered when applying fertilizer.

Concern regarding this issue was raised by USPOULTRY during the meeting between USPOULTRY, USDA, and EPA (March 22, 2010, Washington, D.C) while discussing concerns regarding assumptions on nutrient management versus non-nutrient management practices. EPA responded that they felt that the nitrogen based application rate assumption should not be an issue for calibration, but may be considered in scenarios. However, due to the lack of detailed information and documentation (e.g., Scenario Builder, Watershed Model Phase 5.3, and the draft TMDL), it is not clear what assumptions were made in the TMDL scenarios in regard to nitrogen-based versus phosphorus-based application rate implementation.

The nitrogen based application rate assumption is not realistic and is not representative of current practices in the Chesapeake Bay Watershed. Nutrient management plans implemented in the Chesapeake Bay watershed are predominantly phosphorus based in several states and phosphorus or nitrogen based in several other states. For example, Delaware's nutrient management plans are phosphorus based (25 PA Code CHS 91 & 92), Virginia's nutrient management plans are phosphorus based (10.1-104.2 of the Code of Virginia), Pennsylvania nutrient management plans are phosphorus and nitrogen based (Act 38 of 2005), and Maryland's nutrient management plans are phosphorus and nitrogen based (COMAR 15.20.07) as well. The phosphorus based nutrient management plans have specific guidelines regarding phosphorus application that are not currently represented and accounted for in the models used to develop the TMDL. For example, the Virginia Nutrient Management Standards and Criteria does not allow the application of phosphorus if the calculated phosphorus index value exceeds 100.. Likewise, the Delaware Nutrient Management Act of 1999 stipulates that for soils that have high phosphorus levels, the application of phosphorus from any source, including poultry litter cannot exceed the three year crop phosphorus removal rate.

The use of a nitrogen based nutrient management plan for the application of poultry litter in the model will result in a phosphorus application rate that exceeds crop nutrient requirements. Assuming a nitrogen based application rate in the models may significantly overestimate the phosphorus load attributed to poultry litter and consequently, the amount of phosphorus load delivered to the Chesapeake Bay from the poultry industry.

Accounting for Nutrient Management Field Practices in the Models

The WSM Phase 5.3 did not show a significant nutrient reduction benefit for agricultural nutrient management plans (Hansen 2010c). Problems simulating nutrient management practices were also noted in earlier model runs based on the Devereux (2009) Scenario Builder documentation (p. 6-59) as described below:

The Watershed Model-HSPF Phase 5.2 was calibrated with crops grouped into sets that matched the Watershed Model-HSPF land uses. Since land uses are distinguished by nutrient management, and the crop sets were grouped so that nutrient management land uses were first in the sequence, then the nutrient management land was more likely to have manure applied than inorganic fertilizer. This, combined with the mineralization factor, means that the total nutrients applied on nutrient management land appear higher than those on non-nutrient management land even though the application rate is higher for non-nutrient management land.

The older Scenario Builder documentation (Devereux 2009) indicates that under certain situations, there are cases where total nutrients applied to nutrient management land were higher than non-nutrient management land. Concern regarding this issue was raised by USPOULTRY during the meeting between USPOULTRY, USDA, and EPA (March 22, 2010, Washington, D.C). EPA noted that the Agriculture Workgroup had a meeting scheduled on March 29, 2010 to discuss manure transport and nutrient management versus non-nutrient management application rates.

The Agriculture Workgroup was convened and comments were provided by the group on the nutrient management assumptions (Hansen 2010b). The Agriculture Workgroup requested the Water Quality Goal Implementation Team (WQGIT) consider the comments and implement changes in Scenario Builder and the WSM Phase 5.3 as soon as practical (Hansen 2010b). This issue was discussed by the Chesapeake Bay Program partners and a briefing paper on the issue was developed (Hansen 2010c). The partners developed recommendations to address the issue and identified three recommendations that were to be implemented immediately (Hansen 2010c). The recommendations included the following:

3.) Stop the automatic (non-reported) transport of manure from counties with excess to adjoining counties within the models; manure stays in the county where it was generated unless the state reports manure transport.

4.) Change the process of allocating excess manure within the originating county on nonNM land uses.

5.) Increase the nonNM inorganic (fertilizer) application rate to be consistent with the nonNM organic (manure) application rate.

Based on the latest version of the Scenario Builder documentation (Brosch 2010) it is not clear whether these issues have been addressed in the Scenario Builder and the WSM Phase 5.3 and whether the changes were incorporated in the model runs used to develop the draft TMDL.

In addition to the unclear Scenario Builder documentation (Brosch 2010) regarding nutrient management assumptions applied in the models, the draft TMDL indicates that nutrient management pastures will receive nutrient applications in excess of crop nutrient requirements. In Table 5-2 on p. 5-30 of the draft TMDL, the following statement is made (emphasis added in bold):

Pasture that is part of a farm plan where crop nutrient management is practiced. Nutrient management pasture is pasture that receives manures that are excess on a farm after all crop nutrient needs are satisfied.

Table 5-2. Phase 5.3 Chesapeake Bay Watershed Model land uses. [Please see table 5-2 on page 20 of the original letter (Docket ID 0587.010).]

This statement does not make sense and is contradictory to the definition nutrient management field practices. An incorrect and inaccurate representation of nutrient management field practices will likely result in an overestimation of nutrient loads from manure and will not show a benefit to nutrient practices, which is highly important in reducing nutrient loading to Chesapeake Bay.

6. Additional Concerns with Assumptions Applied in the Chesapeake Bay Model Framework

The comments listed below address additional concerns regarding assumptions applied in the Chesapeake Bay Model Framework. These comments are not comprehensive and USPOULTRY reserves the right to update these comments as missing documentation, information, and models are made available for review.

Impervious Surface Land Use Representation of Animal Feeding Operations (AFO) is Unrealistic

The land use representation of AFOs as an impervious surface is unrealistic and inaccurate. On p. 4-34 in the draft TMDL (USEPA 2010a) the following is stated:

The model simulates AFO acres similarly to urban impervious areas.

The assumption that an AFO production area is completely impervious means that there is no vegetation on the land that can utilize the nutrients in the area, which is not a realistic assumption (Brosch 2010, p. 10-95):

AFO has no crops. Therefore, AFO has no N and P application mass.

Representing AFO land areas as an impervious surface means that the watershed model is simulating hundrends of tons of litter per acre applied each year on pavement. When it rains, the model essentially routes this exaggerated load directly to the streams as indicated in the Scenario Builder documentation (Brosch 2010, p. 6-49):

Manure is applied to AFO in the county in which it was produced and 100% of the nutrients in lost manure are applied to the edge of stream load where no BMPs exist.

In reality a very small percentage of AFO land area is impervious to runoff. While poultry grow out houses, litter storage sheds and mortality composting sheds have roofs that are impervious, the area immediately surrounding these structures are grassed to allow stormwater runoff to infiltrate into the soil. Consequently, assuming that an AFO land area is impervious will result in inaccurate, erroneous and inflated nutrient loads attributed to poultry litter.

As-Excreted Manure Assumption for Poultry Litter is Invalid

The amount of manure accounted for in the modeling is based on the as-excreted value, which includes urine. Applying this broad assumption to poultry litter is invalid an incorrect. In the most recent version of the Scenario Builder documentation (Brosch 2010, p. 3-22) the following is stated:

The amount of manure is the as-excreted value, so it is the wet weight and includes urine.

The use of wet weight values for animals that deposit wet manure directly onto the surface of the land (e.g., grazing cattle) or for manure that is generally liquid when applied (e.g., hog lagoon effluent) may be appropriate, but it is not appropriate for broiler litter. Broiler litter is subject to absorption and drying while in the house. When it is applied as fertilizer it is generally dry. Most of the moisture is gone by the time a house is cleaned out and the litter used as fertilizer. The RUSLE2 Guidelines for Calculating Manure Dry Weight and Effectiveness summarizes the Agricultural Waste Management Field Handbook's values of percent moisture content of manure by animal type, which lists the percent moisture content of broiler manure as 24 percent (USDA 2005). By assuming wet weight values for all poultry litter, EPA is greatly overestimating the quantity of litter actually applied to the land. This assumption results in an inflation of poultry litter contribution to the manure "source" on input to the watershed model and consequently, artificially inflates the potential impact of this source delivered to the streams and to the Chesapeake Bay.

Unexplained Revision in Quantity of Manure Generated by Poultry

The amount of manure per day per animal unit for poultry was revised in the most recent version of the Scenario Builder documentation without justification or explanation for the revision. On p. 3-23, of the Scenario Builder documentation (Brosch 2010) the quantity of manure generated by poultry was revised in Table 3-1 from the values used in the previous version of the Scenario Builder documentation (Devereux 2009, p. 3-19, Table 3-1).

Brosch 2010, Table 3-1, p. 3-23 [Please see page 22 of the original letter (Docket ID 0587.010).]

Devereux 2009, Table 3-1, p. 3-19 [Please see page 22 of the original letter (Docket ID 0587.010).]

In general, the manure generation rates have increased slightly for different categories of poultry in the most recent Scenario Builder documentation (Brosch 2010, p. 3-23). No explanation is provided in the documentation to justify the increase in manure generated per animal unit for poultry. The increase in the manure generation rates for poultry should be explained and a justification should be provided. Inflated manure generation rates have the potential to significantly overestimate the amount of poultry manure applied to AFO's and cropland areas within the Chesapeake Bay watershed.

Phytase Implementation and Best Management Practice (BMP) Effectiveness Estimates Assumptions

Based on the most recent version of the Scenario Builder documentation (Brosch 2010), it is not clear what assumptions are being applied in the model regarding the level of phytase implementation by the poultry industry and what BMP effectiveness values are assumed in the calibration and in the TMDL scenarios.

On p. 4-28 in the Scenario Builder documentation (Brosch 2010) the following is stated:

Phytase is an enzyme added to poultry-feed that helps poultry absorb phosphorus. The addition of phytase to poultry feed allows more efficient nutrient uptake by poultry, which in turn allows decreased phosphorus levels in feed and less overall phosphorus in poultry waste. The use of phytase is a best management practice (BMP). In Scenario Builder, no poultry automatically have the phytase feed additive. The values of implementation are reported by the Chesapeake Bay jurisdictions each year as part of their annual progress reports.

The Scenario Builder documentations states that the use of phytase is a BMP (Brosch 2010, p. 4-28). It is not clear if this BMP is accounted for in the calibration of the WSM Phase 5.3 used in the development of the TMDL. If this BMP is accounted for in the calibration, it is not clear how the level of implementation was determined. As for the BMP effectiveness values, the BMP section in Scenario Builder lists the following default values for poultry phytase: Broilers 16 percent; Layers 21 percent; Pullets 21 percent; Turkeys 16 percent (Brosch 2010, p. 8-77). It is not clear what effectiveness values are actually used in the modeling and if the values were constant or varied by state. It is also not clear if the default effectiveness values were used in the calibration of the WSM Phase 5.3. Finally, it is also not clear what effectiveness values were used in the TMDL scenarios.

Scenario Builder input decks for some of the TMDL scenarios were released on November 2, 2010, six days before the deadline to submit comments on the draft TMDL to the docket. Presumably, the Scenario Builder input decks will specify how phytase is addressed in the modeling; however, the lack of time (six days) and detailed documentation did not provide USPOULTRY with the opportunity to perform a thorough and meaningful review to allow us to understand how the efficiency of phytase is addressed in the modeling.

Response

Testing and Verification/Validation of Scenario Builder

The commenter makes a reasonable comment given the documentation provided. The scenario builder documentation does not adequately describe the verification procedures, however. The input data are validated on an on-going basis. See response to 0743.001.004 for a description of the process. Additionally, the team programming scenario builder has an extensive verification protocol utilizing test cases calculated outside of the software. Thank you for pointing out this suggested improvement in the documentation. It will be reflected in future versions.

The Internal, External, and Peer Review of Scenario Builder
The technical direction and review of the Scenario Builder is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the Draft TMDL.

In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the draft TMDL. The draft TMDL document has lists of additional TMDL-related meetings in Appendix V.

Scenario Builder is a is a database used to formalize a system of data handling rules for input to the watershed model and a tool that helps inform EPA on the allocation. The scenario builder is based on good science and, as described above, has been developed in a transparent manner with tremendous stakeholder input. While there has not been a formal peer review of scenario builder the models used in the TMDL that simulate physical systems have been peer reviewed.

Scenario Builder as a 'Model'
Scenario Builder is not a model in the same sense as the watershed or estuarine models. It does not simulate environmental processes. It is a database application that organizes data and performs calculations for input to the watershed model. It is a model in the sense that it is a representation of a physical system. Not all models that fit this description need peer review. Certainly a simple linear regression model would not.

The Scale of Scenario Builder
The quoted section on page 1-9 of the Scenario Builder documentation can be improved and is a little clearer if combined with the preceding paragraph. EPA agrees with the comment that the scenario builder and watershed model are not applicable at the farm or field scale. Neither the scenario builder nor the phase 5.3 watershed contains the assumption that a county is a single farm or has only farm land. All counties contain estimates of all simulated land use types. Additionally, the Scenario Builder does not extrapolate a single farm to the county level.

The point of this section in the Scenario Builder Documentation is to assist the user in conceptualizing the Scenario Builder process.

A different way to put this is to conceptualize that all farms in a given county are under the same operator and that generated manure is applied in the same manner on each acre of a given crop. For example, all non-riparian pasture not under nutrient management within a given county is simulated as a single land use. The application rate of directly-deposited manure is the total available manure, based on a calculation of animals in pasture, divided by the total acres of that land use.

Poultry Manure Loss rate of 15 percent
The loss rate was presented to the workgroup as a best professional judgment suggestion from the Scenario Builder development staff for discussion. Best professional judgment is often used by the Chesapeake Bay Program to supplement a lack of scientific literature that exists for estimates required of modeling an estuary of this scale. The group approved the recommendation. The meeting materials (presentations and minutes) for the 12-11-2008 Agriculture Nutrient Sediment Reduction Workgroup (AgNSRWg) and the Watershed Technical Workgroup (WTWg) link to the minutes and presentations: http://archive.chesapeakebay.net/calendar.cfm?EventDetails=9981

The loss rate is based on a No BMP condition which is close to a worst case condition. In order to properly credit all the practices implemented by farmers and especially vertically integrated poultry producers, the bad actors of the sector must be simulated as a baseline condition to correctly simulate the "No BMP" scenario, which is used in the the allocation process (see section 6.3.1 of the draft TMDL document.

Practices detailed in the comment such as the vegetative cover and conveyor belt are all efforts to help reduce loss of manure. They should be quantified in the model and counted as part of each states annual progress for BMPs. Stormwater treatment strips is one BMP that the Bay Program recognizes is going to be proposed to enter the BMP protocol in the near future. The “impervious classification” is just a comparison for understanding the modeling. These acres are inundated with nutrients for years because the sacrifice areas are consistently used for manure handling and storage. The capacity of any remaining compacted soil on this land to store nutrients is extremely low. Therefore AFO acres are simulated as having the entirety of the nutrient and sediment load being at the streams’ edge. The nutrient and sediment load can be abated by BMPs, but where there are AFO acres without BMPs installed, the loss of poultry litter is 15% of that produced in confinement.

Please see response to comment 0410.1.001.029 for information on introducing new BMPs into the modeling

The broiler litter produced in Scenario Builder uses literature values from USDA and ASAE for amount produced and nutrient content on a per animal or animal unit basis (as cited in Brosch, 2010). The animals present on the Delmarva are taken from Ag Census data. These values are combined to quantify the amount of manure produced in the watershed. The method for quantifying the manure produced and the amount loss due to storage and handling has been vetted with the Agriculture Nutrient and Sediment Reduction Workgroup as well as the Watershed Technical Workgroup.

Manure transport assumptions
The recommendation from the AgNSRWg is to eliminate automatic transport of manure in the model to accommodate crop need in neighboring counties. The public workgroup submitted a resolution to allow only state reported manure transport in the models. This change is slated for the next version of Scenario Builder and is not included in version 2.2, the current version for the TMDL. To clarify the explanation in SB documentation portions of the comment, the automatic transport in the Scenario Builder is only made when there is an excess of manure produced in one county that can reduce a deficiency of manure nutrients in a neighboring

county of the same state. If all these criteria are not met, the manure remains in the county it was produced and is applied according to the disposal rules outlined in the Scenario Builder documentation. Please note that the disposal sequence is not engaged often and it will change based on the above recommendation from the AgNSRWg.

I think the confusion expressed in the comment is resolved by understanding there are 2 types of transport in the model. The first is automatic and will be removed in the next version, the second is BMP based. The BMP based transport is state reported and includes county to county transfers as well as out of the watershed transfers. Automatic transport only happens in special cases as previously outlined in this response.

Manure on a nitrogen-based plan
Nutrient Management is a BMP reported to the Bay Program by the state reporting agencies. The state reports whether this BMP is nitrogen or phosphorus based. The models can accommodate both scenarios. Historically, states have chosen to report all nutrient management as N-based, but more recently states hav reported P-based nutrient management. The calibration of the model version 5.3 was completed with N-based nutrient management for the period 1984-2004. Few states, if any, have their nutrient management plans based on phosphorus during that time so the current calibration has N-based nutrient management. Model runs subsequent to 2004 can have either NM strategy credited, depending on the data submission by the states.

Accounting for nutrient management practices in the models
As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the phase 5.3 will be updated, not for the December 31 2010 TMDL, but in support of development of the Phase II Watershed Implementation Plans, which will be due after the 2010 TMDL. EPA has clearly stated that adjustments may be made to the allocations at that time and reflected in amendments to the 2010 Bay TMDL. Changes to the model generated numbers are a direct result of improving inputs data and simulation methods.

The same Shawn Garvin letter states "prior to 2017, EPA plans to review the full suite of the partnership's Bay models based on the best available science and decision-support tools and consider whether updated models should be developed to support phase III implementation plans and potential modifications to the Bay TMDL allocations." New data and science will always continue to become available and, as stated in the above mentioned letter, EPA is using an adaptive management approach to incorporate new information as it becomes available with scheduled upgrades during 2011 and 2017. There is no anticipation of jurisdictions over-controlling nutrients in the interim.

Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf

EPA is promoting an adaptive management approach, but towards the same goal post as the Bay TMDL—restored Chesapeake Bay water quality as defined by Delaware, Maryland, Virginia, and the District of Columbia's Chesapeake Bay water quality standards regulations.

Thank you for pointing out the error in table 5-2 on page 5.30. Excess nutrients are applied to pasture, not nutrient management pasture.

AFO as impervious surface

As discussed earlier in this response, the base AFO simulation is a case with no BMPs, not the normal case with installed practices. The simulation as an impervious surface is to generate load that has a flashy temporal characteristic. The method of simulation affects the timing, not the absolute amount of load.

As-excreted manure assumption
That sentence and the context in the documentation are referencing a data source for an old version of Scenario Builder. It has been removed for the final version of the Scenario Builder documentation. As previously explained in this response: The broiler litter produced in Scenario Builder uses literature values from USDA and ASAE for amount produced and nutrient content on a per animal or animal unit basis (as cited in Brosch, 2010). The animals present on the Delmarva are taken from Ag Census data. These values are combined to quantify the amount of manure produced in the watershed. The method for quantifying the manure produced and the amount loss due to storage and handling has been vetted with the Agriculture Nutrient and Sediment Reduction Workgroup as well as the Watershed Technical Workgroup.

Revision in Quantity of Manure Generated by Poultry
As explained to USPOULTRY in the meeting between USPOULTRY, USDA, and EPA (March 22, 2010, Washington, D.C), some of the values in the Scenario Builder documentation were not reflective of the values in the model as new sources of information were discovered and incorporated. The sources of this data were correctly cited in Devereux, 2009, but the data from the sources did not match the table in that document. The table was updated to match the figures in the literature and the model for Brosch, 2010.

Phytase Implementation and BMP Effectiveness
Phytase is available as a BMP for all states to report. In the calibration of the model, the implementation of this practice was phased in from 1997 where no poultry has Phytase to 2002 when all poultry received some credit for Phytase. The 2002 year credited 21% P reduction from Phytase on pullets and layers and 16% P reduction was applied to broilers and turkeys. This was applied across the watershed, but based on manure concentration data supplied to CBPO from MD and VA. In the TMDL states could chose their proposed Phytase level for poultry and swine as well as the percent of poultry and swine that receive the feed additive.

Comment ID 0591.1.001.008

Author Name: Shields M.

Organization:

Statements in "studies" which claim that "Septic tanks and privies account for the highest total volume of water discharged directly into groundwater and are frequently implicated as sources of groundwater contamination (DiPaola, 1998).", are misleading. The key words here are "frequently implicated". Yes, frequently implicated, but rarely proven to be a large-scale problem.

Studies that state; "To further support the notion that Septic effluent entering aquifers used for drinking water are the most common ground water contamination problems reported from individual home sites (Geraghty and Miller, 1978)." Are then used to support the notion that these systems are a source of nitrogen that eventually enters the bay.

For someone to make the claim that a properly installed, working and maintained septic system for an individual home is a point of pollution and that the bay is better served by having the individual home being connected to a Sewer Treatment Plant is just plain wrong. Once connected to the Treatment Plant, we can be assured that there will be an impact on the bay. Show me the data to support the notion that the septic system is anything but environmentally superior to Municipal Sewer Treatment Plants.

Response

The analysis tools that are used in the TMDL consider all sectors including waste water, forest, agriculture, runoff from developed areas, atmospheric deposition, and septic systems. Current estimates are that septic systems contribute less than 5% of the total nitrogen load to the Chesapeake. The states may submit Watershed Implementation Plans with any combination of practices with reasonable assurance of implementation. Attainment of water quality goals is likely to require efforts in all sectors.

Some of the peer-reviewed literature that supports the septic estimates is listed at the end of section 4.7.4 in the final Bay TMDL report.

Comment ID 0591.1.001.010

Author Name: Shields M.

Organization:

Why is the Shenandoah River being ignored here? Its contribution to the TMDL is ignored and shoved into the Potomac watersheds.

Use of modeled load estimates cannot be considered a scientifically sound process and I reject the use of these estimates in the West Virginia Potomac Tributary Strategy process, because the CBP model uses average loadings, not direct measurements.

Response

The Shenandoah River is part of the Potomac watershed as it flows into the Potomac River at Harper's Ferry, WV. The Shenandoah River is being fully modeled. Monitoring non-point sources on a small scale is not feasible. Modeling is required to equitably distribute the loadings to various sources in the watershed. The watershed model is calibrated to more than 100 water quality monitoring stations and nearly 300 flow gauging stations.

Comment ID 0598-cp.001.001

Author Name: Jones George

Organization: Foxglade Farm

1. The TMDL model does not represent the actual field conditions and until the real field conditions concerning land uses and applied treatments as to BMPs is accounted for there should not be mandatory inplementation passes down from the Fed level.

Response

In 2009, EPA provided all watershed states with the opportunity to review all pertinent agricultural input data and to supply state-specific or county-specific values. Some states chose to revise portions of the agricultural data at that time.

Additionally, the model development process has ample opportunity for input as the technical direction for the development, management application, and independent review of the Chesapeake Bay Program Partnership's models is carried out through several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. Descriptions of each of these groups is provided within Section 1 of the final Bay TMDL. Each has broad representation by federal, state, local, academic, and private groups. Programmatic and policy direction on the application of the models and their use in supporting decision making is undertaken through the partnership's Management Board (previously the Implementation Committee) and the Principals' Staff Committee. All the independent scientific peer reviews of the models are carried by the Chesapeake Bay Program's Scientific and Technical Advisory Committee. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference calls can be found in Appendix C of the final Bay TMDL.

Comment ID 0599-cp.001.001

Author Name: Miller W.

Organization:

People that earn their living off the soil are committed to environmental stewardship. We need and want good soil and clean water. This past winter I had a small acreage timbered and the logger made sure that he complied with and used the proper best management practices. On our farm we totally use 100% no-till when planting any crop. It has been years since we worked any ground or left any ground exposed. We have fenced our cattle out of the creeks and ponds. We follow our nutrient management plan and do not over apply nutrients. Many of the best management practices that we have utilized and installed on our farm have been done without cost share monies from the state.

The economic impact of new regulations to the farmer comes at a time when farmers are already struggling just to continue with their commitment to the land

It has come to light that the Chesapeake Bay Model, which is the model that EPA is using for their basis for nutrient and sediment reductions, has been shown to have extensive flaws in the data it utilizes. Even EPA has acknowledged this. EPA should not continue with costly mandates that are based on flawed information. Federal actions need to be based on accurate information.

Response

Thank you for the comment and your commitment to environmental stewardship.

We do not agree that there are extensive flaws in the data. There will always be opportunities for improvement in data collection and we are continuing our efforts in that regard.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. All of these groups have been providing data and modeling instructions for at least the past five years and in some cases much longer.

EPA agrees with the commenter that voluntarily implemented practices are likely under-counted due to difficulties in data collection. Verified non-cost shared practices can be accepted in the model, but historically have not been included to a great extent because the information has not been made available to the Chesapeake Bay Program. Voluntary practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These voluntary practices are typically funded by farmers alone. EPA is committed to working with USDA, NACD, state environmental and agricultural agencies, conservation districts, and agricultural community at large to credit nutrient and sediment reductions from voluntary practices. As committed to in the Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to "By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented."

Non-cost shared practices or practices not enrolled in state programs are not held to standards required for the efficiency credited in the suite of Chesapeake Bay models. Additionally, some state standards do not meet the standard for the BMP efficiency in the models. The standards for all model-approved BMPs prevent the state reporting agencies from reporting some installed BMPs because the standards are not met. The exclusion of practices not meeting standards prevents over-estimates of pollution reduction from BMPs in the models.

Please refer to Scenario Builder documentation for the current model standards for all BMPs here: http://archive.chesapeakebay.net/pubs/SB_Documentation_Final_V22_9_16_2010.pdf.

EPA can accept additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the

model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

Comment ID 0601-cp.001.002

Author Name: Greenfield Elizabeth

Organization: Richmond Association of Realtors (RAR)

On behalf of the 4,700 members of the Richmond Association of Realtors®, we are formally submitting comments on the implementation of the TMDL.The EPA should delay adoption of the TMDL and backstops for at least one year and until no sooner than December 31, 2011 for the following reasons:

•The model used to establish the TMDL has three significant flaws:(1)data used for existing impervious surfaces is overstated by a 2.5 magnitude;(2)the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and (3) the model incorrectly accounts for pollutants from different land uses. It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Response

Please see the response to comment 0238-cp.001.002

Comment ID 0602-cp.001.003

Author Name: Comment Anonymous

Organization: Hill Top View Farm

The proposed Chesapeake Bay TMDL is based on a complicated computer model that dose not account for many of the conservation practices that farmers have already implemented. This makes agriculture look worse than it is and will lead to an inequitable burden on the farm community.

Response

Please refer to the response to comment 0452-cp.001.001.

Comment ID 0603-cp.001.002

Author Name: Kerr Bob

Organization: Kerr Environmental Services Corp.

The EPA should delay adoption of the TMDL and backstops for at least one year and until no sooner than December 31, 2011 for the following reasons:

• The model used to establish the TMDL has three significant flaws:
(1) data used for existing impervious surfaces is overstated by a 2.5 magnitude;
(2) the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and
(3) the model incorrectly accounts for pollutants from different land uses.

It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Response

Please see the response to comment 0238-cp.001.002

Comment ID 0607.1.001.004

Author Name: Bauhan Hobey

Organization: Virginia Poultry Federation (VPF)

But even if the comment period were longer, this draft TMDL, as massive as it is, also does not properly document for public consideration the basis for its composition. The draft TMDL is based on a model. The model is fed by a secondary modeling tool called Scenario Builder, which provides land use assumptions. EPA has failed to publically disclose and allow public comment on the efficacy of Scenario Builder. This is also contrary to federal administrative procedure law.

Furthermore, the agency admits to flaws in the model, which it says will be corrected later. Yet the agency has published a draft TMDL with federal backstops and demanded submittal of state WIPs, based on this flawed model. If the model is flawed, it will not reflect reality. If the model does not reflect reality, then the resulting federal actions are arbitrary and capricious under federal administrative procedures law.

Response

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the support database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site. The Phase 5.3 Chesapeake Bay Watershed Model, used in the development of the Bay TMDL, is available at http://ches.communitymodeling.org/models/CBPhase5/index.php.

As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the phase 5.3 will be updated, not for the December 31 2010 TMDL, but in support of development of the Phase II Watershed Implementation Plans, which will be due after the 2010 TMDL. EPA has clearly stated that adjustments may be made to the allocations at that time and reflected in amendments to the 2010 Bay TMDL. Changes to the model generated numbers are a direct result of improving inputs data and simulation methods.

The same Shawn Garvin letter states "prior to 2017, EPA plans to review the full suite of the partnership's Bay models based on the best available science and decision-support tools and consider whether updated models should be developed to support phase III implementation plans and potential modifications to the Bay TMDL allocations." New data and science will always continue to become available and, as stated in the above mentioned letter, EPA is using an adaptive management approach to incorporate new information as it becomes available with scheduled upgrades during 2011 and 2017. There is no anticipation of jurisdictions over-controlling nutrients in the interim. Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf.
EPA is promoting an adaptive management approach, but towards the same goal post as the Bay TMDL—restored Chesapeake Bay water quality as defined by Delaware, Maryland, Virginia, and the District of Columbia's Chesapeake Bay water quality standards regulations.

Comment ID 0607.1.001.006

Author Name: Bauhan Hobey

Organization: Virginia Poultry Federation (VPF)

Chesapeake Bay Model Assumptions

As discussed earlier, VPF is concerned about the accuracy of EPA's Scenario Builder model and the latest Chesapeake Bay Model. It is essential that the assumptions in these tools are correct so that solutions can be accurately applied to problems. We have little confidence about the assumptions and science underlying the model. Part of the problem is a lack of transparency in EPA's documentation of model inputs. We are unaware of how or if EPA has used scientific methods or whether any peer review of the modeling tools has occurred.

Voluntary practices must be counted in the Bay Model, and the model must utilize up-to-date animal production data and accurately incorporate current management practices. This is not currently the case.

In the case of animal feeding operations (AFOs), the latest model still assumes that 15 percent of animal manure is lost during storage. What is the basis for such an assumption? We challenge the modelers to provide scientifically based documentation that 15 percent of poultry litter in storage on poultry farms is lost to the environment during storage and what, if any, quantities of nitrogen and phosphorus contained in such litter enters waters of the U.S. In Virginia, poultry litter is regulated and managed in a manner that makes us seriously question this assumption.

The earlier model (version 4.3) utilized outdated agricultural census data and, due to the lack of complete documentation in version 5.3 and in Scenario Builder, it is not possible to currently tell what agricultural census data are being used. Virginia's poultry industry has contracted in the past 15 years. There is also a growing trend within the

industry to reduce the frequency of total house cleanouts. Instead producers are employing partial cleanouts or "decaking" over longer durations. Decaking consists of removing roughly the top third of litter from the poultry house and leaving the reminder for the next grow-out cycle. This, combined with the fact the industry has declined in size suggests that actual tonnages of land applied litter may be substantially lower than model estimates.

Finally, it is important for EPA to obtain all applicable data on poultry litter transport and appropriately factor it into modeling. We have asked the state to supply the modelers with the data. Now that Virginia has adopted its new "end-user" regulations, all litter must either be applied onsite of a poultry farm according to a phosphorus-based nutrient management plan or managed to account for phosphorus buildup and other environmental risk factors if transferred offsite. Virginia must get credit for these BMPs in the model. This is imperative, as the simplistic approach being used by the modelers incorrectly assumes excess nutrients are transferred to neighboring counties once the nutrients have been applied at the appropriate agronomic rate to crops and pasture within the county in which they were generated.

It is critical that EPA and state agencies work closely with affected industries to ground-truth the assumptions used in the model. We welcome any such opportunities.

In summary, the draft TMDL is based on an inaccurate model. The model does not reflect reality. The resulting TMDL, therefore, it is arbitrary and capricious under the federal administrative procedure law.

Response

Please refer to the response to comment 0169.1.001.005 on the watershed model process and peer review.

The technical direction and review of the Scenario Builder is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the Draft TMDL.

In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the final Bay TMDL. The Bay TMDL report has lists of additional TMDL-related meetings in Appendix C.

Scenario Builder is a is a database used to formalize a system of data handling rules for input to the watershed model and a tool that helps inform EPA on the allocation. The scenario builder is based on good science and, as described above, has been developed in a transparent manner with tremendous stakeholder input. While there has not been a formal peer review of scenario builder the models used in the TMDL that simulate physical systems have been peer reviewed.

Non-cost shared practices, please refer to the response to comment 0452-cp.001.001.

All assumptions of the AFO simulation are agreed upon by the then-active Nutrient and Sediment Subcommittee. Discussions on this topic are contained within the meeting minutes some of which are located here:

http://www.chesapeakebay.net/committee_nsc_meetings.aspx?menuitem=16598.

The current scenario builder uses the 5-year ag census data sets from 1982-2007.

As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the phase 5.3 will be updated, not for the December 31 2010 TMDL, but in support of development of the Phase II Watershed Implementation Plans, which will be due after the 2010 TMDL. EPA has clearly stated that adjustments may be made to the allocations at that time and reflected in amendments to the 2010 Bay TMDL. Changes to the model generated numbers are a direct result of improving inputs data and simulation methods.

The same Shawn Garvin letter states "prior to 2017, EPA plans to review the full suite of the partnership's Bay models based on the best available science and decision-support tools and consider whether updated models should be developed to support phase III implementation plans and potential modifications to the Bay TMDL allocations." New data and science will always continue to become available and, as stated in the above mentioned letter, EPA is using an adaptive management approach to incorporate new information as it becomes available with scheduled upgrades during 2011 and 2017. There is no anticipation of jurisdictions over-controlling nutrients in the interim. Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf.

EPA is promoting an adaptive management approach, but towards the same goal post as the Bay TMDL—restored Chesapeake Bay water quality as defined by Delaware, Maryland, Virginia, and the District of Columbia's Chesapeake Bay water quality standards regulations.

EPA looks forward to working with all stakeholders on improving information used in the modeling tools.

EPA can accept additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

Comment ID 0610.1.001.003

Author Name: Randall Clifford

Organization: Occoquan Watershed Monitoring Program (OWMP)

The well-documented biochemical interactions that occur in the impoundment dramatically impact the speciation and concentrations of nitrogen exiting the Occoquan Reservoir. Most of the nitrogen in the UOSA reclaimed water discharge has historically been in the form of nitrate. Much of that nitrate-laden discharge is directed into the bottom waters of the

reservoir in the Bull Run arm during the period of thermal stratification. During the attendant period of anoxia, the nitrate serves as an alternate electron acceptor for heterotrophic metabolism - in exactly the same way that it does in biological nitrogen removal from wastewater. The result is that the denitrification reactions poise the oxidation-reduction potential (ORP) at a level that is more representative of an oxidizing environment, even in the absence of molecular oxygen. As a result, there is irrefutable evidence that the presence of nitrate prevents or delays the onset of truly anaerobic conditions, and in so doing, dramatically reduces the release of iron, phosphorus, and ammonium nitrogen from the deposited sediments. There is also emerging evidence that the presence of nitrate plays a similar role in reducing the release of manganese, which is also of concern with respect to the quality of the drinking water supply.

In addition to the ORP-driven benefits of the nitrate inputs to the reservoir, the data record also clearly shows that high performance removal of phosphorus at UOSA, coupled with a nitrified reclaimed water discharge, has been instrumental in the maintenance of a phosphorus-limited condition in the reservoir with respect to algal production. The Occoquan Reservoir, it should be noted, is eutrophic - due to the long history of fertilization from all watershed sources (old wastewater discharges, agricultural runoff, and urban stormwater), and was subject to nuisance blooms of cyanobacter (blue-green algae) for much of its life. The nitrified discharge from UOSA has been instrumental in creating a high N:P ratio in the impoundment. This, in turn, has been instrumental in selecting for less problematic species of algae (green algae and diatoms), and has had a beneficial effect in reducing the prevalence of blue-greens. The reduction of cyanobacter dominance has been very beneficial from the perspective of water supply operations, given the well-known problems associated with these genera with respect to forming floating mats, creating taste and odor episodes, and secreting undesirable metabolites, including some of known toxicity.

The 2005 Assessment of Nitrate Effects on Water Quality

During the 2005 consideration of changes to the UOSA nitrogen management strategy, the local governments of the Occoquan Watershed, as well as UOSA and Fairfax Water (FW), requested that OWMP staff conduct an assessment of the issues with respect to Occoquan Reservoir water quality. That document, An Assessment of the Water Quality Impacts of Nitrate in Reclaimed Water Delivered to the Occoquan Reservoir [See comment 231.1], was made available to the Virginia DEQ and other watershed stakeholders. It is our understanding that a copy of the study has been placed in the current TMDL public comment record by UOSA, and in the interest of space it is not included herein. A key observation of that study was that undesirable water quality conditions were observed to occur in the deep waters of the Occoquan Reservoir during periods of nitrate deficiency. At this point, there is an emerging consensus that nitrate deficiency results when the concentration declines below 2 - 3 mg/L as N, and continuing work is being conducted at OWML to refine this value.

Recent Water Quality Observations

Having enumerated some of the benefits of the presence of nitrate in the Occoquan Reservoir, we would like to provide an illustration of the consequences of in situ nitrate deficiency. The figure contained in Attachment B [Comment Letter contains additional information in the form of an attachment. See original comment letter 0610.1] is a 2004 - 2009 time series of watershed rainfall and the ammonium, oxidized nitrogen, and total phosphorus concentrations in the deep waters of the Occoquan Reservoir upstream of the Occoquan Dam. This sampling station (RE02) is generally visited by OWMP staff on a weekly basis, except during the winter months, when the sampling frequency is reduced to bi-weekly. Also shown on the plot are annual total nitrogen loads from UOSA.

In examining the figure, it should also be noted that, in addition to denitrification, nitrate concentrations in the Reservoir are reduced under two other principal scenarios (or combinations thereof): (1) lower loads delivered from the UOSA WRF, or (2) short-term dilution from high flow events in the summer months.

Over the last 2+ years, UOSA has been gaining operational experience with its nitrogen removal capabilities, with the result that the nitrate load delivered to the Occoquan Reservoir has been significantly reduced for certain periods. Over that period of time, we have closely observed the attendant water quality effects.

In examining the plotted time series data, it may be seen that even in years where the nitrate load from USOA was higher than the new permit limit of 1.3 million pounds, periods of deficiency occurred. However, during those periods, the release of ammonium nitrogen and phosphorus from the reservoir sediments was for relatively short durations, and generally resulted in lower peak concentrations. Periods when nitrate discharges from UOSA were inadequate to maintain a protective concentration in the deep waters were consistently accompanied by dramatic increases in the release of ammonium nitrogen and phosphorus from the sediments. Some specific comments on the conditions for years illustrated in the plot follow:

• 2004 - During 2004, UOSA discharged 1.2 million pounds of nitrogen, and the peak concentrations of nitrate were slightly less than 2 mg/L as N. However, there were no observed periods of nitrate depletion. The peak ammonium-N and total phosphorus (TP) concentrations were 1.3 and 0.07 mg/L, respectively. The summer of 2004 was also characterized by the relative absence of high flow events that might have disturbed the stratification and/or diluted the nitrate concentrations. This period is a good illustration of the condition where nitrate is being removed in the reservoir, and also serving to control ammonium and phosphorus release.

• 2005 - During 2005, UOSA discharged 1.7 million pounds of nitrogen, and the peak summer concentrations of nitrate ranged from approximately 1 - 3 mg/L as N. There was a short period of near-depletion of nitrate in July, which was exacerbated by a high flow event. The absence of nitrate was accompanied by a peak ammonium-N concentration of 2.4 mg/L, and TP slightly above 0.1 mg/L.

• 2006 - Although UOSA discharged 1.6 million pounds of nitrogen in 2006, very high summer streamflows effectively diluted the concentrations in the reservoir, with the result that nitrate was completely depleted by early July, and did not recover until the loss of stratification in October. This resulted in an extended period in which the ammonia-N concentrations released from the sediments greatly exceeded the nitrate-N concentrations, and actually reached peak values in excess of 5 mg/L. During the same period of nitrate deficiency, the peak TP concentrations exceeded 0.6 mg/L.

• 2007 - During 2007, UOSA reduced its TN load from the prior year by 700,000 pounds. Because there were also no large rain events that flushed the Reservoir and diluted the nitrate concentrations, 2007 represented an excellent year to assess the impacts of reduced nitrate inputs. During that year, the highest deep water concentration of nitrate observed was approximately 3.5 mg/L as N, and occurred early in the year. By early March, the concentration had declined below 1 mg/L, and was effectively zero for most of the summer. The peak ammonium-N concentration reached after the depletion of nitrate was, by contrast, nearly 5 mg/L. In the same period, a peak TP concentration of over 1 mg/L was observed (much of it soluble). The concentrations of both these nutrients remained high in the deep water until the fall circulation, which did not occur until early November.

• 2008 - In 2008, the UOSA nitrate load was similar to that delivered in 2007. However, prior to the establishment of the thermal stratification, large flows were experienced that effectively diluted the in situ nitrate-N concentration to well under 1 mg/L. As a result, peak ammonium-N concentrations in excess of 3 mg/L were observed.

• 2009 - The situation in 2009 was not unlike that experienced in 2008, with relatively high rainfall in May and June. Nitrate-N was effectively depleted by early June, and the resulting ammonium-N concentrations remained in the 2 - 4.5 mg/L range for most of the summer.

The ammonium and phosphorus releases described above are well-known consequences of the establishment of anaerobic conditions in deep eutrophic lakes and reservoirs during the period of thermal stratification. What is consistently of note in this system, however, is that the releases may clearly be seen to be tempered in large part by the presence of nitrate. In its role as an alternate terminal electron acceptor (TEA) in anoxic respiration, nitrate has the effect of poising the oxidation-reduction potential at a level that significantly reduces the release of phosphorus and ammonium from the sediments. At the same time, also in its role as a TEA, nitrate is largely converted (reduced) to nitrogen gas and removed from the system. This too has been observed in the Occoquan Reservoir for many years.

Response

Please refer to the response to comment 0231.1.001.003.

Comment ID 0611.1.001.001

Author Name: Knapp Leslie

Organization: Maryland Association of Counties (MACo)

Need for Bay Model Refinement: The Chesapeake Bay Phase 5 Watershed Model continues to show improvements and refinements over previous versions, but ultimately the Model is still limited, being subject to inaccuracies and "best guess" estimates. Given,that the Model is still imperfect but that State and county governments are being asked to undertake precise nutrient reduction tracking, the Environmental Protection Agency (EPA) must commit to further refining the Model AND show some flexibility in allowing States and counties to present data and that may not be incorporated or accounted for by the Model. In short, the Model should not be the sole measure of data analysis.

Response

As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the phase 5.3 will be updated, not for the December 31 2010 TMDL, but in support of development of the Phase II Watershed Implementation Plans, which will be due after the 2010 TMDL. EPA has clearly stated that adjustments may be made to the allocations at that time and reflected in amendments to the 2010 Bay TMDL. Changes to the model generated numbers are a direct result of improving inputs data and simulation methods.

The same Shawn Garvin letter states "prior to 2017, EPA plans to review the full suite of the partnership's Bay models based on

the best available science and decision-support tools and consider whether updated models should be developed to support phase III implementation plans and potential modifications to the Bay TMDL allocations." New data and science will always continue to become available and, as stated in the above mentioned letter, EPA is using an adaptive management approach to incorporate new information as it becomes available with scheduled upgrades during 2011 and 2017. There is no anticipation of jurisdictions over-controlling nutrients in the interim. Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf.

EPA is promoting an adaptive management approach, but towards the same goal post as the Bay TMDL—restored Chesapeake Bay water quality as defined by Delaware, Maryland, Virginia, and the District of Columbia's Chesapeake Bay water quality standards regulations.

EPA can accept additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

Comment ID 0612.1.001.003

Author Name: Willis James

Organization: Titan America LLC

Titan America supports delaying adoption of the TMDL and backstops for at least one year and until no sooner than December 31, 2011 for the following reasons:

--The model used to establish the TMDL has three significant flaws:
(1) data used for existing impervious surfaces is overstated by a 2.5 magnitude;
(2) the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and
(3) the model incorrectly accounts for pollutants from different land uses.

It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Response

Please see the response to comment 0238-cp.001.002

Comment ID 0619-cp.001.001

Author Name: Reese Jodi

Organization: CET Engineering Services

Given that 48 percent of the nitrogen load in streams in the Bay watershed is transported through ground water and that this information is not included in the Chesapeake Bay Model, how can the current Model have sufficient accuracy?

The accuracy of the Chesapeake Bay model should be in question because the model does not accurately account for ground water as a source of nitrates. The United States Geological Service (USGS) conducted a multi-year study in the Chesapeake watershed of nitrate in ground water. The 2002 report (USGS Fact Sheet FS-091-03) states:

"An average of 48 percent of the nitrogen load in streams in the Bay watershed was transported through ground water, with a range of 17 to 80 percent in different streams."

The study also reports that due to lag time, the median age of this groundwater is 10 years with 25 percent of the samples having an age of 7 years or less and 75 percent of the samples having an age of up to 13 years.

During the March 25 EPA TMDL webinar, a question was asked about whether this ground water nitrate data was accounted for in the Chesapeake Bay model. Mr. Richard Batiuk answered the question stating that it was not currently part of the model but that the model was designed to accommodate that information when it became available.

Response

Please see the response to comment 0217.1.001.009

Comment ID 0624-cp.001.002

Author Name: Bushey J.

Organization:

The EPA should delay adoption of the TMDL and backstops for at least one year and until no sooner than December 31, 2011 for the following reasons:

• The model used to establish the TMDL has three significant flaws: (1) data used for existing impervious surfaces is overstated by a 2.5 magnitude; (2) the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and (3) the model incorrectly accounts for pollutants from different land uses. It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Response

Please see the response to comment 0238-cp.001.002.

Comment ID 0626-cp.001.003

Author Name: Stone Melanie

Organization: Holladay Properties, Inc.

The model used to establish the TMDL has three significant flaws: (1) data used for existing impervious surfaces is overstated by a 2.5 magnitude; (2) the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and (3) the model incorrectly accounts for pollutants from different land uses. It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Response

Please see the response to comment 0238-cp.001.002.

Comment ID 0653.001.001

Author Name: Wenger G.

Organization:

Farmers care about water quality and have already implemented thousands of conservation BMP's in the Commonwealth.

The proposed Chesapeake Bay TMDL is based on a complicated model that does not account for many of the conservation practices that farmers have already implemented. This makes agriculture look worse than it is and will lead to an inequitable burden on the farm community.

I am in opposition to all EPA regulations you have come forward with to date.

Response

Please refer to the response to comment 0452-cp.001.001.

Comment ID 0654.001.007

Author Name: Igli Kevin

Organization: Tyson Foods, Inc.

The Scenario Builder tool, upon which EPA's entire modeling exercise for the Draft TMDL is based, has not undergone a comprehensive, detailed, and objective peer review. The level of external or outside review conducted for the Scenario Builder tool is inadequate given the essential and important role the tool serves in providing nutrient load inputs to the watershed model. Furthermore, the Scenario Builder tool is not available for testing or review by third parties. Because this tool is not publicly available, stakeholders do not know and cannot test the many assumptions and calculations used by the Scenario Builder tool to generate nutrient load inputs to the watershed model for a given source.

Response

The technical direction and review of the Scenario Builder is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the Draft TMDL.

In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the final Bay TMDL. The final Bay TMDL report has lists of additional TMDL-related meetings in Appendix C.

Scenario Builder is a is a database used to formalize a system of data handling rules for input to the watershed model and a tool that helps inform EPA on the allocation. The scenario builder is based on good science and, as described above, has been developed in a transparent manner with tremendous stakeholder input. While there has not been a formal peer review of scenario builder the models used in the TMDL that simulate physical systems have been peer reviewed.

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the support database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site. The Phase 5.3 Chesapeake Bay Watershed Model, used in the development of the Bay TMDL, is available at http://ches.communitymodeling.org/models/CBPhase5/index.php.

Comment ID 0654.001.008

Author Name: Igli Kevin

Organization: Tyson Foods, Inc.

On p. 3-23, of the Scenario Builder documentation (Brosch, 2010) the quantity of manure generated by poultry was revised in Table 3-1 from the values used in the previous version of Scenario Builder (Devereux, 2009, p. 3-19, Table 3-

1). In general, the manure generation rate has increased slightly for different categories of poultry. No explanation is provided in the documentation to subst ntiate the accuracy of the manure generation figures or to justify the increase in manure generated per animal unit for poultry.

Response

The 2009 version of the Scenario Builder documentation was in error. In re-checking the source data tables referenced in the documentation, the error was corrected for the 2010 version.

Comment ID 0667.001.002

Author Name: Comment Anonymous

Organization:

The Chesapeake Bay model, the basis for nutrient and sediment reductions required by EPA has been shown to have extensive flaws in the data it utilizes. You (EPA) have even acknowledged this fact. The model is currently throwing out actual ground truth data from Virginia because it does not meet the modeled land use data. This is unfair when the practices are meeting all requirements set forth by EPA.

Response

EPA does not agree that there are extensive flaws in the data. There will always be opportunities for improvement in data collection and we are continuing our efforts in that regard.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. All of these groups have been providing data and modeling instructions for at least the past five years and in some cases much longer.

EPA agrees with the commenter that voluntarily implemented practices are likely under-counted due to difficulties in data collection. Verified non-cost shared practices can be accepted in the model, but historically have not been included to a great extent because the information has not been made available to the Chesapeake Bay Program. Voluntary practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These voluntary practices are typically funded by farmers alone. EPA is committed to working with USDA, NACD, state environmental and agricultural agencies, conservation districts, and agricultural community at large to credit nutrient and sediment reductions from voluntary practices. As committed to in the Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to "By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented."

Non-cost shared practices or practices not enrolled in state programs are not held to standards required for the efficiency credited in the suite of Chesapeake Bay models. Additionally, some state standards do not meet the standard for the BMP efficiency in the models. The standards for all model-approved BMPs prevent the state reporting agencies from reporting some installed BMPs because the standards are not met. The exclusion of practices not meeting standards prevents over-estimates of pollution reduction from BMPs in the models.

Please refer to Scenario Builder documentation for the current model standards for all BMPs here: http://archive.chesapeakebay.net/pubs/SB_Documentation_Final_V22_9_16_2010.pdf.

Comment ID 0669.001.003

Author Name: Burkholder J.

Organization:

I am a farmer in Rockingham County, Virginia. I am also a member of the Mennonite faith. I'm concerned that several issues being discussed will affect my lifestyle and potentially my ability to farm. Please understand I choose not to participate in the legislative process or government programs for my personal financial benefit in accordance with my religious beliefs. That said I sincerely hope the following information will be considered when developing and implementing both the TMDL and the Watershed Improvement Plan for the State of Virginia.

Third: Nutrient reduction has been achieved through the voluntary practices we've already put in place. Many of the nutrient loading levels being discussed are based on research that is not yet proven. The models need to accurately reflect nutrient use from field crops. Average yields used in models are out of date with current yields generated on our farms. We hope any new regulatory burdens will be based on sound science with accurate yield models. We also need time to allow each incremental improvement to be evaluated.

Response

Please refer to the response to comment 0402.001.003.

Comment ID 0675-cp.001.003

Author Name: Orlando Robert

Organization: PR Patrick Henry LLC

The model used to establish the TMDL has three significant flaws: (1) data used for existing impervious surfaces is overstated by a 2.5 magnitude; (2) the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and (3) the model incorrectly accounts for pollutants from different land uses. It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Response

Please see the response to comment 0238-cp.001.002.

Comment ID 0676-cp.001.002

Author Name: Moore P.

Organization:

I'm concerned that Cornell University, New York's land grant college, was not involved in any way in developing or refining the model EPA is using to determine the TMDLs for our state. Consequently the model is flawed as it relates to agriculture, woodlands and other conditions in New York.

EPA should also adopt the model refinements recommended by the NYS DEC in their draft Phase I WIP which is an aggressive, achievable, stakeholder driven plan which provides adequate assurances of NY's ability to achieve stated nutrient reductions. These requested model refinements reflect the environmental protection accomplishments NYS has already attained and truthfully represents the practices of environmental stewardship currently employed on New York's family farms.

For these reasons and more, please revise New York's Chesapeake Bay Total Maximum Daily Load (TMDL) allocation to be more realistic and adopt the model refinements recommended by NYS DEC's WIP.

Response

EPA works closely on modeling with land-grant, sea-grant, and other universities in the watershed largely because they responded to and won open-competition Requests For Proposal and because of their voluntary participation in open Chesapeake Bay Program meetings such as those described above. Cornell is encouraged to compete in future RFPs and to participate in committees and workgroups. Toward that end, Dr. Bob Howarth of Cornell is a current member of the Chesapeake Bay Program's Scientific and Technical Advisory Committee. Additionally, Chesapeake Bay Program Modeling was presented at the North American Nitrogen Center at Cornell in June of 2004 and March of 2008. We look forward to working with Cornell in the future.

In answer to the NYS DEC suggested model refinements, please refer to the response to comment 0103-cp.001.004.

Comment ID 0683-cp.001.002

Author Name: Massey R.

Organization: Ross, France & Ratliff, Ltd.

The EPA should delay adoption of the TMDL and backstops for at least one year and until no sooner than December 31, 2011 for the following reasons:

· The model used to establish the TMDL has three significant flaws: (1) data used for existing impervious surfaces is overstated by a 2.5 magnitude; (2) the model inadequately counts reductions currently being realized from common pollution reduction practices in Virginia; and (3) the model incorrectly accounts for pollutants from different land uses. It is arbitrary and illegal for EPA to establish a TMDL for the Chesapeake Bay until such time as the model is fixed.

Response

Please see the response to comment 0238-cp.001.002.

Comment ID 0684.1.001.003

Author Name: Saunders Jim

Organization: Saunders Brothers,Inc.

• The Chesapeake Bay Model, the basis for nutrient and sediment reductions required by EPA, has been shown to have extensive flaws in the data it utilizes. EPA even acknowledges this fact. EPA should not move ahead with costly mandates based upon flawed modeling and data. Examples:

o In 2010 Virginia cooperative Extension conducted a field observation study in the Coastal Plain. They found that 90% of crop acres were planted in not-till. Only 15% of the acres are enrolled in DCR's no-till program.

o Is the model fully accounting for practices that are already mandated by state permitting programmed? (ex: mortality control for poultry facilities)

o The model is currently "throwing out" actual ground-truthed data from Virginia because it does not meet the "modeled" land use data. This is unfair when the practices are meeting all requirements set forth by EPA.

• Federal actions must be based on accurate information. No additional regulations or penalties should be put on states or industries until the science and data have been proven.

Response

Please refer to the response to comment 0089.1.001.003.

Comment ID 0689.1.001.009

Author Name: Hann Steven

Organization: Capital Region Council of Governments TMDL Work Group

16. Table 4-8 of the draft TMDL represents municipal wastewater loads from various jurisdictions to the Chesapeake Bay. What delivery ratios were used to construct these tables and where can such delivery ratios be found?

17. It is critical that the most current delivery ratio data from EPA be provided to the Bay jurisdictions so that this information can be incorporated into their WIPs. These delivery ratios must be realistic and workable so that the jurisdictions can address loading reductions for each sector and the potential effect on nutrient trading. Lack ofrationale and fmal delivery ratios before the state WIPs are developed is counterproductive to the TMDL development process, calls into question the validity of the WIPs and has an adverse impact on the ability of wastewater treatment plants to engage in nutrient trading, either as a buyer or seller of credits.

Response

Some background on delivery factors may be useful. Delivery factors are calculated outputs of the modeled streams in the Phase 5.3 Chesapeake Bay Watershed Model. They are the pounds of material that make it to tidal water for every pound put in to the river at an upstream point. These factors are calculated for each scenario based on model delivery for that scenario. Generally, as lower loads of one nutrient are put into the stream, the delivery factor for the other increases due to uptake limitation. For example, putting less phosphorus in the water limits the amount of algal growth in the streams, which decreases the amount of nitrogen taken up, increasing the delivery factor.

Table 4-8 used delivery factors for the 2009 scenario. Delivery factors cannot be described as ‘current’, but only as appropriate for a given scenario. Delivery factors for all scenarios are available from the Chesapeake Bay Program office upon request.

Comment ID 0702.001.003

Author Name: Eberly N.

Organization:

I am a farmer in Rockingham County, Virginia. I am also a member of the Mennonite faith. I'm concerned that several issues being discussed will affect my lifestyle and potentially my ability to farm. Please understand I choose not to participate in the legislative process or government programs for my personal financial benefit in accordance with my religious beliefs. That said I sincerely hope the following information will be considered when developing and implementing both the TMDL and the Watershed Improvement Plan for the State of Virginia.

Third: Nutrient reduction has been achieved through the voluntary practices we've already put in place. Many of the nutrient loading levels being discussed are based on research that is not yet proven. The models need to accurately reflect nutrient use from field crops. Average yields used in models are out of date with current yields generated on our farms. We hope any new regulatory burdens will be based on sound science with accurate yield models. We also need time to allow each incremental improvement to be evaluated. One example is a situation where a farmer cleared some virgin land, never had nutrients applied and the phosphorus levels were higher than what you'll want to set as the

benchmark for agriculture land.

Response

Please refer to the response to comment 0402.001.003.

Comment ID 0709.001.002

Author Name: Schneider Richard

Organization: Southern States Cooperative, Inc.

Bay Model Accuracy - Needs Revisions Prior to Costly EPA Mandates

The Chesapeake Bay Model, the basis for nutrient and sediment reductions required by EPA, has been shown to have extensive flaws in the data it utilizes. EPA even acknowledges this fact. EPA should not move ahead with costly mandates based upon flawed modeling and data. Examples:

o In 2010, Virginia Cooperative Extension conducted a field observation study in the Coastal Plain. They found that 90% of crop acres were planted in no-till. Only 15% of the acres are enrolled in DCR's no-till program.

o Is the model fully accounting for practices that are already mandated by state permitting programs? (ex: mortality control for poultry facilities)

o The model is currently "throwing out" actual, ground-truthed data from Virginia because it does not meet the "modeled" land use data. This is unfair when the practices are meeting all requirements set forth by EPA.

Federal actions must be based on accurate information. No additional regulations or penalties should be put on states or industries until the science and data have been proven.

Response

Please refer to the response to comment 0089.1.001.003.

Comment ID 0727.001.002

Author Name: Thigpen Janet

Organization: Steuben County Environmental Management Council

Inaccuracy of the Bay Watershed Model: There is a general lack of confidence regarding the Chesapeake Bay Watershed Computer Model in regards to its ability to accurately represent current nutrient and sediment loads from the

New York portion of the watershed and predict reductions in those loads due to proposed improvements and management programs. Large deviations in estimated delivered nutrient loads have occurred from one version of this model to the next. This casts doubt on the ability of this model to be an effective and reasonable planning tool, as well as the legal basis for establishing TMDLs.

Response

Please refer to the response to comment 0202.1.001.010.

Comment ID 0730.001.003

Author Name: Horst R.

Organization:

I am a farmer in Rockingham County, Virginia. I am also a member of the Mennonite faith. I'm concerned that several issues being discussed will affect my lifestyle and potentially my ability to farm. Please understand I choose not to participate in the legislative process or government programs for my personal financial benefit in accordance with my religious beliefs. That said I sincerely hope the following information will be considered when developing and Implementing both the TMDL and the Watershed Improvement Plan for the State of Virginia.

Third: Nutrient reduction has been achieved through the voluntary practices we've already put in place. Many of the nutrient loading levels being discussed are based on research that Is not yet proven. The models need to accurately reflect nutrient use from field crops. Average yields used in models are out of date with current yields generated on our farms. We hope any new regulatory burdens will be based on sound science with accurate yield models. We also need time to allow each incremental improvement to be evaluated.

Response

Please refer to the response to comment 0402.001.003.

Comment ID 0736.001.006

Author Name: Middaugh Robert

Organization: James City County, Virginia

We also highly recommend that the EPA find a way, through this very complex process, to more closely examine local efforts that localities such as James City County have already completed or are proposing to implement, rather than assuming through input models that programs either do non-exist or minimally address TMDL issues .

Response

Thank you for the comment. EPA relies on state-reported management actions to inform the modeling. EPA agrees that tracking all management actions, including those not on state or federal cost-share, is a desirable outcome.

Comment ID 0737.001.003

Author Name: Comment Anonymous

Organization: Lower Allen Township Authority

Delivery Rates - EPA should technically justify the use of different delivery ratios arid old model output data in development of the Pennsylvania WIP that supports the TMDL. The failure of EPA and PA DEP to resolve this issue before finalizing the WIP and TMDL is irresponsible and provides no reasonable assurance of plan success.

Response

Without more detail in this comment, EPA cannot make an effective reply. The commenter may be interested in the response to comment 0334.1.001.005 as it seems to be related.

Comment ID 0741.001.006

Author Name: Caskey W.

Organization: Isle of Wight County

The Phase 5.3 model and model inputs are not sufficiently developed to produce reliable predictions.

Response

Please refer to the response to comment 0169.1.001.005.

Comment ID 0743.001.004

Author Name: Declue Robert

Organization: Water Quality Coordinating Committee (WQCC)

Furthermore, the pollutant loading model which is driving much of the regulatory targets and tracking progress seems to have made many erroneous assumptions about the character of agriculture as is actually practiced in NYS as well as the attributes of the resource base. Until these premises are adjusted to be in line with reality, the output of the model is

seriously flawed for this portion of the Bay

Response

In 2009, EPA provided all watershed states with the opportunity to review all pertinent agricultural input data and to supply state-specific or county-specific values. Some states chose to revise portions of the agricultural data at that time.

Additionally, the model development process has ample opportunity for input as the technical direction for the development, management application, and independent review of the Chesapeake Bay Program Partnership's models is carried out through several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. Descriptions of each of these groups is provided within Section 1 of the final Bay TMDL. Each has broad representation by federal, state, local, academic, and private groups. Programmatic and policy direction on the application of the models and their use in supporting decision making is undertaken through the partnership's Management Board (previously the Implementation Committee) and the Principals' Staff Committee. All the independent scientific peer reviews of the models are carried by the Chesapeake Bay Program's Scientific and Technical Advisory Committee. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference calls can be found in Appendix C of the final Bay TMDL.

Comment ID 0746.1.001.011

Author Name: Carl Jimmie

Organization: Southern Tier Chesapeake Bay TMDL Commenting Coalition

B. Huge Excess POTW Capacity in the Southern Part of the Watershed Unfairly Influenced the Proposed Allocations and Will Promote Even Higher Growth Very Close to the Bay

A large surplus of unused, already built wastewater treatment plant capacity exists in certain southern Bay States, most notably Virginia and Maryland. Virginia and Maryland have over 400 MGD and 250 MGD of surplus wastewater treatment plant capacity respectively, for a combined surplus of 650 MGD.

Assuming that on the average 100 gallons per day is utilized per person, the combined surplus capacity for Virginia and Maryland would roughly accommodate the wastewater produced by the following increase in population.

= 650,000,000 OPD/(l 00 gallons/day/person)
= 6,500,000 people

The additional future population that could be served by the surplus treatment capacity in Virginia and Maryland represents over a 39 percent increase above the current population within the entire Chesapeake Bay Watershed.

The surplus treatment capacity and the associated increase in population that it could accommodate are significant in

magnitude and represent a significant environmental issue. The magnitude of this potential growth, the associated urban runoff related pollutant loadings, and other environmental issues would be substantial. To illustrate this magnitude, the following comparisons are offered.

• The surplus capacity of the WWTPs within the New York State portion of the watershed is roughly 21 MGD, about 3 percent of the surplus capacity in Virginia and Maryland.
• The additional future population that could be served by the surplus treatment capacity in Virginia and Maryland is 10 times that of the current population within the New York State portion of the Bay watershed.
• As a point of comparison, the flow rate of the surplus Maryland and Virginia WWTP capacity of 650 MGD (1005 CFS) is greater than the median flow of the Chemung River at Chemung, NY of 661 CFS [FN22].

A number of concerns exist regarding the magnitude of the surplus WWTP capacity that Virginia and Maryland presently have, including:

1. Any reductions in nutrient loadings made within New York State would be dwarfed by the increased loadings within Virginia and Maryland if all, or a significant portion, of this surplus capacity is utilized. Given the rapid population growth in Virginia and Maryland over the past two decades and the potential for substantial continued growth and increased nutrient loadings in those states between now and 2025, the stringent nutrient reductions set forth in the Draft TMDL for New York is mainly needed to allow a fraction of the additional population grown envisioned by this excess POTW capacity in Maryland and Virginia to occur. New Yorkers cannot be forced to pay to create an offset needed for the anticipated population growth in Maryland and Virginia.

2. Emerging pollutant loadings including endocrine disrupting chemicals, entering the Bay would also increase, with a growing population within Virginia and Maryland.

3. If unused by an increased population, the surplus WWTP capacity could potentially be utilized by Virginia and Maryland as a substantial nutrient trading bank, where credits could be sold to other Bay States that require offsets because currently excess POTW capacity to meet that growth hasn't been built. A number of potential scenarios could develop that would not be favorable for New York.

As a hypothetical example, a Village in New York State might have an opportunity for significant growth but would need to expand its WWTP to support this growth. Purchasing (through Trading) nutrient credits from a southern Bay WWTP that has excess capacity might be the most cost-effective nutrient reductions possible.

A number of questions and issues exist regarding this topic. How much of this surplus WWTP capacity in Virginia and Maryland was created from WWTP expansion/upgrade projects that received federal funding? In the future, can nutrient credits for unused capacity at the WWTPs that received federal funding be transferred, at no cost to WWTPs in other Bay states that need additional nutrient credits?

[FN22] Statistical data from USGS 01531000 Gaging Station on Chemung River at Chemung NY, http://waterdata.usgs.gov/nwis/uv?01531000

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0746.1.001.025

Author Name: Carl Jimmie

Organization: Southern Tier Chesapeake Bay TMDL Commenting Coalition

In addition, the models used to derive the Total Maximum Daily Load which the Bay can receive and still meet water quality standards need to better reflect the New York 2010 reality and the type of agricultural BMPs in use in New York rather than those used in Maryland and Virginia. We believe that it is possible that, if the model better reflected New York agricultural practices, it would confirm that New York could meet the reductions with the plan appended to the Draft NY WIP. The Coalition believes that one of the primary reasons for these agriculture-related model problems is that the Chesapeake Bay Committee did not seek input from Cornell University (New York State's land-grant college) during the development/implementation of the models and the associated loading allocations. In contrast, EPA worked closely with the land-grant colleges for the other Bay states, including Virginia Tech, Penn State, etc.

Response

In 2009, EPA provided all watershed states with the opportunity to review all pertinent agricultural input data and to supply state-specific or county-specific values. Some states chose to revise portions of the agricultural data at that time.

Additionally, the model development process has ample opportunity for input as the technical direction for the development, management application, and independent review of the Chesapeake Bay Program Partnership's models is carried out through several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. Descriptions of each of these groups is provided within Section 1 of the final Bay TMDL. Each has broad representation by federal, state, local, academic, and private groups. Programmatic and policy direction on the application of the models and their use in supporting decision making is undertaken through the partnership's Management Board (previously the Implementation Committee) and the Principals' Staff Committee. All the independent scientific peer reviews of the models are carried by the Chesapeake Bay Program's Scientific and Technical Advisory Committee. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference calls can be found in Appendix C of the final Bay TMDL.

EPA works closely on modeling with land-grant, sea-grant, and other other universities in the watershed largely because they responded to and won open-competition Requests For Proposal and because of their voluntary participation in open Chesapeake bay program meetings such as those described above. Cornell is encouraged to compete in future RFPs and to participate in committees and workgroups. Toward that end, Bob Howarth of Cornell is a current member of the Scientific and Technical Advisory Committee. Additionally, Chesapeake Bay Program modeling was presented at the North American Nitrogen Center at Cornell in

June of 2004 and March of 2008.

We look forward to working with Cornell in the future.

Comment ID 0748.001.001

Author Name: Eicher L.

Organization:

In reference to Docket ID # EPA -R03 - OW - 2010 - 0736 I don't neccarily agree with all the information . I believe the main culprit to prolusion of the Cheasapeake Bay is people. Have you included population statistics in your model. Are your future demands going to be paid for in advance by government on my farm? I no-till 99% of my crops. The only reason it isn't 100% is because of an ocaissional rut made that has to be fixed. I have a nutrient management plan but it doesn't include a 2 inch rain fall in twenty minutes. That is called mother nature . I think the best way for you to do your job is to use real numbers on an individual bases and if it takes 30 years to complete so what, it will be done correctly!

Response

Thank you for your comment and your commitment to conservation tillage.

To address your specific points:
Human population is included in the assessment of loads from developed land and projections of development. It also considered in sewage and septic system loads.

Hydrologic variability in considered in the TMDL in using a 10-year period of climate to assess loads. Please see section 6.1.1. of final Bay TMDL document.

If by 'real numbers' the commenter means monitored loads, monitoring non-point sources on a small scale is not feasible. Modeling is required to equitably distribute the loadings to various sources in the watershed. The watershed model is calibrated to more than 100 water quality monitoring stations and nearly 300 flow gauging stations.

8.2 - AIRSHED MODEL

Comment ID 0272.2.001.015

Author Name: Pippel Julie

Organization: Maryland Association of Municipal Wastewater Agencies, Inc. (MAMWA)

EPA Should Reconsider Its Approach to Air Deposition Loads

EPA's Chesapeake Bay Program Office has estimated that atmospheric sources account for about one third of the nitrogen that reaches the Bay, and the majority of this load originates from outside the Chesapeake Bay watershed. CBPO has developed airshed model scenarios representing various levels of atmospheric load reduction. Given the magnitude of the load derived from atmospheric sources, it is critical that these sources bear a proportional operational and financial responsibility for load reduction, and other sectors not be negatively impacted due to lack of atmospheric load reductions. This may require the CBPO to model and pursue regulatory strategies that are beyond existing or proposed regulations, including atmospheric controls specifically targeted toward water quality protection.

Response

The Chesapeake TMDL relies on the national programs of the Clean Air Act and the associated Federal and State laws and regulations. Over the last 30 years reduction in NOx deposition in the Chesapeake watershed have declined by more than 30%. Further reductions in atmospheric deposition are expected from ongoing implementation of management practices to achieve the current air quality standards, as well as additional reductions that may be required by the new ozone standard to be set by July 2011. The rate of nitrogen reduction from atmospheric deposition is one of the highest of all the source sectors in the Chesapeake watershed and comparable to the relatively high rate of nitrogen reductions from point sources.

The air reductions assumed in the Chesapeake TMDL include emission reductions due to regulations implemented through the Clean Air Act authority to meet National Ambient Air Quality standards for criteria pollutants in 2020. These are:

On-Road mobile sources: For On-Road Light Duty Mobile Sources this includes Tier 2 vehicle emissions standards and the Gasoline Sulfur Program which affects SUV’s pickups, and vans which are now subject to same national emission standards as cars.

On-Road Heavy Duty Diesel Rule – Tier 4: New emission standards on diesel engines starting with the 2010 model year for NOx, plus some diesel engine retrofits.

Clean Air Non-Road Diesel Rule: Off-road diesel engine vehicle rule, commercial marine diesels, and locomotive diesels (phased in by 2014) require controls on new engines.
Off-road large spark ignition engine rules affect recreational vehicles (marine and land based).

EGUs: CAIR second phase in place (in coordination with earlier NOx SIP call); Regional Haze Rule and guidelines for Best Available retrofit Technology (BART) for reducing regional haze;

Clean Air Mercury Rule (CAMR) all in place.

Non-EGUs: Solid Waste Rules (Hospital/Medical Waste Incinerator Regulations).

While additional atmospheric deposition reductions may be required in the future in national air programs for the primary air quality standard for human health or the secondary air quality standards for standard for environmental health, considerable

progress has already been made in reducing Chesapeake atmospheric deposition loads.

Comment ID 0389.1.001.007

Author Name: Iwanowicz Peter

Organization: New York State Department of Environmental Conservation

Air modeling
• Outdated and not well calibrated to ammonia

Response

The Community Multiscale Air Quality Model used in the Chesapeake TMDL is the model used by state and federal air programs throughout the U.S. to track and assess Federal and State air quality standards. The calibration of ammonia in the CMAQ Model is fully sufficient to support the Chesapeake Bay TMDL. Peer reviews of the CMAQ Model can be found at: http://www.chesapeakebay.net/committee_msc_projects.aspx?menuitem=16525.

Comment ID 0389.1.001.024

Author Name: Iwanowicz Peter

Organization: New York State Department of Environmental Conservation

Air modeling

The New York State Department of Environmental Conservation, Division of Air Resources ("DAR") reviewed the atmospheric deposition modeling component of the TMDL, which is detailed in Appendix L, "Setting the Chesapeake Bay Atmospheric Nitrogen Deposition Allocations." DAR is primarily concerned with two aspects of this TMDL. The first is that the emissions inventory and CMAQ modeling done by EPA in support of the TMDL are obsolete and not adequate to evaluate future emissions and nitrogen deposition. The CAIR and CAMR modeling was done in 2005 to support interstate trading rules that were rejected by courts because it did not adequately address the transport of NOx and SO2 emissions and did not require proper controls of mercury. The choice of 2002 as the base year and future scenarios based on the CAIRICAMR modeling efforts appear to be out of date (ca. 2005). As such, the model projections do not include substantial "on-the-books" and "on-the-way" SOx and NOx emissions reductions, calling into question the usefulness of the results in the out years.

The second overarching concern involves the contribution of ammonium to total N deposition to the Bay. Although nitrate deposition is expected to continue decreasing in this region as a result of further NOx emissions reductions, ammonium deposition - especiaily in intensive agricultural areas - may be on the rise, and is becoming a larger portion of the total N loading. NOx emissions reductions alone will not be sufficient, and the EPA will need to consider more aggressive ammonia emissions reductions in order to achieve targeted N loading levels.

I. Wet Deposition Regression Model, pages L-6 to L-7

Figure L-6, which shows the locations of the monitors used to estimate the wet deposition loading, is missing the nine additional NTN sites - DE99, MD07, MD08, MDI5, MD99, PA47, VAlO, VA27, VA98, and VA99. Although DE99 and MDl5 are shown as AIRMoN sites, it appears that they were transitioned to NTN sites around 2004.

More importantly, monitoring networks such as the NTN were established to characterize spatial and temporal trends in acidic deposition, and to track the effects of regulatory programs that primarily have targeted power plant emissions. A few sites, such as Washington Crossing, NJ (NJ99) and Beltsville, MD (MD99) are located in suburban areas, but a majority of the NTN sites are located in generally rural sites. There are large metropolitan areas in the Bay Watershed, and the EPA needs to demonstrate that this regression model can adequately characterize wet deposition in areas where motor vehicles and other urban sources are present.

II. Dry Deposition - Community Multi-scale Air Quality Model (CMAQ), page L-9

Because dry deposition is so difficult to measure, dry deposition estimates from CMAQ were used to estimate this portion of the N loading. But without adequate measurements of dry deposition, it is difficult to assess the reliability of these model estimates. It is also not clear how EPA derived at 2002 being an "average deposition year" - is this total N deposition?

While we cannot evaluate whether or not 2002 is an "average deposition year" from the standpoint of dry or total N deposition, we can examine wet deposition over the 1985-2005 period. Twenty-two of the NTN sites that were used for the wet deposition regression model had complete or near-complete data over the 21 years - KY22, MD13, NC03, NC34, NC35, NC36, NC41, NJ99, NY08, NY10, NY20, NY68, NY99, PA15, PA29, PA42, PA72, VAOO, VA13, VA28, WV04, and WV18. Table 1 lists the N deposition in 2002 and the average N deposition from 1985-2005. At seven of these sites (NC36, NY08, NY20, NY68, VAOO, VA28, and WV04) the total N deposition in 2002 was within 5% of the 1985-2005 average N deposition. However, at seven others (MD13, NC03, NC34, NC35, NYlO, NY99, and WV18), the 2002 deposition was different than the 21-year average by ±15-36%. At MD13, NC34, and NY99 the 2002 deposition was the lowest annual deposition over the 21 years, while at NC03 and NY10 the 2002 deposition was the second highest value over the 21 years. Hence, while at about onethird of the NTN sites the 2002 wet N deposition was very close to their 21-year average levels, at another third of the sites the 2002 wet N deposition was quite different than the respective average deposition levels. The EPA needs to justify why 2002 is an "average" year.

The notion of an "average deposition year" is further complicated by the fact that nitrate deposition is projected to decrease while ammonium deposition (at least in high ammonia emission regions) is likely to be increasing. Regulatory programs aimed at NOx reductions, whether tied to acid deposition or criteria pollutants (e.g. ozone, fine particulates), are leading to lower nitrate loadings, but have not targeted ammonia. Since the trends in nitrate and ammonium deposition are not consistent across the region, the EPA again needs to demonstrate what constitutes an "average deposition year."

III. Total Atmospheric Deposition Inputs of Nitrogen From Wet and Dry Deposition, page L-12

Several features in Figure L-8 are difficult to understand, including the relatively low values of N deposition in Lancaster

County, PA and much of Delmarva. Figure 1, obtained from the NADP website (http://nadp.sws.uiuc.edu), displays the 2005 wet N deposition amounts across the US. Wet N deposition levels in these two regions are among the highest in the Chesapeake Bay watershed, at least for this particular year.

IV. The various CMAQ scenarios described on pages L-13 to L-15

The use of 2002 as a base year for this effort is inappropriate because of the age of the inventory and the numerous improvements to the inventory since that time. The year 2002 is now eight years past and EPA has developed more up-to-date inventories since that time, including 2005. Tools used to develop the 2002 inventories, such as the NONROAD model and the MOVES, have been improved or developed to better quantify emissions. It would be more appropriate to use a more recent year updated with the more refined and improved inventory techniques to estimate emissions in order to better evaluate deposition.

The projection inventories used to assess future N deposition are based on what EPA knew in 2005 and, therefore, woefully out of date. In fact, this modeling did not accurately reflect the state of controls and emissions requirements in New York at the time and this was never corrected. The CAIR and CAMR modeling does not adequately address EPA's own programs and requirements under the Clean Air Act. The projection inventories do not include (among other things) the updated CAFE standards for motor vehicle fuel mileage or the court ordered ICI Boiler MACT, Utility MACT or the transport rules. These programs will have significant impacts on the amount of NOx emissions to come from affected facilities in future years. Since 2005, the State of New York has implementaed numerous emission control programs and these programs are not included in the projection inventories. This includes adopted measures such as:

• The Acid Deposition Reduction Program. This program required emission reductions of NOx and S02 from EGUs starting in 2004 and resulted in the installation of advanced controls around the state.

• NOx RACT. This includes several regulations that will require an update the control of NOx controls at large stationary combustion installations (boilers, turbines and engines), Portland cement plants, glass manufacturing plants, asphalt plants, and other process sources. These additional controls will be in place by mid-2014.

• CaLEV. This program represents New York's continued implementation of the California low emission vehicle program which is stricter than the federal Tier 2 Vehicle Rule for NOx and includes C02 standards.

• Consent Orders. Agreements with various companies to control emissions were not included in the CAIRICAMR future year inventories and modeling (most notably agreements with NRG and AES). Since that time other substantial agreements have been reached and these also do not seem to be included in the future year analyses (e.g., Lafarge).

On Page L-13 of Appendix L it states that "(a)lthough CAIR has been remanded ... EPA anticipates that NOx emissions reductions close to those originally projected will occur." This is over simplification and fails to recognize that it matters WHERE emissions reductions occur. The CAIR rule was overturned because EPA failed to recognize this fact and by using this modeling in the TMDL analysis, EPA repeats this fundamental error here. In addition, EPA has acknowledged that the NOx emissions reductions in its Transport Rule (75 FR 45210) are insufficient to address transport for the 1997 ozone NAAQS for the New York City metropolitan area. Therefore, further NOx emissions reductions will need to be required in areas have a direct impact on nitrogen deposition in the Bay.

The "2020 Maximum Feasible Scenario" (pages L-14 to L-15) is not representative of what will be required to attain the future ozone NAAQS and seemingly demonstrates a lack of understanding of ozone transport. The OTC states have required low NOx burners (or equivalent emission rates) since 1995, and to suggest that this is advanced control is ludicrous. In addition, to limit the application of controls to existing and planned controls will not allow Northeastern states to adequately plan to meet future more restrictive standards.

To suggest that deeper nested ozone season caps will only be needed in the Northeast Ozone Transport Region does not recognize the true impact of the lower ozone NAAQS and the amount and distance of transported NOx emissions from electrical generation facilities. According to EPA's own January 19, 2010 proposal (75 FR 2938) ozone nonattainment will not only be a northeast and urban problem. Ozone nonattainment will be pervasive through the United States. The OTC states have done preliminary screening modeling that has been shared with EPA that shows across the board reductions in NOx emissions throughout the Eastern United States on the order of 70 % will be needed to meet the new ozone NAAQS. To address the transport of ozone and its precursors, EPA will need to require additional reductions in NOx emissions from states that significantly contribute or interfere with maintenance in downwind areas. EP,,\.. acknowledges this fact in its August 2,2010 Transport Rule (75 FR 45210). These emissions reductions are more than likely to occur given the nature of the provisions of the Clean Air Act requiring states to develop plans and make federally enforceable emissions reductions to attain the NAAQS. These NOx reductions will have a substantial impact on nitrogen deposition in the Bay and its tributaries.

EPA has also not evaluated the impact of the recently adopted N02 NAAQS on NOx emissions. It is likely substantial NOx emissions reductions in urban areas affecting N deposition in the Bay will be required between now and 2020. This also needs to be assessed to develop a complete picture of future year scenarios.

It is most disappointing to see EPA recycle some older air quality modeling to perform the analysis as important as the Chesapeake Bay TMDL. EPA's choice to use the CAIRICAMR modeling is most puzzling especially given the substantial effort EPA has undertaken to develop the supporting documentation for the Transport Rule. While EPA attempted to "update" the CAIRICAMR analysis by estimating some new future year projection scenarios, the CAIRICAMR modeling suffers from the fact that it has old base year data and uninformed or incomplete representations of future year scenarios.

PLEASE SEE Table 1. Wet N (N03-+ NH4+) deposition in 2002 and the 1985-2005 average, as well as the percent difference. PAGE 28 OF ORIGINAL LETTER, DOCKET ID #0389]

PLEASE SEE FIGURE 2. Wet N deposition, 2005. PAGE 28 AND 29 OF THE ORIGINAL LETTER DOCKET ID #0389]

Response

Please see the response to comment 0340.1.001.006.

With respect to the overarching concern of substantial on-the-books and on-the-way NOx reduction we agree. The Chesapeake Bay Program will constantly update the estimates of progress in deposition reductions. A new estimate which will include the recent reductions in emissions is expected early in 2012. As the new CMAQ runs are completed the CBP States will get credit in a reduced load to the watershed in the two-year milestones that will track the TMDL progress going forward. With respect to the overarching

concern about ammonia emissions we note that while national programs do not exist for the control of ammonia emissions, State programs to control ammonia are encouraged in the WIPs, and full credit will be given to the State for these ammonia reductions.

Throughout this comment there is a misinterpretation of 2002 as an average year in the CMAQ modeling. The 2002 year was not intended as an average deposition year but as an average meteorological year. The 2002 year was an average year with regard to precipitation compared to a 30 year normal from 1971-2000. Relative to the 30-year normal, the average precipitation of 2001-2003 was within 10% of the 30-year normal over the Chesapeake Bay airshed except for a few spots in WV and the upper Delmarva Peninsula. The 2001 year was a dry year, 2002 was close to normal, and 2003 was a wet year. The deposition calculated for 2002 was within a few percent of the deposition averaged over 2001-2003 (where grids were matched 1-for-1). In that sense 2002 is an average deposition year. This indicated that the 2002 meteorology was not abnormal and could be used with some degree of confidence for the deposition calculations. The relative change between the deposition for 2002 emissions and 2020 emissions was computed using 2001-2003 meteorology and 2002 meteorology. The relative change was identical between these two calculations, further providing confidence in using 2002 as representative average meteorology for calculating relative changes in deposition for changes in emissions. Interannual variability in precipitation and changes in emissions were recognized and accounted for in setting up the atmospheric deposition inputs to the watershed model.

EPA agrees that dry deposition measurements are difficult and sparse. Because of a lack of flux measurements it is difficult to assess the reliability of the dry deposition estimates. We recognize this and are working to improve and evaluate the dry deposition algorithms in CMAQ.

The regression model used for wet deposition used the trends in deposition that were discernable in the NTN data but also included sophisticated use of detailed meteorological data that was assimilated into the regression model to identify contributing emission source areas and to estimate the impact of these contributions on daily deposition rates on a per-event basis. The resolved the problem of the NTN monitoring stations generally being removed from large metropolitan areas.

Thank you for your comment on Figure L-8. This figure was in error and has been corrected in the final TMDL report.

EPA notes that the age of the inventory is immaterial if the emissions methodologies are reasonable. Of greater importance is the consistent pairing of the emissions methodology for the base and the future year projections. We strived to maintain that consistency to not introduce an extraneous trend in the projection. We feel that this is the dominant concern, one that we addressed in our approach. The 2002 and 2020CAIRCAMR is a consistent pair of scenarios in terms of emission methodology. This is a valid pair to assess projected changes from 2002 to 2020 and the use of these paired scenarios was a deliberate decision to keep extraneous errors to a minimum. Moving to a more recent year inventory would have introduced inconsistencies in the projections.

A new modeling to pair with a new 2005 or 2008 base with its methodology is not yet available. When it is available we will rerun and update the projections. With the 2020 scenario, EPA utilized modeling that included programs which were already promulgated. We believed this to be the most reasonable basis for providing reasonable assurance of air reductions. We did not feel that it was prudent to estimate the effects of potential future rules when determining the TMDL air allocations. Also, ammonia was not included in future air reductions since ammonia is not currently a regulated pollutant listed in the Clean Air Act. As noted in the draft TMDL, States may take credit for nitrogen deposition reductions that exceed the estimates from federally promulgated

programs used in the air allocations.

8.3 - WATER QUALITY AND SEDIMENT TRANSPORT MODEL

No Comments are Applicable to this Issue Category, and Thus No Response is Necessary.

8.4 - LAND USE CHANGE MODEL

Comment ID 0159.1.001.001

Author Name: Farasy Tom

Organization: Maryland State Builders Association

The EPA released its 5.3 BayShed model with an impervious coverage in the Bay States of 675,917 acres, which was a dramatic change over the 5.2 BayShed model (799,989 impervious acres). We then learned in late May 2010 that these areas are incorrect and that a new version of the model is being worked on that will show an impervious area almost twice as large-over 1.5 million acres. Regardless of any explanation, we will need field verification of the veracity of these numbers as the significant fluctuations have extreme implications since the State's Watershed Implementation Plans are based on data from this model.

Response

Fluctuations in the extent of developed lands (impervious and pervious) in different versions of the watershed model are due to changing technology and methods used for mapping developed lands and for inferring change over time. Changes have also been prompted by concerns expressed by the States, local governments, and other interested parties. For each version of the Chesapeake Bay Watershed Model, the Chesapeake Bay Program Office strives to use the best available data and methods to provide information that is accurate, consistent and comparable across the watershed and over time. A new version of the Watershed Model, Phase 5.3.2, will be coming out soon and will include an extent of impervious surface greater than that used in any previous version of the model due to the inclusion of impervious surfaces associated with all roads and single-detached housing units outside of dense urban areas.

Over the past six months, the US Geological Survey (USGS) has conducted additional ground-truthing of assumptions and data used to estimate the extent of impervious surface in the watershed. In addition, the analytical methods have undergone review by the Chesapeake Bay Program's Scientific and Technical Advisory Committee and are currently in review by USGS.

Comment ID 0194.1.001.017

Author Name: Ashley Keith

Organization: Home Builders Association of Metro Harrisburg

EPA's updated watershed model has a number of suspected deficiencies. The most egregious is the estimate of the amount of impervious surfaces in each state, which seems quite large compared to previous bay model runs. The multi-billion price tag for the proposed Chesapeake Bay MS4 retrofit requirements contained in the urban stormwater backstop allocations make it absolutely essential that EPA's impervious surface estimates be correct.

Response

Fluctuations in the extent of developed lands (impervious and pervious) in different versions of the watershed model are due to changing technology and methods used for mapping developed lands and for inferring change over time. Changes have also been prompted by concerns expressed by the States, local governments, and other interested parties. For each version of the Chesapeake Bay Watershed Model, the Chesapeake Bay Program Office strives to use the best available data and methods to provide information that is accurate, consistent and comparable across the watershed and over time. A new version of the Watershed Model, Phase 5.3.2, will be coming out soon and will include an extent of impervious surface greater than that used in any previous version of the model due to the inclusion of impervious surfaces associated with all roads and single-detached housing units outside of dense urban areas.

Over the past six months, the US Geological Survey (USGS) has conducted additional ground-truthing of assumptions and data used to estimate the extent of impervious surface in the watershed. In addition, the analytical methods have undergone review by the Chesapeake Bay Program's Scientific and Technical Advisory Committee and are currently in review by USGS.

Comment ID 0519.1.001.002

Author Name: Gibb G.

Organization: Northern Virginia Regional Commission (NVRC)

Modeling Concerns
The Northern Virginia Regional Commission staff understands that the Chesapeake Bay Programs (CBP) Phase 5 Watershed Model (WSM) is a necessary tool in helping the Bay States in addressing tidal nutrient and sediment listings via the TMDLs and certain aspects of non-tidal TMDLs as well. The Commission staff are however concerned that the modeling framework has numerous sources of error and uncertainties that have directly influenced the results of the different management scenarios employed to develop the TMDL. Urban stormwater loads and implementation costs are highly sensitive to the assumptions regarding urban land use breakdown.

One of those concerns is the instability and application of the land use layer of the WSM. Upon examination of the Phase 5.3 modeling results it has became apparent that there are major discrepancies between the Phase 5.2 and Phase 5.3 extents of developed land within the developed land class. For the State of Maryland, between the CBP Phase 5.1/Phase 5.2 and CBP Phase 5.3 watershed models, there has been a decrease of approximately 500,000 acres (an approximate 40% decrease) in total urban land use throughout Maryland. While the urban impervious area has remained relatively constant between model phases (in the range of 230,000 - 250,000 acres), the change in total

urban is primarily due to a dramatic decrease in urban pervious area. For the Commonwealth of Virginia's 2010 No Action Scenario, between Phase 5.2 and Phase 5.3 pervious high intensity was reduced by approximately 274,000 acres (71% decrease) and pervious low intensity was reduced by approximately 272,000 acres (27% decrease). Comparison between the Phase 5.2 land cover data and higher resolution land cover data obtained from several local governments within the State of Maryland and the Commonwealth of Virginia were made by several members of the CBP Urban Stormwater Work. These comparisons for the most part indicated an acceptable amount of error in the data sets given the lower resolution and broader scale.

The land cover discrepancy between the Phase 5.2 and the Phase 5.3 is explained by the Chesapeake Bay Programs Office (CBPO) Land Data Team's strict adherence to the information in United States Geological Surveys' new Chesapeake Bay Land Cover Data (CBLCD) series (land cover data for 1984, 1992, 2001, and 2006) for Phase 5.3 compared to the reliance on the Regional Earth Science Applications Center (RESAC) 2001 land cover augmented with ancillary information on populated residential road networks in Phase 5.2. The Data Team states there is a slight underestimate of impervious surfaces in Phase 5.3 vs. 5.2 even though the 2001 RESAC impervious surface data were used in both analyses. One possible explanation for this is because the overall extent of the developed classes in Phase 5.2 was larger than the extent of the CBLCD developed classes so more pixels in the 2001 RESAC impervious surface dataset were captured within Phase 5.2 developed areas.

Another stated reason is that the improved accuracy of the CBLCD series combined with methods for incorporating State-reported extractive lands in the Phase 5.3 dataset eliminated several large "impervious surface" areas from false inclusion in the Phase 5.3 developed classes whereas these areas were considered developed in Phase 5.2. Such areas have been determined to actually be quarries or surface mines and are classified as "extractive" in Phase 5.3.

The rate of change in impervious surface, which directly determines the estimated annual extent of "bare-construction" land use, also changed significantly between Phase 5.2 and Phase 5.3. This change is similarly due to reliance on the CBLCD series for Phase 5.3 to represent change over the 20- year calibration period vs. the inference of pervious and impervious developed land change over 20-years in Phase 5.2 based on changes in total housing units.

These differences between the Phase 5.2 and 5.3 developed land uses have resulted in insufficient bare-construction lands for placement of erosion and sediment control BMP's and gross underestimation of the extent of low-intensity developed land uses which by default, are lumped into the forest/wooded land use in Phase 5.3 (as occurred with all "remainder" areas in Phases 5.0, 5.1, and 5.2).

Probable effect of changes on the Phase 5.3 land use dataset:
• The extent of impervious surfaces in all years will increase through the inclusion of impervious surfaces associated with roads and houses not detectable with Landsat satellite imagery. This change would increase the nutrient and sediment loads delivered to the Bay that are attributed to developed and non-forested lands in suburban, exurban, and rural areas;
• The extent of pervious developed lands in all years will increase through the inclusion of pervious lands associated with populated residential road networks, institutional grounds, and open lands. This change would increase the nutrient and sediment loads delivered to the Bay that are attributed to developed and non-forested lands in suburban, exurban, and rural areas;
• The extent of forest/wooded lands will decrease in all years and may mimic more closely the observed trends in forests noted by the USFS (downward trend since 1984);

• The rate of impervious surface change will increase over the current rate in Phase 5.3 but may not be as high as the rate of change in Phase 5.2. The rate will increase because it will now be partially related to the rate of housing change (and housing has increased at higher rates than developed land cover). The rate may not be as high as in Phase 5.2 because the rate will 'not be exclusively related to changes in housing. Estimates of the extent of developed lands based on changes in housing units from the present back through 1984 will not be allowed to fall below the detected extent of developed lands in the CBLCD series; and
• The extent of these changes will mostly impact the loads from suburban, exurban, and rural areas. Particularly in areas where a large percentage of new developed land is added, the contribution of nutrient and sediment loads from all other sources upstream of a calibration site will likely decrease, especially the wooded / open category. These changes will likely affect how target loads are distributed among the major basins within each jurisdiction. However, the degree to which these changes will impact the allocation of loads is uncertain and may be minor at the large major basin scale. The changes would also affect the acres available for applying BMPs.

The Northern Virginia Regional Commission staff recommends that documentation and operational procedures be developed by the CBPO Data Team to enable a local government to present higher resolution land cover data for incorporation into the WSM. In those instances where a local government declines to prOVide data, or where this locally derived data is not available, the CBLCD will serve as a "backstop".

Another issue of concern is the complexity and lack of accuracy of the Bay Program's WSM when used to generate load estimates at the county or land-river segment level. The Commission staff does not believe that the WSM should be the main tool to determine accountability at the local level. In a review of the Phase 5 watershed model, by the Programs' Science and Technical Advisory Committee (STAC), the Committee clearly stated that the WSM model was not appropriate for use at the local level, and would need recalibration and/or resegmentation for this application. [FN1] It is therefore unclear why the Bay Program is continuing to promote the application of the WSM to determine local-level loads and allocations, and why EPA is calling for local allocations in the Phase 2 WIPs. This would appear to be an inappropriate application of watershed model to local level.

[FN1] Scientific and Technical Advisory Committee. 2008a. Review of the Phase V Community Chesapeake Bay Watershed Model. STAC Publication 08-003.

Response

Fluctuations in the extent of developed lands (impervious and pervious) in different versions of the watershed model are due to changing technology and methods used for mapping developed lands and for inferring change over time. Changes have also been prompted by concerns expressed by the States, local governments, and other interested parties. For each version of the Chesapeake Bay Watershed Model, the Chesapeake Bay Program Office strives to use the best available data and methods to provide information that is accurate, consistent and comparable across the watershed and over time. A new version of the Watershed Model, Phase 5.3.2, will be coming out soon and will include an extent of impervious surface greater than that used in any previous version of the model due to the inclusion of impervious surfaces associated with all roads and single-detached housing units outside of dense urban areas.

Over the past six months, the US Geological Survey (USGS) has conducted additional ground-truthing of assumptions and data

used to estimate the extent of impervious surface in the watershed. In addition, the analytical methods have undergone review by the Chesapeake Bay Program's Scientific and Technical Advisory Committee and are currently in review by USGS.

The Chesapeake Bay Watershed Model and Scenario Builder are accounting tools used to inform the TMDL by comparing loads, load reductions, and reduction capacity across jurisdictions and across sectors. As such, it is necessary to provide similar assumptions and use of data across these jurisdictions and sectors. All data and methods must be vetted through the technical direction structure.

Even though local land use data are often more accurate than the generalized land use/cover data used to calibrate the Watershed Model, introducing local data for some but not all jurisdictions may impact the equity of the allocations. In addition, few jurisdictions have comparable digital land use data spanning the 20-year hydrologic period used to calibrate the Watershed Model and some local accuracy will likely be lost through translating local land classes into the more generalized land use dataset used in the Watershed Model. In spite these caveats, the Chesapeake Bay Program Office Land Data Team will work with the Urban Stormwater Workgroup to try and resolve these issues and to develop methods for incorporating local data into the land use dataset used to calibrate future versions of the Watershed Model (post Phase 5.3.2).

8.5 - SPARROW MODEL

No Comments are Applicable to this Issue Category, and Thus No Response is Necessary.

8.6 - GENERAL/MISCELLANEOUS

Comment ID 0061.1.001.002

Author Name: Haterius Stephen

Organization: National Association of State Departments of Agriculture (NASDA)

This delay will allow EPA to update the Chesapeake Bay Watershed model to correct known deficiencies with respect to nutrient management effectiveness and suburban land characteristics. See letter dated June 11, 2010, from Shawn Garvin, Regional Administrator, EPA Region III, to the Principal's Staff Committee (discussing plans to update the model to address these flaws).

Response

The Chesapeake Bay Program has continually refined and updated its models since its inception. The Phase 5.3 Watershed Model is in it's fifth generation of development and application. The Airshed Model and Bay Model have also had several generations of model development and application in the Chesapeake. While the models continue to be refined to keep up with the management needs of the Chesapeake Bay Program it's remarkable that the overall findings of are so similar. For example, the early 2003 Phase 4.3 model findings of the overall nitrogen loads needed to achieve water quality standards in the Chesapeake is within a few percent

of that of the Phase 5.3 TMDL loads.

The Chesapeake Bay Program will continue to refine the CBP models as needed to support the Chesapeake watershed environmental management needs. As part of that ongoing environmental management support the CBP will modify the Phase 5.3 Model to refine simulation of loads from developed lands for the WIP II process. This will provide a more detailed simulation for the higher resolution Phase II Watershed Implementation Plans.

Comment ID 0069.1.001.003

Author Name: Nemura Adrienne

Organization: LimnoTech

EPA has rushed the development of this TMDL and has applied tools that were originally developed for continued implementation of a voluntary, cooperative program. We do not believe that these tools have been sufficiently tested and verified for application in a TMDL (particularly the Scenario Builder) and for subsequent implementation through the NPDES program, particularly for stormwater, combined sewer overflows, and concentrated animal feeding operations (CAFOs).

Response

Please refer to the response to comment 0340.1.001.006.

An ongoing independent scientific peer review process has been adopted by the Chesapeake Bay Program that's consistent with EPA's Science Advisory Board guidance. The full history of independent scientific peer reviews of the different Chesapeake Bay model can be found at:
http://www.chesapeakebay.net/committee_msc_projects.aspx?menuitem=16525.

Comment ID 0069.1.001.008

Author Name: Nemura Adrienne

Organization: LimnoTech

Finally, we believe that it is necessary to test some of the newer tools (that do not appear to have been peer reviewed) that EPA used to develop the TMDL. Therefore, in addition to our request for an extension, we are also requesting a copy of the Scenario Builder model so that it may be tested.

Response

All of the Scenario Builder code, inputs, outputs, and documentation are available along with Watershed Model downloadable

information at: Scenario Builder documentation (uploaded 9/16/10), source code (10/29), and database (11/5) are available on this site:
ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/.

Scenario Builder inputs and outputs are available on this ftp site (continually updated as new results are run): :
ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/.

Phase 5.3 watershed model information is available here:
http://ches.communitymodeling.org/models/CBPhase5/index.php.

An ongoing peer review process has been adopted by the Chesapeake Bay Program that's consistent with EPA's Science Advisory Board guidance. Access to the independent scientific peer reviews of the Bay models can be found at:
http://www.chesapeakebay.net/committee_msc_projects.aspx?menuitem=16525.

Comment ID 0077-cp.001.002

Author Name: Comment Anonymous

Organization:

Unfortunately, the Draft predominantly mentions the quality of water for the Chesapeake Bay. Because the Draft is a document pertaining to TMDL's this might well be expected. However, the quantity of water that is being received by the Chesapeake Bay is an issue that should not be completed ignored in the draft. Water quantity may not be a pressing issue at the moment, but the collusion of a host of factors could raise the issue in importance rapidly.

Response

A preliminary analysis of the influence climate change on estimated Chesapeake watershed flows, nutrient, and sediment loads has been included in the TMDL documentation—please see Appendix E. Summary of Initial Climate Change Impacts on the Chesapeake Bay Watershed Flows and Loads.

Appendix E describes a preliminary assessment of climate change impacts on the Chesapeake Bay using an earlier version of the Phase 5 Chesapeake Bay Watershed Model (Phase 5.2) and tools developed for EPA's BASINS 4 system including the Climate Assessment Tool (CAT). Flows and associated nutrient and sediment loads were assessed in all river basins of the Chesapeake Bay with three key climate change scenarios reflecting the range of potential changes in temperature and precipitation in the year 2030. The three key scenarios came from a larger set of 42 climate change scenarios that were evaluated from 7 Global Climate Models (GCMs), 2 scenarios from the Intergovernmental Panel on Climate Change (IPCC) SRES (Special Report on Emissions Scenarios) storylines, and 3 assumptions about precipitation intensity in the largest events.

As discussed in Appendix E, initial findings regarding changes in the quantity of water due to climate change are that flows are estimated to decrease primarily because increased temperature increases evapotranspiration losses. Of course other future factors

may come into play as well including increases in water withdraw consumptive use and increases in imperviousness causing decreases in water recharge of groundwater. This analysis, particularly in regards to estimated changes in flow due to climate change will be examined more fully in a planned 2017 Assessment of the TMDL progress.

Comment ID 0080-cp.001.003

Author Name: French T. A.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The EPA model is not proven, and not suitable for being the basis for the proposed limitations.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0080-cp.001.004

Author Name: French T. A.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--Most specifically, the EPA should incorporate the model revisions recommended by the DEC in their Watershed Implementation Plan.

Response

Please refer to the response to comment 0103-cp.001.004.

Comment ID 0082-cp.001.003

Author Name: Szlucha Terry

Organization: T & D Enterprises

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The EPA model is flawed, not proven, and not suitable for being the basis for the proposed limitations.

Response

Please refer to the response to comment 0340.1.001.006

Comment ID 0082-cp.001.004

Author Name: Szlucha Terry

Organization: T & D Enterprises

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...
--Most specifically, the EPA should incorporate the model revisions recommend ed by the DEC in their Watershed Implementation Plan.

Response

Please refer to response to Comment 0103-cp.001.004.

Comment ID 0083-cp.001.003

Author Name: Pearson Richard

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The EPA model is flawed, not proven, and not suitable for being the basis for the proposed limitations.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0083-cp.001.004

Author Name: Pearson Richard

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--Most specifically, the EPA should incorporate the model revisions recommended by the DEC in their Watershed Implementation Plan.

Response

Please refer to the response to comment 0103-cp.001.004.

Comment ID 0088-cp.001.003

Author Name: Herrala G. W.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The EPA model is flawed, not proven, and not suitable for being the basis for the proposed limitations.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0088-cp.001.004

Author Name: Herrala G. W.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--Most specifically, the EPA should incorporate the model revisions recommended by the DEC in their Watershed Implementation Plan.

Response

Please refer to the response to comment 0103-cp.001.004.

Comment ID 0090-cp.001.003

Author Name: Bloomer J.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The EPA model is flawed, not proven, and not suitable for being the basis for the proposed limitations.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0090-cp.001.004

Author Name: Bloomer J.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--Most specifically, the EPA should incorporate the model revisions recommended by the DEC in their Watershed Implementation Plan.

Response

Please refer to the response to comment 0103-cp.001.004.

Comment ID 0092-cp.001.003

Author Name: Herrala K. L.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The EPA model is flawed, not proven, and not suitable for being the basis for the proposed limitations.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0092-cp.001.004

Author Name: Herrala K. L.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--Most specifically, the EPA should incorporate the model revisions recommended by the DEC in their Watershed Implementation Plan.

Response

Please refer to the response to comment 0103-cp.001.004.

Comment ID 0096-cp.001.003

Author Name: Morris Brian

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The EPA model is flawed, not proven, and not suitable for being the basis for the proposed limitations.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0096-cp.001.004

Author Name: Morris Brian

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--Most specifically, the EPA should incorporate the model revisions recommended by the DEC in their Watershed Implementation Plan.

Response

Please refer to the response to comment 0103-cp.001.004.

Comment ID 0098-cp.001.003

Author Name: Scott D.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The EPA model is flawed, not proven, and not suitable for being the basis for the proposed limitations.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0098-cp.001.004

Author Name: Scott D.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--Most specifically, the EPA should incorporate the model revisions recommended by the DEC in their Watershed Implementation Plan.

Response

Please refer to the response to comment 0103-cp.001.004.

Comment ID 0099-cp.001.003

Author Name: Magargle Richard

Organization:

I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The EPA model is flawed, not proven, and not suitable for being the basis for the proposed limitations.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0099-cp.001.004

Author Name: Magargle Richard

Organization:

I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--Most specifically, the EPA should incorporate the model revisions recommended by the DEC in their Watershed Implementation Plan.

Response

Please refer to the response to comment 0103-cp.001.004.

Comment ID 0100-cp.001.003

Author Name: Comment Anonymous

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The EPA model is flawed, not proven, and not suitable for being the basis for the proposed limitations.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0100-cp.001.004

Author Name: Comment Anonymous

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--Most specifically, the EPA should incorporate the model revisions recommended by the DEC in their Watershed Implementation Plan.

Response

Please refer to the response to comment 0103-cp.001.004.

Comment ID 0103-cp.001.003

Author Name: Laudeman Todd

Organization: Tioga County Landowners Group

I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The EPA model is flawed, not proven, and not suitable for being the basis for the proposed limitations.

Response

Please refer to the response to comment 0103-cp.001.004.

Comment ID 0103-cp.001.004

Author Name: Laudeman Todd

Organization: Tioga County Landowners Group

I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--Most specifically, the EPA should incorporate the model revisions recommended by the DEC in their Watershed Implementation Plan.

Response

New York described additional source contributions of BMPs that they would like to see included or refined in Scenario Builder and the Phase 5.3 watershed model. These suggestions included agricultural practices, such as the New York version of prescribed grazing and enhanced phosphorus index standards, among others, as well as urban, rural, and atmospheric emission practices.

The model development process has had ample opportunity for input as the technical direction for the development, management application, and independent review of the Chesapeake Bay Program Partnership's models is carried out through several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. Descriptions of each of these groups is provided within Section 1 of the final Bay TMDL. Each has broad representation by federal, state, local, academic, and private groups. Programmatic and policy direction on the application of the

models and their use in supporting decision making is undertaken through the partnership's Management Board (previously the Implementation Committee) and the Principals' Staff Committee. All the independent scientific peer reviews of the models are carried by the Chesapeake Bay Program's Scientific and Technical Advisory Committee. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. Links to records of these meetings and conference calls can be found in Appendix C of the final Bay TMDL

EPA is promoting an adaptive management approach, but towards the same goal post as the Bay TMDL—restored Chesapeake Bay water quality as defined by Delaware, Maryland, Virginia, and the District of Columbia's Chesapeake Bay water quality standards regulations.

As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the phase 5.3 will be updated, not for the December 31 2010 TMDL, but in support of development of the Phase II Watershed Implementation Plans, which will be due after the 2010 TMDL. EPA has clearly stated that adjustments may be made to the allocations at that time and reflected in amendments to the 2010 Bay TMDL. Changes to the model generated numbers are a direct result of improving inputs data and simulation methods.

The same Shawn Garvin letter states "prior to 2017, EPA plans to review the full suite of the partnership's Bay models based on the best available science and decision-support tools and consider whether updated models should be developed to support phase III implementation plans and potential modifications to the Bay TMDL allocations." New data and science will always continue to become available and, as stated in the above mentioned letter, EPA is using an adaptive management approach to incorporate new information as it becomes available with scheduled upgrades during 2011 and 2017. There is no anticipation of jurisdictions over-controlling nutrients in the interim.

Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf.

EPA can accept additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

Comment ID 0103.1.001.002

Author Name: Laudeman Todd

Organization: Tioga County Landowners Group

The Bay Watershed Model has never been tested for its accuracy.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0104-cp.001.001

Author Name: Anderson R. N.

Organization:

I oppose adoption of the proposed draft TMDL for the Dhesapeake Bay for the following reasons:

The model used by EPA is flawed. I urge you to cosider the model revisions developed by the New York State Dept. of Environmental Conservation in their Watershed Implementation Plan.

Response

Please refer to the response to comment 0103-cp.001.004.

Comment ID 0133-cp.001.003

Author Name: Foster Pansy

Organization: Triple F Jerseys, LLC

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The EPA model is flawed, not proven, and not suitable for being the basis for the proposed limitations.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0133-cp.001.004

Author Name: Foster Pansy

Organization: Triple F Jerseys, LLC

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--Most specifically, the EPA should incorporate the model revisions recommended by the DEC in their Watershed Implemetation Plan.

Response

Please refer to the response to comment 0103-cp.001.004.

Comment ID 0135-cp.001.003

Author Name: Vallese P.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The EPA model is flawed, not proven, and not suitable for being the basis for the proposed limitations.

Response

Please see response to comment 0340.1.001.006.

Comment ID 0135-cp.001.004

Author Name: Vallese P.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--Most specifically, the EPA should incorporate the model revisions recommended by the DEC in their Watershed Implementation Plan.

Response

Please refer to the response to comment 0103-cp.001.004.

Comment ID 0138-cp.001.002

Author Name: Patterson, Jr. W.

Organization: Shepherd's Haven Farm

There has been a focus on the bay for years, yet as I understand it, the modelling for the bay is not very good. In today world, with the computer power we have available, that is not acceptable when you consider the impact this requirement will have on our communities. First, you need to have an appropriate model to understand the cost and benefit of any planned improvements.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0138-cp.001.005

Author Name: Patterson, Jr. W.

Organization: Shepherd's Haven Farm

So, help get the model right and then understand what the true benefits and costs are before you do this heavy handed stuff.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0154-cp.001.010

Author Name: Dyson Gary

Organization: Planning and Code Administration, City of Gaithersburg, Maryland

--The City makes significant investment of resources in streetsweeping, a very effective means of improving water quality. How can we get credit for that in the WIP process?

Response

Streetsweeping is a best management practice or BMP that is credited in the Phase 5.3 Chesapeake Bay Watershed Model. As with all Phase 5.3 model credited BMPs, the units of coverage, be it miles, acres, etc. are reported to EPA by state authorities. In Maryland, the state reporting authority is the Maryland Department of the Environment (MDE). The City of Gaithersburg must report to MDE these efforts so that MDE can assure EPA these efforts aren't double counted. The EPA Chesapeake Bay Program Offices receives MDE's reports from Robin Pellicano.

Comment ID 0154-cp.001.011

Author Name: Dyson Gary

Organization: Planning and Code Administration, City of Gaithersburg, Maryland

• How will developed areas built before 1985 that drain into post-1985 facilities be classified? Will these be credited toward watershed specific TMDLs?
• Will there be a streamlined means to consider new BMPs to meet TMDL requirements?
• For older private on- site facilities that provide little if any water quality treatment, which party will be responsible for the retrofit? There may be legal issues that would prevent local governments from requiring a property to retrofit a facility that was approved at the time of development.
• Will there be a list provided of acceptable BMPs tailored to specific watershed TMDLs?
• Will credit toward specific TMDLs be given for ongoing environmental restoration efforts such as stream restoration and reforestation projects?

Response

Maryland has separate, non-NPDES program authorities which cover septic systems. EPA has developed several BMP tools which are available to states and the public which can be used to address releases from septic systems. Property owners are ultimately responsible for the cost of upgrades to on-site systems. However, states encourage funding assistance where monies for BMPs are available. BMPs generally work in application specific rather than watershed specific applications.

The simulation of the MS4 managed areas and the BMPs used for MS4 discharges can be found in the web sites of documentation sources listed below. Specifically the simulation of developed urban and suburban is the same for both MS4 and non-MS4 areas so the drainage of pre-1985 developed areas into post-1985 facilities has no influence on MS4 or non-MS4 loads. Loads from both types of developed areas can be reduced through management actions and both load reduction would count in the watershed wide TMDL load reduction.

With respect to new BMPs, EPA can accept additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

The BMPs currently being used in the TMDL assessment are documented in the Scenario Builder documentation available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/ and in the Phase 5.3 Watershed Model documentation available at http://ches.communitymodeling.org/models/CBPhase5/index.php.\

Stream restoration and reforestation management practices are credited in the WIPs as BMPs that reduce sediment, nitrogen and phosphorus loads.

Comment ID 0169.1.001.011

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

Whether or not some other cause would have explained more precisely the effect on the Bay was not investigated. Nor did the EPA examine or consider whether current levels are outside the range of historic variation.

Response

A survey of the scientific literature substantiates that eutrophication and sedimentation have increased in the Chesapeake Bay as a result of anthropogenic activities. The Chesapeake Bay Watershed Model models nutrient and sediment loadings to the Chesapeake Bay resulting from all source sectors, including non-anthropogenic nutrient and sediment inputs. For a detailed discussion of the land use, consult Section 4 of the Chesapeake Bay Watershed Model documentation at: http://ches.communitymodeling.org/models/CBPhase5/documentation.php#p5modeldoc.

Comment ID 0169.1.001.012

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

To date EPA has not been able to document the tremendous amount of input data required for the TMDL modeling effort. The Virginia Department of Conservation and Recreation requested mapping from the Chesapeake Bay Program Office (CBPO) that would indicate locations of various urban land use categories (such as Impervious High Intensity, Impervious Low Intensity, Pervious High Intensity, and Pervious Low Intensity) used in the Phase 5.3 TMDL modeling. CBPO indicted that significant effort would be required to produce such mapping. Likewise, there is very little documentation that would allow modelers outside EPA to ascertain how the data was collected and synthesized, which makes working with CBWM a highly unreliable proposition at the state and local levels. More thorough disclosure of documentation is sorely needed, not merely on the model, but just as importantly on the data. Occoquan will defend vigorously any claim of waiver due to failure to submit comments to the TMDLs on the basis that EPA withheld pertinent information to evaluate the program.

Response

The estimates of the areas of developed land simulation can be found in Section 4 of the Phase 5.3 Model documentation, and the input loads for these areas are in Section 5. The BMPs used in developed urban and suburban lands can be found in the Scenario Builder documentation.

Scenario Builder and Watershed Model downloadable information:
Scenario Builder documentation (uploaded 9/16/10), source code (10/29), and database (11/5) are available on this site: ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/.

Scenario Builder inputs and outputs are available on this ftp site (continually updated as new results are run): ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/.

Phase 5.3 watershed model information is available at http://ches.communitymodeling.org/models/CBPhase5/index.php.

Comment ID 0169.1.001.023

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

Where references are available, one finds highly suspect conclusions. A typical example is given by the last reference in Table 3.1 on pages 3-2 and 3-3. The last reference is to EPA 903-R-10-002, which would be the most recent publication supporting detrimental nutrient and sediment levels. Referring to measurements made in the years 1991-2000, that reference proclaims in a footnote "These years of Chesapeake Bay water quality monitoring program data were selected to be consistent with the hydrologic period for management application of the Chesapeake Bay Water Quality/Sediment Transport model." In other words, the chosen data best reflected the model output. Rather than letting the data drive the conclusions, the conclusions were in the driver‘s seat.

In Appendix F, page F-6 presents the 7 reasons for choosing 1991-2000 as the base study period. The first reason is that the data from that period most closely resembled the presumptive long-term flow metric on which the models are based. That is to say, the data resembled the expectations. The second reason is essentially the same as the first: each of the 9 river basins had flows matching the long term metric. The third reason is that the period overlaps the previous one used in a 2003 study, "to facilitate comparisons," yet the fourth reason describes why the chosen period is better than the previous one. The fifth reason is that a decade like 1991-2000 is easier to communicate to the public than the decade 1985-1994, and if any weaker legal justification has been offered by a government at any level of our federal system we‘d like to know what it is. The sixth and seventh reasons are repeats of the first and second reasons. The models were calibrated on the period 1991-2000. The real bottom line is that model output agrees best with the data from the decade 1991-2000.

Response

A decadal scenario period with a model that has a calibration period of two decades is well above standard practice in TMDL watershed modeling. Please consult Appendix F for further discussion regarding the selection of the hydrologic period. A close read of the Methods section on page F-1 of Appendix F in the final Bay TMDL report clearly documents that monitored stream/river flow was used exclusively as the indicator of hydrology suitability.

Comment ID 0174.1.001.002

Author Name: Rolband Michael

Organization: Wetland Studies and Solutions, Inc.

EPA should rectify the Chesapeake Bay Model based on the Phase 5.3mod urban
acreages and reassess the TMDL load allocations based on the corrected output before the Phase I WIPs are finalized.

This is a crucial issue for states developing Watershed Implementation Plans (WIPs) and finding ways to assure that funds are available to implement the plans based on specific impervious and pervious areas and "established" loading rates because the retrofit costs are directly proportional to areas. Loading rates also affect how stormwater regulations are developed and implemented at the local level (and EPA has approval authority over stormwater regulations through VSMP permits), and changes to loading rates will also impact sector allocations. For these reasons, the impervious and pervious areas should be revised before the Phase I WIPs are finalized.

Response

The Chesapeake Bay Program will modify the Phase 5.3 Model to refine simulation of loads from developed lands during the Phase II Watershed Implementation Plan process. This will provide a more detailed simulation for the higher resolution Phase II WIPs.

Comment ID 0174.1.001.005

Author Name: Rolband Michael

Organization: Wetland Studies and Solutions, Inc.

EPA should complete and finalize the Chesapeake Bay Model documentation prior to issuing the TMDL.

The Chesapeake Bay Model Documentation is not complete for the public to review and understand the Model. Not all chapters of the Chesapeake Bay Model are available on the Chesapeake Bay Program's website or ftp site (http://www.chesapeakebay.net/model_phase5.aspx?menuitem=26169; ftp://ftp.chesapeakebay.net/Modeling/P5Documentation/) and those that are available for review are incomplete (missing information, internal comments, etc. are present in the document). For example, in Section 9, tables 9.2.1.1 and 9.2.1.3 are missing (pages 5 and 7), and on page 10 an internal note is listed ("[Rob B. will provide the reference for this. On 3- 14-08 Jeff S. was asked to update the information on this land use.]") The public should be able to review

the document in its entirety before the TMDL is issued so that they can understand the TMDL development process and Model used to establish the TMDL load allocations.

Response

Please refer to the response to comment 0061.1.001.004.

Comment ID 0174.1.001.009

Author Name: Rolband Michael

Organization: Wetland Studies and Solutions, Inc.

The Chesapeake Bay Model should be improved based on the following recommendations:

4. EPA should complete and finalize the Chesapeake Bay Model documentation prior to issuing the TMDL.

Response

Please refer to the response to comment 0061.1.001.004.

Comment ID 0179.1.001.005

Author Name: Curatolo James

Organization: Upper Susquehanna Coalition

Why can't a state opt to be tracked by true water quality rather than a model estimate?

Response

In the Chesapeake Bay Program the approach taken is to plan management actions needed to achieve the Chesapeake water quality standards by 2025 with best model estimates, but to use the actual observed monitoring data to determine achievement of the standards. This allows adaptive management to guide the Program in a series of two-year milestone assessments between now and 2025 that will track the Chesapeake TMDL progress with both the observed monitoring data and model estimates of the effects of management actions..

Comment ID 0182.1.001.001

Author Name: Rowland Jeremy

Organization: Bion Environmental Technologies, Inc.

The Chesapeake Bay models are the technical basis upon which EPA and state mandates for nutrient reduction are based. Unfortunately, these models are inaccurate as they relate to the quantification and impact from livestock waste.

Response

Please refer to the response to comment 0182.1.001.004

Comment ID 0182.1.001.003

Author Name: Rowland Jeremy

Organization: Bion Environmental Technologies, Inc.

While EPA states that model data is available for public review and consumption, in reality this is not the case, at least in a detailed sense.

Response

Please refer to the response to comment 0182.1.001.004.

Comment ID 0182.1.001.015

Author Name: Rowland Jeremy

Organization: Bion Environmental Technologies, Inc.

A revised model that accurately reflects the nitrogen sources and allocations in the Susquehanna watershed would enable a WIP to be developed that would significantly reduce the mandated nitrogen compliance costs by securing those reductions primarily from the livestock producer industry.

Response

Please refer to the response to comment 0182.1.001.004.

Comment ID 0182.1.001.022

Author Name: Rowland Jeremy

Organization: Bion Environmental Technologies, Inc.

It is imperative that the EPA model be vetted for accuracy with actual nitrogen flows associated with livestock manure before its results are imposed upon the citizens of the Susquehanna watershed.

Response

Please refer to the response to comment 0182.1.001.004.

Comment ID 0199.1.001.008

Author Name: Frederick Thomas

Organization: Rivanna Water & Sewer Authority

We understand that the Draft TMDL is fundamentally and materially flawed as a technical matter, especially with regards to the James River components. Serious chlorophyll standard and computer modeling deficiencies are thoroughly documented in the comments of the Virginia Association of Municipal Wastewater Agencies, Inc. ("VAMWA").

Response

Please see EPA’s comprehensive responses to comment ID 0288.1.001.016.

Comment ID 0199.1.001.009

Author Name: Frederick Thomas

Organization: Rivanna Water & Sewer Authority

We request that EPA fully consider and address all of VAMWA's comments, which we generally support and hereby incorporate by reference as if fully set forth herein.

Response

EPA has provided written responses to each of VAMWA's comments

Comment ID 0211.1.001.011

Author Name: McCarthy R.

Organization: Town of Erwin, New York

the TMDL allocations imposed by the EPA are based on a flawed model which does not even reflect the actual discharge values taken at the United States Geological Survey (USGS) gauging station in Towanda, PA; and has demonstrated drastic fluctuations in predicted nutrient loadings between model versions such as the 34% difference in predicted delivered total nitrogen loads between model version 5.2 and model version 5.3,

Response

The Phase 5.3 Chesapeake Bay Watershed Model calibration at the Towanda monitoring station was reviewed using the BIAS statistic. Using this statistic the Phase 5.3 Model outputs of flow and nutrient loads were compared to USGS observed flow and nutrient loads estimates. The BIAS statistic measures the average trend of the simulated data to be larger or smaller than their observed counterpart. The optimal value is 0.0 and low values indicate an accurate model simulation. The Phase 5.3 Model river-segment where Towanda, PA is located (SU7_0850_0730) has an annual BIAS value of -1 % for flow and -9 % for nitrogen and phosphorus. According to Moriasi et al., (2007) monthly BIAS values lower than +/-10% for flow and lower than +/- 25% for nutrients suggest very good model performance. Based on this metric the Phase 5.3 Model has a reasonable representation of the flows and loads from the Towanda, PA monitoring station.

Moriasi, D. N., J. G. Arnold, M. W.Van Liew, R. L. Bingner, R. D. Harmel, and T. L. Veith. 2007. Model evaluation guidelines for systematic quantification of accuracy in watershed simulations. Trans. ASABE 50(3): 885900.

Comment ID 0213.1.001.012

Author Name: Daley Edwin

Organization: Hopewell Regional Wastewater Treatment Facility (HRWTF), Virginia

We believe the Draft TMDL is fundamentally and materially flawed as a technical matter, especially with regards to the James River components. Serious chlorophyll standard and computer modeling deficiencies are thoroughly documented in the comments of the Virginia Association of Municipal Wastewater Agencies, Inc. ("VAMWA") of which we are a member. We request that EPA fully consider and address all of VAMWA's comments, which we generally support and hereby incorporate by reference as if fully set forth herein.

Response

Please see EPA’s comprehensive responses to comment ID 0288.1.001.016.

Comment ID 0214.1.001.005

Author Name: Cuffee-Glenn Selena

Organization: City of Suffolk, Virginia

With those concerns in mind, the City of Suffolk agrees with the comments provided by the Hampton Roads Planning District Commission, of which Suffolk is a member, and reiterates the points raised by the commission:

--The Phase 5.3 model and model inputs are not sufficiently developed to produce reliable predictions.

--The modeling predictions do not justify use of the chlorophyll-a criteria as the basis for the James River basin allocations.

Response

Please see EPA's comprehensive responses to comment ID 0288.1.001.016.

Comment ID 0227.1.001.009

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

The Chesapeake Bay Program uses five primary models. In use since 1982, the Chesapeake Bay Watershed Model simulates nutrient and sediment loads delivered to the Chesapeake Bay. Water quality data are collected from federal and state agencies as well as universities. The current, Phase 5, watershed model is open source, [FN 15] in the public domain and has been extensively peer reviewed.[FN 16] The Bay Program has employed an extensive stakeholder participation process in addition to placing the Watershed Model source code and data on the web.[FN 17] The second model, also known as the Estuary Model, looks at the effects of pollution loads generated by the watershed model on Bay water quality. The Bay is represented by 57,000 cells in this model and simulates the mixing of waters in the Bay and its tidal tributaries. The third, Scenario Builder Model simulates changes in the ecosystem due to changes in population, landuse, or pollution management. This model is also in the public domain with documentation available online.[FN 18] The Airshed Model uses information about nitrogen emissions into the atmosphere and deposits them into the Watershed Model. The Land Change Model analyzes and predicts land changes in the watershed.

The Phase 5 watershed model has almost 100 collaborators and partners led by EPA, the Virginia Department of Conservation and Recreation, The Interstate Commission on the Potomac River Basin, the University system of Maryland, the Maryland Department of the Environment, the U.S. Geological Survey, the Chesapeake Research Consortium, and Virginia Polytechnic Institute. Special attention has been paid to the agricultural assumptions in the model with specific input from the Agricultural Nutrient and Sediment Reduction Workgroup.[FN 19] In addition, the Bay Program partnership recently funded University of Maryland's Mid-Atlantic Water Program to complete a 2-year study to update the effectiveness estimates of every best management practice in the model which resulted in a 900 page report that summarizes for each practice, all data evaluated, the technical experts involved in developing the recommendation, and all accounting of discussions and decisions made.

[FN 15] An approach to the design, development, and distribution of software, offering practical accessibility to a

software's source code.
[FN 16] http://www.chesapeakebay.net/committee_msc_projects.aspx?menuitem=16525#peer.
[FN 17] http://ches.communitymodeling.org/models/CBPhase5/index.php#partners.
[FN 18] http://archive.chesapeakebay.net/pubs/SB_Documentation_Final_V22_9_16_2010.pdf.
[FN 19] http://www.chesapeakebay.net/committee_agworkgroup_info.aspx?menuitem=16731.

Response

EPA acknowledges receipt of the comment. (Thank you!)

Comment ID 0227.1.001.010

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

Over the last several months we have seen wild accusations in the media about the soundness of the models and the science behind it; however, there is nothing to support these claims. The Bay Program partners have been extremely transparent and open about the modeling process and sought input from hundreds of stakeholders including agricultural specialists. The one criticism raised in the 2006 Government Accountability Office (GAO) report was that the credibility of Bay program reports on the Bay health "tended to downplay the deteriorated conditions of the bay" and "projected a rosier picture of the health of the bay than may have been warranted." [FN 22] While serious, the GAO's criticism points to the fact that the Bay models, if anything, were over-reporting the nutrient and sediment--reducing value of practices on the land. This criticism also focused more on the use, or misuse, of modeled data, rather than the model itself. In 2008, a follow-up GAO report concluded that the Bay program had made important progress in addressing their concerns and providing better management of the Bay restoration effort.

[FN 22] Government Accountability Office Report (GAO-06-614T) "Chesapeake Bay Program: Improved Strategies Needed to Better Guide Restoration Efforts" (July 13, 2006).

Response

EPA acknowledges receipt of the comment. (Thank you!)

Comment ID 0227.1.001.021

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

EPA, in cooperation with its state partners and after years of allocation experience, has established sound, supportable rules and methods for establishing the Bay TMDL. The Chesapeake Bay program models are a critical tool in the

adaptive management framework currently employed by the EPA and the states to identify a path forward for restoration of the Chesapeake Bay. While water quality data and the actual living resources in the Chesapeake Bay will ultimately determine when we have restored a clean Bay, the Chesapeake Bay Program models help us develop a scientifically valid path to our goals.

Response

EPA acknowledges the comment's support of the open source, public domain Chesapeake Bay models and other decision support tools that have been developed in collaboratively with the technical staffs and decision-makers from the seven watershed jurisdictions, the regional scientific community, federal agencies, and involved stakeholders. As indicated in the comment, the Chesapeake Bay Program has had a long period of application experience with these models. The Chesapeake Bay watershed and Chesapeake Bay water quality models have had a two decade period of successful development and management application in the Chesapeake watershed and Bay. The Bay Airshed Model has over a decade of development and application experience in the Chesapeake Bay region.

Comment ID 0230.1.001.006

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

We find that the Draft TMDL is fundamentally and materially flawed as a technical matter, especially with regards to the James River components. Serious chlorophyll standard and computer modeling deficiencies are thoroughly documented in the detailed portions of these comments and those of VAMWA.

Response

Please refer to the response to comment 0184.1.001.004.

Comment ID 0230.1.001.018

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

EPA's Bay Model Is Flawed

The Bay modeling framework has numerous sources of error and uncertainty that directly limit EPA's ability to conclude that different management scenarios would result in significantly different water quality responses. Significant technical deficiencies in EPA's modeling include: the lack of complete peer review and validation; poor model behavior in many

segments; inaccurate groundwater simulation; instability in urban land use assumptions; and missing point sources.

Furthermore, EPA has used the model in ways that surpass its capabilities. For example, EPA has attempted to predict dissolved oxygen ("D.O.") concentrations and non-attainment rates in specific segments to a single percentage point level under far-reaching management scenarios. The TMDL development process has been accompanied by wide swings in predicted loads and goals with each major model version, which draws into question the validity of the model at each stage and indicates that future instability can be anticipated as the model is periodically modified.

HRSD objects to EPA's over-reliance on instable models to the single percentage point of output as justification for extremely stringent and costly control programs, the scope and extent of which seems to change with each new model run.

Response

The Chesapeake Bay Program models are developed essentially for accounting of the nutrient and sediment loads in the Chesapeake watershed and airshed and the reductions needed to achieve the water quality standards. Accounting is the language of getting stuff done. There are no claims of perfection in the CBP models, but there is a well found claim of sufficiency to do the accounting we need begin the work of restoring the Chesapeake. Further, there is no “over reliance” on models in the Chesapeake TMDL. The models are only part of the framework that includes monitoring and research with all corroborate on the findings of the Chesapeake TMDL. In the application of adaptive management in the CBP, the models will only be used to plan the management actions needed. Observed monitoring data will be what’s used for assessment of achievement of the water quality standards.

With respect to peer reviews of the Phase 5.3 Model, there have been 2 major independent reviews of the Phase 5 Model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA’s Science Advisory Board available at http://www.epa.gov/spc/pdfs/modelpr.pdf.

The independent scientific peer reviews and Chesapeake Bay Program responses can be found here:
http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf
http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf
http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf
http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

With regards to groundwater loads, the groundwater delivery of water and nutrients is simulated in the Phase 5.3 watershed model. Please see the Phase 5.3 Chesapeake Bay Watershed Model documentation at http://www.chesapeakebay.net/model_phase5.aspx?menuitem=26169 for more details.

With regards to the estimates of the urban developed land the documentation of how this land use was developed can be found in Section 4 of the Phase 5.3 Chesapeake Bay Watershed Model documentation at

http://www.chesapeakebay.net/model_phase5.aspx?menuitem=26169.

With respect to missing point sources, the Phase 5.3 Watershed Model has the most complete point source record of any previous phase over the past two decades. Nevertheless, the CBP is always ready to correct its point source data base and welcomes any corrections to the data that the reviewer may provide.

Comment ID 0230.1.001.031

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

C. The James River chlorophyll-a model is flawed and is of questionable utility

The James River chlorophyll-a simulation has serious technical problems that, until resolved, should preclude its use to make major changes to existing load allocations. VAMWA has expressed these concerns on numerous occasions, including multiple requests for better calibration information and a critical review of EPA's allocation methodology. [FN48] The results of this review are summarized below:

1. The James River chlorophyll-a model lacks a comprehensive review: VAMWA can find no evidence that the James River chlorophyll-a model has ever been subjected to a detailed peer review specifically oriented to determining its utility for allocating loads based on chlorophyll-a. At most, any peer reviews appear to have been lumped in with an overall review of the WSM and WQSTM output, involving multiple parameters and scores of segments Baywide. Whatever peer review the model received, it obviously did not adequately address the James River chlorophyll-a model, as evidenced by the fact that major calibration and behavior problems with the chlorophyll-a simulation were not recognized or acknowledged by EPA until the summer of 2010. Given the magnitude of regulatory and cost implications of the James River chlorophyll-a simulation, a comprehensive peer review is absolute essential.

2. The James River chlorophyll-a model exhibits poor behavior: EPA has recognized certain model calibration and post-processing issues. These issues include obviously erroneous calibration in certain segments and seasons, post-processing problems associated with regressions and scenario-transforms, unexplained model anomalies, and leverage of a few data points in the data transformation process. For example, EPA has noted instances where decreased loadings resulted in increased chlorophyll-a. However, no evidence was presented that EPA conducted a more comprehensive review of these same issues in all segment-season conclusions, determined the extent of the anomalies, or fully evaluated the predictive capabilities of the model. HRSD is concerned that similar but undetected problems may have occurred elsewhere that would have affected the results, but that EPA did not develop or apply a system or criteria to adequately address the model and its use.

3. The EPA has failed to adequately calibrate the James River chlorophyll-a model, or even to rigorously evaluate the calibration: In the recent history of the James River allocation effort, VAMWA has repeatedly asked for a rigorous review of the model's calibration. To date, EPA has refused this request, and appears to be in denial regarding both the quality of the calibration and need for a more rigorous evaluation. Following is a brief history of recent (2009-2010)

activity related to the chlorophyll-a calibration:

a. In early 2009, the CBPO began to produce preliminary chlorophyll-based stoplight plots for the technical work groups, prior to any focused evaluation of the model's calibration.

b. In materials for the May 2009 teleconference between EPA, VADEQ, and VAMWA, EPA included a tabulation of non-attainment rates according to monitoring data and the linked Phase 5.1 WSM and WQSTM,[FN49] presumably to allow evaluation of the agreement between observed and modeled non-attainment rates. However, subsequent review of this table by VAMWA revealed that it was not at all useful for this purpose, because under the EPA's data transformation approach (i.e., "scenarioing" of the data), there should be no differences between the observed non-attainment rates and the "base case" modeled non-attainment rates. The differences that were tabulated were apparently due to difference in the stations used to tabulate monitoring results versus scenario'ed model results.

c. In the May 2009 teleconference between EPA, VADEQ, and VAMWA, it was agreed that an EPA action item should be to "closely evaluate the Bay water quality/sediment transport model calibration for the tidal James River."[FN50]

d. In three subsequent teleconferences between EPA, VADEQ, and stakeholders (held in September, October, and December 2009), there were neither materials nor discussion to indicate that EPA had performed a rigorous examination of the James River model calibration. Rather, EPA's analyses had focused on other topics such as the biological reference curve and log-transformation issue.

e. In the December 2009 teleconference, VAMWA discussed results of its own review of the model calibration, based on longitudinal and time-series plots from Modeling Subcommittee meetings. The review indicated that the model severely underestimated chlorophyll-a in the tidal freshwater segments and failed to predict the correct magnitude of interannual variations. In the lower estuary, the model tended to overpredict spring blooms and also failed to predict the correct magnitude and direction of interannual variations. This raised serious questions regarding whether the model algorithms were useful for predicting how management scenarios would affect chlorophyll-a attainment.

f. In the December 2009 teleconference, VAMWA verbally requested that EPA perform a rigorous evaluation of the model calibration, to which EPA verbally agreed. VAMWA followed the verbal request up with an e-mail on January 4, 2010 [FN51] that specifically requested tabulation of observed versus model-predicted "chlorophyll-a means and attainment rates, without the data transformation, by three-year period and also by individual year." Neither the verbal nor the email request were answered by EPA.

g. EPA planned the next James River teleconference for February 2010. The distributed agenda made no mention of the model calibration. VAMWA sent an email to request that discussion of the calibration be added to the agenda. [FN52] In response, EPA indicated that they ultimately intended to perform the calibration evaluation, but would not have time to perform it by the February teleconference.[FN53] This was the last EPA-led, James-specific teleconference to which VAMWA and other stakeholders were invited.

h. VAMWA repeated the email request for calibration tables on June 2, 2010, as part of a larger information request.[FN54] EPA never responded to the request.

i. As the June 2010 deadline for draft allocations approached, EPA released materials for a June 14, 2010 co-regulators

teleconference and a June 18, 2010 James-specific conference call to which stakeholders were not invited. These materials included chlorophyll-a non-attainment diagnostics and the basis for the draft James River nutrient allocations. These materials indicated that, for the first time, EPA had recognized and acknowledged some calibration problems with the model. However, there was no evidence presented that the EPA had performed true evaluation of the calibration or improved the calibration at all. For example:

i. EPA's review of the James River chlorophyll-a calibration appears to have been limited to visual inspection of charts. They apparently never tabulated calibration statistics nor performed a rigorous examination of determine how well the model predicted the magnitude and direction of interannual variation in different segment-seasons.

ii. EPA did not determine the reason for the poor calibration, nor adjust the calibration. Rather, EPA's response to the poor calibration was to "cross out" model results from segment-seasons that had most obviously flawed calibration (tidal freshwater and polyhaline summer). Specifically, EPA found that when it used data from the September 1999 timeframe, chlorophyll-a concentrations were going up rather than going down as loads were reduced (see Figure 1 below). But rather taking the time to find and correct the source of the problem, EPA simply eliminated the September 1999 data to produce the result it was seeking. Further, EPA has offered no explanation for why the model was not working properly nor has it offered a justification for deleting the data. If EPA is going to disqualify data, it should at least explain why it is being disqualified.

iii. EPA apparently had no objective criteria for determining in which segment-seasons the calibration was adequate.

iv. Despite the poor calibration in the tidal freshwater Spring, EPA picked one year (1995) among ten (1991-200) for which it deemed the calibration adequate, and used this as a basis for load allocation. This contravenes accepted modeling practices.

<Figure 1 on page 31 of Comment EPA-R03-OW-2010-0736-0230> "Anomaly in some driver of the model simulation that caused poor scenario performance in the latter half of September 1999 at LE5.2" [FN55]

Figures 3 and 5 (Appendix O) presented in the Draft TMDL provide time series plots of simulated versus observed chlorophyll-a in the tidal fresh and mesohaline James River for selected model grid cells. These figures themselves demonstrate that the model still does not have the ability to capture inter-annual variability. Because annual and smaller time simulations of chlorophyll-a influence the TMDL, it is essential that the model have the ability to simulate chlorophyll-a at these smaller scales (i.e., variation within individual 3 year periods). EPA's insistence that the results be evaluated as individual 3 year periods (rather than as 10 year period in the 2005 James River Alternatives Analysis) significantly magnified the effect of poor interannual model performance on the TMDL.

In summary, EPA held numerous teleconference and meetings, including five teleconferences specific to the James River, without fulfilling repeated requests and agreements to perform a rigorous evaluation of the model calibration. In the rush to meet the allocation deadline, EPA applied a poorly calibrated model in a highly arbitrary fashion that contravenes accepted modeling practices. To this day, EPA appears to be in denial regarding the quality of the James River model calibration and the need to fully evaluate it.

4. EPA has not been responsive to VAMWA's requests for information on model calibration and results: VAMWA has been concerned about the chlorophyll-a model issues since the early stages of TMDL development. In an attempt to

help address these concerns a number of timely model related data requests were made of the EPA Chesapeake Bay Program Office on January 4, June 2, and August 3, 2010. [FN56] In addition to the previously-mentioned requests on model calibration, we have requested documentation on predicted non-attainment by model scenario and post-processing regression results. However, these requests have not been answered at the time of this writing. Our ability to effectively comment and offer problem solutions was limited as a result and the transparency of the TMDL development process was inadequate.

On a related note, in addition to making it difficult to follow the development of the Draft TMDL, EPA's Draft TMDL itself is lacking in adequate detail to allow for a thorough review of these modeling issues. EPA has made it extremely difficult to evaluate the differences between the model runs. In Appendix O to the TMDL Report, EPA only states that it post-processed (manipulated) the data to address the poorly performing model results associated with the "James LOE ½ Potomac" model scenario. However, based on a review of EPA's "stoplight plots" for chlorophyll-a in Table M3 of Appendix M to the TMDL Report, it appears that EPA post-processed only the "James LOE ½ Potomac" scenario and failed to post-process the remaining scenarios. HRSD submits that EPA should have post processed and published scenarios with higher allocations in the James to allow for a public review of the results and the relative attainment rates for different load allocations.

<Figure 2. James River Model Segments on Page 33 of Comment EPA-R03-OW-2010-0736-0230>

Until EPA recalibrates the model and the model is verified with enough peer review to ensure appropriate reliability in establishing reasonable allocations for the James River Basin, the allocation should remain at the "Tributary Strategy" level.

[FN48] A comprehensive list of VAMWA's requests is attached hereto as Appendix 28.

[FN49] Attached hereto as Appendix 29.

[FN50] Reference attached hereto as Appendix 30.

[FN51] Attached hereto as a part of Appendix 28.

[FN52] Attached hereto as a part of Appendix 28.

[FN53] Attached hereto as Appendix 28.

[FN54] Attached hereto as a part of Appendix 28.

[FN55] See Draft TMDL, Appendix O, Figure 6. Plot of simulated surface chlorophyll a concentrations for WQM cell 731 (location of station LE5.2) during the summer of 1999 (a), and resulting regression plot for September 1999 LE5.2 chlorophyll a (b). The quote above Figure 1 is from Appendix O, at p. O-5.

[FN56] See Appendix 28.

Response

Please see EPA's comprehensive responses to comment ID 0288.1.001.016.

Comment ID 0230.1.001.034

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

F. Chlorophyll-a conditions in the lower estuary do not correlate with nutrient reductions accomplished to date

Dauer and others (2008) provide an analysis of long term trends and nutrient loadings for the James River from 1985 to 2007. [FN64] The results indicated increasing chlorophyll-a trends in the James River mouth (JMSPH segment) and no trends in the JMSMH segments. These increasing trends in chlorophyll-a exist despite considerable progress made in achieving point source nutrient reductions below the fall line. As shown in Figure 4, below fall line PS TN loads decreased from approximately 22.5 mpy in the mid 1980's to about 12.5 mpy in the most recent 5 years (~44% reduction). Reductions in below fall line PS TP loads decreased approximately 2.5 mpy (77% reduction). These trends are consistent with Chesapeake Bay Model runs that compare 1985 and 2007 Progress point source nutrient loads below the fall line. Dauer and others (2008) report those reductions as 38% for TN and 74% for TP. This level of nutrient reduction is considerable and represents capital expenditures of hundreds of millions of dollars without improvements in chlorophyll-a, which is the indicator being used to represent designated uses in regards to nutrients.

<Figure 4. "B. James River Below the Fall-Line" On page 39 of Comment Letter EPA-R03-OW-2010-0736-0230, Adapted from Dauer and others (2008)>

The available monitoring data brings into serious question the ability to predict chlorophyll-a levels in the lower James River with existing models. It is necessary to gain a better understanding of the system's drivers given the level of uncertainty that presently exists with regard to expected response. One critical area of research is the chlorophyll-a response in the James River associated with point source projects planned to meet the 2005 Water Quality Management Regulation. These nutrient controls are scheduled and will be completed by 2011. This offers an excellent full-scale opportunity to further study the effects of additional point source nutrient reduction on chlorophyll a levels and response of HABs. These efforts along with the stated needs for improving the chlorophyll a standards are fully consistent with the principles of adaptive management supported by EPA.

[FN64] Analysis attached hereto as Appendix 36.

Response

Lack of Chlorophyll a Concentration Response to Reductions to Date
EPA recommends the commenter look to the Potomac River basin to better understand the magnitude of nitrogen and phosphorus reductions needed to cause a significant reduction in algal biomass measured as chlorophyll. Decades of significant wastewater

treatment facilities technology upgrades well beyond those in place today in the James River watershed complimented by widespread nonpoint source reduction best management practices, decadal trends in the chlorophyll a concentrations and reductions in bloom conditions are visible to the reader.

[See Attachment 1 to the Response to Comment document for the figure titled "Potomac Tidal Fresh Chl a Monitoring Data."]

The above figure from the Bay TMDL report illustrates tidal Potomac River chlorophyll a monitoring data compared with the District's chlorophyll a water quality criteria. DC station PMS44 is on the Potomac River at the Woodrow Wilson Memorial Bridge (50 meters upstream of the draw span). The Maryland station TF2.1 is on the Potomac River at Buoy 77 off the mouth of Piscataway Creek. This is just one time series plot illustrating changes in chlorophyll a concentrations over the past 10 years in a monitoring record that extends to 25 years. Clear evidence of significant reductions in the magnitude and frequency of algal blooms (concentrations over 30-40 ug/L) and a drop in the monthly and seasonal average chlorophyll a concentrations over time.

[See Attachment 1 to the Response to Comment document for the figure titled "Surface Chlorophyll a 1985-2009."]

Above is another figure from the Bay TMDL report illustrating a comparable series of chlorophyll a data from the tidal fresh region of the tidal James River, where Virginia's water quality standards apply a very similar summer seasonal average chlorophyll a criterion, 23 ug/L, to the District's summer seasonal average chlorophyll a criterion of 25 ug/L. These two tidal fresh sections of two large tributaries to the Bay are very similar ecosystem with essential the same criteria applied, yet the time series of chlorophyll a concentrations are completely different.

Given these well known findings, EPA ran a series of series to understand what the tidal James River's chlorophyll a response would be at nitrogen and phosphorus level at equivalent levels of effort—similar levels of wastewater treatment technologies, comparable levels of nonpoint source best management practice implementation, etc. At a level of effort equivalent to the Potomac River basin, nitrogen loads to the tidal James River would be reduced to 22.1 million pounds per year and phosphorus load reduced down to 2.22 million pounds per year, resulting in full attainment of Virginia's James River chlorophyll a water quality standards. EPA set the allocations for the James River basin above these levels at 23.5 and 2.35 million pounds per year nitrogen and phosphorus, respectively.

With current estimated loads around 30.4 and 3.23 million pounds per year of nitrogen and phosphorus, respectively, the lack of a full response—significant responses in the seasonal average concentrations and reductions in the magnitude and frequency of algal blooms should come as no surprise. The tidal James River is still a significantly over nutrient enriched estuarine system that requires significant further reductions in nitrogen and phosphorus to reach a more ecological healthy state (i.e., achievement of Virginia's James River chlorophyll a water quality standards).

Available versus Future Monitoring Data

In many cases of TMDL development there may be less data available than what is deemed optimal, however, lack of optimal data is not a pretext to the delay of TMDL development. Federal regulations acknowledge that load allocations are best estimates of the loading which may vary from reasonably accurate estimates to gross allocations (40 CFR 130.2(g)). TMDLs are supported by varying levels of data from rapid bioassessments of physical, chemical and biological conditions to extensive, long-term historical data sets such as that of the Chesapeake Bay Program Partnerships long term water quality monitoring data. The Chesapeake Bay

Water Quality Monitoring Program data set represents and is recognized as one of the best long term estuarine chlorophyll and overall water quality time series data sets in the world. Chlorophyll data are only one parameter in the Chesapeake Bay water quality model as the model is simultaneously calibrated to a suite of physical, chemical and biological parameters all collected at fixed stations across 92 segments. Chlorophyll is not monitored or modeled in isolation.

The evaluation of the Bay conditions toward achieving State water quality standards going forward is always based on actual water quality monitoring data, the best available data, and protocols. The USEPA approach to assessment of Chesapeake Bay water quality standards has always been to conduct evaluations based on the best available data using the best science-based, partnership approved, EPA published, and state adopted assessment methodologies.

The Bay states and the District have adopted a rotation of segment evaluations in which the shallow water mapping complements fixed site data. If shallow water mapping data are available and have been submitted as approved data for assessment, the assessments will include the best available data. The latest update to the assessment methodology for Chesapeake Bay chlorophyll a criteria was published in Appendix G of USEPA 2010. Therefore, the Chesapeake Bay Water quality Monitoring Program has moved forward since 2003 by incorporating water quality mapping as a program element. The rotation of segments mapped each three year period is a function of balancing resources across a multi-dimensional environmental monitoring program for Chesapeake Bay. Assessment methodology involves three years of data for water quality standards evaluation. The three year time frame appreciates benefits from multiple years of data accounting for temporal and spatial variation influencing the water quality standards assessment.

The fixed station data provide one estimate of water quality conditions, the addition of Dataflow data provides a second estimate. Both are estimates of an unknown quantity. As you stated in your comments, the addition of DFLO to an assessment varies in its effects compared with fixed station monitoring from cruise to cruise depending on the level of "patchiness" observed in chlorophyll-a distributions. As pointed out from the updates provided in USEPA 2010, such monitoring assessment methodology is recommended as part of water quality standards assessment. Note, however, that the Chesapeake Bay water quality monitoring program addresses data collection tracking and reporting on many water quality parameters besides chlorophyll. Not all segments are monitored with water quality mapping each year. There is a rotation schedule for segment assessments every three years with scheduling based upon available monitoring resources. If an institution or agency has the resources to annually provide data sets using fixed and Dataflow data that have been QA/QC’d and accepted by the Chesapeake Bay Program Office and USEPA, then assessments would be conducted with the best available data.

EPA acknowledges that the addition of Dataflow data provides a second estimate of chlorophyll a concentrations. Weekly monitoring assessments, however, remain a snapshot in time with the possibility of missing phenomenon related to tidal cycles or storm events occurring at sub-week timescales affecting the true mean and variability of the data. Such variability can be appreciated when examining fixed station continuous monitoring or vertical profiler data records for diel variability observed across Chesapeake Bay. Still to be evaluated with Dataflow is an assessment of whether adding Dataflow data to assessments provides a high or low bias to the estimate of the true mean. Before the partnership agrees to a modified chlorophyll a criteria assessment methodology fully incorporating the Dataflow data, the partnership needs to resolve this bias question. Work on this exact topic is underway under the leadership of the Chesapeake Bay Program Scientific and Technical Assessment and Reporting Team’s Criteria Assessment Procedures and Tidal Monitoring and Assessment Workgroups.

Fully consistent with the concept of adaptive management, EPA strives to maintain current and updated science associated with criteria development and assessment. As evidenced by its work with the partnership and outside experts from academia, Federal, state, local governments, River basin commissions, NGOs, independent contractors and industry in producing and supporting the Chesapeake Bay estuarine water quality criteria and protocols for their assessment, the criteria assessment procedures published from 2003-2010 replace and otherwise supersede similar criteria assessment procedures originally published in the 2003 Regional Criteria Guidance and the 2004, 2007 and 2008 addenda (U.S. EPA 2003a, 2004a, 2007a, b, 2008). Publication of future addendums by EPA on behalf of the Chesapeake Bay Program watershed jurisdictional partners is likely as continued scientific research and management applications reveal new insights and knowledge that should be incorporated into revisions of state water quality standards regulations in upcoming triennial reviews.

Comment ID 0253.1.001.010

Author Name: Hazelett Virgil

Organization: County of Henrico, Virginia

EPA determined its TMDL allocations in complete reliance on its computer model. For the reasons discussed above, as well as those addressed by VAMWA and VAMSA in their comments, that modeling system appears to be fundamentally flawed. As such, absent additional verification and study, any allocations derived from that modeling system are not defensible and reasonable.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0256.1.001.010

Author Name: Lisanti Mary

Organization: Local Government Advisory Committee (LGAC) to the Chesapeake Bay Executive Council

There are two broad areas where EPA needs to step up into a stronger leadership role.

The first requirement is to establish the creditability of its modeling programs upon which the TMDL is based. This means that the methodology by which the coming local level allocations are made must be scientifically sound and legally defensible. Local government officials are acutely aware of these principals when they make budgetary decisions on any local plans, programs, or projects. The scientific and legal basis for the TMDL must be strong and persuasively presented so taxpayers and constituents can understand why it is necessary to make the investments that will protect their water quality at the local level.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0260.1.001.006

Author Name: Brosious John

Organization: Pennsylvania Municipal Authorities Association (PMAA)

It is imperative that states receive the most up-to-date delivery ratio model from EPA so they can incorporate it immediately into provisions of the their Watershed Implementation Plans (WIP). This delivery ratio must be realistic and workable so states can deal with sector reductions, permits, trading, upgrades, and plan implementation. Lack of a viable delivery ratio spreadsheet BEFORE the state WIPs and EPA TMDL become final is irresponsible and detrimental to sound decision-making.

Response

Nitrogen, phosphorus and sediment delivery factors are available on this FTP site: ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Model%20Output/.

Comment ID 0265.1.001.021

Author Name: Clark, Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Hampton, Virginia

V. THE PHASE 5.3 MODEL AND MODEL INPUTS ARE NOT SUFFICIENTLY DEVELOPED TO PRODUCE RELIABLE PREDICTIONS

A. EPA has rushed the Model into service, and in the process has failed to comply with its own quality control standards.

EPA's suggestion that the public and the regulated community should have confidence in the accuracy of the model predictions and resulting allocations because "[t]he TMDL uses a series of models, calibrated to decades of water quality data and other data, and refined based on input from dozens of Chesapeake Bay scientists" (see TMDL Report at page iv) is misleading. While this may be the case for the other models used to develop the TMDL, it is not true for either the Phase 5.3 Watershed Model or its inputs, which are critical elements in the decision support system used by EPA to develop the proposed allocations. The Phase 5.3 Model undoubtedly has greater capabilities than previous versions of the watershed model, but the Model is new, and in its headlong rush to complete the TMDL by an artificial deadline, EPA is using the Model before it is fully calibrated and before verifying the accuracy of the land use inputs to the Model. In fact, EPA has effectively acknowledged that the Model is not ready to produce reliable predictions by its inability to establish the TMDL without a five percent "allocation reserve," its announced intention to begin recalibrating the Model in October 2010 (after the TMDL is released for public comment), and its use of ranges of sediment loading

numbers (rather than a single number) for each basin allocation because the Model is unable to match observed data for sediment loading.

EPA has developed many large, complex computer programs and systems that have been tested, improved, and applied by the engineering and scientific community. Recognizing the importance of quality control and quality assurance processes in the development and application of its environmental programs, EPA's Office of Environmental Information Quality Staff published a Quality Manual for Environmental Programs (http://www.docstoc.com/docs/594179/EPA-Manual-EPA-Quality-Manualfor- Environmental-Programs) in May 2000. The primary goal of this manual is, "[t]o ensure that environmental programs and decisions are supported by data of the type and quality needed and expected for their intended use, and that decisions involving the design, construction, and operation of environmental technology are supported by appropriate quality assured engineering standards and practices." In this case, EPA has failed to meet the standards it set for itself in the Manual.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0271.1.001.007

Author Name: Harrison L.

Organization: South Central Wastewater Authority, Petersburg, Virginia

At this extremely late point in time, EPA has unilaterally changed the computer model it uses to judge the adequacy of Virginia's actions.

Response

The Chesapeake Bay TMDL have been developed through a highly transparent, inclusive, and engaging process during the past two years, including two rounds of public meeting held in all seven watershed jurisdictions and a public comment period. The Phase 5.3 Chesapeake Bay Watershed Model has been under development, calibration and then management application over the past five years, guided by the Chesapeake Bay Program partnership. All changes in the suite of Chesapeake Bay models and their application were reviewed and vetted by the Chesapeake Bay Program partners in open public meetings documented within Appendix C of the Bay TMDL report.

Comment ID 0271.1.001.009

Author Name: Harrison L.

Organization: South Central Wastewater Authority, Petersburg, Virginia

We understand that the Draft TMDL is fundamentally and materially flawed as a technical matter, especially with regards to the James River components. Serious chlorophyll standard and computer modeling deficiencies are thoroughly documented in the comments of the Virginia Association of Municipal Wastewater Agencies, Inc. ("VAMWA"). We request that EPA fully consider and address all of VAMWA's comments, which we generally support and hereby incorporate by reference as if fully set forth herein.

Response

Please see EPA's comprehensive responses to comment ID 0288.1.001.016.

Comment ID 0277.1.001.004

Author Name: Shambaugh Brenda

Organization: PA Association of Conservation Districts (PACD)

Through two pilot projects in Bradford County and Lancaster County, PA we have seen that voluntary BMP's are significantly reducing nutrients going into the Chesapeake Bay watershed. Unfortunately EPA has not given PA credit for these voluntary BMP's, nor has EPA given DEP direction on a verification process for tracking these reductions. These voluntary practices must be accounted for to accurately determine the amount of nutrient reductions coming from the Commonwealth. PACD recommends that EPA accept a verification process where ten percent of the voluntary practices reported are inspected by official personnel. This approach should satisfy EPA's concern of "reasonable assurance" in counting BMP's without overly taxing the personnel needed to verify the BMP's.

Response

EPA agrees that non-cost shared implemented practices are likely under-counted because of difficulties in data collection. Verified non-cost shared practices can be accepted in the model, but historically have not been included to a great extent because the information has not been made available to the Chesapeake Bay Program. Non-cost shared practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These voluntary practices are typically funded by farmers alone. EPA is committed to working with USDA, NACD, state environmental and agricultural agencies, conservation districts, and agricultural community at large to credit nutrient and sediment reductions from voluntary practices. In this context, the recommendation "that EPA accept a verification process where ten percent of the voluntary practices reported are inspected by official personnel" is a proposal that may have merit going forward. As committed to in the Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to "By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented."

Comment ID 0279-cp.001.003

Author Name: Comment Anonymous

Organization:

Please incorporate the model revisions recommended by the DEC in their Watershed Implementation Plan.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0282-cp.001.003

Author Name: Tabb Lyle

Organization: Lyle C. Tabb & Sons, Inc.

Another fallacy of the plans for the future is lack of accurate bench marks as to what practices are being carried out by farmers on their own as a regular part of the farming operation. Currently, the only credit for environmental enhancement practices that are recorded, are practices that are funded with cost share from some state or federal agency.

This method of accounting takes for granted that farmers only implement environmental enhancement practices if they are paid for it. It's true that cost share gets farmers to try things with less risk, but in the farm community, when something works, we do it on our own. So you need accurate accounting of what is going on in the field that is not cost shared. The great part of environmental enhancement practices is that nearly all practice have a positive economic impact for the farm which guarantees that these practices will be continued.

That gets me to the point of concern when I see requirements for the future that have already been implemented in my area. Ask yourself how can this area comply with a requirement for practices that are already implemented but not accounted for?

Response

Thank you for your comment and thank you especially for the reminder that good environmental stewardship doesn't always fit on a spreadsheet. EPA agrees that non-cost shared implemented practices are likely under-counted because of difficulties in data collection. Verified non-cost shared practices can be accepted in the model, but historically have not been included to a great extent because the information has not been made available to the Chesapeake Bay Program. Non-cost shared practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These voluntary practices are typically funded by farmers alone. EPA is committed to working with USDA, NACD, state environmental and agricultural agencies, conservation districts, and the agricultural community at large to credit nutrient and sediment reductions from voluntary practices. As committed to in the Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to "By July 2012, mechanisms for tracking and reporting of voluntary

conservation practices and other BMPs installed on agricultural lands will be developed and implemented."

Comment ID 0283-cp.001.001

Author Name: Mason James

Organization:

My name is James Mason. I live and farm in the Shenandoah valley of Virginia. The bay TMDL uses a model that has far too many mistakes in arriving at a pollution diet. this is far too big of an issue to force on the bay states without more accurate data.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0285.1.001.004

Author Name: Rebecca Sutton and Craig Cox

Organization: Environmental Working Group

Simulations indicate that if the 3.5 million acres identified as "under-treated" were managed using "appropriate soil erosion control and/or nutrient management practices, total loads delivered to the Bay (all sources) would be reduced from current levels by 7 percent for sediment (bringing loads from cultivated cropland down very close to "background levels"), 17 percent for phosphorus, and 16 percent for nitrogen" (USDA 2010). USDA calculations indicate that widespread adoption of practical, soil-building and resource-conserving land management practices alone could accomplish the necessary pollution reductions EPA has identified as essential to restoring the bay.

Response

Thank you for your comment. In the Chesapeake Bay Program the States have the lead in WIP development. Ideas like the widespread adoption of practical, soil-building and resource-conserving land management practices advocated by this comment are encouraged and welcomed in the Phase I and II WIP development process.

Comment ID 0288.1.001.016

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

C. The James River chlorophyll-a model is flawed and is of questionable utility

The James River chlorophyll-a simulation has serious technical problems that, until resolved, should preclude its use to make major changes to existing load allocations. VAMWA has expressed these concerns on numerous occasions, including multiple requests for better calibration information and a critical review of EPA's allocation methodology.[FN48] The results of this review are summarized below:

1. The James River chlorophyll-a model lacks a comprehensive review: VAMWA can find no evidence that the James River chlorophyll-a model has ever been subjected to a detailed peer review specifically oriented to determining its utility for allocating loads based on chlorophyll-a. At most, any peer reviews appear to have been lumped in with an overall review of the WSM and WQSTM output, involving multiple parameters and scores of segments Baywide. Whatever peer review the model received, it obviously did not adequately address the James River chlorophyll-a model, as evidenced by the fact that major calibration and behavior problems with the chlorophyll-a simulation were not recognized or acknowledged by EPA until the summer of 2010. Given the magnitude of regulatory and cost implications of the James River chlorophyll-a simulation, a comprehensive peer review is absolute essential.

2. The James River chlorophyll-a model exhibits poor behavior: EPA has recognized certain model calibration and post-processing issues. These issues include obviously erroneous calibration in certain segments and seasons, post-processing problems associated with regressions and scenario-transforms, unexplained model anomalies, and leverage of a few data points in the data transformation process. For example, EPA has noted instances where decreased loadings resulted in increased chlorophyll-a. However, no evidence was presented that EPA conducted a more comprehensive review of these same issues in all segment-season conclusions, determined the extent of the anomalies, or fully evaluated the predictive capabilities of the model. VAMWA is concerned that similar but undetected problems may have occurred elsewhere that would have affected the results, but that EPA did not develop or apply a system or criteria to adequately address the model and its use.

3. The EPA has failed to adequately calibrate the James River chlorophyll-a model, or even to rigorously evaluate the calibration: In the recent history of the James River allocation effort, VAMWA has repeatedly asked for a rigorous review of the model's calibration. To date, EPA has refused this request, and appears to be in denial regarding both the quality of the calibration and need for a more rigorous evaluation. Following is a brief history of recent (2009-2010) activity related to the chlorophyll-a calibration:

a. In early 2009, the CBPO began to produce preliminary chlorophyll-based stoplight plots for the technical work groups, prior to any focused evaluation of the model's calibration.

b. In materials for the May 2009 teleconference between EPA, VADEQ, and VAMWA, EPA included a tabulation of non-attainment rates according to monitoring data and the linked Phase 5.1 WSM and WQSTM,[FN49] presumably to allow evaluation of the agreement between observed and modeled non-attainment rates. However, subsequent review of this table by VAMWA revealed that it was not at all useful for this purpose, because under the EPA's data transformation approach (i.e., "scenarioing" of the data), there should be no differences between the observed non-attainment rates and the "base case" modeled non-attainment rates. The differences that were tabulated were apparently due to difference in the stations used to tabulate monitoring results versus scenario'ed model results.

c. In the May 2009 teleconference between EPA, VADEQ, and VAMWA, it was agreed that an EPA action item should

be to "closely evaluate the Bay water quality/sediment transport model calibration for the tidal James River." [FN50]

d. In three subsequent teleconferences between EPA, VADEQ, and stakeholders (held in September, October, and December 2009), there were neither materials nor discussion to indicate that EPA had performed a rigorous examination of the James River model calibration. Rather, EPA‘s analyses had focused on other topics such as the biological reference curve and log-transformation issue.

e. In the December 2009 teleconference, VAMWA discussed results of its own review of the model calibration, based on longitudinal and time-series plots from Modeling Subcommittee meetings. The review indicated that the model severely underestimated chlorophyll-a in the tidal freshwater segments and failed to predict the correct magnitude of interannual variations. In the lower estuary, the model tended to overpredict spring blooms and also failed to predict the correct magnitude and direction of interannual variations. This raised serious questions regarding whether the model algorithms were useful for predicting how management scenarios would affect chlorophyll-a attainment.

f. In the December 2009 teleconference, VAMWA verbally requested that EPA perform a rigorous evaluation of the model calibration, to which EPA verbally agreed. VAMWA followed the verbal request up with an e-mail on January 4, 2010 [FN51] that specifically requested tabulation of observed versus model-predicted "chlorophyll-a means and attainment rates, without the data transformation, by three-year period and also by individual year." Neither the verbal nor the email request were answered by EPA.

g. EPA planned the next James River teleconference for February 2010. The distributed agenda made no mention of the model calibration. VAMWA sent an email to request that discussion of the calibration be added to the agenda.[FN52] In response, EPA indicated that they ultimately intended to perform the calibration evaluation, but would not have time to perform it by the February teleconference.[FN53] This was the last EPA-led, James-specific teleconference to which VAMWA and other stakeholders were invited.

h. VAMWA repeated the email request for calibration tables on June 2, 2010, as part of a larger information request.[FN54] EPA never responded to the request.

i. As the June 2010 deadline for draft allocations approached, EPA released materials for a June 14, 2010 co-regulators teleconference and a June 18, 2010 James-specific conference call to which stakeholders were not invited. These materials included chlorophyll-a non-attainment diagnostics and the basis for the draft James River nutrient allocations. These materials indicated that, for the first time, EPA had recognized and acknowledged some calibration problems with the model. However, there was no evidence presented that the EPA had performed true evaluation of the calibration or improved the calibration at all. For example:

i. EPA‘s review of the James River chlorophyll-a calibration appears to have been limited to visual inspection of charts. They apparently never tabulated calibration statistics nor performed a rigorous examination of determine how well the model predicted the magnitude and direction of interannual variation in different segment-seasons.

ii. EPA did not determine the reason for the poor calibration, nor adjust the calibration. Rather, EPA‘s response to the poor calibration was to "cross out" model results from segment-seasons that had most obviously flawed calibration (tidal freshwater and polyhaline summer). Specifically, EPA found that when it used data from the September 1999 timeframe, chlorophyll-a concentrations were going up rather than going down as loads were reduced (see Figure 1

below). But rather taking the time to find and correct the source of the problem, EPA simply eliminated the September 1999 data to produce the result it was seeking. Further, EPA has offered no explanation for why the model was not working properly nor has it offered a justification for deleting the data. If EPA is going to disqualify data, it should at least explain why it is being disqualified.

iii. EPA apparently had no objective criteria for determining in which segment-seasons the calibration was adequate.

iv. Despite the poor calibration in the tidal freshwater Spring, EPA picked one year (1995) among ten (1991-200) for which it deemed the calibration adequate, and used this as a basis for load allocation. This contravenes accepted modeling practices.

[Figure 1. Please see original document 0288.1] [FN55]

Figures 3 and 5 (Appendix O) presented in the Draft TMDL provide time series plots of simulated versus observed chlorophyll-a in the tidal fresh and mesohaline James River for selected model grid cells. These figures themselves demonstrate that the model still does not have the ability to capture inter-annual variability. Because annual and smaller time simulations of chlorophyll-a influence the TMDL, it is essential that the model have the ability to simulate chlorophyll-a at these smaller scales (i.e., variation within individual 3 year periods). EPA‘s insistence that the results be evaluated as individual 3 year periods (rather than as 10 year period in the 2005 James River Alternatives Analysis) significantly magnified the effect of poor interannual model performance on the TMDL.

In summary, EPA held numerous teleconference and meetings, including five teleconferences specific to the James River, without fulfilling repeated requests and agreements to perform a rigorous evaluation of the model calibration. In the rush to meet the allocation deadline, EPA applied a poorly calibrated model in a highly arbitrary fashion that contravenes accepted modeling practices. To this day, EPA appears to be in denial regarding the quality of the James River model calibration and the need to fully evaluate it.

4. EPA has not been responsive to VAMWA's requests for information on model calibration and results: VAMWA has been concerned about the chlorophyll-a model issues since the early stages of TMDL development. In an attempt to help address these concerns a number of timely model related data requests were made of the EPA Chesapeake Bay Program Office on January 4, June 2, and August 3, 2010.[FN56] In addition to the previously-mentioned requests on model calibration, we have requested documentation on predicted non-attainment by model scenario and post-processing regression results. However, these requests have not been answered at the time of this writing. Our ability to effectively comment and offer problem solutions was limited as a result and the transparency of the TMDL development process was inadequate.

On a related note, in addition to making it difficult to follow the development of the Draft TMDL, EPA‘s Draft TMDL itself is lacking in adequate detail to allow for a thorough review of these modeling issues. EPA has made it extremely difficult to evaluate the differences between the model runs. In Appendix O to the TMDL Report, EPA only states that it post-processed (manipulated) the data to address the poorly performing model results associated with the "James LOE ½ Potomac" model scenario. However, based on a review of EPA‘s "stoplight plots" for chlorophyll-a in Table M3 of Appendix M to the TMDL Report, it appears that EPA post-processed only the "James LOE ½ Potomac" scenario and failed to post-process the remaining scenarios. VAMWA submits that EPA should have post processed and published

scenarios with higher allocations in the James to allow for a public review of the results and the relative attainment rates for different load allocations.

[Figure 2: James River Model Segments. Please see original document 0288.1]

Until EPA recalibrates the model and the model is verified with enough peer review to ensure appropriate reliability in establishing reasonable allocations for the James River Basin, the allocation should remain at the "Tributary Strategy" level.

D. EPA's justification for drastic load reduction hinges on insignificant water quality responses

Due to the lack of complete information on the model results, it was difficult to determine the level of water quality benefits that EPA expected from the large load reductions. However, VAMWA interpreted the limited information available,[FN57] mostly derived from a June 18, 2010 presentation. Results of this review revealed that EPA was recommending huge allocation cuts on the basis of tiny model-predicted shifts in chlorophyll-a. Specific conclusions of Bell and Hunley (2010) were as follows:

1. The predicted changes in chlorophyll-a are smaller than can be precisely quantified by the model: Based on a review of Appendix O TMDL materials, CBPO‘s justification for going beyond the 190 TN / 13 TP allocation level is to reach very small and predicted decreases in chlorophyll-a and non-attainment rates:

--2-3% reductions in non-attainment in selected segment seasons (JMSTFL, JMSMH)
--1-2 micrograms per liter (ug/L) reduction in chlorophyll-a in selected segment seasons [FN58]

It is a misapplication of the model framework to claim that it is capable of distinguishing between model scenarios at such small differences in percent attainment and ambient chlorophyll-a concentrations, or that major management decisions costing hundreds of millions of dollars be made based on these tiny predicted shifts. Given the strong implicit margin of safety of the Bay TMDL, it cannot be concluded that the model is precise enough to distinguish non-attainment between scenarios that predict 0-1% and 2-4% non-attainment. The precision of chlorophyll-a predictions can be expected to be significantly less than that for main stem Bay dissolved oxygen (D.O.), which enjoys a much better calibration.

If the model cannot distinguish between D.O. non-attainment rates of 0% and 1% (as acknowledged by EPA), the spread in distinguishable non-attainment rates for chlorophyll-a can be expected to be greater. On this particular point, VADEQ (2010) provides a comparison between chlorophyll and D.O. reliability with respect to a number of different metrics including: impairment confidence, criteria evolution, criteria metric, analysis method, data quantity, analytical method variability, environmental variability, and model prediction ability.[FN59] Their comparison indicated that chlorophyll a measurements are considerably less certain in all areas than D.O. The obvious implication is that the allowable percentage non-attainment for chlorophyll is greater than 1%.

2. The predicted changes in chlorophyll-a are smaller than those that can be detected in monitoring data: It can be demonstrated that tiny predicted shifts in chlorophyll-a between the 190 scenario and the "between 170/Potomac" scenario (i.e. EPA‘s proposed allocation) would not even be detectable in light of environmental, sampling, and analytical variability. For example: (a) power analysis demonstrates that even after long (25 year) monitoring periods,

the minimum significant difference (MSD) in seasonal mean chlorophyll-a would be in the 2-4 ug/L range for most attaining segment seasons.[FN60] Thus, the modeled shift in chlorophyll-a between the 190 and the "between 170/Potomac" scenario would not be detectable in the monitoring data; and (b) based on a review of laboratory split sample results for the 1991-2000 James River data obtained from the CBMP data hub, the median relative percent difference (RPD) in chlorophyll-a samples was about 16 percent, corresponding to 1-4 ug/L chlorophyll-a, depending on segment and season.[FN61] Thus, analytical variability alone is equal to or greater than the modeled shifts in chlorophyll-a between the 190 scenario and the "between 170/Potomac" scenario. Consideration of field (sampling) variability would cause the total variance of chlorophyll-a measurements to increase even further. The management implication is that the water quality response in the James River between the D.O. based allocation and EPA‘s backstop allocation would be essentially the same but with significant differences in source controls and cost to the citizens of the Commonwealth.

3. The predicted changes in chlorophyll-a are not ecologically significant: The difference in chlorophyll-a levels predicted between tributary strategy and the proposed reduced allocation scenarios (on the order of 1-2 ug/L seasonal average and 2-4% in terms of nonattainment rates) are exceptionally small in magnitude. This estimated level of change is too small to be seriously considered a matter of practical importance or consequence to the James River. Even if the model could adequately discern such differences (which VAMWA disputes as discussed above), they would not result in tangible environmental benefits. One must keep in mind that the resulting chlorophyll-a standards were acknowledged by VADEQ and stakeholders to be highly imprecise.

4. James River chlorophyll-a concentrations are predicted to be relatively insensitive to nutrient load reductions in key segment-seasons: Very large reductions in nutrient loading would result in only very small incremental reductions in chlorophyll-a concentrations and/or reductions in non-attainment rate. For example the critical segments of the tidal freshwater and lower estuary are predicted to have response rates of approximately 1.0 and 0.3 ug/L chlorophyll response per million pounds of TN reduction per year. Such a misapplication of the modeling framework would lead to huge expenditures without significant changes in standards attainment or tangible environmental improvement.

5. Similarly, differences between the "Tributary Strategy" and TMDL scenarios are predicted to be very small: Appendix 34 [FN62] includes a series of four tables ("stoplight plots") for the "91-00 Base", "Tributary Strategy", "190/12.7 Loading", and "James LOE ½ Potomac" scenarios for each of the three-year rolling average for the periods between 1991 through 2000 that EPA uses to assess compliance. Each table includes percent non-attainment of the chlorophyll-a water quality criteria for each of the five model segments of the James River shown in Figure 2. The blacked data points shown in Appendix 34 [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A34] for the JMSTFL and MSPH segments in the "James LOE ½ Potomac" model scenario represent chlorophyll-a model output that was not considered reliable by EPA. Once post-processing of the data was completed, the JMSMH segment showed only 1% non-attainment, which EPA indicated was sufficient to establish the James River basin allocations for TN and TP loads at 23.5 and 2.35 million pounds per year, respectively. However, there are no records in the TMDL Report or its appendices for the percent non-attainment for the JMSMH segment prior to the post-processing for the ‘97-‘99 or ‘98-‘00 summer periods shown in Appendix 34. Therefore, we have undertaken the analysis below to compare the scenarios.

Appendix 35 [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A35] shows the same four scenario tables ("stoplight plot") as provided in Appendix 34, except the post-processing of the data for the "190/12.7 Loading" scenario was applied based on the EPA‘s June 2010 presentation.

Appendix 35 shows that JMSTFL and JMSPH segments were also not considered reliable by EPA and removed from consideration. EPA reported that the percent non-attainment for the JMSMH segment was reduced from 15 percent in Appendix 34 to 4 percent in Appendix 35, which was based on the EPA's removal of the problem regression data. It is reasonable to assume that the same trend would exist for the "Tributary Strategy" Scenario as shown in Appendix 35. The post-processed "Tributary Strategy" percent non-attainment rate for the JMSMH segment would be expected to be about 1 percent higher than the "190/12.7" scenario (based on comparison between Appendix 34 and Appendix 35). Therefore, it would be expected that the "Tributary Strategy" data would attain the standard about 93 to 94 percent of the time. The difference between this attainment rate and the one percent rate that EPA used to develop the proposed allocations are "essentially equivalent" (refer to previous comments above).

[FN47] Materials from Final Regulation Agency Background Document (Nov. 21, 2005).

[FN48] A comprehensive list of VAMWA's requests is attached hereto as Appendix 28. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A28]

[FN49] Attached hereto as Appendix 29. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A29]

[FN50] Reference attached hereto as Appendix 30. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A30]

[FN51] Attached hereto as a part of Appendix 28. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A28]

[FN52] Attached hereto as a part of Appendix 28. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A28]

[FN53] Attached hereto as Appendix 28. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A28]

[FN54] Attached hereto as a part of Appendix 28. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A28]

[FN55] See Draft TMDL, Appendix O, Figure 6. Plot of simulated surface chlorophyll a concentrations for WQM cell 731 (location of station LE5.2) during the summer of 1999 (a), and resulting regression plot for September 1999 LE5.2 chlorophyll a (b). The quote above Figure 1 is from Appendix O, at p. O-5.

[FN56] See Appendix 28. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A28]

[FN57] Attached hereto as Appendix 31. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A31]

[FN58] See Attachment A of Bell and Hunley (2010) (attached hereto as Appendix 32) [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A32] for details of these calculations.

[FN59] Attached hereto as Appendix 33. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A33]

[FN60] See Attachment B of Bell and Hunley (2010) (Appendix 32). [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A32]

[FN61] See Attachment C of Bell and Hunley (2010) (Appendix 32).[Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A32]

[FN62] Data extracted from Table M3 of Appendix M to the Draft TMDL.

Response

Review of the Chesapeake Bay Water Quality Model
The principles of the phytoplankton model were established in the original three-dimensional model study (Cerco and Cole 1993, Cerco and Cole 1994). Although the model has been revised, the basic principles are the same. These have been subject to countless reviews over a twenty-year period. Notably, the model was reviewed and accepted by the Chesapeake Bay Program's Modeling and Research Subcommittee as part of the original re-evaluation of the 40% nutrient reduction goal. The behavior of the model was extensively examined and published (Thomann et al. 1994). An independent scientific peer review of the Virginia Tributaries version of the Chesapeake Bay Water Quality Model, sponsored by the Chesapeake Bay Program's Scientific and Technical Advisory Committee was completed in 1999. The STAC review led to substantial improvements in the 2002 version of the model. The algal kinetics from this version are carried over into the present model. These kinetics have been peer-reviewed as part of the publication process and several publications have resulted (Cerco 2000, Cerco and Noel 2004).

With each new version of the Chesapeake Bay Water Quality Model
--1987 Chesapeake Bay Water Quality Model (2-year, steady state summer averaged)
--1992 Bay Water Quality Model (4-year, with dynamic sediment fluxes),
--1997 Virginia Tributary Refinements version of the Bay Water Quality Model (10 year, SAV and benthic filter/deposit feeders)
--2002 Chesapeake Bay Water Quality Model
--2010 Chesapeake Bay Water Quality and Sediment Transport Model

there was a combination of detailed technical review (Chesapeake Bay Program's Modeling Subcommittee), independent scientific peer review (Chesapeake Bay Program's Scientific and Technical Advisory Committee), and partnership review and approval for management applications (Chesapeake Bay Program's Water Quality Steering Committee and now the Water Quality Goal Implementation Team).

Cerco, C., and T. Cole. 1993. Three-dimensional eutrophication model of Chesapeake Bay. Journal of Environmental Engineering 119(6), 1006-1025.

Cerco, C.F. and T.M. Cole. 1994. Three-dimensional eutrophication model of Chesapeake Bay. Technical Report EL-94-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg MS.

Cerco, C. 2000. Phytoplankton kinetics in the Chesapeake Bay model. Water Quality and Ecosystem Modeling 1:5-49.

Cerco, C., and M. Noel. 2004. Process-based primary production modeling in Chesapeake Bay. Marine Ecology Progress Series 282:45-58.

Thomann, R., J. Collier, A.Butt, E.Casman, and L.Linker. 1994. Response of the Chesapeake Bay water quality model to loading scenarios. CBP/TRS 101/94, US EPA Chesapeake Bay Program, Annapolis MD.

Bay Water Quality Model Behavior

The phytoplankton component of the Chesapeake Bay Water Quality and Sediment Transport Model follows long-established and well-accepted principles. The fundamentals of quantitative phytoplankton modeling were established by Riley (1946). Riley's model described the seasonal trends in phytoplankton biomass as the sum of three processes: photosynthesis, respiration, and grazing. These processes were expressed as functions of fundamental variables including irradiance, light attenuation, temperature, mixed-layer depth, herbivore abundance, and nutrient availability. Spatial variability was added to phytoplankton models through division of large systems into well-mixed boxes (Kremer and Nixon 1978; Thomann and Fitzpatrick 1982). The basic process relationships were applied to each box and exchange of material between the boxes was quantified by means of long-term flows and/or exchange coefficients. The final step in the development of modern phytoplankton models was the coupling of phytoplankton dynamics to physics-based multi-dimensional hydrodynamic models. The original three-dimensional Chesapeake Bay model (Cerco and Cole 1993) was one of the first to successfully accomplish this coupling. The principles of the phytoplankton model were still Riley's, however. Phytoplankton biomass was determined by the sum of three processes: photosynthesis, respiration, and grazing. Primary forcing functions were irradiance, light attenuation, temperature, and nutrient availability. The original Chesapeake Bay model evolved through the Virginia Tributary Refinements (Cerco et al. 2002) and the 2002 Chesapeake Bay Model (Cerco and Noel 2004). The principles of the algal model remained, however. The present WQSTM uses the same model code and, largely, the same model parameters as the 2002 model.

The formulations of the Cerco and Cole (1994) model were incorporated into the Environmental Fluid Dynamics Code, which is presently available from the EPA (http://www.epa.gov/athens/wwqtsc/html/efdc.html) and is widely used in TMDL applications. The WQSTM formulations are equivalent to those in other widely-employed models such as the Regional Ocean Model System (ROMS, http://www.myroms.org). The algal framework of the WQSTM follows long-established principles, is widely accepted, and is universally-employed. The framework is stable and model parameters are known and bounded within established limits.

Cerco, C.F. and Cole, T. M. (1994). "Three-dimensional eutrophication model of Chesapeake Bay," Technical Report EL-94-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg MS.

Cerco, C., Johnson, B., and Wang, H. (2002). "Tributary refinements to the Chesapeake Bay model," ERDC TR-02-4, US Army Engineer Research and Development Center, Vicksburg, MS.

Cerco, C., and Noel, M. (2004a). "The 2002 Chesapeake Bay eutrophication model," EPA 903-R-04-004, Chesapeake Bay Program Office, US Environmental Protection Agency, Annapolis MD. (available at http://www.chesapeakebay.net/modsc.htm)

Kremer, J., and Nixon, S. (1978). A coastal marine ecosystem. Springer-Verlag, Berlin-Heidelberg.

Riley, G. (1946). "Factors controlling phytoplankton populations on Georges Bank," Journal of Marine Research 6, 54-73.

Thomann, R., and Fitzpartick, J. (1982). "Calibration and verification of a mathematical model of the eutrophication of the Potomac River estuary," Contract No. ES-80-6, HydroQual Inc., Mahwah NJ.

Chesapeake Bay Water Quality Model Calibration
Chlorophyll in the tidal James River is considered along with the chlorophyll a calibration system-wide. Model results are subject to multiple performance measures in several modes. These include:

--Time series of computed and observed chlorophyll at stations in the tidal fresh, transition, and lower estuarine regions.
--Comparison of computed and observed chlorophyll along the estuarine axis. These are averaged according to season and presented for years of different hydrology.
--Cumulative distribution plots of computed and observed chlorophyll.
--Time series of computed and observed primary production.
--Time series of computed and observed water column respiration.

We have maintained a consistent statistical measure of model performance (Cerco and Noel 2005) since the original model study. Statistics have been calculated and compared for the original 1987 Chesapeake Bay Water Quality Model (2-year, steady state summer averaged), 1992 Bay Water Quality Model (4-year, with dynamic sediment fluxes), 1997 Virginia Tributary Refinements version of the Bay Water Quality Model (10 year, SAV and benthic filter/deposit feeders), the 2002 Chesapeake Bay Water Quality Model, and for the 2010 Chesapeake Bay Water Quality and Sediment Transport Model. These statistics include mean difference, absolute mean difference, and relative difference:

[See Attachment 1 to the Response to Comment document for Equation 1 in the section Chesapeake Bay Water Quality Model Calibration.]

in which:

MD = mean difference
AMD = absolute mean difference
RD = relative difference
O = observation
P = prediction
N = number of observations

The mean difference describes whether the model over-estimates or under-estimates the observations, on average. The mean

difference can attain its ideal value, zero, while discrepancies exist between individual observations and computations. The absolute mean difference is a measure of the characteristic difference between individual observations and computations. An absolute mean difference of zero indicates the model perfectly reproduces each observation. Relative difference is the absolute mean difference normalized by the mean of the observations.

Statistics for chlorophyll in the James River are presented in the table below for the four stages of model application. Model performance, as characterized by absolute mean difference and relative difference, is the best ever. Performance characterized by mean difference is among the best ever. Model versions with quantitative performance statistics lower than the present version were accepted for verification of the 40% nutrient reduction goal and for determination of tributary load allocations. EPA believes the performance of the 2010 Chesapeake Bay Water Quality Model is sufficient for use in determining TMDLs for the tidal James River.

[See Attachment 1 to the Response to Comment document for Table 1 titled "Chlorophyll Summary Statistics for James River (Chesapeake Bay Water Quality Model Calibration section)."]

Cerco, C., and Noel, M. (2005). "Incremental improvements in Chesapeake Bay environmental model package," Journal of Environmental Engineering 131(5), 745-754.

Responses to VAMWA's Requests for Information

EPA has a wide array of partners and stakeholders is needs to be responsive to support an open, transparent decision making within the larger partnership. EPA recognizes is did not fully respond to all of VAWMA's requests. With limited time and staff resources, EPA placed priority on responding to the requests and direction from its partnership, specifically the Water Quality Goal Implementation Team, then responding to others requests as time and resources allowed. VAMWA has full access to the same sets of data, model scenario input decks and outputs as members of the Water Quality Goal Implementation Team. EPA could not take on the responsibility for conducting analyses beyond the scope of what had been agreed to by the partnership through Water Quality Goal Implementation Team due to limited resources.

Predicted Changes in Chlorophyll a Concentrations

It is important to recognize that the scenario assessment methodology applied in development of the Bay TMDL is specifically designed to make use of the model as the best available method for predicting response to nutrient load reductions as represented by the relative degree of change in chlorophyll a concentrations from one loading scenario to another, and not for estimating the actual mean itself. While the WQSTM's ability to approximate observed conditions is used as a metric for identifying those locations and time periods for which its estimates of response are most useful, EPA relies on the historical monitoring data as the best available estimate of the mean chlorophyll a concentrations in any given season and location. EPA uses the WQSTM to predict the degree of change expected in that mean with reductions in pollutant loads. See Section 6.2.4 in the Bay TMDL report for more details.

Predicted Changes in Chlorophyll a Not Ecologically Significant

Given Virginia's chlorophyll a water quality standard is stated as seasonal mean concentration, relatively small incremental changes in the seasonal mean concentration heading down towards achievement of that standard translates into ecologically significant reductions in extreme bloom conditions over the same spring or summer season (USEPA 2007). For the tidal James River, Virginia's water quality standards regulations have defined numerical concentrations of chlorophyll a that define a healthy,

productive aquatic ecosystem, period. Concentrations above those water quality standards mean the waterbody is impaired and does not meet its designated uses.

USEPA (U.S. Environmental Protection Agency). 2007. Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries. 2007 Chlorophyll Criteria Addendum. EPA 903-R-07-005 CBP/TRS 288/07. U.S. Environmental Protection Agency, Region 3 Chesapeake Bay Program Office, Annapolis, MD.

Chlorophyll a Concentration Changes Insensitive to Nutrient Load Reductions

[See Attachment 1 to the Response to Comment document for Figure 3 titled "JMSMH Summer 1997-1999."]

The above figure provides clear evidence for chlorophyll a responses to nutrient load responses, using the combination of the Chesapeake Bay Water Quality Model to predict change in concentration under different nitrogen and phosphorus loads and Chesapeake Bay Monitoring Program data as the measured starting concentration. There is a slight flattening of the response curve on the way toward 100 percent attainment of the applicable chlorophyll a water quality standards—in this case the 10 ug/L summer season criterion for lower James River segment JMSMH for the 1997-1999 period assessment period.

Small Differences Between Scenarios

A TMDL must be developed to achieve the applicable water quality standards. In the case of the tidal James River, Virginia's water quality standards regulations have defined numerical concentrations of chlorophyll a that define a healthy, productive aquatic ecosystem.

EPA took specific steps described in the Bay TMDL report and Appendix O to remove from consideration specific segment-season-3 year periods where close evaluation of the model output and modeling/monitoring regressions called into question the confidence in driving the allocations even lower. EPA also determined 1 percent non-attainment was attainment of the designated use for a limited set of segment-season-3 year periods where there was evidence of reduced sensitivity approaching the criterion concentration (Appendix I). If EPA had not taken these steps, the resultant James River nitrogen and phosphorus allocations would have been even lower than those published in the Bay TMDL.

Lack of Full Model Validation and Peer Review

The Chesapeake Bay Water Quality Model has been under a deliberative, continuous stage cycle of development, calibration, verification, and management application since 1987. Major deliveries to the Bay Program include:

--The original three-dimensional Chesapeake Bay Model, 1992, used to validate the original 40% nutrient reduction goals cited in the 1987 Chesapeake Bay Agreement.
--Virginia Tributary Refinements, 1998, used to help develop the nutrient allocations by major basin and jurisdiction as a result of the 1997 Reevaluation.
--The 2002 Chesapeake Bay Water Quality Model used develop the nitrogen, phosphorus and sediment cap load allocation called for in the Chesapeake 2000 Agreement and support development of the jurisdictions' Tributary Strategies.
--The 2010 Chesapeake Bay Water Quality and Sediment Model used to help develop the Total Maximum Daily Loads (TMDLs) for the Chesapeake Bay and support the jurisdictions' development of Watershed Implementation Plans.

The model has been applied to numerous other systems and has served as a template for model studies in the US and internationally. The principal authors of the Chesapeake Bay Water Quality Model have published 14 peer-reviewed articles on the model in addition to numerous technical reports, many of which are in wide circulation. The model has been presented in national and international conferences since its initial development. The current version has been the subject of presentations including:

--Coastal and Estuarine Research Federation, Providence RI, 2007
--Coastal and Estuarine Research Federation, Portland OR, 2009
--National Conference on Estuarine Restoration, Los Angeles CA, 2009
--American Society of Limnology and Oceanography, Santa Fe NM, 2010

The model has been presented at quarterly sessions of the Chesapeake Bay Program's Modeling Subcommittee, at independent peer reviews sessions hosted by the Scientific and Technical Advisory Committee (STAC), and at countless additional seminars and workshops. Each presentation provides the opportunity for review, ranging from the rigorous peer review provided by professional publications to the give-and-take of Modeling Subcommittee meetings. The Chesapeake Bay Water Quality Model is well-known and widely recognized. There are no "black boxes" or complex processes that are not understood and there are no aspects of the model that have not been presented for examination in one or more venues.

Extrapolation Beyond the Observed Range of Management Controls
EPA and its partners have, in fact, conducted multiple simulations of a "pristine" and a "1950's" Bay. The objective of these simulations has been to ensure that the model reproduces pre-eutrophic conditions when it is subjected to pre-eutrophic loads. One consequence of these simulations is the finding that certain model parameters or processes require adjustment in the face of extreme nutrient load reductions. The Bay Water Quality Model developers have devised algorithms in which the following are adjusted to reflect nutrient load reductions:

--Nutrient concentrations at the bay mouth are adjusted downwards to reflect the concentration reductions in coastal waters due to reduced export from the bay and reduced atmospheric loading.
--SAV is assigned a higher probability of propagation to reflect modification of the local environment by dense, extensive SAV beds.
--SAV feedback effects on suspended solids are adjusted to reflect influence of dense, extensive SAV beds.
--Oysters are assigned lower rates of harvest and predation to reflect 1950's conditions.

EPA believes the examination of model performance with regard to extreme load reductions and the resulting steps taken eliminate the problem of extrapolating beyond observed, existing conditions.

Lack of Criteria for Acceptance of Model Predictions Poor Chlorophyll a Calibration
There are no universal criteria for determining the acceptability of model performance. This absence occurs for many reasons. Among them are:

--Lack of agreement on a standard set of statistics.
--Variation in characteristics of different systems. The criteria for nutrients in a system like Florida Bay would differ from

Chesapeake Bay.
--Variations in different substances. Criteria for salinity would differ from chlorophyll.

The Bay Water Quality Model developers have maintained a consistent statistical measure of model performance (Cerco and Noel 2005) since the original model study. Statistics have been calculated and compared for the original model, for the Virginia Tributary Refinements, for the 2002 Chesapeake Bay Model, and for the 2010 Model. These statistics include mean difference, absolute mean difference, and relative difference:

[See Attachment 1 to the Response to Comment document for Equation 2 from the Lack of Criteria for Acceptance of Model Predictions Poor Chlorophyll a Calibration section]

in which:

MD = mean difference
AMD = absolute mean difference
RD = relative difference
O = observation
P = prediction
N = number of observations

The mean difference describes whether the model over-estimates or under-estimates the observations, on average. The mean difference can attain its ideal value, zero, while discrepancies exist between individual observations and computations. The absolute mean difference is a measure of the characteristic difference between individual observations and computations. An absolute mean difference of zero indicates the model perfectly reproduces each observation. Relative difference is the absolute mean difference normalized by the mean of the observations.

Statistics for chlorophyll in the James River are presented in the table below for the four stages of model application. Model performance, as characterized by absolute mean difference and relative difference, is the best ever. Performance characterized by mean difference is among the best ever. Model versions with quantitative performance statistics lower than the present version were accepted for verification of the 40% nutrient reduction goal and for determination of tributary load allocations. EPA believes the performance of the present model version is sufficient for use in determining TMDLs in the James River.

[See Attachment 1 to the Response to Comment document for Table 2 titled “Chlorophyll Summary Statistics for James River (Lack of Criteria for Acceptance of Model Predictions Poor Chlorophyll a Calibration section).”]

VII.a.1 Watershed Model Validation
The validation method for the phase 5 watershed model was changed to match the recommendations of the 2008 STAC review. Phase 5 validation was presented to the technical groups responsible for review of the watershed model calibration and is available here: ftp://ftp.chesapeakebay.net/modeling/phase5/calibration_pdfs/p53_2010_02/2010_03_31_ModSC.ppt

VII.a.4 Groundwater and STAC review

This point was addressed in the Chesapeake Bay Program response to the STAC sponsored independent scientific peer review of the Phase 5 Chesapeake Bay Watershed Model available at http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf.

"A fully developed groundwater model coupled to the Phase 5 Watershed Model is beyond the scope of currently available resources and time. We note that there are regional groundwater models under development in the Chesapeake region and believe a winning strategy is to couple a future version of the CBP watershed model with one of these models once development is complete. Even with the current HSPF Phase 5 simulation though we do have a full mass balance accounting of nitrogen and note that about 50% of the total nitrogen simulated in the reach is from the HSPF representation of groundwater. Still, we readily concede that the HSPF representation of groundwater is simplistic and falls well short of a regional groundwater model, especially with regard to lag time, and agree that a coupled watershed and regional groundwater model is a worthy long-term objective."

It should also be noted that scenarios run on the watershed model are designed to be the loads given a constant state of management. Lag time should not figure into management scenarios so a mass-balance approach without the lag time of a regional model is appropriate for this purpose

VII.a.7 Urban Land Assumption
Fluctuations in the extent of developed lands in different versions of the watershed model are due to changing technology and methods for mapping developed lands and inferring change over time using a combination of datasets. For each version of the watershed model, the EPA uses the best available data and methods to provide information that is accurate, consistent, and comparable across the watershed and over time.

As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010, the phase 5.3 will be updated with a revised developed land data set, not for the December 31 2010 TMDL, but for the phase II Watershed Implementation Plans, which will be due after the 2010 TMDL. In accordance with court documents, EPA does not have the ability to ignore the December 31, 2010 deadline. Adjustments to the allocations, if warranted, might be made at that time. Link to the letter: http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf.

VII.a.8 Missing VA Point Sources
EPA uses all available waste water data. Virginia supplied a good deal of point source data after the September 1st, 2010 deadline for this type of data submission on September 3rd, 2010. The 139 missing point sources were not supplied with correct geographic information and could not be included without spatial reference. EPA has worked with Virginia to obtain corrected geographic information and included these point sources in implementation scenarios starting on November 18, 2010. All these previously missing facilities are accounted for in the final Bay TMDL allocations.

VII.a.9 Application to Local Level
This point was addressed in the Chesapeake Bay Program response to the STAC sponsored independent scientific peer review of the Phase 5 Chesapeake Bay Watershed Model available at http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf.

To summarize the main points: Consistency of data is an important feature of the phase 5.3 model in that it is used to fairly inform

the allocation of loads among different jurisdictions and watersheds. The Phase 5.3 Watershed Model development process considered all available input data at the finest consistent scale possible within the Bay watershed using comparable level of accuracy for all watersheds. The Phase 5.3 model was also calibrated at the finest scale of observed stream data available. Therefore the Phase 5.3 watershed model uses the best available information that is consistent across jurisdictions and watersheds.

VII.a.10 Overparameterized Modeling Framework
Equifinality is a known issue with all deterministic watershed models, however few are analyzed to account for this. The modified Monte Carlo or GLUE methods most often used as tools to address equifinality are not feasible to implement on a model of this complexity. HSPF, which is the model code used in phase 5.3 of the watershed model is a widely-used TMDL model and is included in the EPAs BASINS software package as a recommended model for TMDLs.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the Draft TMDL.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed by several of the above groups.

VII.a.11 Inconsistent Watershed Model Results
EPA is working on the issue of the phase 5.3 watershed model producing different results on some different platforms. It was been verified that the code in use in the TMDL is internally consistent. Some other installations are finding that there are errors in reading some of the binary files on those systems only.

VIII.B Critical Period is Appropriate
The decision to use 1993-1995 critical period was based on an analysis that found the 1993-1995 hydrology had roughly a 10-year return period, which is consistent with many TMDLs. See Appendix G in the final Bay TMDL report for more details.

VII.E. EPA Should Assume Better Design, Installation, Operation and Maintenance for Modeled BMPs
The conservative estimate of effectiveness is part of the implicit margin of safety that you specifically recognize in part VII.C of your comment.

EPA does not agree that it is reasonable to assume that future management practices will have better design, installation, and operation and maintenance than past experience indicates. A specific program to improve these practices would be viewed as a separate, additional BMP. An example in the current phase 5.3 model is that "Dry Extended Detention Ponds" have a higher efficiency than "Dry Detention Ponds" due to an improved design.

EPA can accept additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions

in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.
Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

Reply to section X.A. of VAMWA comment
The commenter notes that the relative ordering of basins has changed between the 2009 and 2003 estimates of estuarine effectiveness. The commenter correctly notes that this is due to methodological changes as basins were subdivided to achieve a more geographically precise metric of effectiveness. Other changes include the use of updated models and a better method to assess effectiveness. The commenter also notes in the first if the "key findings" that the overall positions of the basins between 2009 and 2003 is similar.

EPA does not agree with the argument from the second "key finding" on page 52 of the comment that there is a minimum significant absolute effectiveness value, where absolute effectiveness is the modeled change in dissolved oxygen in moving from one scenario to another. As the commenter argues in the third "key finding", any sufficiently small watershed or source could be configured to remain below any such minimum. The effectiveness scores are simply a way to place sections of the Chesapeake watershed on a relative scale for the purpose of assigning load effort.

In the third "key finding" the commenter notes that other sections of the Chesapeake Bay watershed have low relative effectiveness similar to, and in some cases lower than, the York and James. Relative effectiveness is a measure of the effect of a pound of nutrient reduction on mid-bay dissolved oxygen. EPA maintains that this is a reasonable basis for allocations in that a pound of nutrient reduction from areas with a similar relative effectiveness will have a similar effect on dissolved oxygen in the bay and therefore should require a similar effort at reduction. EPA led a dialogue with all seven watershed jurisdictions for over 2 years on the approach that should be used to allocate loadings to all states. While numerous methods were considered, EPA could not arrive at a consensus methodology for all states, the methodology used did enjoy the most agreement of any methodology considered among the jurisdictions.

Section X.B
The commenter is correct that the Rappahannock above fall line flow is 2.7% of the total measured long term flow to the bay. However, as in the case of the second "key finding" in section X.A above, EPA does not agree that there is a minimum significant absolute effectiveness.

Comment ID 0288.1.001.021

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

EPA expects VAMWA members (and others) to comply with an extraordinarily expensive clean-up plan. However, EPA

itself has not fulfilled its obligation to ensure that its modeling framework is adequate to support its TMDL and the accompanying WLAs and LAs. If EPA presses forward with finalizing the TMDL over the objections of Bay dischargers and interested stakeholders, despite the faulty model that it has put forth in support of its TMDL, its decision to do so will be arbitrary and capricious.

Like any model, EPA‘s Bay model is a highly imperfect representation of reality. Over time, EPA has inappropriately shifted to using it in ways that are beyond its capabilities (e.g., predicting D.O. concentrations and non-attainment rates in specific segments to the single percentage point level under far-reaching management scenarios). This has resulted in wide swings in predicted loads and goals with each major model version. VAMWA believes that this instability will continue to occur in the future as the model is periodically modified.

VAMWA objects to overreliance on unstable models to the single percentage point of output, such that environmental policies are undermined with each new model run. Following are examples of problematic modeling issues that should cause EPA to shy away from major disruptions to state regulations/policy on the basis of single-digit shifts in model output:

1. Lack of full model validation and peer review: The Scientific and Technical Advisory Committee (STAC) has placed a strong emphasis on the need for model validation (STAC, 2006), calling validation "an essential and a required step in model development, particularly if the model is to be used for TMDL development purposes" (STAC, 2008b).[FN67] Although the watershed model (WSM) appears to have been subjected to some kind of validation, the public documentation of the validation is very poor. Moreover, it is unclear if the Water Quality and Sediment Transport Model (WQSTM) has been validated in any manner. VAMWA scientists were unable to locate any record of WQSTM validation in Chesapeake Bay Program materials. It also appears that the STAC reviews of the WQSTM have focused on the sediment, clarity, and SAV components, and there may not have been a complete peer review of the latest version of the full eutrophication and DO simulation.

2. The model is being extrapolated beyond the observed range of management controls and living resources: The model framework has been calibrated using data from years with widely varying hydrologic conditions. However, none of the calibration data are representative of management controls or living resources that being called for as part of the Bay TMDL and related goals. Therefore, there is simply no way to verify that the Bay system will respond precisely as predicted. The model predictions of attainment are best characterized as rough approximations rather than highly precise predictions.

3. An estimate of model uncertainty should be used to determine the essential equivalence of model scenarios: EPA was correct to implement an interpretive rule (the "1% rule") by which model-predicted non-attainment is considered indistinguishable from zero. However, the one-percent magnitude underestimates the model error and overestimates the precision of both the model and monitoring data. Based on the analysis of Bell (2010b), segments that are close to attainment would require spatial D.O. violation rates that differ by 4% or more before they would be statistically distinguishable from one another. EPA‘s justification for the 1% magnitude was not based on calibration or validation statistics, but by an analysis of the sensitivity of simulated to DO attainment to simulated load reductions.[FN68] It is recommended that the EPA further evaluate the statistical power of the model and monitoring to distinguish between non-attainment rates of differing magnitude. With the information in hand, VAMWA concludes that the "1% rule" should be a "4% rule" at minimum.

4. Inaccuracy of groundwater inputs: The model handles groundwater inputs/loads in a very simplistic manner that is dissimilar to physical reality. Or as stated by STAC (2008a), "the model does not represent the full coupling of the groundwater to the surface water system on a regional scale." Considering that 50% of the total freshwater flow to the Bay is derived from groundwater (Bachman and others, 1998), this is a major model limitation and source of uncertainty for management scenarios.

5. Lack of criteria for acceptance of model predictions: Predictions of dissolved oxygen and chlorophyll-a in some segments are characterized by anomalies (e.g., counterintuitive trends with decreasing loads). EPA recognized many of the most obvious problems, and used poor model behavior as a justification for not using DO or chlorophyll-a attainment in many segment-seasons (e.g., Keisman, 2010a; Keisman 2010b).[FN69] However, in most of these cases, the underlying cause(s) were not identified, and full implications of these problems for the model were not explored. The same problems that caused obviously poor model behavior in some segment-seasons might be also causing more widespread but less obvious problems in other segment-seasons. We see no evidence that the CBPO developed objective criteria for the acceptance or rejection of model results in these circumstances. Poor behavior of the James River chlorophyll-a model is discussed in more detail in Section VI.

6. Poor chlorophyll-a calibration: The chlorophyll-a calibration is obviously very poor in many segments (e.g., tidal freshwater James), and EPA has not demonstrated that the model is a useful predictor of annual changes in chlorophyll-a in other key segment-seasons. This comment is discussed in more detail in Section VI.

7. Instability and inaccuracy in urban land use assumptions: The watershed model suffers from questions regarding accuracy of the urban land use acreages. Urban land use breakdowns have been very unstable between model versions and even subversions, varying with different derivation methods and assumptions. For example, the urban land use breakdown varied by millions of acres between model version 5.2 and 5.3. [FN70] It unclear that the latest version is accurate or has been adequately ground-truthed. Urban stormwater loads and implementation costs are highly sensitive to the assumptions regarding urban land use breakdown.

8. Missing point sources: It is our understanding the current version of the model framework does not include 139 active Virginia point sources. Further, EPA is aware of this error, however it has not been corrected due to a lack of time until EPA‘s self-imposed December 31, 2010 deadline.

9. Inappropriate application of watershed model to local level. In their review of the Phase 5 watershed model, STAC (2008) clearly stated that the model was not appropriate for use at the local level, and would need recalibration/resegmentation for this application. It is unclear, then, why the Bay Program is continuing to promote the application of the model to determine local-level loads and allocations, and why EPA is calling for such values in the Phase II WIPs.

10. Overparamterized modeling framework: The model combined modeling framework is so complex and highly parameterized that there are no unique calibration solutions; it is easy to obtain the "right" answer for the "wrong" reason. Calibration also relies on regional calibration factors that act as "black box" knobs, divorcing the model result from physical understanding of the processes. While necessary for calibration, these factors introduce yet another source of uncertainty into model predictions.

11. Inconsistent watershed model results: We understand that a consultant retained by another stakeholder has run the

watershed model has obtained widely different results on different computers. If true, this brings into question which is the "correct" result, and undermines the entire basis of the TMDL allocations. We encourage the Bay Program to fully investigate the reasons and implications of this finding.

[FN67] Attached hereto as Appendix 37. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A37]

[FN68] Batiuk, R. and Shenk, G., 2010. Technical Rationale for Documenting Attainment for 1% Non-attainment Dissolved Oxygen Criteria Values. Attachment C2 for State/District Co-Regulators June 14, 2010 Conference Call (attached to Appendix 41). [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A41]

[FN69] Attached hereto as Appendix 38; see also Appendix 31. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A31 and 0288.A38]

[FN70] See Appendix 39. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A39]

Response

Please see EPA’s comprehensive responses to comment ID 0288.1.001.016.

Comment ID 0288.1.001.024

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

D. EPA's Failure to Recognize Essential Equivalency in Its Target Load Options Is Unreasonable

In the determination of basin nutrient loadings (190 TN and 12.7 TP) EPA utilized the 1% rule to determine compliance (with the exception of certain problem segments). Bell (2010b) performed a statistical "power analysis" to evaluate the minimum difference in D.O. that would be statistically detectable in the Chesapeake Bay Monitoring Program.[FN72] Based on the results of this analysis, segments that are close to attainment would require spatial D.O. violation rates that differ by 4% or more before they would be statistically distinguished from one another. The management implications are that Bay model D.O. scenario results with differences less than 4% should be considered "essentially equivalent." This is not the case in the current TMDL. Based on the above referenced "power analysis," the scenario associated with Target load Option A produces results that are "essentially equivalent" to EPA‘s recommended basin target loads of 190 mpy/yr TN and 12.7 mpy/yr TP (Bell, 2010a). At this level of nutrient loading the key Bay segments of CB4MH, CB5MH, MD5MH, and VA5MH are predicted to be in attainment or be within 2% of attainment. It is recognized that Target load Option A would not immediately address attainment in some of the side segments. However, effectively addressing these side segments would require separate, locally oriented modeling analysis with tools better adapted to evaluating local conditions. The Target Load Option A to comply with D.O. standards in the main

bay is essentially equivalent to the more stringent and costly to attain allocations associated with 190 TN and 12.7 T and the TMDL; this must be recognized in the TMDL.

[FN72] Attached hereto as Appendix 41. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A41]

Response

Regarding the power analysis, the argument that we should not implement corrective measures because we lack sufficient tools to measure their effect is flawed before we even begin to start to consider the details of the argument. Consider this analogy. A patient goes to a doctor and it is diagnosed that the patient has a fever. The doctor prescribes that the patient should take an analgesic to bring the fever down. On arriving home, the patient discovers that he does not have a medicinal thermometer. Under the proffered logic, the patient should not take the analgesic because he has no way to show that his temperature will decrease as a result.

Nevertheless, a key point is that in the power analysis, extrapolation of monthly violation rates are improperly used to make a statement about a minimum statistically significant difference in non-attainment rates. They are two different rates. A mean 4% violation rate does not directly correspond to a non-attainment rate.

Comment ID 0293.1.001.018

Author Name: Pomeroy Christopher

Organization: Virginia Municipal Stormwater Association, Inc. (VAMSA)

EPA's Bay Model Is Flawed

EPA expects VAMSA members (and others) to comply with an extraordinarily expensive and operationally cumbersome clean-up plan. However, EPA itself has not fulfilled its obligation to ensure that its modeling framework is adequate to support its TMDL and the accompanying WLAs and LAs. If EPA presses forward with finalizing the TMDL over the objections of Bay dischargers and interested stakeholders, despite the faulty model that it has put forth in support of its TMDL, EPA's decision to do so will be arbitrary and capricious.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0293.1.001.020

Author Name: Pomeroy Christopher

Organization: Virginia Municipal Stormwater Association, Inc. (VAMSA)

VAMSA objects to overreliance on unstable models to the single percentage point of output, such that environmental policies are undermined with each new model run. A full discussion of VAMSA's concerns with regard to the model is attached hereto as Appendix 14. Although VAMSA generally concurs with EPA's critical period and the use of an implicit margin of safety, there are a number of problematic modeling issues that should cause EPA to shy away from major disruptions to state regulations/policy on the basis of single-digit shifts in model output, including:

--Lack of full model validation and peer review
--The model is being extrapolated beyond the observed range of management controls and living resources
--An estimate of model uncertainty should be used to determine the essential equivalence of model scenarios
--Inaccuracy of groundwater inputs
--Lack of criteria for acceptance of model predictions
--Poor chlorophyll-a calibration
--Instability and inaccuracy in urban land use assumptions
--Missing point sources
--Inappropriate application of watershed model to local level
--Overparamterized modeling framework
--Inconsistent watershed model results

Each of these is explained in greater detail in Appendix 14.

[Please see comments 0580.1 and 0581.1 for Appendix 14]

Response

Please see EPA’s comprehensive responses to comment ID 0288.1.001.016.

Comment ID 0295.001.003

Author Name: Cross J.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because:

- The EPA model is flawed, not proven, and not suitable for being the basis for the proposed limitations.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0295.001.004

Author Name: Cross J.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because:

- Most specifically, the EPA should incorporate the model revisions recommended by the DEC in their Watershed Implementation Plan.

Response

Please refer to the response to comment 0103-cp.001.004.

Comment ID 0298.2.001.003

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC)

The flaws in EPA‘s proposed allocations are compounded in the James River basin by its use of model results that are poorly calibrated against the basin‘s Chlorophyll-a standards. Analysis shows that EPA‘s use of poorly calibrated model results and a one-percent non-attainment rate for the Chlorophyll-a standards will have enormous economic consequences for the Hampton Roads localities with little or no quantifiable water quality benefit.

Response

Please see EPA’s comprehensive responses to comment ID 0288.1.001.016.

Comment ID 0298.2.001.009

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC)

OVERVIEW OF MODELS AND MODELING USED TO DERIVE THE PROPOSED URBAN RUNOFF ALLOCATIONS

The Phase 5.3 Chesapeake Bay Watershed Model computer model (CBWM) is enormous, and has been described as

one of the world‘s largest environmental models. The 64,000 square-mile watershed spans roughly one-quarter of the East coast of the United States. However, CBWM is only a component in the larger Chesapeake Bay Program suite of models.

Four major modeling components are used to develop the input data for CBWM . A substantial amount of nitrogen is deposited from the atmosphere and groundwater into the Bay, and land use changes have significant implications for nutrient and sediment loading. All of this data is pre-processed in antecedent models, and then aggregated in a tool called the Scenario Builder." Also, the CBWM does not include the groundwater component.

Response

The Phase 5.3 Chesapeake Bay Watershed Model provides a complete mass balance of surface and subsurface flows and nutrient loads in the Chesapeake Bay watershed A key distinction is that the groundwater flow paths are not explicitly simulated in the Bay Watershed Model, as they would be the case for modeling applications like water table withdraws. Watershed applications like the Chesapeake TMDL typically use models like the HSPF- based Phase 5.3 Model which fully capture estimates of the groundwater hydrology and loads.

Comment ID 0300.1.001.007

Author Name: Whirley Gregory

Organization: Virginia Department of Transportation (VDOT)

The Chesapeake Bay watershed model is not a perfect representation of actual conditions. Rather, it is a rough approximation. Given the geographic scale of the model and the relative insensitivity of the regional model to represent localized conditions, VDOT believes that the draft TMDL relies too much on model forecasting and not enough on real time data. Even EPA admits the model has "inherent uncertainty". We understand that EPA has already committed to fix two known flaws that could result in changes to the strategies identified in the draft TMDL/WIPs. VDOT is concerned that the total reliance upon a model which is still evolving may lead to incorrect and unnecessary allocations and initiatives that are passed along to source sectors. The resulting lack of reliable modeling results complicates stakeholder efforts to understand what will be asked of them under the WIPs/TMDL and makes it very difficult to provide meaningful comment on the draft TMDL. The unresolved modeling issues raise concerns that source sectors, such as permitted point sources, risk being mandated to make additional reductions while implementing projects that were designed to a different standard.

Response

The Phase 5.3 Chesapeake Bay Watershed Model is a representation of the watershed, not a perfect refection of it. Development and application of the Phase 5.3 Model was with an integrated approach of modeling, monitoring, and research. A key feature of this approach is that the Chesapeake Bay Program plans with the models, but measures achievement of the water quality standards

with the monitoring data. This is done on a year to year basis allowing for continual adaptive management. Major events where an integrated approach of monitoring modeling and research will be used are in the upcoming two-year milestones and in the 2017 Assessment of TMDL progress.

Phase 5.3 Model developers including the EPA Chesapeake Bay Program, the Virginia Department of Conservation & Recreation, the Interstate Commission on the Potomac River Basin, the University System of Maryland, the Maryland Department of the Environment and the U.S. Geological Survey, in partnership with the Bay Program States, have done all that time and resources allow to review and refine the input data and the model simulation.

Comment ID 0317.001.003

Author Name: Kipp B.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you should oppose implementing the proposed Chesapeake Bay TMDL limits because:

The EPA model is flawed, not proven, and not suitable for being the basis for the proposed limitations.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0317.001.004

Author Name: Kipp B.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you should oppose implementing the proposed Chesapeake Bay TMDL limits because:

Most specifically, the EPA should incorporate the model revisions recommended by the DEC in their Watershed Implementation Plan

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0318.001.003

Author Name: Cross A.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because. . .

The EPA model is flawed, not proven, and not suitable for being the basis for the proposed limitations.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0318.001.004

Author Name: Cross A.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because. . .

Most specifically, the EPA should incorporate the model revisions recommended by the DEC in their Watershed Implementation Plan .

Response

Please refer to the response to comment 0103-cp.001.004.

Comment ID 0323.1.001.001

Author Name: Wigley T.

Organization: National Council for Air and Stream Improvement, Inc. (NCASI)

1. Forestry best management practices are implemented at high rates nationally and in states within the Chesapeake Bay watershed.

Forestry activities in the United States are now conducted under a comprehensive program of best management practices (BMPs). Since enactment of the Federal Water Pollution Control Act Amendments of 1972, all states with

significant forest management activities have developed either regulatory or non-regulatory BMP programs under Sections 208, 319 and 404 to achieve water quality goals. The rate at which forestry best management practices are implemented is a key factor in judging the effectiveness of state forestry nonpoint source control programs. Using weighted annual state timber harvest volumes and BMP implementation rates from state assessment reports, Ice et al. (2010) calculated an adjusted national average implementation rate of 89%. Generally, implementation rates are increasing over time (Ice et al. 2010, NCASI 2009). Specific data on harvest levels and BMP implementation rates for states in the Chesapeake Bay watershed are shown in Table 1.

Table 1. Annual Harvest Removals and Reported BMP Implementation Rates for States in the Chesapeake Bay Watershed. Adapted from Ice et al. 2010. [Please see page 2 of the original letter (Docket ID 0323.1.001).]

2. When implemented, forestry BMPs are effective at protecting water quality.

Research results overwhelmingly document that properly installed and maintained forestry BMPs effectively reduce sediment impacts as well as maintain stream water temperatures and dissolved oxygen levels. In fact, BMPs can reduce pollution loads to streams by as much as 80 to 90% (Ice et al. 2004). Ice (2004b) and Ice et al. (1997, 2004a, 2005a, 2005b) present results from studies of BMP effectiveness and summarize this body of research. Other sources of publications that document BMP effectiveness are a 2004 special issue of Water, Air, and Soil Pollution (Volume 4, Issue 1), presentations from a 2003 Workshop on Predicting Sediment from Forest Road Systems in the South (http://fri.sfasu.edu/pages/projects/alto/html/forest_roads_03.html), and proceedings of the 2006 International Conference on Hydrology and Management of Forested Wetlands (http://www.asabe.org/pubs/PubCat02/environment.html).

3. There have been numerous studies in the Chesapeake Bay Region documenting BMP effectiveness, many of which do not appear to have been considered by EPA.

There have been numerous studies in the Chesapeake Bay Region documenting BMP effectiveness, many of which do not appear to have been considered by EPA. A brief synopsis of key findings from these studies is as follows.

A watershed study conducted in central Pennsylvania suggested that the BMPs were effective in controlling non-point source pollution from a 44.5-hectare commercial clearcut (Lynch et al. 1985). Among the BMPs used were: protective buffer strips; a prohibition on skidding over streams; supervision of logging by a qualified forester; division of timber sales into blocks with cutting restricted to one block at a time; no disposal of tops or slash within 8 m of streams; proper location of haul roads, skid trails and log landings; retirement of skid trails, haul roads and culverts after logging; posting of a performance bond prior to logging. Slight increases in stream temperature, turbidity, and nitrate and potassium concentrations were observed, but these increases did not exceed drinking water standards. The authors concluded that the slight increases in temperature and nutrients were possibly temporarily beneficial to the aquatic ecosystem.

Passhaus et al. (2003) used macroinvertebrate sampling to monitor ephemeral stream water quality in partially harvested and reference watersheds in the Catskill Mountain Region of southern New York. A variety of diversity indices showed no evidence that partial harvest using BMPs negatively impacted aquatic communities or water quality. Within the reference sites, the structure of the macroinvertebrate community varied greatly between years.

In New York, Schuler and Briggs (2000) found that implementation rates for 42 suggested BMPs were 78% for haul

roads, 87% for landings, 59% for skid trails, 88% for equipment maintenance/operation, and 73% for buffer strips. Departures were common for BMPs concerned with draining water off haul roads and skid trails, and for stream crossings; thus, the authors concluded that more attention must be devoted to those practices. BMPs were reported to be effective when they were applied correctly.

Wang et al. (2006) reported small changes in stream water chemistry following a partial harvest with BMPs in 2002 of a catchment in the Catskill Mountains of southern New York. Stream water chemistry concentrations increased significantly after harvest treatments and peak concentrations were reached 5 months or more after initiation of the harvest. Stream water chemistry returned to values similar to those of the preharvest period and to reference levels by early spring 2003. Nitrate concentrations, however, remained elevated above background levels for approximately 18 to 20 months after harvest.

In the Hubbard Brook Watershed of New Hampshire, Trimble and Sartz (1957) evaluated the performance of recommended buffer widths for protecting water quality for two situations. The authors concluded that, for municipal watersheds where minor impacts on water quality are not acceptable, a 50-ft buffer width on flat terrain would be adequate, and that width of the buffer should increase 4 ft for each 1-percent increase in slope between the road and stream. For general purpose situations where small or infrequent impacts on water quality can occasionally be tolerated, they concluded that a starting buffer width of 25-ft on level ground was effective and buffer widths should increase by 2-ft for each 1-percent increase in slope of the land between the road and stream.

In Frederick County, Maryland, MD DNR (2000) used a paired watershed design to monitor effectiveness of Maryland's BMPs for timber harvest operations. They found that total suspended solids, stream temperature, and benthic macroinvertebrate populations did not change significantly as a result of timber harvesting.

Martin et al. (2000) monitored stream water quality following clearcutting and progressive strip cutting in the Hubbard Brook Experimental Forest. Reduced transpiration and interception increased water yield while peak flows only increased moderately. Water yield and peak flow increases returned to normal levels within 4-6 years. Sediment yields increased during and after harvest but were maintained within normal ranges of reference streams. Increases in sediment yield and stream water nutrient levels returned to preharvest levels within 3-5 years due to rapidly growing vegetation and effective best management practices.

Martin et al. (1984) observed small differences in water chemistry between recently clearcut and reference watershed across a wide range of forest and soil types in New England. The amount of observed responses to clearcutting was of the same magnitude as natural variations among streams draining similar watersheds. They concluded that limiting clearcut sizes, utilizing patch and strip cutting, and installing streamside management zones all appeared to effectively reduce the magnitude of changes in stream water chemistry.

Wynn et al. (2000) evaluated the effects of clearcutting on water quality and the effectiveness of forestry BMPs in Westmoreland County, VA. One watershed was clearcut without BMPs, one watershed was clearcut with BMPs and a third watershed was left undisturbed as a control. Storm event concentrations and loadings of sediment, nitrogen, and phosphorus increased following clearcutting and site preparation when BMPs were not utilized. During the study period both the clearcut BMP watershed and the control watershed showed few changes in pollutant storm concentrations and loadings.

4. The Chesapeake Bay Model used by EPA appears to underestimate BMP efficiency.

Nutrient loading values estimated by the Bay Model appear to be based on literature values calculated by Edwards and Williard (2010). In their paper the authors state, "For sediment, BMP efficiencies ranged from 53 to 94% during harvest and up to 1-year after harvesting. For nutrients, BMP efficiencies were higher for total nitrogen (60-80%) and phosphorus (85-86%), which included particulate and sediment bound forms, than for nitrate-nitrogen (12%) which occurs primarily in the dissolved phase." However, values published in the documentation for Scenario Builder Version 2.2 (Brosch 2010) under the section of forest harvesting practices (see table, page 10-108) have BMP efficiencies that are lower than the range of values estimated by Edwards and Williard (e.g., total N = 50%, total P = 60% and sediment = 60%). Thus, it appears that BMP efficiencies used in Scenario Builder were derived through expert opinion and are more conservative than those identified by Edwards and Williard (2010).

If nutrient and sediment removal efficiencies used in Scenario Builder were based solely on the three referenced studies in Edwards and Williard (2010), data from a substantial number of forestry BMP effectiveness studies conducted in the eastern US (see BMP effectiveness resources and specific research noted above) have been unnecessarily ignored. There are literally hundreds of paired watershed studies and other controlled experiments that have tested or are testing the effectiveness of contemporary forest practices and BMPs (Ice 2004, Ice and Stednick 2004, Ice et al. 2007). Some of these, such the Piedmont Watershed Studies (Williams et al. 1999), the Alto Watershed Study in East Texas (McBroom et al. 2008), and the Alsea Watershed Study and Watersheds Research Cooperative in Oregon (OFRI 2009), have measured or are measuring improvements in water quality from managed forests for contemporary practices compared to historic impacts. Unfortunately, the forest management scenarios used in the Bay Watershed Model will lead users to incorrectly conclude that forest management is a significant source of nutrient and sediment pollution.

Response

Thank you for our comment and for the literature references provided on harvested forests loads. For guidance on how the Phase 5.3 Watershed Model calculates load reductions of harvested and unharvested forestland EPA and its partner jurisdictions have relied on the published peer-reviewed scientific literature to establish the basis of the higher nutrient loading rates estimated from harvested forest in the Watershed Model. The peer reviewed published scientific literature points to a multitude of landscape changes in harvested forest noting that surface and subsurface flows are increased in harvested forest areas due to the reduced evapotranspiration as well as the reduced interception storage (Wang et al., 2003; Arthur et. al., 1999; Riekerk et al., 1988; Frick and Buell, 1999). This allows more flow to be available for nutrient export, that's generated by microbial mineralization rates increased in forest soils as direct sunlight on the forest soils due to the lack of trees increases soil temperatures. Since the reservoir of nutrients in forest soils is estimated in numerous sources to be on the order of about two tons of organic nitrogen in forest soils along with an equivalent amount of organic phosphorus (Hunsaker et al, 1993) this tends to mobilize considerable amounts of nutrients in the harvested forest.

Both the higher flows and microbial rates increase the inorganic nutrient export from harvested forest. At the same time, erosion increases due to disturbed soils, decreased evapotranspiration, increased runoff volume, and decreased canopy cover, which increases the impact energy of raindrops (Wilson et al., 1999; Grace, 2004; Hewlett, et al., 1979; Keppeler et al., 2003; Perry, 1998).

Observations of nutrient export from harvested forests vary widely (Arthur et. al., 1998; Riekerk et al., 1988; Lebo and Herrmann, 1998; Ensign and Mallin, 2001; Goodale et al., 2002). Arthur et al. (1999) describes an order of magnitude increase in nitrate loads from harvested forest and a doubling of phosphate loads. This is substantiated by Riekerk et al. (1998) who adds that organic nutrient loads increase about 6-fold and ammonia increases about 2-fold over that of undisturbed forest. The Phase 5 nutrient export targets for harvested forest reflect these reported nutrient loads with an estimated total nitrogen annual export load of 16 lb/ac-yr to the edge-of stream. The higher loads from harvested forest are primarily due to the disturbance of the forest soil and reservoir of soil organic nitrogen and are a single fixed target value for all harvested forests.

With respect to the development of load estimates from harvested forests and BMP efficiencies for forestry practices there may have been some confusion over the two. In the Watershed Model the base land uses are considered to be bear of any management practice and that's attempted to be wrested from the literature cited above. This allows the appropriate accounting of greater benefit from single and multiple management practices applied in silviculture.

We agree that the silviculture BMPs are effective, are being applied at increasing rates, and new management practices may be emerging. Regarding BMPs for forest lands not currently in the Watershed Model we've established guidance for how all new proposed BMPs may be included in the model estimates (http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf) and also have "placeholder" procedures we can use in our simulations while the new BMPs are being reviewed and approved. We welcome the opportunity to incorporate new, effective silviculture management practices.

We also extend an invitation to participate in the open Chesapeake Bay Program meetings where the forest loads and management practices are reviewed. The CBP Watershed Technical Workgroup would be a good forum to bring your experience and knowledge on forestry practices to.

Comment ID 0327.1.001.004

Author Name: Stewart Steve

Organization: Baltimore County

• Upland Erosion Versus Stream Erosion: A greater effort needs to be made to differentiate between nutrient and sediment sources attributed to upland erosion versus stream erosion. This differentiation is necessary to better target restoration efforts. If a significant portion of the load is due to stream erosion (due to legacy sediments, or stream adjustment to increased impervious area), then the focus solely on upland Best Management Practices will fall short of meeting the nutrient and sediment reductions needed to meet tidal water quality standards.

Response

HSPF simulates both overland and stream sediment transport. Surface runoff cause sediment to erode from the land surface. In Phase 5.3 the sediment loss from a field is called edge-of-field (EoF) load. Edge-of-stream (EoS) loads are defined as the loads that

enter the river reaches represented in the model and they represent not only the erosion from the land (EoF) but also the intervening processes of deposition on hillsides and sediment transport through smaller rivers and streams that are not represented in the Phase 5.3 Chesapeake Bay Watershed Model.

A study by Trimble (1999) in Coon Creek, a tributary to the Mississippi River, found that much of the sediment eroded from the land is stored somewhere in the watershed, either on adjacent lands, the reverse slopes of fields, lower order streams, or in river valleys and flood plains. Trimble and others (Walling, 1983; Trimble, 1999; Trimble and Crosson, 2000; Walter et al., 2007; Walter and Merritts, 2008) have described these legacy sediments stored in the watershed as having times of transport to tidal waters like the Chesapeake on the order of decades to centuries.

Methods were developed in Phase 5.3 to account for the difference between land sediment controlled by BMPs and legacy sediment and the management practices needed to control this source. The erosion loads from the land (EoF) are developed by calibration to the targets derived either from the National Resource Inventory (NRI) erosion data set, or by literature values, and then decremented by a transport factor. This is considered to be the load from a land use controlled by BMPs.

Another portion of the sediment load delivered to the Bay (DEL) is the sediment load mobilized in river reaches, and is defined as the difference between the EOS sediment load, deposition and the sediment scoured and mobilized in the simulation during high flows. This scour term is best conceptualized as high flow and scour from any stream reach, stream bank or flood plain within a model segment. The sediment loads from scour may, in total or in part, be from legacy sediment loads.

In Phase 5, the legacy sediment is described as an unknown portion of the sediment load delivered to the Bay that was attributed to scour in the watershed from a source other than that of the land uses. The rate of scour, deposition, and the critical flows where these processes occur are specified in the calibration, and are values that best represent the sediment concentration at the ~130 monitoring stations we have for sediment. This system allows a representation of estimated erosion rates from the land, and estimated sediment loads derived from scour or remobilization of sediment within a model segment. For more information and to review the Phase 5.3 Model sediment simulation documentation, visit http://ches.communitymodeling.org/models/CBPhase5/documentation.php#p5modeldoc.

Comment ID 0331.1.001.001

Author Name: Wilson B.

Organization: City of Virginia Beach, Virginia

The City of Virginia Beach understands the treasure that the Chesapeake Bay is to the area. Its citizens and visitors use the Bay for recreation, for fishing, both recreational and commercial, for boating and for the sheer beauty that its waters bring. The City understands and agrees that the Bay needs care and cleansing. The City is very cognizant of the worth of the Chesapeake Bay and is very willing to do its part to restore the health of the Bay. However, the methodology and modeling used in the TMDL process are so seriously flawed as to cast doubt upon its effectiveness in accomplishing this goal.

Response

The methodology and modeling done for the Chesapeake TMDL is entirely sufficient for the protection of the Chesapeake by removal of the DO, chlorophyll, and SAV-clarity water quality impairments. The overall approach, models used, and resultant load allocations are similar to the allocations successfully adopted in the Chesapeake 2003 Allocation.

Also please refer to the response to comment 0340.1.001.006.

Comment ID 0331.1.001.003

Author Name: Wilson B.

Organization: City of Virginia Beach, Virginia

The information and data that is available show that the model and model inputs are lacking in the level of precision that should be required of regulatory action with consequences as significant and widespread as the Bay TMDL.

The Phase 5.3 model used to derive the proposed allocations is new, untested, and flawed. In establishing the TMDL by an artificially-imposed deadline, EPA has proposed draft allocations without first calibrating the model and verifying the accuracy of the model predictions. In fact, EPA has effectively acknowledged that the model and model inputs are incomplete by announcing its intention to conduct additional model calibration after the TMDL is established.

Response

The Phase 5.3 Chesapeake Bay Watershed Model and Scenario Builder have been developed as open source, public domain models that have been developed and applied in open public meetings over the last decade. Initial drafts of the model documentation have been available since 2008. When the Phase 1 Chesapeake TMDL is finalized at the close of December 2010 all of the final documentation of the Phase 5.3 Watershed Model and Scenario Builder documentation, code, and data used to develop and apply the models will be are on the web and fully available.

Scenario Builder and Watershed Model downloadable information
Scenario Builder documentation (uploaded 9/16/10), source code (10/29), and database (11/5) are available on this site:
ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/

Scenario Builder inputs and outputs are available on this ftp site (continually updated as new results are run):
ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/.

Phase 5.3 watershed model information is available here:
http://ches.communitymodeling.org/models/CBPhase5/index.php.

EPA does not agree that there are extensive flaws in the data. There will always be opportunities for improvement in data

collection and we are continuing our efforts in that regard. The Chesapeake Bay Program Watershed Model has been in use for over two decades. It has been continually refined over that time period. The Phase 5.3 Watershed Model has been built through collaboration with federal, state, academic, and private partners. Development teams at CBPO and USGS include EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. All of these groups have been providing data and modeling instructions for at least the past five years and in some cases much longer. Links to records of these meetings can be found in Appendix C of the Draft TMDL.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed by several of the above groups. The calibration operation is a continuous run over the entire simulation period from 1984 to 2005 using observed flow and water quality data over that entire period and involved changing the estimated Phase 5.3 land use and best management practices annually as they occurred over the two decade simulation period.

In addition, there have been 2 major independent reviews of the Phase 5 Model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board available at http://www.epa.gov/spc/pdfs/modelpr.pdf.

The reviews and responses can be found here:

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the final Bay TMDL.

Comment ID 0331.1.001.014

Author Name: Wilson B.

Organization: City of Virginia Beach, Virginia

C. EPA is using the CBWM on a scale that is beyond its predictive capability

Due to the 64,000 square-mile extent of CBWM, there is an inherent problem of scale when addressing BMPs. CBWM is better suited for overarching computations on larger scales, such as evaluating the effects of fertilizer applications on large segments of the Bay watershed, than it is in evaluating the effects of a particular BMP or group of BMPs on specific sites. EPA staff has acknowledged that the effects of individual, site-specific BMPs cannot be directly addressed in CBWM. Because the model is constructed on such a large scale, numerical effects of BMPs are lumped or aggregated in the modeling input data. This scale problem makes it very difficult for local governments to evaluate the feasibility of costly BMPs such as filtration devices and detention and retention basins that will have to be constructed to achieve water quality improvements. A single retention basin can easily cost millions of dollars, yet its effects cannot be directly isolated and evaluated in CBWM.

Response

The analysis of BMP effects is reasonable and consistent with the scale of the Chesapeake Bay Watershed Model (CBWM). The important consideration of scale was taken into account during the model development process. The current scale of the Phase 5.3 CBWM was selected to utilize the highest resolution of available data on land use and best management practices. The county-scale data on land use and best management practices used in the CBWM allows for the modeling of watershed effects on county and watershed scale. For more information on the modeling of specific BMP's and their application within the modeling framework, please consult the Scenario Builder documentation available at: http://ches.communitymodeling.org/models/CBPhase5/documentation.php#scenario.

Section 8 has a more detailed description of the implementation of the BMP's in question within the CBWM.

Comment ID 0336-cp.001.002

Author Name: Napolitano John

Organization: Napolitano Enterprise

4. I believe there are proven difficiencies in the Bay Model that will change the polutant loadings for the better.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0340.1.001.006

Author Name: Miner Steven

Organization: Accomack County, Virginia

Finally, the EPA admits that this is the most complex TMDL ever attempted. We have seen no testing of the models or other displays of evidence that its efforts are the least restrictive available in attempting to accomplish laudable goal, or even it they will work at the scale to which they are applied.

Response

Watershed model development process

Five generations of the Chesapeake Bay Program Watershed Model has been applied to management decisions in the Chesapeake for over two decades. The Watershed Model has been continually refined over those five development cycles. The Chesapeake Bay Watershed Model and the input data sets have had four formal partnership-driven cycles of development, calibration, verification, and management application, since the mid-1980's supporting programmatic and policy decisions and directions embedded within the 1987 Chesapeake Bay Agreement, 1992 Amendments to the Chesapeake Bay Agreement, the 1997 Nutrient Reevaluation, and the Chesapeake 2000 Agreement. With the development and publication of the Bay TMDL, the partnership has carried out the fifth such cycle supporting management decision-making.

The technical direction for the development, management application, and independent review of the Chesapeake Bay Program Partnership's models is carried out through several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. Descriptions of each of these groups is provided within Section 1 of the final Bay TMDL. Each has broad representation by federal, state, local, academic, and private groups. Programmatic and policy direction on the application of the models and their use in supporting decision making is undertaken through the partnership's Management Board (previously the Implementation Committee) and the Principals' Staff Committee. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. All the independent scientific peer reviews of the models are carried by the Chesapeake Bay Program's Scientific and Technical Advisory Committee. Links to records of these meetings and conference calls can be found in Appendix C of the final Bay TMDL.

The Phase 5.3 Watershed Model was been developed, calibrated and verified through collaboration with federal, state, academic, and private partners. Development teams at the Chesapeake Bay Program Office (CBPO) and the U.S. Geological Survey (USGS) included EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed and approved by several of the above groups. All the Phase 5.3 Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf.

The Chesapeake Community Modeling Program, an organization supported by and staffed by academic institutions across the Chesapeake Bay watershed, hosts the open-source code of the Chesapeake Bay Phase 5.3 Watershed Model on its website. This

model code has been accessed by and is being used by numerous academic institutions, states and others in supporting local, regional and state-wide decision making. The Phase 5.3 Watershed Model's code can be accessed at the Chesapeake Community Modeling Program's website at http://ches.communitymodeling.org/models/CBPhase5/datalibrary.php.

In addition, there have been two independent scientific peer-reviews of the Chesapeake Bay Phase 5 Watershed Model in 2005 and 2008 involving scientists drawn from across the country-Penn State University, Virginia Tech, Duke University, University of North Carolina, University of Maryland Baltimore County, and University of Florida—and overseen by the Scientific and Technical Advisory Committee. These independent peer reviews and the Chesapeake Bay Program partnership's responses can be found at:

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

In addition to the above open meetings, there is an extensive public participation process which is detailed in Section 11 of the final Bay TMDL.

Scenario Builder availability, production, and review
Best management practice (BMP) and conservation practice effectiveness estimates, which are critical to decision-making, are based on a 2-year study, undertaken by the Mid-Atlantic Water Program, a consortium of the nine major land grant universities, involving extensive peer-reviewed scientific literature, field studies, and input from technical panels comprised of USDA, NRCS, state land grant universities, state agricultural agencies, and key practitioners. Extensive information and documentation regarding the effectiveness estimates is available at
http://www.chesapeakebay.net/watershedimplementationplantools.aspx?menuitem=52044.

EPA made the Scenario Builder documentation available on 9/16/2010, the Scenario Builder code available on 10/29/2010, and the support database during the period 11/1-11/5/2010. The documentation, code, and database are publically available at ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. The scenario builder inputs and outputs are publically available at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/. As new management scenarios are developed using Scenario Builder and run as input decks through the Chesapeake Bay Phase 5.3 Watershed Model, those new results are made publically accessible through the same FTP site.

Comment ID 0340.1.001.009

Author Name: Miner Steven

Organization: Accomack County, Virginia

Please consider:

2. Testing and proving your model at the scale at which it is intended to function,

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0352.001.002

Author Name: Gardner E.

Organization:

The Bay Model is full of flaws, and is not accurate. It does not accurately reflect the 90% crop acres planted no till, mortality control for poultry facilities or the real ground-truthed data from Virginia.

Federal actions must be based on accurate information. No additional regulations or penalties should be put on states or industries base on unproven data.

Response

EPA does not agree that there are extensive flaws in the data. There will always be opportunities for improvement in data collection and we are continuing our efforts in that regard. The Chesapeake Bay Program Watershed Model has been in use for over two decades. It has been continually refined over that time period. The Phase 5.3 Watershed Model has been built through collaboration with federal, state, academic, and private partners. Development teams at CBPO and USGS include EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. All of these groups have been providing data and modeling instructions for at least the past five years and in some cases much longer. Links to records of these meetings can be found in Appendix C of the Draft TMDL.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed by several of the above groups. In addition, there have been 2 major independent reviews of the Phase 5 Model in 2005 and 2008 by academic

modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board. http://www.epa.gov/spc/pdfs/modelpr.pdf.

The reviews and responses can be found here:

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the draft TMDL. The draft TMDL document has lists of additional TMDL-related meetings in Appendix V.

EPA agrees with the commenter that voluntarily implemented practices are likely under-counted due to difficulties in data collection. Verified non-cost shared practices can be accepted in the model, but historically have not been included to a great extent because the information has not been made available to the Chesapeake Bay Program. Voluntary practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These voluntary practices are typically funded by farmers alone. EPA is committed to working with USDA, NACD, state environmental and agricultural agencies, conservation districts, and agricultural community at large to credit nutrient and sediment reductions from voluntary practices. As committed to in the Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to "By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented."

Non-cost shared practices or practices not enrolled in state programs are not held to standards required for the efficiency credited in the suite of Chesapeake Bay models. Additionally, some state standards do not meet the standard for the BMP efficiency in the models. The standards for all model-approved BMPs prevent the state reporting agencies from reporting some installed BMPs because the standards are not met. The exclusion of practices not meeting standards prevents over-estimates of pollution reduction from BMPs in the models.

The only mortality control for poultry is mortality composting and it is described in the Scenario Builder documentation. They are physical structures and process for disposing of dead poultry. Composed material is combined with poultry litter and land applied using nutrient management plan recommendations. All BMP definitions and standards are described in the Scenario Builder documentation available here: http://archive.chesapeakebay.net/pubs/SB_Documentation_Final_V22_9_16_2010.pdf.

EPA can accept additional verified management practices (BMPs) for use in the model on an ongoing basis. The CBP Watershed

Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

For more information and to review the Phase 5.3 Model land use documentation, visit http://ches.communitymodeling.org/models/CBPhase5/documentation.php#p5modeldoc.

Comment ID 0353.001.003

Author Name: Klossner L.

Organization:

I am very opposed to the Docket ID No. EPA-R03-OW-2010-0736 implementing the Chesapeake Bay TMDL limits because

--the EPA model is flawed, NOT PROVEN and NOT suitable for being the basis for the proposed limitations

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0353.001.004

Author Name: Klossner L.

Organization:

I am very opposed to the Docket ID No. EPA-R03-OW-2010-0736 implementing the Chesapeake Bay TMDL limits because

--MOST specifically, the EPA should incorporate the model revisions recommended by the DEC in their Watershed Implementation Plan.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0357.1.001.001

Author Name: Pugh Molly

Organization: Virginia Grain Producers Association (VGPA)

Virginia Grain Producers Association (VGPA) represents Virginia's corn and small grains growers and approximately 1 million acres of cropland in the Commonwealth. The majority of our producer members are part of the non-point agricultural source sector and will be greatly impacted by the implementation of the Draft TMDL. In these comments, we address four points pertinent to the grains industry: accurate data, research, economic impact and authority.

Our members have expressed for some time their concern about the accuracy of information used in the Chesapeake Bay Model calculations. While many of them participate in voluntary, conservation programs, many of their best management practices (BMP) do not receive credit in the Chesapeake Bay Model. A survey released this year by Virginia Cooperative Extension shows that 90% of cropland acres in Eastern Virginia are farmed "no-till" while state records reflect only 15% of those acres are enrolled in a program and consequently, reported to the Chesapeake Bay Model. Consequently, where are EPA's numbers coming from that predicate the TMDL? These acres go unaccounted for reasons such as a cost-share program contract expires, a producer is unable to commit rented land to a long-term contract, a local district did not have funds to enroll all the producer's acres, or, the producer chose not to take money for a practice he was already implementing. However, under each of these circumstances, BMPs are implemented and on-going on that farm. EPA has admitted the model is flawed and plans to make changes; however, the TMDL regulations move forward. Farmers must have confidence that EPA works with all the information before they implement additional, costly practices on their fields which affect their families, their productivity and their livelihood. Our members request that EPA collect actual on-farm data and ensure they know all practices on the ground before moving forward with any further regulations. This will not only help correct target loadings but will ultimately, help ensure BMPs used in the model actually will achieve water quality goals.

Response

EPA agrees that non-cost shared implemented practices are likely under-counted because of difficulties in data collection. Verified non-cost shared practices can be accepted in the model, but historically have not been included to a great extent because the information has not been made available to the Chesapeake Bay Program. Non-cost shared practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These voluntary practices are typically funded by farmers alone. EPA is committed to working with USDA, NACD, state environmental and agricultural agencies, conservation districts, and agricultural community at large to credit nutrient and sediment reductions from voluntary practices. As committed to in the Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to “By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented.”

Non-cost shared practices or practices not enrolled in state programs are not held to standards required for the efficiency credited in the suite of Chesapeake Bay models. Additionally, some state standards do not meet the standard for the BMP efficiency in the models. The standards for all model-approved BMPs prevent the state reporting agencies from reporting some installed BMPs because the standards are not met. The exclusion of practices not meeting standards prevents over-estimates of pollution reduction from BMPs in the models.

The CBP models have been thoroughly reviewed and vetted and fully capable of supporting the 2010 Chesapeake TMDL. The Phase 5.3 Watershed model is in it's fifth major phase of refinement and model improvements through new generations on CBP models will continue throughout the tracking and implementation period between now and 2025.

Comment ID 0367-cp.001.004

Author Name: Forget Karen

Organization: Lynnhaven River NOW

the EPA has a responsibility to insure that the data on which these reductions are based is both current and accurate. Failure to do this, could drastically slow down the clean up effort.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0376.1.001.027

Author Name: Smith Brooks

Organization: Virginia Manufacturers Association VMA

EPA's proposal assumes a greater level of precision and accuracy than the models provide. As the Virginia DEQ noted in its WIP, the Chesapeake Bay Watershed Model "is not a perfect representation of actual conditions on the landscape." Virginia WIP at page 11. Rather, the model is a rough approximation of how given management scenarios will impact water quality. EPA's proposal ignores the limits in the predictive ability of the Bay model and instead uses it as the driver for drastic reductions. For example, EPA predicts dissolved oxygen concentrations and non-attainment rates in specific segments to the single percentage point level under a variety of management scenarios. This level of precision and accuracy is beyond the capability of the models.

The Bay models are continuing to evolve. As the models evolve, the predicted loads and goals for the Bay system have shown great variability. These variations will continue as the model is refined. EPA ignores this variability, blindly adhering to assumptions that would result in drastic reductions.

EPA should provide a detailed discussion of the model's accuracy and precision, including quantification of the model's error band and use of safety factors and other assumptions. Such an analysis of the model's accuracy and precision is critical given the incredible adverse economic impact the draft TMDL will have on the stakeholders throughout the watershed. [FN11]

[FN11] The discussion in Section 5 of EPA's draft TMDL discusses calibration, but fails to address the accuracy or precision of the Bay model.

Response

As described by Novotny (2002), models represent the best available technology for analysis of environmental systems, however, models accuracy is limited. As with any simulation of the real world, mathematical models are an approximation. A computer

model is the formulation into computer language of a physical system and process. Models are simplifications of a real system and the degree of simplification may be the result of the modeler's understanding of the process. Despite the error involved in modeling complex environmental systems, the model as a planning tool cannot be replaced by any "rule of thumb" approach. Model use, despite uncertainty, is beneficial for the following reasons:

1. Models can provide forecast of the impact of planned actions.
2. Models provide an understanding of the pollution generation process.
3. The database used to calibrate a model is useful for other planning activities.
4. Areas of concern can be detected and delineated by modeling.
5. Models provide regulators proof of water quality impact when monitoring data is not available.
6. Models can be updated continuously according with to the state of the art of modeling technology.
7. Models generate alternatives and various strategies can be investigated.
8. Although the accuracy of a model is limited, models are reliable and adequate.
9. Models can estimate and analyze trade-offs between planning objectives.
10. Models are now a required and integral part of the TMDL process.

As the Chesapeake Bay Program models have evolved over the past decade their findings have been remarkably stable. The overall State-basin allocations from the CBP models in 2003 are almost the same as the 2010 TMDL allocations. At the same time the Phase 5.3 Model used in the 2010 TMDL has increased its calibration stations by an order of magnitude along with increases in model segmentation and simulated land uses and management practices.

Novotny, V. 2002. Water Quality: Diffuse Pollution and Watershed Management. 2nd ed. New York, N.Y.: John Wiley and Sons.

Comment ID 0376.1.001.029

Author Name: Smith Brooks

Organization: Virginia Manufacturers Association VMA

There are serious concerns about the validity of the data generated by EPA's Chesapeake Bay Model, in large part due to errors in the inputs and outputs. EPA's model was intended to be used as a tool to guide state programs. However, under EPA's proposed TMDL, the model has become not a tool but the determining factor in how loads are allocated. Accordingly, there is greater cause for concern about the deficiencies in the inputs and outputs of the model.

EPA itself has acknowledged that additional "refinements" are necessary, and will take place in 2011, with possible further modifications in 2017. See, e.g., Letter from EPA Region III to the watershed states, July 1,2010. EPA has also stated that any corresponding adjustments to the allocations resulting from the modeling refinements will be addressed in the 2011 round of state WIPs. Id.

Following is a summary of the modeling concerns that have been raised by the watershed states and stakeholders:

• EPA models have not been fully validated or peer reviewed, and the records of what validation and peer review have occurred have not been made available to the public;

• EPA's models were calibrated using data from years with widely varying hydrologic conditions that are not representative of the conditions being projected through the TMDL;

• EPA has not explained, justified or documented the actual uncertainty/error/precision of the models;

• Over 130 nonsignificant discharges in Virginia were not included because they were not correctly located;

• The model fails to simulate the performance of nutrient management plans;

• There is uncertainty in how delivery factors were applied;

• Changes in the model have resulted in different outputs for chlorophyll-a that call into question both the assumptions in the model and the validity of the chlorophyll-a criteria itself;

• CSOs were not modeled as intended;

• The groundwater inputs to the models are not representative of actual conditions;

• The impact of urban stormwater loads is highly sensitive to EPA's assumptions regarding urban land uses, which have not been validated or subjected to public review; and

• The models are so complex and highly parameterized that it is possible to obtain the "right" answer for the "wrong" reason.

Response

Please see EPA’s comprehensive responses to comment ID 0288.1.001.016. Please see EPA’s comprehensive responses to comment ID 0434.1.001.016.

Comment ID 0380.1.001.004

Author Name: Lyskava Paul

Organization: Pennsylvania Forest Products Association

3. Need to Revise the Bay Model's Treatment of Forestry - We concur with the October 18, 2010 letter signed jointly by PA DEP and PA DCNR (attached) [Comment Letter contains additional information in the form of an attachment. See original comment letter 0380.2] that questions the Bay model assumption that 100 percent of nutrients and sediment on a harvested forest acre without BMPs are being deposited into the Bay. As stated, this model assumption does not reflect reality and must be corrected in the next model revision. As indicated, this erroneous assumption penalizes both non-BMP harvests and undercounts the nutrient load reductions from forest harvest BMPs.

We also concur with Recommendation 2 in the DEP/DCNR letter, which seeks a revision of the model to capture a greater range of BMPs related to both harvested and non-harvested forests.

Additionally, we request that EPA reconsider its use of BMP effectiveness rates that are more conservative than what is suggested by literature studies such as Edwards and Willard (2010) and others.

Response

In the Pennsylvania Chesapeake Bay Watershed, forest and harvested forest land uses deliver to the Chesapeake approximately 2 and 15 pounds per acre, respectively and represent 71 and 1 percent of the total Pennsylvania watershed area, respectively. Nutrient and sediment loads delivered to the Chesapeake from non-harvested forest areas are essentially nonanthropogenic natural processes. In the Phase 5.3 Chesapeake Bay Watershed Model simulation of forest loads, the only anthropogenic load influence is atmospheric deposition of nitrogen and the Chesapeake Bay TMDL accounts for significant reductions of atmospheric deposition. Most of the reduced nitrogen loads is credited to the States which reduces the nitrogen load reductions needed in the State WIPs. Over the last 30 years reduction in NOx deposition in the Chesapeake Bay watershed have declined by more than 30% and further reductions in atmospheric deposition are expected from ongoing implementation of management practices to achieve the current air quality standards, as well as additional reductions that may be required by the new ozone standard to be set by July 2011.

For determining how the Phase 5.3 Watershed Model calculates load reductions of harvested and unharvested forestland in Pennsylvania we've relied on the published peer-reviewed scientific literature to establish the basis of the higher nutrient loading rates estimated from harvested forest in the Watershed Model. The peer reviewed published scientific literature points to a multitude of landscape changes in harvested forest noting that surface and subsurface flows are increased in harvested forest areas due to the reduced evapotranspiration as well as the reduced interception storage (Wang et al., 2003; Arthur et. al., 1999; Riekerk et al., 1988; Frick and Buell, 1999). This allows more flow to be available for nutrient export, that's generated by microbial mineralization rates increased in forest soils as direct sunlight on the forest soils due to the lack of trees increases soil temperatures. Since the reservoir of nutrients in forest soils is estimated in numerous sources to be on the order of about two tons of organic nitrogen in forest soils along with an equivalent amount of organic phosphorus (Hunsaker et al, 1993) this tends to mobilize considerable amounts of nutrients in the harvested forest.

Both the higher flows and microbial rates increase the inorganic nutrient export from harvested forest. At the same time, erosion increases due to disturbed soils, decreased evapotranspiration, increased runoff volume, and decreased canopy cover, which increases the impact energy of raindrops (Wilson et al., 1999; Grace, 2004; Hewlett, et al., 1979; Keppeler et al., 2003; Perry, 1998).

Observations of nutrient export from harvested forests vary widely (Arthur et. al., 1998; Riekerk et al., 1988; Lebo and Herrmann, 1998; Ensign and Mallin, 2001; Goodale et al., 2002). Arthur et al. (1999) describes an order of magnitude increase in nitrate loads from harvested forest and a doubling of phosphate loads. This is substantiated by Riekerk et al. (1998) who adds that organic nutrient loads increase about 6-fold and ammonia increases about 2-fold over that of undisturbed forest. The Phase 5 nutrient export targets for harvested forest reflect these reported nutrient loads with an estimated total nitrogen annual export load of 16 lb/ac-yr to the edge-of stream. The higher loads from harvested forest are primarily due to the disturbance of the forest soil and reservoir of soil organic nitrogen and are a single fixed target value for all harvested forests.

On the comment regarding BMPs for forest lands not currently in the Watershed Model we've established clear guidance for how all new proposed BMPs may be included in the model estimates (http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf) and also have "placeholder" procedures we can use in our simulations while the new BMPs are being reviewed and approved.

Comment ID 0386.001.003

Author Name: Ayers M.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake bay TMDL limits because . . .

>The EPA model is flawed, not proven, and not suitable for being the basis for the proposed limitations.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0386.001.004

Author Name: Ayers M.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake bay TMDL limits because . . .

>Most specifically, the EPA should incorporate the model revisions recommended by the DEC in their Watershed Implementation Plan.

Response

Please refer to the response to comment 0103-cp.001.004.

Comment ID 0389.1.001.016

Author Name: Iwanowicz Peter

Organization: New York State Department of Environmental Conservation

Delivered Load Basis is Unfair to NY

New York's ability to meet load allocations is based on what EPA's models report was delivered to the Bay from New York. In order to determine New York's waste load and load allocations, EPA models how the load is conveyed from the Susquehanna and Chemung River Basins, through Pennsylvania, and finally discharged into the Bay. The model indicates if the Susquehanna River located in Pennsylvania gets cleaner over time, that more of New York's load is delivered to the Bay. As such, EPA is judging New York's nutrient loading based on unknown conditions in Pennsylvania. These assumptions and this approach are wholly arbitrary and inequitable.

Response

The decisions rules of the 2010 TMDL consistently applied delivery factors that were the best estimates in each scenario of the level of attenuation in the watershed achieved. What's expressed in the Phase 5.3 Watershed Model is exactly what we see in natural systems. When nutrient loads decrease limitation occurs and growth rates of algae and periphyton (attached algae) within streams and rivers are decreased. That's what's happening in the scenarios where nutrient loads downriver from New York are decreased is causing more localized time and space nutrient limitations, limited algae and periphyton growth, resulting in less nitrogen and phosphorus uptake by less algae/periphyton, thereby allowing more nutrient load to transit the system as it's not taken up by indigenous algae. This is not an arbitrary or inequitable outcome, but a predictable and natural accounting of nutrient fate and transport in the watershed well documented within the peer-reviewed scientific literature.

Comment ID 0389.1.001.023

Author Name: Iwanowicz Peter

Organization: New York State Department of Environmental Conservation

All three models used by EPA in this proposed TMDL have serious deficiencies:

A. Air modeling
o Outdated
o Not well calibrated to ammonia

B. Watershed modeling
o Serious underestimates of urban land
o No calibration of loads from most urban land (below fall line)
o No accounting for reductions in atmospheric deposition upon impervious urban land.
o No recognition of a threshold of areal loading that forest have been shown to be able to process.
o Use of county scale information and other farming related issues
o Variations in delivery factors that EPA cannot explain or justify scientifically.

o Major unjustified swings in N loading predicted for NY by watershed models from v4.3 through 5.1,5.2, and 5.3.

C. Bay Water Quality, Sediment Transport Model
o Variations in recent results
o Not enough runs near cap load
o Not enough effort to determine sensitivity to P vs N reductions, particularly for Susquehanna.
o Sediment sheds were never analyzed as originally planned.
o Inadequate for processing nutrients within small tidal rivers.
o No workable component to account for benefits of filter feeders.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0401.001.002

Author Name: Rohrer L.

Organization:

The Chesapeake Bay Model has been shown to have extensive flaws in the data it uses. EPA even acknowledges this fact. EPA should not move ahead with costly mandates based upon flawed modeling and data. Federal actions must be based upon accurate information. No additional regulations or penalties should be put upon us until the science and data have been proven.

Response

Please refer to the response to comment 0340.1.001.006.

EPA does not agree that there are extensive flaws in the data. There will always be opportunities for improvement in data collection and we are continuing our efforts in that regard. The Chesapeake Bay Program Watershed Model has been in use for over two decades. It has been continually refined over that time period. The Phase 5.3 Watershed Model has been built through collaboration with federal, state, academic, and private partners. Development teams at CBPO and USGS include EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup, the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public and are attended by state and federal government, academics, and stakeholder groups. All of these groups have been providing data and modeling instructions for at

least the past five years and in some cases much longer. Links to records of these meetings can be found in Appendix C of the Draft TMDL.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed by several of the above groups. In addition, there have been 2 major independent reviews of the Phase 5 Model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board available at http://www.epa.gov/spc/pdfs/modelpr.pdf.

The reviews and responses can be found here:

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the final Bay TMDL.

Comment ID 0407.1.001.004

Author Name: Krouskop Dirk

Organization: MeadWestvaco Corporation (MWV)

Based on our onsite work to minimize nutrient and TSS concentrations in our biologically treated effluent, MWV contends that a 5 mg/l TSS (sediment) allocation is not an achievable allocation/limit. Our onsite work has included trials using chemical precipitation as well as several filtration technologies.

In addition, EPA's proposed TMDL does not provide information about whether and how delivery factors to the Bay were used to establish the proposed allocations. The delivery factor for TSS discharged from the MWV Covington Mill would be an extremely low number due to the biological and organic composition of the TSS.

Response

The States' final Phase I Watershed Implementation Plans were ultimately the source of the waste load allocations for TSS at

individual NPDES discharges. The TSS delivery factor for the calibration in the watershed region of MeadWestvaco is about 0.76. The range of the delivery factor in this region is from 0 in quiescent low flow conditions, to a maximum of 34 during the period of highest flow and riverine scour of TSS. The Phase 5.3 Model estimated delivery factors inform how the watershed attenuates nutrient and sediment loads in the Chesapeake watershed rivers over different hydrology regimens.

For more information and to review the Phase 5.3 Model documentation, visit http://ches.communitymodeling.org/models/CBPhase5/documentation.php#p5modeldocNitrogen.

Phosphorus and sediment delivery factors are available on this site: ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Model%20Output/.

Comment ID 0408-cp.001.004

Author Name: Koon Teresa

Organization: West Virginia Department of Environmental Protection and West Virginia Department Agriculture

EPA acknowledges that the model has certain flaws yet states are required to continue watershed implementation planning using this flawed model. West Virginia spent a great deal of time developing realistic implementation scenarios with substantive associated pollutant reductions to only be forced to "play the model game" to address incorrect and inaccurate information in the model.

EPA declared the model frozen at the April 2010 Principals Staff Committee meeting. In addition, on the September 22, 2010 conference call EPA stated, when asked about issues with the model, that no changes would be made prior to the final TMDL coming out and that any corrections or updates would be handled in the phase II process. Yet between West Virginia's 4th and 5th scenario run the model was altered resulting in a change in delivery factors that were detrimental to West Virginia, a change in the way the cafo/afo land use was being loaded and a change to the credit for certain BMPs, making it impossible for West Virginia to meet our allocation. At the Principals Staff Committee meeting on October 20, West Virginia expressed guarded confidence in our ability to meet our cap based on our scenario 4 model run. Then we received our scenario 5 output and had lost considerable ground toward reductions. EPA explanations did not make sense. EPA expresses their desire to work with West Virginia to prevent implementation of the backstop TMDL, however, the EPA actions above do not support this commitment.

Response

EPA and West Virginia' Department of Environmental Protection and Department of Agriculture, through close and frequent collaborations, resolved the remaining problems and issues in West Virginia's WIP. Backing up this collaboration are the CBP models that have been developed as open source, public domain models, developed and applied in an open transparent process in public meetings over the last decade. As the Chesapeake Bay Program moves into the Phase II WIPs, lessons learned in the first phase will help CBP support West Virginia's continued strong environmental stewardship.

Comment ID 0410.1.001.003

Author Name: Pujara Karuna

Organization: Maryland State Highway Administration (SHA)

There is a concern that the 25% efficiency that is applied to stormwater BMPs is in conflict with current local stormwater regulations. In Maryland we are required to adhere to environmental site design (ESD) regulations. How do the criteria for sizing ESD practices in the 2000 MD Stormwater Design Manual, Chapter 5, compare to the 25% efficiency that will be assigned to them in the compliance modeling? Would areas that are considered fully treated by the ESD requirements in the MD 2007 Stormwater Law, be determined to be providing only a fraction of the pollutant load reduction that would be required for the same roadway? If so, how will this. discrepancy be rectified?

4) Based on comment 4 above, we think the 25% stormwater BMP efficiency is too conservative and is not realistic for demonstrating compliance. In the Phase II WIP development, the sectors should use the actual assigned efficiencies for BMPs implemented rather than a conservative estimate in order to demonstrate compliance with the 2-year milestones.

Response

EPA can accept additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf. Because this formal BMP credit approval process takes two or more months to finalize, EPA is allowing the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance is at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

Generally the Chesapeake Bay Program welcomes the opportunity to work with States on interim efficiencies as part of Phase II Watershed Implementation Plan development, and can use our protocol to revisit our reporting options for the purposes of:
1) more accurately reflecting efficiencies where new data support it,
2) providing States another option for reporting reductions based on performance standards, and
3) developing efficiencies for additional management practices as they are developed.

Comment ID 0410.1.001.015

Author Name: Pujara Karuna

Organization: Maryland State Highway Administration (SHA)

If the atmospheric deposition (non-point source) of nitrogen in vehicle exhaust is accounted for independent of the urban stormwater land uses (point sources), how is the nitrogen deposited from vehicle exhaust quantified separately

from the nitrogen washing off transportation land uses? Or is this nitrogen load counted twice? Also, would loads for proposed roadway projects need to be adjusted to account for the Clean Air Act as well?

Response

Atmospheric loads of nitrogen are from chemical species of oxidized nitrogen, also called NOx, and from reduced forms of nitrogen deposition, also called ammonia (NH4+). Oxidized forms of nitrogen deposition originate from conditions of high heat and pressure and are formed from eutrophicly inert diatomic atmospheric nitrogen. The principle sources of NOx are industrially sized boilers such as electric power plants and the internal combustion engines in cars, trucks, locomotives, airplanes, and the like. Nitrogen loads from atmospheric deposition are estimated (using the CMAQ 36 km grid, see below for details) to be about 49% from sources within the watershed States and 51% from sources beyond the watershed.

Two types of deposition are tracked in the Phase 5.3 Model and input on a daily basis. Wet deposition occurs during precipitation events and only contributes to the loads during days of rain or snow. Dry deposition occurs continuously and is input at a constant rate every day. Further information of the simulation of atmospheric deposition can be found in Appendix L of the final Bay TMDL report.

Comment ID 0410.1.001.021

Author Name: Pujara Karuna

Organization: Maryland State Highway Administration (SHA)

Can establishment of SAV be considered a BMP for pollutant removal and if so, what load reductions and/or efficiencies can be applied?

Response

SAV is actually an endpoint for the SAV-clarity water quality standard, but it's presence also is recognized as a benefit in terms of reduced tidal sediment resuspension, reduced shore erosion with dampened wave action, enhanced settling of TSS within the SAV beds and nutrient uptake by SAV. To date SAV planting has not been credited as a BMP per se because the actual planting provides immediate credit for SAV-clarity acres which is the metric for determining the SAV-clarity water quality standard. The results of SAV planting would also SAV planting would be recorded as a bed in future modeling and the presence of the bed in the simulation would have the positive effects within the simulation as described above.

Comment ID 0410.1.001.023

Author Name: Pujara Karuna

Organization: Maryland State Highway Administration (SHA)

What specific activities are included in the E3 scenario and is this level of compliance considered achievable?

Response

The E3 Scenario is an estimate of the application of management actions to the fullest possible extent. The E3 scenario is a "what-if" scenario of watershed conditions with theoretical maximum levels of managed controls on load sources. There are no cost and few physical limitations to implementing BMPs for point and nonpoint sources in E3.

Generally, E3 implementation levels and their associated reductions in nutrients and sediment could not be achieved for many practices, programs and control technologies when considering physical limitations and participation levels. E3 includes most technologies, practices and programs that have been reported by jurisdictions as part of annual model assessments, Tributary Strategies, and Milestones.

For most non-point source BMPs, it was assumed that the load from every available acre of the relevant land area was being controlled by a suite of existing or innovative practices. In addition, management programs converted land uses from those with high yielding nutrient and sediment loads to those with lower. E3 does not include the entire suite of practices due to the goal of achieving maximum load reductions. The BMPs that are fully implemented have been estimated to produce greater reductions than alternative practices that could be applied to the same land base.

Specific Elements of E3 Scenario Nutrient and Sediment Management Include:

E3 Point Sources
• E3 Significant municipal wastewater treatment facilities
o Flow = Tributary Strategy flows where most are at design flows
o Nitrogen effluent concentration = 3 mg TN/l
o Phosphorus effluent concentration = 0.1 mg TP/l
o BOD = 3 mg/l, DO = 6 mg/l and TSS = 5 mg/l
• E3 Significant industrial dischargers
o Flow = Tributary Strategy flows where most are at design flows
o Nitrogen effluent concentration = 3 mg TN/l or Tributary Strategy concentration if less
o Phosphorus effluent concentration = 0.1 mg TP/l or Tributary Strategy concentration if less
o BOD = 3 mg/l, DO = 6 mg/l and TSS = 5 mg/l
• E3 Non-significant municipal wastewater treatment facilities
o Flow = Design or 2006 flow if design is not available
o Nitrogen effluent concentration = 8 mg TN/l or Tributary Strategy concentration if less
o Phosphorus effluent concentration = 2 mg TP/l or Tributary Strategy concentration if less
o BOD = 5 mg/l, DO = 5 mg/l and TSS = 8 mg/l
• E3 Non-significant industrial wastewater treatment facilities
o Applies the percentage of equivalent reduction from No-Action (18 mg/l TN, 3mg/l TP) to E3 (3 mg/l TN, 0.1 mg/l TP) to the 2010 load estimates.

E3 Combined Sewer Overflows

• 100% overflow reduction through storage and treatment, separation or other practices. Storage and treatment is assumed in current model scenarios.

E3 Septic Practices

• E3 Septic connections

o 10% of septic systems connected to wastewater treatment facilities.

• E3 Septic denitrification and maintenance

o Remaining septic systems after connections employ denitrification technologies and are maintained through regular pumping to achieve a 55% TN load reduction at the edge-of-septic-field.

o Septic systems are maintained by a responsible management entity or in perpetuity through a maintenance contract.

E3 Atmospheric Deposition

• E3 atmospheric deposition uses the Bay Program's air scenario that shows the maximum reductions in deposition – a projection to 2020 called the Maximum Feasible Scenario.

• WQGIT decided to use the same atmospheric deposition for both the E3 and No-Action scenarios in the allocation methodology.

• The 2020 scenario represents incremental improvements and control options (beyond 2020 CAIR) that might be available to states for application by 2020 to meet a more stringent ozone standard, stricter than 0.08 ppm – such as the proposed 0.070 ppm ozone standard of January 2010.

• Emissions projections for the 2020 E3 scenario assume the following:

o National/regional and available State Implementation Plans (SIP) for NOx reductions – with lower ozone season nested emission caps in OTC states; targeting use of maximum controls for coal fired power plants in or near non-attainment areas.

o Electric Generating Units (EGU):

CAIR second phase in place, in coordination with earlier NOx SIP call.

NOx Budget Trading Program (NBP)

Regional Haze Rule and guidelines for Best Available retrofit Technology (BART) for reducing regional haze.

Clean Air Mercury Rule (CAMR) in place.

o Non-EGU point sources:

New supplemental controls, such as low NOx burners, plus increased control measure efficiencies on planned controls and step up of controls to maximum efficiency measures, e.g., replacing SNCRs (Selective Non-Catalytic Reduction) with SCRs (Selective Catalytic Reduction) control technology.

Solid Waste Rules – Hospital/Medical Waste Incinerator Regulations

o On-Road mobile sources:

On-Road Light Duty Mobile Sources – Tier 2 vehicle emissions standards and the Gasoline Sulfur Program which affects SUV's, pickups and vans which are subject to same national emission standards as cars.

On-Road Heavy Duty Diesel Rule – Tier 4: New emission standards on diesel engines starting with the 2010 model year for NOx, plus increased penetration of diesel retrofits and continuous inspection and maintenance using remote onboard diagnostic systems.

o Clean Air Non-Road Diesel Rule:

Off-road diesel engine vehicle rule, reduced NOx emissions from marine vessels in coastal shipping lanes, and locomotive diesels (phased in by 2014) require controls on new engines.

Off-road large spark ignition engine rules affect recreational vehicles (marine and land based).

o Area (nonpoint area) sources: switching to natural gas and low sulfur fuel.

• E3 Agricultural Ammonia Emissions Reductions

o Assumes rapid incorporation of fertilizers in soils at the time of application, litter treatment, bio-filters on housing ventilation systems, and covers on animal waste storage or treatment facilities.

o The overall benefit of reduced emissions from confined animal housing and waste storage as well as lower emissions from fertilized soils is a 15% reduction of ammonia deposition.

E3 Urban Practices

• E3 Forest conservation & urban growth reduction

o All projected loss of forest from development is retained or planted in forest.

• E3 Riparian forest buffers on urban

o 10% of pervious riparian areas without natural vegetation (forests and wetlands) associated with urban lands are buffered as forest for each modeled hydrologic segment in the Chesapeake Bay watershed.

o The area of un-buffered riparian land is determined using the best available data 1) 1:24K National Hydrography Dataset, and 2) 2001 land cover.

• E3 Tree planting on urban

o Forest conservation and urban riparian forest buffers account for tree plantings in the urban sector.

• E3 Stormwater Management

o Regions with karst topography (low permeability) and Coastal Plain Lowlands (high groundwater)

50% of area – impervious cover reduction.

30% of area – filtering practices designed to reduce TN by 40%, TP by 60%, and SED by 80% from a pre-BMP condition.

20% of area – infiltration practices designed to reduce TN by 85%, TP by 85%, and SED by 95% from a pre-BMP condition.

o Ultra-urban regions – defined as high- and medium-intensity land cover

50% of area – impervious cover reductions, e.g. cisterns and collections systems to capture rainwater for reuse.

30% of area – filtering practices, e.g., sand filters, bio-retention, dry wells.

20% of area – infiltration practices, e.g., infiltration trenches and basins.

o Other urban/suburban regions

10% of area – impervious cover reduction.

30% of area – filtering practices, e.g. sand filters, bio-retention.

60% of area – infiltration practices.

• E3 Erosion & sediment controls

o Controls of the runoff from all bare-construction landuse areas are assumed to be at a level so that the construction loads are equal to the nutrient and sediment edge-of-stream loads from pervious urban under E3 conditions.

• E3 Nutrient management on urban

o All pervious urban acres are under nutrient management.

• E3 Controls on extractive (active and abandoned mines)

o Controls of the runoff from all extractive landuse areas are assumed to be to a degree so that the loads are equal to the nutrient and sediment edge-of-stream loads from pervious urban under E3 conditions.

E3 Agricultural Practices

• E3 Conservation tillage

o All row crops are conservation-tilled.

• E3 Enhanced nutrient management applications

o All cropland is under enhanced nutrient management – the hybrid of reduced application rate and decision agriculture.

o Long-term, adaptive management approach with continuous improvement.

• E3 Riparian forest buffers on agriculture

o Riparian areas without natural vegetation (forests and wetlands) associated with agricultural lands are buffered as forest.

o This equates to 15% of cropland and 10% of pasture land including the pasture stream corridor for each modeled hydrologic segment in the Chesapeake Bay watershed.

o The area of un-buffered riparian land is determined using the best available data 1) 1:24K National Hydrography Dataset, and 2) 2001 land cover.

o Current implementation of riparian grass buffers is considered converted to riparian forest buffers.

• E3 Wetland restoration

o 5% of available agricultural acres in crops and grazed for each modeled hydrologic segment in the Chesapeake Bay watershed.

• E3 Carbon sequestration / alternative crops

o 5% of the available row crop acres for each modeled hydrologic segment in the Chesapeake Bay watershed.

o Program is replacement of row crops with long-term grasses that serve as a carbon bank.

• E3 Agricultural land retirement

o Retirement of highly erodible land is considered in the E3 practices of riparian forest buffers, wetland restoration, and carbon sequestration practices which typically have equal or greater environmental benefits.

• E3 Tree planting on agriculture

o Tree planting is considered in the E3 practice of riparian forest buffers which typically have equal or greater environmental benefits.

• E3 Conservation Plans (non-nutrient management)

o Conservation Plans are fully implemented on all agricultural land (row crops, hay, alfalfa, and pasture).

• E3 Cover crops and commodity cover crops

o Early-planting rye cover crops with drilled seeding on all relevant row crops.

The watershed-wide average of 81% of row crops are not associated with small-grain production is applied to each modeled hydrologic segment in the Chesapeake Bay watershed.

o Early-planting wheat commodity cover crops with drilled seeding on remaining row crops (associated with small-grain production).

The watershed-wide average of 19% of row crops associated with small-grain production is applied to each modeled hydrologic segment in the Chesapeake Bay watershed.

• E3 Pasture Management

o Stream Access Control with Fencing – Exclusion fencing is assumed to protect the stream corridor area designated as the degraded landuse and the area between the stream bank and fence is converted to (and is part of) the agricultural forest buffer determination.

o Prescribed grazing – All upland pasture area is assumed to be under prescribed grazing.

o Dairy Precision Feeding and Forage Management (also listed under E3 Dairy Precision Feeding) – All dairy heifers have reduced nutrient concentrations in excreted manure of TN = 24% and TP = 28% from a pre-feed management condition.

Management approaches may include increased productivity and use of on-farm grass forage.

o Horse pasture management benefits are the same as those for fencing and prescribed grazing practices for livestock in general.

• E3 Animal waste management / runoff control

o Controls of runoff of manure nutrients from the production area of animal feeding operations is assumed to be at a level so that loads are equal to the nutrient and sediment edge-of-stream loads associated with hay that does not receive fertilizer applications.
o Other practices typically associated with animal waste management and runoff control, that may affect runoff from the production area, are addressed separately in the E3 scenario. These include Poultry and Swine Phytase, Dairy Precision Feeding, Manure Transport, and Ammonia Emissions Reductions.
• E3 Poultry phytase
o The phosphorus content in the manure of all poultry is reduced by 32% from a pre-feed management condition.
• E3 Swine phytase
o The phosphorus content in excreted manure of all swine is reduced from a pre-feed management condition by 17%.
• E3 Dairy Precision Feeding
o All dairy heifers have reduced nutrient concentrations in excreted manure of TN = 24% and TP = 28% from a pre-feed management condition.
• E3 Ammonia emissions reductions
o Also under E3 Atmospheric Deposition – Agricultural Ammonia Emissions Reductions
o Assumes rapid incorporation of fertilizers in soils at the time of application, litter treatment, bio-filters on housing ventilation systems, and covers on animal waste storage or treatment facilities.
o The overall benefit of reduced emissions from confined animal housing and waste storage as well as lower emissions from fertilized soils is a 15% reduction of ammonia deposition.
• E3 Nursery Management
o All nursery operations are managed through a number of practices to protect water quality including properly addressing nutrient management and incorporating erosion and sedimentation controls.
o Controls are to a degree so that runoff from nursery areas is equal to the nutrient and sediment edge-of-stream loads from hay that does not receive fertilizer applications.

E3 Forest Harvest Practices
• E3 Forest harvesting practices
o Controls of runoff from the disturbed area of timber harvest operations is assumed to be at a level so that the nutrient and sediment loads are equal to edge-of-stream loads associated with the forest/woody landuse.
It's assumed these BMPs, designed to minimize the environmental impacts from timber harvesting (such as road building and cutting/thinning operations), are properly installed on all harvested lands with no measurable increase in nutrient and sediment discharge.

Additional information of the E3 Scenario can be found at:
ftp://ftp.chesapeakebay.net/Modeling/P5Documentation/SECTION_12.pdf.

Comment ID 0410.1.001.027

Author Name: Pujara Karuna

Organization: Maryland State Highway Administration (SHA)

SHA has concerns about the assessment of its efforts over the past 10 years to restore vegetation and prevent soil and runoff losses to waterways. The selection of baseline dates is particularly important, since over 200 acres of wetlands and 5 miles of stream have been restored by SHA stewardship programs above and beyond legally mandated mitigation requirements. Please clarify how the TMDL has measured and accounted for SHA programs to enhance and restore natural ecosystems, and how these programs have been calculatedto reduce or offset SHA loading reductions in the WIP.

Since 2009, as part of the "Marylanders Plant Trees" program working towards a goal of planting a million trees, SHA funded the planting of 178,000 trees (265 acres) in SHA's MS4 Phase I and Phase II jurisdictions. These plantings were successful through partnerships with Department of Natural Resources and Department of Public Safety and Correctional Services. SHA requests these urban tree credits be applied towards our reduction goals.

SHA believes that a credit for completed efforts to improve environmental quality during the time when baseline data was being collected and the Model was under development is appropriate and should be applied to the TMDL and WIP.

Response

EPA appreciates the commitment of the commenter towards environmental improvement. EPA actively worked with the jurisdictions to capture BMPs during the TMDL devlopement. EPA made Scenario Builder documentation available in September 2010 . This information is available on this site: ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder This documentation describes methods used to determine BMP effectiveness, BMP types, BMP by sources, BMP time series and effectiveness adjustment. In Scenario Builder, stream restoration in urban areas is used to restore the urban stream ecosystem by restoring the natural hydrology and landscape of a stream, help improve habitat and water quality conditions in degraded streams.

Wetlands or impoundment structures intercept stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics.

EPA can accept and invites submission of additional verified practices for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf

Comment ID 0410.1.001.030

Author Name: Pujara Karuna

Organization: Maryland State Highway Administration (SHA)

SHA believes that the TMDL may not adequately recognize the potential benefits of restoring areas that are bare or where turfgrass and other groundcover is thin. Although the potential benefit of agronomic improvements in nutrient

efficiency has been included in the Agricultural Sector of the WIP, methods to improve groundcover efficiency with improved cultivars and adapted species, or the benefits of many urban landscape management practices such as aeration have not been addressed.

Although roadside soils often suffer from unique soil fertility and pH issues as a consequence of salt loads, compaction and poor drainage, the potential benefits of traditional and innovative practices to improve soil conditions, plant rootzone penetration, groundcover density and growth are not fully explored in the TMDL or WIP. However, SHA believes that these factors may be among the improvements most likely to prevent sediment and phosphorus losses from roadside areas, and important methods to capture sediment and nitrogen loads from road surfaces.

Response

The nature of the Hydrologic System Program-Fortan or HSPF-based Phase 5.3 Chesapeake Bay Watershed Model can only accommodate a finite number of land uses. For example, road surfaces and urban land covered in grass are included in impervious and pervious Phase 5.3 Bay Watershed Model urban land uses, respectively. Barren land uses from construction acres are estimated using land cover data from the U.S. Geological Survey. A specific land use of bare soils adjacent to road surfaces is absent from the Phase 5.3 Bay Watershed Model, but it may be possible to represent improved soil and vegetation conditions adjacent to roadways by a new best management practice or BMP.

EPA can accept additional verified practices for use and crediting within the Chesapeake Bay Watershed Model on an ongoing basis. The Bay Watershed Model can accommodate any practice and program across all pollutant source sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nitrogen, phosphorus, and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated and approved by the partnership following the Chesapeake Bay Program's protocol available at http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

Because this formal best management practice review and approval process takes two or more months to finalize, EPA allowed the development of "interim efficiencies" of any practices states are including in their Watershed Implementation Plans that are not currently in the model. The EPA guidance on these interim efficiencies is available at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/GuideforEPAWIPEvaluation4-2-10.pdf.

All current BMP definitions and efficiencies are described in the Scenario Builder documentation available at http://archive.chesapeakebay.net/pubs/SB_Documentation_Final_V22_9_16_2010.pdf.

For more information and to review the Phase 5.3 Model land use documentation, please go to http://ches.communitymodeling.org/models/CBPhase5/documentation.php#p5modeldoc.

Comment ID 0412.1.001.005

Author Name: Lohr Matthew

Organization: Virginia Dept. of Agriculture and Consumer Services

Specifically, VDACS generally concurs with the Virginia Department of Environmental Quality's (DEQ) comments on Section 6 of the draft TMDL regarding the inclusion of a temporary reserve, interpreting model results (developing a set of uniform criteria for evaluating model performance and attainment assessment of model output, and that the criteria should undergo scientific peer review), and with DEQ's recommendation of replacing the term "mortality composting" with "mortality management."

Response

The only mortality control for poultry is mortality composting and it is described in the Scenario Builder documentation. They are physical structures and process for disposing of dead poultry. Composed material is combined with poultry litter and land applied using nutrient management plan recommendations. All BMP definitions and standards are described in the Scenario Builder documentation available here: http://archive.chesapeakebay.net/pubs/SB_Documentation_Final_V22_9_16_2010.pdf.

EPA can accept additional verified management practices (BMPs) for use in the model on an ongoing basis. The CBP Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. For all practices to be credited for use in annual model progress runs, the practice must be evaluated through CBP protocol. The protocol is available here: http://archive.chesapeakebay.net/pubs/Nutrient-Sediment_Control_Review_Protocol.pdf.

Comment ID 0413.1.001.002

Author Name: Champion Traylor

Organization: Georgia-Pacific LLC (GP)

Georgia-Pacific is a member of the American Forest and Paper Association (AF&PA), the national trade association of the forest, paper, and wood products industry, which also participates in the Federal Water Quality Coalition (FWQC). GP is also a member of the Virginia Manufacturers Association (VMA). Georgia-Pacific fully supports, and as a member, incorporates the comments submitted by the AF&PA, FWQC and the VMA as part of GP's comments. [Refer to EPA-R03-OW-2010-0736-0514, EPA-R03-OW-2010-0736-0481, and EPA-R03-OW-2010-0736-0376 respectively.] Specifically, based on those comments and the ones set forth below, GP respectfully requests that EPA withdraw the draft TMDL and support the efforts of the State of Virginia and other impacted states to continue to improve water quality.

Mechanistic Modeling of Impairment Decisions

GP supports the development of mechanistic, science-based water quality models for assessing potential impairments to surface waters. The use of water quality models has for years provided the most proven means for developing TMDLs in accordance with the goals of the Clean Water Act. The draft Chesapeake Bay TMDL represents the most complex TMDL ever attempted, and EPA's decision to utilize mechanistic modeling for improving water quality in the

Chesapeake Bay is appropriate. However, with any mathematical-based decision tool, meaningful results can only be obtained using accurate data input, proper review of all variables, model calibration, and an iterative adjustment cycle to refine the modeling. Unfortunately, it appears there are several problems with the modeling, and that EPA is rushing to issue a final TMDL by the end of December 2010. There are errors in input data, such as the inaccurate location of 130 "non significant" dischargers, and apparent problems with the Total Suspended Solids (TSS) algorithm, which does not appear to have appropriate sensitivity for significant adjustments in effluent TSS levels (there is little change in effect for EPA's level of 5 mg/L vs. VA DEQ's use of 30 mg/L of TSS). The public comment period closes on November 8, only 45 days after the most complex TMDL in the history of the TMDL program was proposed. The final TMDL will be issued only 53 days following the close of the comment period. The public comment period is entirely too short for a thorough public review, evaluation and comment on over two thousand pages of a draft technical document such as this TMDL and associated appendices. Additionally, EPA will not have adequate time to seriously consider the many technical and substantive comments that will be made during this comment period, and then integrate such comments into the final TMDL. While we think it most appropriate to withdraw the draft TMDL, at a minimum, we request that EPA delay the finalization of this most complex TMDL by at least six months in order to adequately review and consider comments, evaluate changes, work with the states to adjust the model and incorporate state-specific concerns. Otherwise, the use of the model, without such adjustments, will have significant and potentially disastrous cost impacts and consequences for American businesses in the Chesapeake Bay watershed that will either be compelled to install controls that are not completely necessary or justified, or be forced to relocate businesses or close.

Response

The Phase 5.3 Chesapeake Bay Watershed Model is a representation of the watershed, not a perfect refection of it. Using an integrated approach of modeling, monitoring, and research in it's development the Phase 5.3 Model developers including the EPA Chesapeake Bay Program, the Virginia Department of Conservation & Recreation, the Interstate Commission on the Potomac River Basin, the University System of Maryland, the Maryland Department of the Environment and the U.S. Geological Survey, in partnership with the Bay Program States, have done all that time and resources allow to review and refine the input data and the model simulation.

The CBP models, like all models, are infinitely perfectible. More time and more resources will always improve the model performance which after all, is really what the Phase II WIPs are about, with a new Watershed Model application at finer scales to be applied in the Phase II WIPs in 2011. Given this, the Phase 5.3 Model is fully capable of supporting the development of the Phase I WIPs.

The Phase 5.3 Watershed Model and Scenario Builder have been developed as open source, public domain models that have been developed and applied in open public meetings over the last decade. Initial drafts of the model documentation have been available since 2008. When the Phase 1 Chesapeake TMDL is finalized at the close of December 2010 all of the final documentation of the Phase 5.3 Watershed Model and Scenario Builder documentation, code, and data used to develop and apply the models will be are on the web and fully available.

Scenario Builder and Watershed Model downloadable information
Scenario Builder documentation (uploaded 9/16/10), source code (10/29), and database (11/5) are available on this site: ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/.

Scenario Builder inputs and outputs are available on this ftp site (continually updated as new results are run): ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/.

Phase 5.3 watershed model information is available here: http://ches.communitymodeling.org/models/CBPhase5/index.php.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed by several of the above groups. The Phase 5.3 Model is configured in two different operational modes of calibration operations and scenario operations. The calibration operation is a continuous run over the entire simulation period from 1984 to 2005 using observed flow and water quality data over that entire period and involved changing the estimated Phase 5.3 land use and best management practices annually as they occurred over the two decade simulation period. In comparison, in the scenario operation mode the Phase 5.3 Model is run for a ten-year hydrology simulation period from 1991 to 2000, and uses a constant representational input dataset for each scenario.

In addition, there have been 2 major independent reviews of the Phase 5 Model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board available at http://www.epa.gov/spc/pdfs/modelpr.pdf.

The reviews and responses can be found here:

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

Comment ID 0416.1.001.002

Author Name: Paulson Eric

Organization: Virginia State Dairymen's Association (VSDA)

We are also concerned with the exclusion of comment on the model and its components. Even though EPA has acknowledged that there are flaws in the model and the land use tools that are fed into the model, there has not been an opportunity for the public to review either systems or comment on its effectiveness. One of the largest issues that VSDA has with the current model is that there is no system in place to account for all of the voluntary practices farmers

are implementing with no financial assistance. Agriculture is being unfairly punished with larger allocations due to the fact that many producers are not getting credit for BMP's they have implemented at their own cost. We are also concerned with the agricultural census numbers that this TMDL is being based on. The dairy industry in Virginia has gone through heavy contraction over the past decade and the concern is that the numbers that are being used are incorrect and will place larger allocations on a smaller pool of operations.

VSDA is also concerned with the heavy handed, one size fits all approach that EPA seems to favor in regards to agriculture. We have advocated that there needs to be whole farm plans that look at farms individually and work toward plans that take each farms situation and condition into account. The concern is that burdensome regulations and the arbitrary plan to implement a set group of BMP's will force farms out of production. We need a flexible approach that works with the farms and accounts for economic conditions and area specific challenges. Virginia estimates that just one practice (cattle fencing) could cost more than $800 million to implement. Fencing cattle from streams, putting in crossings, providing alternative watering, etc. costs on average $30,000 for a Virginia cattle farmer.

Agriculture has met 52% of reduction goals for Nitrogen and 50% for Phosphorus and Sediment, all through a voluntary, incentive based program in Virginia. This doesn't even count the actions farmers are taking on their own without funding. Virginia has had an effective BMP plan that has put over $80 million into Agricultural BMP cost share programs since 2006. Virginia farmers have put up $.60 for every dollar that the state has invested. Unfortunately there is still a line of producers with projects who are turned away due to inadequate funding of the cost share programs. These programs also do not consider the upkeep and the loss of productive land. It is unfair to punish farmers who have met over half of goals through a voluntary program that is not fully funded. If the program was fully funded we would be near our goals. It seems that it would be better to fund this voluntary program and then see what the results would be instead of throwing the program to the side and implementing burdensome regulations.

Response

EPA agrees that non-cost shared implemented practices are likely under-counted because of difficulties in data collection. Verified non-cost shared practices can be accepted in the model, but historically have not been included to a great extent because the information has not been made available to the Chesapeake Bay Program. Non-cost shared practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to CBP for use in the model. These practices are typically funded by farmers alone. EPA is committed to working with USDA, NACD, state environmental and agricultural agencies, conservation districts, and the agricultural community at large to credit nutrient and sediment reductions from voluntary practices. As committed to in the Chesapeake Bay Executive Order Strategy, EPA and USDA will work with state and local partners to “By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented.”

Comment ID 0419.1.001.006

Author Name: Sharma Lalit

Organization: City of Alexandria, Virginia

(1) The distribution of loads to river segments is not correct

The Communities provided GIS boundaries for their CSSs. EPA has apparently further segmented the GIS data in an attempt to assign the loads to much smaller stream segments. In Appendix Q-1 of the Draft TMDL Report, it appears that EPA has incorrectly assigned a portion of the Richmond CSO load to the Chickahominy River segment. There are large interceptors that direct the flow tributary to the James River tidal fresh segment, which has a delivery factor of 1.0. Even the land area that EPA believes is in the free flowing James River has been intercepted and is materially diverted to the tidal fresh segment. Given the close proximity of all the Richmond permitted CSO outfalls to the fall line, it would be reasonable to include in the model a single CSO allocation under the tidal fresh segment of the James River, which has a delivery factor of 1.0.

The TMDLs are calculated for 92 segments in the Chesapeake Bay and tidal tributaries. As discussed previously, the CSS operates as a system; therefore, it is inappropriate to disaggregate the CSS loads to smaller segments that discharge into the same TMDL segment. Appendix Q-1 of EPA's Draft TMDL includes multiple discharge points based on EPA's interpretations of minor stream segments for CSO permit outfalls for Alexandria and Lynchburg. EPA should aggregate the CSO loads for each community.

Response

Thank you for your comment. Based on a request from the Virginia Department of Environmental Quality, this has already been corrected by removing the Richmond CSO split to the Chickahominy River and have the sole discharge of the Richmond CSOs to the tidal fresh region of the James River.

Comment ID 0421-cp.001.002

Author Name: Comment Anonymous

Organization: Cloverfield Farm

Information used by the EPA to determine the amount of farmland acerage that is no-tilled is inaccurate due to the fact that it does not take into account the amount of acres that are no tilled voluntarily and are subsequently not enrolled in any type of government programs.

Response

The Phase 5.3 Watershed Model needs consistent information on management practices throughout the watershed from New York to Virginia, and throughout the simulation period from 1985 to 2005. Because of this we use county scale tillage information from the Conservation Technology Information Center (CTIC, 1989-2004) on a county scale for the conventional and conservation tilled cropland. Additional voluntary acres of conservation tillage may be in the watershed, but the Chesapeake Bay Program would need to verify these voluntary practices before incorporating them into the account of nutrient and sediment reductions in the Chesapeake watershed. EPA believes we have the best citable, verifiable, watershed-wide data on conservation tillage practices now available.

EPA can accept verified "voluntary" practices in the model. Voluntary practices are those practices that have not been funded through Federal Farm Bill or state cost share and, therefore, have not been tracked by or reported to EPA for use in the model. These voluntary practices are typically funded by farmers alone (or possibly through other funding sources besides state cost share or Federal Farm Bill funding such as grants or private sources). EPA is committed to working with USDA, NACD, State environmental and agricultural agencies, conservation districts, and agricultural community at large to credit nutrient and sediment reductions from voluntary practices. As committed to in the Chesapeake Bay Executive Order Strategy EPA and USDA will work with state and local partners to "By July 2012, mechanisms for tracking and reporting of voluntary conservation practices and other BMPs installed on agricultural lands will be developed and implemented." EPA can accept additional verified practices for use in the model on an on-going basis. The Chesapeake Bay Program Watershed Model can accommodate any practice and program across all sectors (agriculture, urban, wastewater, forestry, etc.) that yields load reductions in nutrients and/or sediment. In the Watershed Implementation Plans, those verified practices that were implemented after the calibration period (practices put in place in 2006 or later) will count towards annual pollution reduction progress and towards the 2-year milestones. Practices implemented prior to 2006 will be utilized by the model in the next calibration period.

EPA is allowing for interim "placeholder" effectiveness estimates (based on data provided by the state) so that states can estimate nutrient and sediment reductions resulting from the actions outlined in the Phase I Watershed Implementation Plans. These "placeholder" estimates must be verified through the formal BMP credit approval process for use in annual progress reports and to count towards progress made towards 2-year milestones.

Verifying these data for use in the model is critical for determining the appropriate nutrient and sediment reduction credit for the model. EPA has been meeting with USDA, NACD, state agricultural agencies, conservation districts, and agricultural community for over a year to develop protocols for tracking, reporting, and verifying these data for use in the model. EPA needs verification procedures and information that shows that practices are properly designed, installed, and maintained in order to credit nutrient and sediment reductions. EPA has clearly articulated key expectations of what data are needed in order to credit practices in the model in numerous correspondence to the states on Watershed Implementation Plan expectations:

--BMP approval process - rigorous, scientific defensible process for evaluating data, getting technical input, and finalizing definitions and effectiveness estimates for use in model. All practices must undergo this CBP partnership-approved BMP review protocol in order to be credited in the model.
--Verification procedures – EPA has clearly spelled out in communications with the states on the Watershed Implementation Plans its expectations regarding verifying that practices were properly designed, installed, and maintained to get full credit in the model.
--Ensuring no double-counting – It will be very important to ensure that there is no double-counting of practices that are reported for use in the model. For cost-shared practices, this could happen if the practice was co-funded through both the Federal Farm Bill and state cost share programs. For voluntary data, this could happen if the farmer received grant funding for a practice. EPA has asked for the states to put measures in place to ensure no double-reporting of practices.
--Procedures for keeping dataset clean over time (deleting practices if they are removed, if land is converted, if they aren't maintained, if they fail, etc.).
--Data transmission requirements to EPA – In EPA's grant guidance to the states, EPA has clear guidelines for how data must be transmitted to the EPA for use in the model through the NEIEN network node.

EPA has provided financial support to states to more accurately and comprehensively account for agricultural conservation on the ground through grants to the states. Additionally EPA will house two National Association of Conservation District (NACD) employees at CBPO to coordinate voluntary data tracking effort, as requested by NACD.

Comment ID 0429-cp.001.005

Author Name: Reeves J.

Organization:

US EPA & its senior staff on this initiative:

7- should continue critical, cutting-edge work to refine the Ches. Bay computer models and be able to demonstrate its usefullness and validity to appropriate, informed critics.

Response

EPA acknowledges receipt of the comment and thank you for your comment in support of the open source, public domain, CBP model tools that have been developed in collaboration with the technical staffs and decision makers from the Bay States, the scientific community, and federal agencies.

Comment ID 0432.1.001.008

Author Name: William Neilson John Bell and

Organization: Pennsylvania Farm Bureau

2. There are still significant shortcomings with the Chesapeake Bay Model

The Chesapeake Bay Model has gone through numerous revisions over the past several years. Still, many analysts have serious concerns over the accuracy of the Model to reflect and measure real world conditions of pollution occurrence. And few facets of the Model have been subject to experience verification that should have occurred to measure the Model's accuracy.

The continuous revision of the Model that has taken place over the past few years also makes it difficult for states and stakeholders to make the type of decisions in committing capital and resources needed to carry out the state's WIP. Many projects for pollution reduction involve the commitment and financing of tens of thousands of dollars or more to implement. The frequency of changes recently made not only discourages decision-makers in having confidence in the Model's reliability. It strongly suggests to those who finance pollution reduction projects and those who rely on these projects for regulatory compliance that investment in these projects is risky.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0434.1.001.015

Author Name: Pryor Wayne

Organization: Virginia Farm Bureau Federation

VI. EPA Has Not Provided Evidence of the Need for the Backstops Included in Its Proposed TMDL.

A. The Virginia WIP Was Designed to Achieve EPA's Mandated Allocations for Nitrogen, Phosphorus and Sediment.

The WIP developed by Virginia was designed to achieve the nutrient and sediment reductions established by EPA. Virginia WIP Overview at p. 6 (Key Questions and Answers); WIP pages 7 - 10. Virginia has every intention of achieving the reductions required by EPA. ld. The inputs that Virginia provided to EPA as part of the WIP development process were established to meet the reductions goals. Accordingly, there is no environmental basis for rejecting Virginia's WIP.

The fact that EPA, when running the model, found that there was a slight shortfall in the nitrogen and phosphorus reductions goals demonstrates the need for Virginia and EPA to confer and review the model data. EPA has acknowledged that the model will be "refined" in 2011 to address certain deficiencies. The question is whether these deficiencies are within the range of the EPA-projected shortfall. Either way, EPA is unjustified in using these model runs as a basis for rejecting Virginia's WIP and imposing draconian across-the-board reductions for all sectors in Virginia.

Response

See response to Comment No. 0228.1.001.002 regarding the basis for EPA rejecting Virginia's draft Phase I WIP.

Since Virginia submitted a significantly improved final Phase I Watershed Implementation Plan, EPA was able to remove the backstop allocations published in the September 2010 draft Bay TMDL. The final Bay TMDL allocations fully reflect Virginia’s allocations within their Phase I Watershed Implementation Plan.

Comment ID 0434.1.001.016

Author Name: Pryor Wayne

Organization: Virginia Farm Bureau Federation

B. Bay Model is Flawed and Cannot be Used as the Sole Basis for Backstop Allocations.

EPA has acknowledged that the Bay modeling process needs to be refined, and that some refinements will take place

as soon as 2011. See, e.g., Letter from EPA Region III to the watershed states, July 1,2010. EPA has also stated that any corresponding adjustments to the allocations resulting from the modeling refinements will be addressed in the 2011 round of state WIPs. ld.

Such refinements should take place before any implementation plan is finalized much less imposed. Following are some examples of the concerns about the accuracy of the Chesapeake Bay Model.

o In 2010, Virginia Cooperative Extension conducted a field observation study in the Coastal Plain. They found that 90% of crop acres were planted in no-till. Only 15% of the acres are enrolled in DCR's no-till program.

o Is the model fully accounting for practices that are already mandated by state permitting programs? (ex: mortality control for poultry facilities)

o The model is currently "throwing out" actual, ground-truthed data from Virginia because it does not meet the "modeled" land use data. This is unfair when the practices are meeting all requirements set forth by EPA.

o EPA models have not been fully validated or peer reviewed, and the records of what validation and peer review have occurred have not been made available to the public;

o EPA's models were calibrated using data from years with widely varying hydrologic conditions that are not representative of the conditions being projected through the TMDL;

o EPA has not explained, justified or documented the actual uncertainty/error/precision of the models;

o The model framework does not include all point sources. It is our understanding that at least 130 non-significant industrial or municipal dischargers were not included because they were not correctly located;

o The model fails to simulate the performance of nutrient management plans;

o It is unclear what delivery factors were used for the tributaries and for facilities within each tributary;

o Changes in the model have resulted in different outputs for chlorophyll-a that call into question both the assumptions in the model and the validity of the chlorophyll-a criteria itself;

The groundwater inputs to the models are not representative of actual conditions;

o The impact of urban stormwater loads is highly sensitive to EPA's assumptions regarding urban land uses, which have not been validated or subjected to public review; and

o The models are so complex and highly parameterized that it is possible to obtain the "right" answer for the "wrong" reason.

EPA's TMDL must be based on accurate information. No regulations, penalties, allocations or implementation requirements should be imposed on Virginia or the agricultural community until the science and data have been fully

vetted and demonstrated to be accurate.

Response

Please see EPA's comprehensive responses to comment ID 0288.1.001.016.

General watershed model and scenario builder review, process, and availability:
Please see EPA's comprehensive responses to comment ID 0169.1.001.005

Urban issues and undercounted or incorrectly assessed BMPs, including nutrient management:
Please see EPA's comprehensive responses to comment ID 0238-cp.001.002

Delivery Factors unclear:
Please see EPA's comprehensive responses to comment ID 0689.1.001.009

Point sources missing
EPA uses all available waste water data. Virginia supplied a large amount of point source data after the September 1st, 2010 deadline for this type of data submission on September 3rd, 2010. The 139 missing point sources were not supplied with correct geographic information and could not be included without spatial reference. EPA has worked with Virginia to obtain corrected geographic information and included these point sources in implementation scenarios starting on November 18, 2010.

Groundwater
EPA agrees that the U.S. Geological Survey (USGS) estimates that approximately 50% of the nitrogen that reaches the tidal water flows through the groundwater at some point in its path to the Chesapeake Bay. Groundwater delivery of water and nutrients is simulated in the Phase 5.3 watershed model. Please see the Phase 5.3 Chesapeake Bay Watershed Model report at http://www.chesapeakebay.net/model_phase5.aspx?menuitem=26169 for more details.

Uncertainty or equifinality
Equifinality is a known issue with all deterministic watershed models, however few models are analyzed to account for this. The modified Monte Carlo or GLUE methods most often used as tools to address equifinality are not feasible to implement on a watershed model of this complexity.

The Chesapeake Bay Phase 5.3 Watershed Model was adequately calibrated for flow, nutrients, and sediment in March 2010. All the Phase 5.3 Watershed Model calibration results are accessible at ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Calibration_pdf/all_validation.pdf.

As stated in section 5 of the TMDL report, the complexity in the case works to decrease the uncertainty in the decision. In empirical modeling, increasing parameters generally increases the uncertainty of a given parameter, not of the prediction. However, in this type of deterministic modeling where the watershed model is used as an accounting tool, the removal of components to simplify the modeling would not improve the decision-making process. For example, it is clear that using fewer calibration stations, gathering less BMP information, eliminating land use types, etc would almost certainly result in a decrease in accuracy of

the model and fairness of the allocations.

As described in section 6.2.3 of the Draft TMDL document, the implicit margin of safety in the nutrient allocations due to conservative TMDL and modeling assumptions accounts for uncertainty in the models. Due to additional uncertainty in the sediment modeling, an additional explicit margin of safety was adopted which reduced the available loading for Load Allocation and Waste Load Allocation.

Hydrologic conditions
EPA does not agree that the 10-year hydrologic conditions are unrepresentative of the conditions being projected through the TMDL. The hydrologic period was specifically selected because if its statistical similarity to the long term flow record. Please see section 6.1.1 of the starting on page 6-1 of the draft TMDL document. Additionally, see appendix F for a full discussion of the hydrologic period.

Comment ID 0436.1.001.021

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Chesapeake, Virginia

THE PHASE 5.3 MODEL AND MODEL INPUTS ARE NOT SUFFICIENTLY DEVELOPED TO PRODUCE RELIABLE PREDICTIONS

A. EPA has rushed the Model into service, and in the process has failed to comply with its own quality control standards.

EPA's suggestion that the public and the regulated community should have confidence in the accuracy of the model predictions and resulting allocations because "[t]he TMDL uses a series of models, calibrated to decades of water quality data and other data, and refined based on input from dozens of Chesapeake Bay scientists" (see TMDL Report at page iv) is misleading. While this may be the case for the other models used to develop the TMDL, it is not true for either the Phase 5.3 Watershed Model or its inputs, which are critical elements in the decision support system used by EPA to develop the proposed allocations. The Phase 5.3 Model undoubtedly has greater capabilities than previous versions of the watershed model, but the Model is new, and in its headlong rush to complete the TMDL by an artificial deadline, EPA is using the Model before it is fully calibrated and before verifying the accuracy of the land use inputs to the Model. In fact, EPA has effectively acknowledged that the Model is not ready to produce reliable predictions by its inability to establish the TMDL without a five percent "allocation reserve," its announced intention to begin recalibrating the Model in October 2010 (after the TMDL is released for public comment), and its use of ranges of sediment loading numbers (rather than a single number) for each basin allocation because the Model is unable to match observed data for sediment loading.

EPA has developed many large, complex computer programs and systems that have been tested, improved, and applied by the engineering and scientific community. Recognizing the importance of quality control and quality assurance processes in the development and application of its environmental programs, EPA's Office of Environmental Information Quality Staff published a Quality Manual for Environmental Programs

(http://www.docstoc.com/docs/594179/EPA-Manual-EPA-Quality-Manualfor- Environmental-Programs) in May 2000. The primary goal of this manual is, "[t]o ensure that environmental programs and decisions are supported by data of the type and quality needed and expected for their intended use, and that decisions involving the design, construction, and operation of environmental technology are supported by appropriate quality assured engineering standards and practices." In this case, EPA has failed to meet the standards it set for itself in the Manual.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0439.1.001.008

Author Name: Littrell Judy

Organization: New York Association of Conservation Districts

The Bay Watershed Model has never been tested for its accuracy, and large deviations in estimated delivered nutrient loads have occurred from one version of this model to the next. NYACD requests that real, hands-on scientific data, be used in determining the final TMDL.

Response

Please refer to the response to comment 0202.1.001.010.

Comment ID 0440.1.001.004

Author Name: Land Larry

Organization: Virginia Association of Counties (VACo)

• Chesapeake Bay Model: Comments express concern about accuracy of the Chesapeake Bay model, which is a centrally important factor in determining pollutant reduction goals for each state, locality and "source sector." (The chief source sectors are point sources [wastewater treatment], agriculture, urban stormwater, and on-site waste water treatment.)

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0440.1.001.008

Author Name: Land Larry

Organization: Virginia Association of Counties (VACo)

2.) Bay Model Accuracy The Chesapeake Bay Model serves as the basis for determining nutrient and sediment loading limits. It also determines the financial expenditures stakeholders will need to make in order to satisfy EPA expectations. It is therefore extremely important for the Bay Model to be accurate. By EPA's own acknowledgement, there are flaws in the Chesapeake Bay Model. Some observers have criticized the Model for rejecting verified, ground-level data from Virginia that is inconsistent with the "modeled" land use data. For example, in 2010 the Virginia Cooperative Extension (VCE) conducted a field observation study in the Coastal Plain and found that 90 percent of the planted crop acres were in no-till farming. VCE's findings conflicted with information provided earlier by DCR indicating that only 15 percent of this acreage had been enrolled in the Virginia Department of Conservation and Recreation's no-till program.

To assess the effect of agricultural practices EPA's model will only accept information from authorized sources. In Virginia these sources would be state agencies like DCR that collect information based upon practices that are involved in DCR's agricultural cost-share programs. That means that actions taken outside of a cost-share program (i.e. no-till farming in this case) have not been accounted for in the Model or loading estimates for agriculture.

With respect to other flaws in the model, it is also VACo's understanding that:

• The current version of EPA's model fails to include 139 active Virginia point sources. It is also VACo's understanding that while EPA is aware of this omission, it has not been corrected due to a lack of time.

• The above failure by EPA to update the information underscores another problem caused by the rush to comply with an arbitrary deadline.

• In 2008, the Scientific and Technical Advisory Committee (SCAT) reviewed the Phase 5 watershed model and determined that it needed to be recalibrated and re-segmented in order for it to be appropriate for application at the local level. It is VACo's understanding that no action was taken by EPA in response to SCAT's recommendation. However, the Bay Program is continuing to promote this model for use at the local level when the (locality-specific) Phase II WIPs are being developed by EPA's deadline of November 1, 2011. Because information from the model will be used for determining local pollutant limits, VACo is very concerned that many decisions will be based upon inaccurate information.

Recommendation:

VACo understands that no model will yield a perfectly accurate portrayal of reality. However, flaws in the current model are substantially serious and need correction. VACo believes that more time should be allowed for making those corrections before the final TMDL is issued. VACo also supports 1.) an evaluation of the Chesapeake Bay Model by the General Accountability Office, and 2.) a reasonable postponement in the TMDL deadline to allow for evaluations and corrections of the model to take place. A postponement in the deadline will also provide time for the public to gain a better understanding of how EPA's Chesapeake Bay model actually works.

To safeguard against the rigidity that could be associated with an overly model-centric approach, it will be important for

the Chesapeake Bay model to be continually evaluated through the life of the Chesapeake Bay Program. This should allow for more flexible (or adaptive) management approaches at the local level.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0442.1.001.015

Author Name: Drzyzgula Cathy

Organization: Metropolitan Washington Council of Governments (COG)

13. EPA's TMDL Should Clearly Portray

Source Allocations as ‘Preliminary', Confirm Its Ability to Revise Deadlines and Allocations for the WIPs and TMDLs as Needed for Consistency, and Correct Errors in the TMDL and WIPs - Consistent with its Adaptive Management Principles Source allocations for nonpoint sources, particularly agriculture and urban stormwater, should be regarded as preliminary to reflect the uncertainty inherent in the current version of the Bay Program's Watershed Model and questions about how loads were allocated among these sources. The draft TMDL documentation states (see page 10-4) that EPA will modify its nutrient and sediment allocations in response as new WSM data is available from version 5.3.2 of the watershed model. Given that some of the changes being made to the model will affect estimates of the amount and type of urban land, it is likely that the various state-basin waste load allocations for urban stormwater in the draft TMDL are inaccurate. EPA should state more clearly that the Phase I WIP source allocations are provisional and subject to change. In addition, it is clear that the draft TMDL has made sub-allocations to various wastewater plants that are not consistent with the state WIP, that not all CSO loads have been fully accounted for, and that there are other errors that will need to be reflected in revised TMDLs and WIPs. We are also aware of inconsistencies in input decks versus state WIP assumptions, resulting inconsistencies between the TMDL and the WIPs themselves (ref. Section 5.8 Phase 5 Chesapeake Bay Watershed Model).

Recommendation #13A: Reconcile Model Input Assumptions and Correct Allocations and WIPs as Needed
EPA and the states need to review and verify all modeling assumptions regarding input decks, and revised the allocations for sectors, facilities, and others as necessary to ensure consistency between the TMDL allocations and WIP assumptions.

Recommendation #13B: Revisit Allocations during Development of the Phase II WIPs
We support Maryland and Virginia's intention to revisit the allocations during the development of the Phase II WIPs. In issuing new estimates and proposing new allocations, EPA and the states should allow local governments and other stakeholders adequate time to review these numbers; we propose that parties have at least 120 days to do so (ref. Section 10. TMDL Implementation & Adaptive Management, and Section 11. Public Participation).

Recommendation #13C: Determine What the Implications are of Using Estimated 2010 Land Use on Calibrations and Ultimately Allocations and Revise TMDL Loads and WIPs as Appropriate

EPA modeling assumptions utilized an estimated 2010 land use scenario as part of its efforts to set base loads for the TMDLs, and therefore the determinations of relative effectiveness (ref. Section 5.5 Chesapeake Land Change Model, and 5.7 Scenario Builder). As a result, the actual 2010 loads were not verified through the model's calibration procedures. The results of these actual loads need to be accounted for in the Phase II WIPs.

Response

The Phase 5.3 Chesapeake Bay Watershed Model and Scenario Builder have been developed as open source, public domain models that have been developed and applied in open public meetings over the last decade. Initial drafts of the model documentation have been available since 2008. When the Phase 1 Chesapeake TMDL is finalized at the close of December 2010 all of the final documentation of the Phase 5.3 Watershed Model and Scenario Builder documentation, code, and data used to develop and apply the models will be are on the web and fully available.

Scenario Builder and Watershed Model downloadable information
Scenario Builder documentation (uploaded 9/16/10), source code (10/29), and database (11/5) are available on this site: ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/. Scenario Builder inputs and outputs are available on this ftp site (continually updated as new results are run): ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/.

Phase 5.3 watershed model information is available here: http://ches.communitymodeling.org/models/CBPhase5/index.php.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed by several of the above groups. The Phase 5.3 Model is configured in two different operational modes of calibration operations and scenario operations. The calibration operation is a continuous run over the entire simulation period from 1984 to 2005 using observed flow and water quality data over that entire period and involved changing the estimated Phase 5.3 land use and best management practices annually as they occurred over the two decade simulation period. In comparison, in the scenario operation mode the Phase 5.3 Model is run for a ten-year hydrology simulation period from 1991 to 2000, and uses a constant representational input dataset for each scenario.

For more information and to review the P53 key scenarios documentation, visit http://ches.communitymodeling.org/models/CBPhase5/documentation.php#p5modeldoc.

In addition, there have been 2 major independent reviews of the Phase 5 Model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board available at http://www.epa.gov/spc/pdfs/modelpr.pdf.

The reviews and responses can be found here:

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

Response to specific comments
Recommendation #13A: Reconciling model input assumptions and the review verification of modeling assumptions by EPA and the states is an ongoing process in all of the Chesapeake Bay Program partnership's models.

Recommendation #13B: The plans for the Phase II Watershed Implementation Plan process are being laid now by the States and EPA and the States will have full opportunity to provide direction to the Phase II Watershed Implementation Plan process and schedule through the Chesapeake Bay Program's Principals' Staff Committee.

Recommendation #13C: Since the Phase 5.3 Chesapeake Bay Watershed Model calibration is over a two decade period from 1985 to 2005 with many changes of high and low flow and loads over that simulation period the Phase 5.3 Chesapeake Bay Watershed Model is fully capable of simulating the 2010 period.

Comment ID 0444.1.001.006

Author Name: Allen Paul

Organization: Constellation Energy

EPA has rightfully acknowledged that its TMDL model is still under development and the next version will not be available until 2011, after the final TMDL is published. While Constellation applauds EPA's recognition that adaptive management will be required to modify loads and allocations as new information becomes available, and establishment of the TMDLs must occur in phases, we believe it is premature to set a final TMDL at this time based on an incomplete and inaccurate model.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0446.1.001.005

Author Name: Beegle Douglas

Organization: Penn State University

I have concerns with how the Bay Model is used in the TMDL. Obviously we have to use the model for planning because we cannot do experiments on the whole watershed to see what will work and what won't. However, from what I have seen, the model was of little or no use to us in developing the PA Ag-WIP. A serious deficiency in the development of the State WIPs was the lack of good information to use about how various practices or scenarios would impact the Model evaluation of the impact of proposed BMPs toward achieving the TMDL in making decisions about what should be in the WIP. Only gross results from the model to consider but no real insight as to what specific factors were resulting in the modeled results were available. Thus it was very difficult to decide what to change if the model did not meet the allocations. Also, there was often confusion about how the model handled certain scenarios. Many time the assumptions were totally different from what the committee thought. For example, a major component of the TMDL is cover crops. In PA, cover crops have been promoted as a critical component of manure management. However, in the Model, if cover crops are used in a plan with manure they are not counted in the Model. Also, we were told repeatedly that the Model has serious problems especially in nutrient management! Since the TMDL focuses on nutrient management this is a serious deficiency in the process. Consequently, the WIP was developed almost totally based on, hopefully, educated guesses regarding how it would be evaluated in the Model. In the end, the PA Ag-WIP ended up mostly just a compilation of what is going on the state already because there was really no basis for suggesting changes.

Response

Cover crops, as defined by the Scenario Builder documentation, are not grown with any nutrient application. Commodity cover crops, however, are available and they do permit a nutrient application. All Scenario Builder BMPs are fully approved and vetted by stakeholder filled workgroups. Many are also approved by the Mid-Atlantic Water Program, which conducted an extensive, independent peer review of most of the modeled BMPs at the request of the Chesapeake Bay Program partnership..

The nutrient management crediting issue, investigated by the Chesapeake Bay Program's Agriculture and Nutrient Sediment Reduction Workgroup, will be refined in the next version of the model (Phase 5.3.2) to yield a greater difference in nutrient application rates between nutrient management and non-nutrient management crops in the Phase II Watershed Implementation Plans (WIPs). States were encouraged by the Chesapeake Bay Program to include in their Phase I Watershed Implementation Plans reasonably assured levels of decision agriculture or enhanced nutrient management to accommodate the effects of this future change in the Phase 5.3 Chesapeake Bay Watershed Model for the Phase II WIPs. PA favorably responded to this suggestion in their WIP submissions.

We appreciate the challenges in application of the Phase 5.3 Model and we'll work on making this open source, public domain, community model more amenable for applications throughout the watershed. It is our goal to get his model into the hands of practitioners like yourself and to support CBP Chesapeake Bay Watershed Model applications like as described in this comment in the watershed. Going forward into the next phase of the Watershed Model development we'll work to further improve and expand accessibility to all components of the Watershed Model and supporting tools (Scenario Builder).

Comment ID 0459-cp.001.002

Author Name: Kanode Hahns

Organization: Shen-View Enterprises, Inc.

I also feel that the EPA should not move ahead with costly mandates based on flawed modeling and data. Additionally, I feel that no additional regulations should be enacted until the science and the data supporting such have been proven.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0462-cp.001.001

Author Name: Blair C.

Organization:

1. I do not believe the Chesapeake Bay model being used by the EPA to estimate nutrient and sediment runoff is based on accurate data. The EPA should not proceed with costly mandates until the science and data have been proved.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0463.1.001.006

Author Name: Sharma Lalit

Organization: City of Alexandria, Virginia

5. BMP Efficiencies

The City agrees that there must be consistency across the watershed for current technology, as well as new technologies. The efficacy of new technologies should be vetted in a timely manner to allow for early adoption by localities. Consideration for local conditions should be factored into required BMPs, given differences in soils and hydrologic factors across the State or the Bay. We would ask that the WIP provide flexibility in citing and types of practices based on local knowledge and experience of what works.

Response

Scenario Builder documentation (uploaded 9/16/10) describes input spatial and temporal variation, methods used to determine BMP effectiveness, BMP types, BMP by sources, BMP time series and effectiveness adjustment. This information is available on this site: ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/.

Comment ID 0463.1.001.015

Author Name: Sharma Lalit

Organization: City of Alexandria, Virginia

Additionally, there seems to be some confusion as to the data that was used for Virginia's input deck, which has lead to uncertainty as to whether the model is accurately accounting for our current practices. We look forward engaging in the Phase II process to help facilitate a better understanding of local contributions, local land use, and existing practices in determining local allocations.

Response

The Phase II Watershed Implementation Plan process will benefit from what's been learned in the first Phase WIPs. Having confidence in, and an understanding of, the model inputs and their influence on model estimated water quality is key. The Chesapeake Bay Program as a whole looks forward to engaging in the Phase II WIPs with Alexandria as well as other local jurisdictions.

Comment ID 0468.1.001.010

Author Name: Harry Jennifer

Organization: PennAg Industries Association

This includes but is not limited to challenges with the "Model". The model is both flawed in how data is collected as well as how data is assigned to categories. One example of this is the inability to report multiple best management practices on the same acre of land.

Response

The Phase 5.3 Chesapeake Bay Watershed Model can apply multiple BMPs on land. This is very common as the same land may be in nutrient management and a farm plan and conservation tillage all at the same time in the simulation. The Scenario Builder documentation describes how multiple management practices are simulated.

Scenario Builder documentation (uploaded 9/16/10), source code (10/29), and database (11/5) are available on this site: ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/.

Comment ID 0480.1.001.010

Author Name: Falk Hilary

Organization: Choose Clean Water Coalition

Science and Model Criticism
Over the last several months we have seen wild accusations about the soundness of the models and the science behind it; however, there is nothing to support these claims. The Bay Program partners have been extremely transparent and open about the modeling process and sought input from hundreds of stakeholders including agricultural specialists. The one criticism raised in the 2006 Government Accountability Office (GAO) report was that the credibility of Bay Program reports on Bay health "tended to downplay the deteriorated conditions of the bay" and "projected a rosier picture of the health of the bay than may have been warranted." [FN 23] While serious, the GAO's criticism points to the fact that the Bay models, if anything, were overreporting the nutrient and sediment--reducing value of practices on the land. This criticism also focused more on the use, or misuse, of modeled data, rather than the model itself. In 2008, a follow-up GAO report concluded that the Bay program had made important progress in addressing their concerns and providing better management of the Bay restoration effort.

Another public criticism of the model has been that many practices, particularly agricultural ones, implemented voluntarily, are not being accounted for in the model. While this statement is true, in reality, it is not a flaw of the model, but rather a failure to collect the proper input information to feed into the model. The solution to this problem is to provide better accounting, not to change any of the model parameters. In addition, this under-counting of implemented practices does not affect the TMDL load allocations to the states which were based on the relative difference between maximum implementation of practices and no-action.

Use of the Model and TMDL Calculation Decisions
The calculation/modeling decisions which EPA made in developing the draft TMDL allocations, documented in section 6 of the TMDL report, are sound, reasonable, and well-based on the available information. These decisions also reflect an exemplary degree of consultation with the Bay states through the Water Quality Goal Implementation Team, using input from the Chesapeake Bay Program's expert work groups. We support EPA's decisions on the model parameters, such as hydrologic period and critical conditions (section 6.1), and the procedures for determining attainment with water quality standards, which reflect use of Chesapeake Bay science (section 6.2). We agree with EPA's rationale for using the "implicit" Margin of Safety for the nutrient allocations. We applaud the transparency with which EPA has outlined the allocation "rules" and methodology in section 6.3, and note that the "Principles and Guidelines" are not only sound but reflect the seven years of experience (since the 2003 allocations) which EPA and the Bay state partners have in making allocation decisions together. Including air deposition in the TMDL load allocations, as described, make sense.

[FN 23] Government Accountability Office Report (GAO-06-614T) "Chesapeake Bay Program: Improved Strategies Needed to Better Guide Restoration Efforts" (July 13, 2006).

Response

EPA acknowledges receipt of the comment and thanks you for your comments in support of the development and application of the Chesapeake TMDL.

Comment ID 0480.1.001.015

Author Name: Falk Hilary

Organization: Choose Clean Water Coalition

The Chesapeake Bay Program models are a critical tool in the adaptive management framework currently employed by the EPA and the Bay states to identify a path forward for restoration of the Chesapeake Bay. While water quality data and the actual living resources in the Chesapeake Bay will ultimately determine when we have restored a clean Bay, the Chesapeake Bay Program models help us develop a scientifically valid path to our goals.

Response

EPA acknowledges receipt of the comment and thanks you for your comments in support of the development and application of the Chesapeake TMDL.

Comment ID 0482.1.001.008

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

B. EPA is Aware That It Is Relying on Inaccurate Information.

EPA is aware of the deficiencies of its modeling. While EPA claims that its model is "accurate and reliable," Draft TMDL at 5-1, the agency knows that this is not a true statement. In fact, later EPA states that its models are uncertain "best estimates." Draft TMDL, at 5-15.

In fact, as discussed below, EPA's models are not even best estimates because the agency knows today that it is relying on inaccurate information. Nonetheless, EPA plans to finalize the TMDL without addressing these issues. See letter dated June 11, 2010, from Shawn Garvin, Regional Administrator, EPA Region III, to the Principal's Staff Committee (discussing EPA's plans to update the model to address known flaws in 2011, after the TMDL is established). EPA made this decision even though it acknowledges that the allocations in the TMDL are likely to be revised in 2011 when better data on the application and effectiveness of agriculture nutrient management plans and better data on the extent of impervious surfaces in suburban development are incorporated in the Chesapeake Bay watershed model. Id.

The watershed jurisdictions agree that the TMDL will necessarily change. According to the State of Maryland: "Given significant time constraints and limitations of current data and models, it is almost certain that the TMDL allocations associated with this Phase I Plan will change during Phase II." Draft Maryland WIP, at ES-2.

Pennsylvania notes that subdividing loads into a finer scale (by county) "cannot be initiated until EPA completes revisions to the phase 5.3 Chesapeake Bay watershed model." Pennsylvania Draft WIP, at 7. According to New York,

"[d]ue to past and potential future revisions of the draft nutrient and sediment load allocations and the short time frame to prepare this Draft Phase I WIP" "it is not practical to establish specific nutrient reduction expectations, such as Waste Load Allocations for individual discharges in this Draft Phase I WIP." Draft New York WIP, at 8.

Notwithstanding the fact that its model does not support such decisions, EPA has proposed a Draft TMDL that allocates loadings at a very fine scale. Draft TMDL, section 8 and Appendix Q. These fine-scale load allocations are not supported by data or EPA's models and thus are arbitrary and capricious. To justify its actions, EPA states that: "In no case, does EPA anticipate any likelihood of a jurisdiction 'over-controlling' between now and 2017 in this first phase of planning and implementation." Id. This statement is not true because EPA has expressly set aside 5 percent of the allocations to account for problems with its model. Draft TMDL, at 6-15 to 6-16. This temporary reserve is to cover the contingency that the 2011 changes to the model result in more stringent allocations. However, we believe that once the model fully accounts for best management practices employed by the agriculture and forestry community, the allocations to those sectors will become less, not more, restrictive. Thus, the Draft TMDL includes at least 5 percent over-control even using EPA's data.

In addition, EPA's claim that it is not over-controlling pollutant sources completely ignores the fact that the Draft TMDL includes 480 pages of individual allocations to thousands of sources and that, for point source dischargers, those allocations will have significant regulatory consequences. Those consequences will occur immediately for any source that needs a new permit or needs to renew a permit. Unless EPA is planning to shut down the NPDES permitting program (which itself would have dire consequences) the TMDL that EPA plans to establish on Dec. 31, 2010, will have an immediate and direct impact on dischargers in the Chesapeake Bay watershed, including possible over-control. The impact could fall particularly hard on small sources that EPA may seek to designate as point sources, such as small animal feeding operations. In addition, to the extent that dischargers need to rely on credits from nonpoint sources to meet the wasteload allocations of the TMDL, the inaccurate loadings attributed to the agriculture and forestry community will reduce the availability of credits, as well as a state's ability to accurate calculate the amount of a credit.[FN8]

EPA also obfuscates the inaccuracies in its model by failing to acknowledge its inherent uncertainty. External reviewers have repeatedly recommended that EPA acknowledge the uncertainty in its models. Scientific and Technical Advisory Committee, Chesapeake Bay Watershed Model Phase V Review (Feb. 20, 2008), at 3, 8 (hereinafter 2008 STAC review). Instead of acknowledging uncertainty, however, EPA claims that: "Because of the amount of data and resources taken to develop, calibrate, and verify the accuracy of the Bay models, the uncertainty of the suite of models is minimized." Draft TMDL, at 5-1. This statement is patently absurd as a matter of statistical and modeling science. Estimates derived from any model or body of data always involve a degree of uncertainty, and the responsible modeler or statistician uses the underlying data and the model to specify how much uncertainty there is in the resulting estimates. Good modeling science never entails creating models whose estimates are not uncertain; it involves using science to define the amount of inevitable uncertainty that is present in any model's estimates. But in the case of the Bay models, EPA not only has not defined the degree of uncertainty present in the estimates derived from the individual submodels, it is ignoring the fact that when you bring such sub-models with unknown uncertainty together, the resulting combined estimates necessarily have even greater degrees of uncertainty, again of unknown dimensions.

[FN8] The state of Maryland believes that there will be a substantial shortage of agricultural offsets since there are few well established BMP options to cost-effectively achieve substantial load reductions beyond those already targeted for the agricultural sector. Draft Maryland WIP, at 3-5.

Response

EPA has publically committed to make refinements to the Phase 5.3Chesapeake Bay Watershed Model in 2011 to support the Phase II Watershed Implementation Plans. This is consistent with the five generations and many versions of the Watershed Model that Chesapeake Bay Program decision makers have directed in order to support Chesapeake environmental management. The Chesapeake Bay Program Watershed Model has been in use for over two decades. It has been continually refined over that time period. The Phase 5.3 Watershed Model has been built through collaboration with federal, state, academic, and private partners and is fully capable of decision support for the 2010 Chesapeake TMDL.

The Phase II WIP development process will refine our knowledge of what's needed to achieve the water quality standards and restore the Chesapeake, but we disagree that there's insufficient time for the Phase I WIP development or that individual waste load allocations can't be made. The successful completion of the Phase I WIPs by the Bay States demonstrates this. Also, we note that ultimately, in the final TMDL the temporary reserve was not used.

We agree that the allocations will have significant regulatory consequences. That, of course, is the point. We expect that the TMDL will indeed have immediate and direct consequences on dischargers in the watershed, and point out that adaptive management used in the Chesapeake Bay Program, which takes into account monitoring and research findings, and plans reductions with the models but assesses achievement only with observed monitoring data, is protective of avoiding errors in requiring more nutrient controls than are required for the Chesapeake restoration.

With respect to uncertainty, we note that uncertainty or equifinality are known issues with all deterministic watershed models, however few models are analyzed to account for this. The modified Monte Carlo or GLUE methods most often used as tools to address equifinality are not feasible to implement on a watershed model of this complexity.

Comment ID 0496.1.001.004

Author Name: Allsbrook Lynn

Organization: City of Hampton, Virginia, Department of Public Works

--The Phase 5.3 model and model inputs are not sufficiently developed to produce reliable predictions.
--The modeling predictions do not justify use of the chlorophyll-a criteria as the basis for the James River basin allocations.

Response

Please see EPA's comprehensive responses to comment ID 0288.1.001.016.

Comment ID 0496.1.001.018

Author Name: Allsbrook Lynn

Organization: City of Hampton, Virginia, Department of Public Works

V. THE PHASE 5.3 MODEL AND MODEL INPUTS ARE NOT SUFFICIENTLY DEVELOPED TO PRODUCE RELIABLE PREDICTIONS

A. EPA has rushed the Model into service, and in the process has failed to comply with its own quality control standards.

EPA's suggestion that the public and the regulated community should have confidence in the accuracy of the model predictions and resulting allocations because "[t]he TMDL uses a series of models, calibrated to decades of water quality data and other data, and refined based on input from dozens of Chesapeake Bay scientists" (see TMDL Report at page iv) is misleading. While this may be the case for the other models used to develop the TMDL, it is not true for either the Phase 5.3 Watershed Model or its inputs, which are critical elements in the decision support system used by EPA to develop the proposed allocations. The Phase 5.3 Model undoubtedly has greater capabilities than previous versions of the watershed model, but the Model is new, and in its headlong rush to complete the TMDL by an artificial deadline, EPA is using the Model before it is fully calibrated and before verifying the accuracy of the land use inputs to the Model. In fact, EPA has effectively acknowledged that the Model is not ready to produce reliable predictions by its inability to establish the TMDL without a five percent "allocation reserve," its announced intention to begin recalibrating the Model in October 2010 (after the TMDL is released for public comment), and its use of ranges of sediment loading numbers (rather than a single number) for each basin allocation because the Model is unable to match observed data for sediment loading.

EPA has developed many large, complex computer programs and systems that have been tested, improved, and applied by the engineering and scientific community. Recognizing the importance of quality control and quality assurance processes in the development and application of its environmental programs, EPA's Office of Environmental Information Quality staff published a Quality Manual for Environmental Programs (http://www.docstoc.com/docs/594179/EPA-Manual-EPA-Qualily-Manual-for-Environmental-Programs) in May 2000. The primary goal of this manual is, "[t]o ensure that environmental programs and decisions are supported by data of the type and quality needed and expected for their intended use, and that decisions involving the design, construction, and operation of environmental technology are supported by appropriate quality assured engineering standards and practices." In this case, EPA has failed to meet the standards it set for itself in the Manual.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0497.1.001.009

Author Name: Hobbs Jack

Organization: Town of Amherst, Virginia

We understand that the Draft TMDL is fundamentally and materially flawed as a technical matter, especially with regards to the James River components. Serious chlorophyll standard and computer modeling deficiencies are thoroughly documented in the comments of the Virginia Association of Municipal Wastewater Agencies, Inc. ("VAMWA"). We request that EPA fully consider and address all of VAMWA's comments, which we generally support and hereby incorporate by reference as if fully set forth herein.

Response

Please see EPA’s comprehensive responses to comment ID 0288.1.001.016.

Comment ID 0499.1.001.003

Author Name: Grimm James

Organization: Texas Poultry Federation

Further concern lies with EPA's failure to provide complete documentation so that a full and complete review of the tools and models used to develop the TMDL can be performed. In many locations the draft TMDL states that technical documentation is provided via an URL.

Unfortunately, in may cases the links provided are incorrect. For instance, the draft TMDL (p. 1-2) states that the technical documentation for each model is provided via an URL in Section 5:

Technical documentation for each of the Chesapeake Bay TMDL models-airshed, land change, Scenario Builder, SPARROW, watershed, Bay water quality/sediment transport, oyster filter feeder and menhaden filter feeder-are provided via URL in Section 5.

However, the links provided in the draft TMDL to the Scenario Builder documentation are incorrect. It is not possible for the reader to locate the Scenario Builder documentation using the links provided in the draft TMDL document. For example, on p. 4-31 of the draft TMDL, the following is stated:

Additional information related to Scenario Builder and its application in Bay TMDL development (USEPA 2010d) is at The link provided [accessed October 27, 2010] does not take the reader to the referenced Scenario Builder documentation.

The link provided directs the reader to the Chesapeake Bay Program "Modeling" web page where there is no mention or link to the Scenario Builder documentation referenced in the draft TMDL.

Response

Please refer to the response to comment 0061.1.001.004.

Comment ID 0506.1.001.003

Author Name: Schwalb Steven

Organization: Perdue Farms Incorporated

Further concern lies with EPA's failure to provide complete documentation so that a full and complete review of the tools and models used to develop the TMDL can be performed. In many locations the draft TMDLstates that technical documentation is provided via a URL. Unfortunately, in many cases the links provided are incorrect. For instance, the draft TMDL (p. 1-2) states that the technical documentation for each model is provided via a URL in Section 5:

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Response

Please refer to the response to comment 0061.1.001.004.

Comment ID 0515.1.001.005

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

C. The Chesapeake Bay Watershed Model Has Significant Issues, Errors, Omissions, and Biases

We endorse the NYS-DEC's concerns and criticisms of the Chesapeake Bay Watershed Model ("CBWM") stated at pages 9 and 37-45 of the New York Draft Phase I Watershed Implementation Plan ("WIP-I"). The EPA has failed to make public a final suite of modeling source code, data inputs and result outputs, nor - despite our express request - has the corresponding code and data for the new Scenario Builder programming been made publicly available. As stated in our October 29, 2010 letter (on-line Comment Docket Comment Attachment #145.1), we believe that this

failure/refusal to provide public access violates the Administrative Procedure Act and renders any attempt to adopt or approve the TMDL faulty.

The CBWM is not calibrated to and does not reflect New York's actual water quality ("WQ") at Towanda, Pennsylvania. The EPA's "single reactor" approach to the Susquehanna River basin and northernmost Bay by treating the river and Bay sub-segments CB1TF1 and CB1TF2 (consolidated segment CB1TF) as a "single reactor" from Cooperstown, New York to beyond Havre de Grace, Maryland does not fairly reflect the reality of New York's non-impaired WQ and, correspondingly, mandates that New York "over control" its discharges with the result that New York will be required to resolve WQ issues and challenges from causes originating in other jurisdictions. The CBWM must be revised to correct these shortcomings by adding a sufficient number of "sub-shed" input points in New York so that New York's superior WQ can be fully-calibrated into the model. In this way, the TMDL can be corrected and restructured so as to reflect corresponding requirements for those jurisdictions downstream from New York to be made fully responsible for addressing their respective contributions to the degradation of the Bay. If the EPA fails to do so, then the CBWM remains biased in a way that would permit jurisdictions downstream of New York to escape their proportionate duty to remedy their share of the Bay watershed's WQ issues, and the TMDL may ultimately fail to achieve the desired results.

The CBWM does not reflect contributions of TN and TP from groundwater. The model's documentation does not mention this source at all. Most importantly, the reliability of the CBWM must be seriously doubted because the model does not accurately account for groundwater as a conveying source of nitrates. The United States Geological Study ("USGS") conducted a multi-year study of nitrate in groundwater throughout the Bay watershed. See, <http://walrus.wr.usgs.gov/infobank/programs/html/factsheets/pdfs/2003_0091.pdf>, USGS Fact Sheet FS-091-03, in which the USGS concluded, "An average of 48 percent of the nitrogen load in streams in the Bay watershed was transported through groundwater, with a range of 17 to 80 percent in different streams." The USGS study also reports that, due to lag time, the median age of this groundwater is 10 years with 25 percent of the samples having an age of 7 years or less and 75 percent of the samples having an age of up to 13 years. Accordingly, the absence of data inputs for groundwater parameters is a substantial deficiency in the CBWM that renders it unreliable. Adoption of the TMDL based on unreliable modeling would be arbitrary and capricious.

The CBWM does not account for climate-related factors such as major wet weather events or make allowances for changing conditions in waterbodies due to seasonal weather patterns, storm effects, or climate change. The Susquehanna River is flood prone. In the six years from 2004 through 2009, our Facilities have experienced four federally-declared flood disasters - one exceeding a 500-year storm in 2006 that temporarily disabled the Facilities from meeting their public health and environmental protection missions. The TMDL is based on annual loadings divided by 365 days per year, with no provision for seasonal variations in loadings. Given the observance of summer "dead zones" devoid of DO in the Bay proper, we submit that such conditions require that the segment TMDLs for at least those segments must contain loading allocations tailored to the seasonal WQ needs of the Bay. To do otherwise would build-in a large risk that the TMDL will be ineffective in restoring the Bay. The TMDL must also make allowances for or grant variances in the event of natural disasters. Further, the TMDL cannot realistically expect to require Bay watershed communities to bear within 15 years the costs of undoing more than eight centuries of an ongoing natural erosion process. We know from history that some 800 years ago our region was inhabited by members of the Susquehannock tribe, from whom the Susquehanna River derived its name. In the native Algonquin tongue, the name "Susquehannock" means "people of the muddy river". This highlights that it has been well-recognized throughout most of the past millenium that the natural geology of the Susquehanna River basin in the Bay watershed has consistently produced high sediment loadings that are then carried downstream by this major tributary river toward the Bay.

The results from the CBWM do not appear to reflect "credit" for improvements already made. The EPA said that the TMDL would afford jurisdictions credit for improvements made pre-TMDL final approval (see, Slide 16, EPA TMDL Update Webinar #5 [July 8, 2010]). We do not see where the modeling affords credit for the upgrade of our Facilities. Instead, as discussed above, the TMDL's WLAs for our Facilities are punitive in that the WLAs for our Facilities are identical under both Appendix Q-1 (existing WQ scenario) and Q-2 (full federal backstop scenario). Why? There is no scientific or technical justification presented by the EPA for its requirement in the TMDL that, at our presently-permitted 35 MGD 12-month rolling average monthly design flow (which became effective March 6, 2008), we would have to treat to a maximum limit of 1.715 mg/L TN, 0.057 mg/L TP, and 8.576 mg/L Total Sediment effluent concentration. The CBWM does not appear to afford any credit for New York's phosphorus ban law effective beginning August 14, 2010. (As an aside, if other Bay jurisdictions have not yet adopted a phosphorus ban like New York's, they should immediately do so [or, alternatively, the EPA's backstop allocations should so mandate]).

As to actual nutrient usage on New York agricultural lands, according to the Upper Susquehanna Coalition ("USC") and the NYS-DEC, the CBWM model grossly overestimates fertilizer and nutrient application rates in New York (particularly on hayfields and other crop lands, etc.). According to New York's draft WIP-I, when this was called to the EPA's attention, the EPA chopped New York's loading allocations. (If the EPA is to be consistent, we would expect that it will immediately increase New York's overall loading allocations to cover the above-detailed increased WLA allocations for our Facilities which should be allowed based on our full permitted 35 MGD design flow).

With respect to suburban land characteristics, New York is not as impervious as assumed. USC and others estimate that the EPA's CBWM overstates the factors for imperviousness by a magnitude of 2.5 in the New York portion of the watershed. Correcting this defect will also impact all of the Delivery Coefficients applied to New York's point source dischargers.

With respect to aerial deposition of TN landing within New York's portion of the Bay watershed, most originates outside of our state. Where does the CBWM identify - by source state and/or Canada - where the TN comes from that is deposited onto New York's Bay watershed lands? Such identification is critical for purposes of being able to plan for and assess actions the EPA proposes to take under the Clean Air Act ("CAA").

Concerning open land animal impact, the "background" settings in the CBWM model do not appear to be realistic and do not adequately reflect effect the extent of wild animal, bird and aquatic life. Because this background cannot be reduced or eliminated without an over-aggressive hunting and fishing program (which would be extremely anti-conservationist!), allocations to New York must not impinge on loadings from this source. The EPA's explanation that the nutrients excreted/discharged by wildlife are "already in the environment" is fallacious: wouldn't the same be true as to nutrients excreted/discharged by the human population and industries, not to mention sediment? What the EPA fails to account for is the "release" of these nutrients and sediments through the digestion and elimination by wildlife, which renders the nutrients and sediments more readily bio-available and subject to runoff/wash-off.

D. The CBWM Is Not Thoroughly Peer-Reviewed

The CBWM, especially the new Scenario Builder, is not adequately peer-reviewed. No peer-review reports for it are listed in Appendix B. Moreover, as an engineering tool, all modeling should be "peer-reviewed" in accordance with American Society of Civil Engineers' ("ASCE") standards, in addition to scientific reviews. So also should the TMDL be

subjected to a peer-review. See, <http://www.asce.org/Content.aspx?id=29723> and <http://www.asce.org/uploadedFiles/Leadership_Resources/Peer_Review/ASCE-3282- PeerReview_bro.pdf> for a description of the ASCE's policy, standards, and program for peer-review.

Response

Availability of CBP model and Scenario Build documentation and code
The Phase 5.3 Watershed Model and Scenario Builder have been developed as open source, public domain models that have been developed and applied in open public meetings over the last decade. Initial drafts of the model documentation have been available on-line since 2008. When the Chesapeake TMDL is published at the close of December 2010, all of the final documentation of the Phase 5.3 Watershed Model and Scenario Builder documentation, code, and data used to develop and apply the models will be are on the web and fully available.
Scenario Builder and Watershed Model downloadable information
Scenario Builder documentation (uploaded 9/16/10), source code (10/29), and database (11/5) are available on this site:
ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/

Scenario Builder inputs and outputs are available on this ftp site (continually updated as new results are run):
ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/

Phase 5.3 watershed model information is available here:
http://ches.communitymodeling.org/models/CBPhase5/index.php

The Phase 5.3 Chesapeake Bay Watershed Model calibration at the Towanda monitoring station was reviewed using the BIAS statistic. Using this statistic the Phase 5.3 Model outputs of flow and nutrient loads were compared to USGS observed flow and nutrient loads estimates. The BIAS statistic measures the average trend of the simulated data to be larger or smaller than their observed counterpart. The optimal value is 0.0 and low values indicate an accurate model simulation. The Phase 5.3 Model river-segment where Towanda, PA is located (SU7_0850_0730) has an annual BIAS value of -1 % for flow and -9 % for nitrogen and phosphorus. According to Moriasi et al., (2007) monthly BIAS values lower than +/-10% for flow and lower than +/- 25% for nutrients suggest very good model performance. Based on this metric the Phase 5.3 Model has a reasonable representation of the flows and loads from the Towanda, PA monitoring station.

Moriasi, D. N., J. G. Arnold, M. W.Van Liew, R. L. Bingner, R. D. Harmel, and T. L. Veith. 2007. Model evaluation guidelines for systematic quantification of accuracy in watershed simulations. Trans. ASABE 50(3): 885900.

The Phase 5.3 Watershed Model has a full simulation of surface and subsurface hydrology. USGS estimates that generally almost half of the nitrogen that reaches the tidal water flows through the groundwater at some point in its path to the Bay and this is what the Watershed Model is calibrated to. Groundwater lag time is not simulated in HSPF (Hydrologic Simulation Program - Fortran), which is the basis for the Phase 5.3 Watershed Model. Scenarios run on the watershed model are designed to be the loads given a constant state of management and in this regard lag time simulation in management scenarios would be irrelevant. Nevertheless, work is underway by USGS colleagues in the Delmarva region to develop groundwater lag time model simulation capabilities.
The Phase 5.3 Watershed Model is calibrated to a twenty year period which includes two extreme 100 year events, one on the

Susquehanna, the Big Melt in January 2005 and the other on the Potomac and James in 1993 from Hurricane Juan. The extreme events, high flow events, and droughts, are all simulated and calibrated to in the Phase 5.3 Model that's applied in the 2010 Chesapeake TMDL.

Nutrient reductions are credited in the TMDL as they're made. The phosphorus ban has been credited in the other Bay States for more than a decade as they've passed P-bans earlier.

With respect to the fertilizer and manure inputs to New York agricultural land these inputs are considered to be reasonable estimates based on known factors such as the numbers and types of animals present in the watershed and the estimated manure nutrient loads from those animals. With respect to errors in point source design flows, the Phase 5.3 Watershed Model has the most complete point source record of any previous phase over the past two decades. Nevertheless, EPA is always ready to correct its point source data base and welcomes any corrections to the data that the reviewer may provide.

With regards to the estimates of the urban developed land the documentation of how this land use was developed can be found in Section 4 of the Phase 5.3 Chesapeake Bay Watershed Model documentation at http://www.chesapeakebay.net/model_phase5.aspx?menuitem=26169.

With respect to natural background loads from wildlife, the calibration approach used in the Phase 5.3 Model is clearly documented. Since observed land use loads are used in the calibration, and since the observed land uses such as forest were not biotic and devoid of wildlife when the exported nutrient loads were observed, then obviously wildlife is part of the baseline observations and hence a part of the calibration.

With respect to peer reviews of the Phase 5.3 Model, there have been 2 major independent reviews of the Phase 5 Model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board available at http://www.epa.gov/spc/pdfs/modelpr.pdf.

The reviews and responses can be found here:
http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

Comment ID 0530.1.001.006

Author Name: Gulibon Grant

Organization: Pennsylvania Builders Association

Issue #3: Questions persist regarding the accuracy of the Chesapeake Bay TMDL modeling.

Pennsylvania's home builders are also concerned that the science underlying development of the Chesapeake Bay TMDL modeling be complete and accurate. Given the size and complexity needed to develop a model replicating the 64,000-square mile Bay watershed, it is understandably time-consuming and challenging both to get it to simulate existing conditions and to determine the effect that changes to the model itself produce in the bay (in effect, to allow it to predict conditions that have never existed).

EPA's stated plan is to produce a final TMDL by the end of 2010. To meet this deadline, the affected states must submit their final Phase I WIPs by November 29, 2010 for EPA's approval, at which time EPA will then approve or modify the state WIPs with backstop allocations. At the same time, however, EPA admits that the latest updates to the computer modeling, which were used to set the pollutant loading targets for both the TMDL and the WIPs, have proven to be unreliable. Therefore, the pollutant loadings that will be part of the "final" TMDL approved by December 31, 2010 are to be considered "provisional." If necessary, after fixing the computer modeling, EPA will reopen the TMDL in 2011 to finalize the state loadings allocations for pollutants.

At the same time, the TMDL and its implementation plans must be supported by data and modeling that is credible, reproducible, and transparent. Much of the data that is said to support the TMDL, however, has either not been made available or is otherwise so technically complex and complicated that review in such a short period of time is impossible. The computer modeling that forms the basis of the proposed Chesapeake Bay TMDL is exceedingly complex, expensive, and unique, making it unlikely that similar computer models could be duplicated for other watersheds anywhere else soon. EPA has described the modeling development in Section 6 of the proposal, including how the state and watershed pollutant loadings were developed.

However, many supporting documents for the modeling that explain EPA's assumptions about such modeled characteristics as land use within the watershed, the amount and growth of impervious pavement surfaces, Best Management Practices (BMPs) in place in the Bay states, "acceptable" BMPs that states may use to meet the TMDL, etc. are not currently available in the docket. Therefore, the basic background assumptions of the modeling, the available technologies to reduce the regulated pollutants, population growth estimates, the data sources for EPA's estimates of the deposition of pollutants from airborne emissions, etc. are not available for review by the public.

Any TMDL, especially one which will have such a significant impact on the states covered by the rule, should not be finalized when it is known to have deficiencies, and PBA urges EPA to fix the modeling and publish it for public review and comment before finalizing the TMDL.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0543.1.001.001

Author Name: Boesch Donald

Organization: Chesapeake Research Consortium

We are submitting these comments on the Draft Total Maximum Daily Load (TMDL) for the Chesapeake Bay as senior leaders within the regional environmental research community. The comments represent neither the formal positions of our institutions, The Chesapeake Bay Program's Science and Technical Advisory Committee, nor the Chesapeake Research Consortium, but our representation of what we are confident are the widely shared views of the involved academic research community concerning the scientific bases for a very important technical element of the Draft TMDL. This element is the modeling tools that comprise the Chesapeake Bay TMDL modeling framework, particularly the Chesapeake Bay Watershed Model and the Chesapeake Bay Water Quality and Sediment Transport Model (hereinafter the Watershed Model and Bay Water Quality Model).

The famous statistician George E.P. Box once wrote: "Essentially, all models are wrong, but some are useful." This essentially sums up the common view of the regional scientific community concerning the Watershed and Bay Water Quality Models. That is, scientists are acutely aware of the many unknowns and uncertainties about the properties, processes and parameters included in the models that limit the accuracy of any model, particularly models of such large and complex ecosystems as the Chesapeake Bay and its watershed. But, are these models useful in setting the direction, amount and distribution of nutrient and sediment load reductions required to achieve the designated water quality criteria? In our judgment, the consensus of the scientific community is that they are both useful and adequate for these purposes.

In this vein, the Draft TMDL acknowledges "the models produce estimates, not perfect forecasts" and "reduce, but do not eliminate, uncertainty in environmental decision making." From the perspective of environmental scientists, it is reassuring that the Draft TMDL notes that "ultimately, the Chesapeake Bay TMDL was based on the overall corroboration of the Chesapeake Bay models, monitoring, and environmental research." Both the Draft TMDL and the component models that underpin it incorporate extensive monitoring data, research outcomes and alternate modeling approaches.

Examples of the extensive incorporation of research outcomes and monitoring data include: empirical regressions of wet deposition that are combined with a continental scale air quality model in the Airshed Model; combining advanced growth allocation models with empirically derived, cellular models in the Land Change Model; reconciliation of the deterministic Watershed Model with the observation-driven SPARROW model; extensive calibration of the Watershed Model with in-stream flow gauging and water quality monitoring, and incorporation of the latest research on turbidity and light limitation of submersed aquatic vegetation in the Criteria Assessment for water quality, to name just a few.

Response

EPA acknowledges and agrees with these comments.

Comment ID 0543.1.001.003

Author Name: Boesch Donald

Organization: Chesapeake Research Consortium

The close relationship of this strategic management modeling framework with the research enterprise and monitoring programs will remain critical going forward. Because models are not perfect forecasts they must be verified with real-world observations and improved based on new understanding within an adaptive management framework. The requirement for adaptive implementation of watershed improvement plans designed to achieve TMDLs was eloquently reasoned in the 2001 National Research Council report Assessing the TMDL Approach to Water Quality Management. Because the models are regarded as useful and adequate for the purpose, there is no reason to delay moving forward with implementation until they are "perfect," in fact, the models can, at this point, only be improved through this adaptive implementation approach.

We realize that jurisdictions have concerns that load reductions from various management practices are not adequately credited in the allocation of load reductions. However, this is not a failure of the Watershed and Bay Water Quality Models in adequately determining the TMDLs that will achieve water quality standards, but rather a question of the effectiveness of various management practices. The effectiveness of such practices can never be determined simply by the models, but only through demonstration by appropriate monitoring under a range of conditions and pertinent research. In that regard, the models themselves do not demonstrate progress in load reductions or the load reductions still required; these are a function of the assumptions made in the models on management practice effectiveness. If, during the multi-year implementation process, the practices are demonstrated to be effective then the associated greater load reductions can then be credited.

It must also be understood that the models used to develop the Chesapeake Bay TMDL simulate a 10-year hydrologic period from 1991 to 2000. They are strategic models designed to determine annual loads for an average year. They are not designed to assess the loads or effects on water quality for a given year, nor should they be trusted to precisely determine the reduction in loading to the Bay of a specific management practice in a specific part of the watershed. While this strategic approach is very appropriate for the purpose of a TMDL, including subwatershed-scale allocations, more tactical models that are capable of projections for a specific year for comparison to observed water quality conditions would be useful in the adaptive implementation of watershed improvement programs over the next 15 years.

Both the Watershed Model, based on the widely used HSPF model, and the Bay Water Quality Model, based on the CH3D hydrologic transport model combined with a novel eutrophication model, are regarded as state-of-the-art by the community of practice within environmental engineering and management. At least the earlier versions of the Watershed Model are open-sourced models that the Chesapeake Bay Program has made available to interested users and there have been many applications of the model that demonstrate its utility and replicability. The Bay Water Quality Model has more substantial computational requirements that limit access and use by other interested scientists. The Chesapeake Bay scientific community has, however, been developing other, accessible, open-source environmental models to support research and management under the Chesapeake Community Modeling Program (CCMP). In general, these models have produced similar results for projections of water quality as a function of nutrient loading, lending confidence to the use of the Bay Water Quality Model.

Particularly through the Chesapeake Bay Program's Scientific and Technical Review Committee (STAC), experts in both the regional and national scientific and engineering communities have been regularly engaged in peer review of component models or critical assumptions of these models. In fact, the Bay Program has consistently sought external review from the larger scientific community on model components, as well as comprehensive reviews of the model structure. The following STAC peer reviews available on its website http://www.chesapeake.org/stac/stacpubs.html#RR include:
• Review of Land-Use and Land-Cover Dataset and Methodology (September 2010)

• Review of Water Clarity and SAV Components of the Chesapeake Bay Program Water Quality and Sediment Transport Model (March 2010)
• Chesapeake Bay Land Change Model Review (November 2008)
• Chesapeake Bay Watershed Model Phase V Review (February 2007)
• Requested Review of Procedures of the UMD/MAWP Best Practice Project Year 2 (November 2008)
• Review of the Chesapeake Bay Watershed Modeling Effort (June 2005)
• Review of Draft Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Tidal Tributaries (July 2002)
• Review of the Chesapeake Bay Water Quality Model (February 2000)

Some of these reviews have been very critical of the models or their assumptions; however, these criticisms should be considered as part of the scientific process of rigorous review and recommendations for improvement. Nonetheless, we believe that the substantial majority of knowledgeable environmental scientists in the region agrees with the premise that the modeling framework used to develop the Draft TMDL represents the best current incorporation of available science with which to set and allocate maximum loads within the watershed.

Response

EPA acknowledges and agrees with these comments. EPA has long embraced the need for independent scientific peer review of the full range of models, tools and criteria used in supporting Chesapeake Bay restoration and protection decision making. EPA acknowledges the tireless efforts of hundreds of individual scientists, many drawn from across the country, who participated in the many independent scientific peer reviews sponsored by the Chesapeake Bay Program's Scientific and Technical Advisory Committee.

EPA has also embraced open source, public domain Bay models, with the Phase 5 Bay Watershed Model being one the first open-source models posted on the Chesapeake Community Modeling Program's website. The collaborative work in the development and application of these models included technical staff and decision makers from the seven watershed jurisdictions, the scientific community, and federal agencies. EPA looks forward to expanding the suite of models available to decision makers through ongoing and future collaborative efforts working with the Chesapeake Community Modeling Program.

Comment ID 0546.1.001.004

Author Name: Cameron Beverly

Organization: City of Fredericksburg, Virginia

We understand that the Draft TMDL is fundamentally and materially flawed. These deficiencies are thoroughly documented in the comments of the Virginia Association of Municipal Wastewater Agencies, Inc. ("VAMWA"), the Rappahannock River Basin Commission ("RRBC") and the Virginia Municipal Stormwater Association ("VAMSA"). We request that EPA fully consider and address all of VAMWA's the RRBC's and VAMSA's comments, which we generally support and hereby incorporate by reference as if fully set forth herein.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0548.1.001.010

Author Name: Smith Brooks

Organization: Utility Water Act Group

8. UWAG questions the readiness of the models for TMDL development and implementation.

The models underlying the Bay TMDL have been in development for decades. The two major components of EPA's modeling framework are the Phase 5.3 Chesapeake Bay Watershed Model and the Sediment Transport Model. Bay TMDL at 5-15. These models provide EPA with unparalleled scientific understanding of the myriad challenges confronting the Bay watershed. However, these models are nothing more than tools to inform EPA's decisionmaking - tools as susceptible to error as any other. For this reason, EPA has already committed to additional modeling "refinements" in 2011, and possible further modifications to the Phase 5.3 model in 2017. See, e.g., Letter from EPA Region III to the watershed states dated July 1, 2010. EPA has also committed to incorporate any corresponding adjustments to the allocations from these modeling refinements into the next round of state WIPs in 2011. Id.

A number of critical modeling errors - both inputs and outputs - have already been identified by the watershed states and stakeholders. These errors include:

• EPA's models have not been fully validated or peer reviewed, and the records of validation and review have not been made available to the public;
• EPA's models were calibrated using data from years with widely varying hydrologic conditions that are not representative of the conditions being projected through the TMDL;
• EPA has not explained, justified or documented the actual uncertainty/error/precision of the models;
• The groundwater inputs to the models are not representative of actual conditions;
• The impact of urban stormwater loads is highly sensitive to EPA's assumptions regarding urban land uses, which have not been validated or subjected to public review; and
• The models are so complex and highly parameterized that it is possible to obtain the "right" answer for the "wrong" reason.

EPA seems inclined to simply "punt" these errors to the modeling refinement process in 2011 (i.e., after the TMDL has been finalized). UWAG respectfully submits that EPA cannot do so without first assessing whether the modeling errors compromise the integrity of the modeling projections, especially those that will compel regulatory costs and the threat of fines and penalties for regulated point sources. In other words, are the models "good enough" to support allocation decisions that may have an immediate and profound impact on regulated entities? What is the margin of error in EPA's projections? How might that margin influence the discretion permitting authorities have to establish NPDES permit limits and conditions based on EPA's TMDL allocations?

UWAG urges EPA to be transparent in its TMDL decision-making by specifically listing the modeling issues to be addressed, along with their anticipated impacts on the TMDL itself (e.g., on specific wasteload and load allocations, or EPA's assignment of reductions among different sources/sectors). Furthermore, EPA needs to provide additional opportunity for public review and comment on the models, their inputs and outputs, and their effects on the TMDL before making any final TMDL decision. EPA also needs to ensure that permitting, planning, and enforcement decisions are not made based on model projections and TMDL allocations that may change as modeling issues are addressed and resolved.

Response

The Chesapeake Bay Program Watershed Model has been in use for over two decades. It has been continually refined over that time period. The Phase 5.3 Watershed Model has been built through collaboration with federal, state, academic, and private partners and is fully capable of decision support for the 2010 Chesapeake TMDL. Of course the CBP Watershed Model will continue to be refined in 2011 to support the Phase II WIPs. This is consistent with the five generations and many versions of the Watershed Model that that Chesapeake Bay Program decision makers have directed in order to support Chesapeake environmental management.

With respect to peer reviews of the Phase 5.3 Model, there have been 2 major independent reviews of the Phase 5 Model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board available at http://www.epa.gov/spc/pdfs/modelpr.pdf.

The reviews and responses can be found here:
http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf
http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf
http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf
http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

With regards to the calibration and application period of the model the Phase 5.3 Model has a calibration period of two decades, from 1985 to 2005, which is a period of high and low flows and extreme events that is more than enough to allow the projection of the model to the TMDL year of 2010.

With regards to model uncertainty and equifinality which are known issues with all deterministic watershed models, we note that in the current state of science few models are analyzed to account for this. The modified Monte Carlo or GLUE methods most often used as tools to address equifinality are not feasible to implement on a watershed model of this complexity.

With regards to groundwater loads, the groundwater delivery of water and nutrients is simulated in the Phase 5.3 watershed model. Please see the Phase 5.3 Chesapeake Bay Watershed Model documentation at http://www.chesapeakebay.net/model_phase5.aspx?menuitem=26169 for more details.

With regards to the estimates of the urban developed land the documentation of how this land use was developed can be found in Section 4 of the Phase 5.3 Chesapeake Bay Watershed Model documentation at http://www.chesapeakebay.net/model_phase5.aspx?menuitem=26169.

Comment ID 0554.1.001.011

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

The Draft TMDL fails to incorporate climate change in two important ways. First, its hydrologic modeling uses data from two decades ago, rather than looking forward to project how climate change will impact future conditions in the Bay.

Response

Please see the response to comment 0554.1.001.015.

Comment ID 0554.1.001.015

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

In finalizing the Chesapeake Bay TMDL, EPA must use modeling that considers currently occurring and predicted future climate change-induced changes in precipitation and other conditions as well as the resulting effect on the magnitude and timing of runoff, increased pollutant loads flushed into waters from failing or overwhelmed waste management systems, altered water temperature, altered flow regimes, and altered water levels, including sea-level rise. EPA must consider these climate change-related impacts in the establishment of WLAs, LAs, the overall loading capacity, seasonal variation analysis, critical conditions analysis, and explicitly incorporate any uncertainty into the establishment of the MOS. Consequently, CWA permits, issued for discharges of pollutants covered by the TMDL into Bay basin waters, must have effluent limits designed to meet WLAs that account for climate change. Similarly, nonpoint source cleanup programs should account for climate change impacts on water quality and bedesigned to ensure water quality in light of the challenges presented by a warming world. Only by incorporating climate change in this manner into the

final TMDL, will it be properly protective of the Bay and in compliance with the requirements of the CWA.

Response

A preliminary analysis of the influence climate change on estimated Chesapeake watershed flows, nutrient, and sediment loads has been included in the TMDL documentation—please see Appendix E. Summary of Initial Climate Change Impacts on the Chesapeake Bay Watershed Flows and Loads.

Appendix E describes a preliminary assessment of climate change impacts on the Chesapeake Bay using an earlier version of the Phase 5 Chesapeake Bay Watershed Model (Phase 5.2) and tools developed for EPA's BASINS 4 system including the Climate Assessment Tool (CAT). Flows and associated nutrient and sediment loads were assessed in all river basins of the Chesapeake Bay with three key climate change scenarios reflecting the range of potential changes in temperature and precipitation in the year 2030. The three key scenarios came from a larger set of 42 climate change scenarios that were evaluated from 7 Global Climate Models (GCMs), 2 scenarios from the Intergovernmental Panel on Climate Change (IPCC) SRES (Special Report on Emissions Scenarios) storylines, and 3 assumptions about precipitation intensity in the largest events.

In 2017 a more complete analysis of climate change effects on TMDL nutrient and sediment loads will be made during a mid-course assessment of Chesapeake TMDL progress, as called for in Section 203 of the Chesapeake Executive Order (May 12, 2009). (http://executiveorder.chesapeakebay.net/EO/file.axd?file=2009%2f8%2fChesapeake+Executive+Order.pdf). The Executive Order directs the assessment of "the impacts of a changing climate on the Chesapeake Bay and develop[ment of] a strategy for adapting natural resource programs and public infrastructure to the impacts of a changing climate on water quality and living resources of the Chesapeake Bay watershed"

A subsequent Executive Order Strategy (May 12, 2010) (http://executiveorder.chesapeakebay.net/file.axd?file=2010%2f5%2fChesapeake+EO+Strategy%20.pdf) calls for ensuring the "TMDL allocations account for climate change impacts, and that EPA and USGS will work in conjunction with the states to conduct an analysis by 2017 to consider accounting for uncertainties of climate change in TMDL allocations." Since the TMDL nutrient and sediment allocation are caps, any increases in loads due to climate change will need to be offset by further management action to ensure the Chesapeake water quality standards are achieved.

Comment ID 0568.1.001.003

Author Name: Eisel James

Organization: Delaware County, New York

It is the position of DCAP and Delaware County that equitable N and P allocations based on reality are not possible given the poor quality of the dataset being used in the EPA Chesapeake TMDL model.

It is our understanding that EPA's model incorporated false assumptions that were only corrected when the Upper

Susquehanna Coalition recognized the errors.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0568.1.001.008

Author Name: Eisel James

Organization: Delaware County, New York

Model review
1) Revisit the models used to determine N and P allocations and:
a) Use the year 2000 as a baseline rather than 2009, and acknowledge the work that New York has done since we became partners in the Chesapeake Bay Program. The reductions in our N and P concentrations since that time should be counted towards achieving our reductions.
b) Put the adoption of the TMDL on hold pending adequate outreach with New York stakeholders. There is a wealth of regional and local knowledge that could inform further model iterations.

Response

EPA led a dialogue with all watershed jurisdictions, including NY, for over 2 years on the approach that should be used to allocate loadings to all states. While numerous methods were considered, EPA could not arrive at a consensus methodology for all states. The methodology used did enjoy the most agreement of any methodology considered among the jurisdictions. The methodology used was, in part, based on the loadings expected under current land use and design flows from WWTP facilities. Current land use and design flow of WWTPs is a common approach used in developing TMDLs, including New York. Of the thousands of TMDLs developed in the Bay watershed, EPA is aware of only a few TMDLs that were based on past land use. The reason for this approach is straightforward. That is, in establishing a TMDL, one allocates to various sources contributing to the problem. When developing an allocation approach it stands to reason that the approach should consider the existence of those sources. So to suggest an approach that 'pretends' that the population and land use is different than the existing levels is inappropriate in EPA's opinion. Consistency with other TMDL practices is one of the reasons why the Bay partner states supported the method for allocating loads to the states that include using existing land use and design flows for WWTPs.

At an October 29, 2009 meeting among all states Principals' Staff Committee members, including New York, the proposed method was accepted by all states except New York. New York abstained from an opinion during that meeting. Subsequent to that meeting New York and West Virginia expressed their disagreement with the method, citing various reasons. Having no other method by which to allocate loads among the various jurisdictions, EPA used the method, with two significant exceptions, that gained widespread agreement among the states for the target loadings for nitrogen and phosphorus when these loads were provided to the states in a letter of July 1, 2010. Those exceptions were that EPA provided additional loading to both West Virginia and New York above that loading which those states would have received using the allocation methodology. More specifically, EPA 'bumped' the

West Virginia allocation by 200,000 pounds per year of phosphorus and the New York allocation by 750,000 pounds per year of nitrogen.

So the point remains that to restore the Chesapeake Bay, all jurisdictions and all sectors will need to achieve reductions of nitrogen and phosphorous. EPA used its discretion, based on extensive input from the Bay partners, to develop a rational science-based methodology to divide that allowable loading among the bay jurisdictions. To address the concerns raised by the headwater states of New York and West Virginia, EPA provided additional loadings to those states.

Comment ID 0569.1.001.005

Author Name: Blackwood Wade

Organization: American Canoe Association

3. Attempts to question the validity of the computer models used to develop the Bay-wide TMDL are not based in science. They are a poorly disguised red hearing meant to stir up blind opposition, in hopes of delaying or preventing implementation of this TMDL, and any other TMDL that relies on modeling. The reality is this: (a) There is no way to establish a TMDL without relying on models; and (b) The Bay model was developed through the careful work and review of dedicated scientific professionals. EPA should ignore these baseless attacks and have faith in the model.

Response

EPA acknowledges and agrees with the comment

Comment ID 0571.1.001.008

Author Name: Rountree Glynn

Organization: National Association of Home Builders (NAHB)

2. Provide access to the background modeling and technical decisions and assumptions that EPA has made regarding the proposal (see comment II below for more on this suggestion), and

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0571.1.001.012

Author Name: Rountree Glynn

Organization: National Association of Home Builders (NAHB)

III. The TMDL Lacks Sufficient Technical Support.

The TMDL and its implementation plans must be supported by data and modeling that is credible, reproducible, and transparent. Much of the supporting data, however, has either not been made available or is otherwise so technically complex and complicated that review in such a short period of time is impossible.

a. The Processes and Assumptions Within the TMDL are Not Transparent. The computer modeling that forms the basis of the proposed Chesapeake Bay TMDL is exceedingly complex and expensive and is also unique, making it unlikely that similar computer models could be duplicated for other watersheds anywhere else soon. EPA has described the modeling development in Section 6 of the proposal, including how the state and watershed pollutant loadings were developed. However, many of the supporting documents are not available in the docket.[FN 21] These include the documents that explain EPA's assumptions about such modeled characteristics as land use within the watershed, the amount and growth of impervious pavement surfaces, Best Management Practices (BMPs) in place in the Bay states, the "acceptable" BMPs that states may use to meet the TMDL, etc.

Therefore, the basic assumptions of the modeling, the available technologies to reduce the regulated pollutants, population growth estimates, the data sources for EPA's estimates of the deposition of pollutants from airborne emissions, etc. are not available for review by the public. How can EPA claim to have developed a legitimate program if the proposal lacks documentation explaining what method it used for measuring expected pollutant load reductions associated with the TMDL or reliable data on the number of active construction sites, the regulated universe, or the performance effectiveness of "acceptable" BMPs?

The APA [FN 22] compels EPA to engage in reasoned decision-making, which requires EPA to affirm that all factors relevant to the decision have been considered. Contrary to this directive, EPA has failed to provide any supporting documentation to demonstrate that such a study has been conducted. As a result, the public has no assurance that the agency has properly calculated the loadings, benefits, costs, and other relevant and important elements that necessarily must provide the foundation for rulemaking. Absent an administrative record that adequately supports the proposal, the public is unable to knowledgeably comment on, and participate in, the rulemaking process proposed here. NAHB believes that the sheer volume of supporting documentation, the inconsistencies among documents, the lack of actual urban runoff or construction site data, and the failure to provide a clear picture of the implementation expectations makes it very difficult for the public to understand the impact of the proposed TMDL. Further, we believe that there is insufficient data to support the proposal. As courts have recognized, meaningful comment on proposed rules can be precluded by the failure of agencies to disclose especially relevant information. [FN 23] It is contrary to the purpose of the APA's requirements to promulgate rules based on inadequate data or data that are known only to the agency.[FN 24]

EPA has failed to provide any supporting documentation to demonstrate that such a study has been conducted. As a result, the public has no assurance that the agency has properly calculated the loadings, benefits, costs, and other relevant and important elements that necessarily must provide the foundation for rulemaking. Absent an administrative record that adequately supports the proposal, the public is unable to knowledgeably comment on, and participate in, the rulemaking process.

NAHB believes that the sheer volume of supporting documentation, the inconsistencies among documents, the lack of actual urban runoff or construction site data, and the failure to provide a clear picture of the implementation expectations makes it very difficult for the public to understand the impact of the proposed TMDL. Further, we believe that there is insufficient data to support the proposal. As courts have recognized, meaningful comment on proposed rules can be precluded by the failure of agencies to disclose especially relevant information. It is not consonant with the purpose of a rulemaking proceeding to promulgate rules on the basis of inadequate data or data that is known only to the agency.[FN 25] Finally, EPA's failure to make adequate information about this important model available for public review is not only a violation of the APA, as discussed above, it is a violation of 40 C.F.R. 130.7(c)(1)(ii), which requires that calculations used to establish TMDLs be subject to public review.

NAHB strongly urges EPA to set up a public website dedicated to the modeling effort done for the Chesapeake Bay TMDL, post all past and new documents related to the modeling effort, and allow the public time to review and comment on all decisions regarding the modeling. This is especially important in light of the fact that the latest update of the Watershed model is known by EPA to be deficient and may require that EPA reopen the TMDL in 2011 to revise the TMDL's goals for pollutant loadings.

[FN 21] At the time of writing these comments, the docket for the proposal, EPA-R03-OW-2010-0736, contains only the proposal itself, various appendices, and public comments to request an extension of the comment period or other short public comments on the proposal.

[FN 22] 5 U.S.C. § 501 et seq.

[FN 23] See e.g. Gerber v. Norton, 294 F.3d at 179 (holding that the agency did not provide a meaningful opportunity for public comment where it failed to make key information available for comment).

[FN 24] See e.g. id; Engine Mfrs. Ass'n v. EPA, 20 F.3d 1177, 1181 (D.C. Cir. 1994) (the APA "requires the agency to make available to the public, in a form that allows for meaningful comment, the data the agency used to develop the proposed rule"); Connecticut Light & Power Co. v. Nuclear Regulatory Comm'n, 673 F.2d 525, 530-31 (D.C. Cir 1982) ("To allow an agency to play hunt the peanut with technical information, hiding or disguising the information that it employs, is to condone a practice in which the agency treats what should be a genuine interchange as mere bureaucratic sport. An agency commits serious procedural error when it fails to reveal portions of the technical basis for a proposed rule in time to allow for meaningful commentary."); Portland Cement Ass'n v. Ruckelshaus, 486 F.2d 375, 393 (D.C. Cir. 1973) ("It is not consonant with the purpose of a rule-making proceeding to promulgate rules on the basis of inadequate data, or on data that, critical degree, is known only to the agency.")

[FN 25] Portland Cement Assn.v. Ruckelshaus, 486 F.2nd 375, 393 (D.C. Cir.1973) cert.denied, 417 U.S. 921 (1974).

Response

The CBP models have been developed as open source, public domain models that have been developed and applied in an open transparent process in public meetings over the last decade. In public meetings both the CBP Modeling Workgroup and the Water Quality Goal implementation Team have reviewed and approved all aspects of model development, calibration. In addition, the

CBP models have been thoroughly peer reviewed. In all aspects, and in all cases, the models were determined to be applicable and appropriate for the support of the 2010 Chesapeake TMDL including the assessment of the chlorophyll water quality standard.

Availability of CBP model and Scenario Build documentation and code
The Phase 5.3 Watershed Model and Scenario Builder have been developed as open source, public domain models that have been developed and applied in open public meetings over the last decade. Initial drafts of the model documentation have been available since 2008. When the Chesapeake Bay TMDL is published at the close of December 2010 all of the final documentation of the Phase 5.3 Watershed Model and Scenario Builder documentation, code, and data used to develop and apply the models will be are on the web and fully available.

Scenario Builder and Watershed Model downloadable information
Scenario Builder documentation (uploaded 9/16/10), source code (10/29), and database (11/5) are available on this site:
ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/

Scenario Builder inputs and outputs are available on this ftp site (continually updated as new results are run):
ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/

Phase 5.3 watershed model information is available here:
http://ches.communitymodeling.org/models/CBPhase5/index.php

That the entire Chesapeake TMDL and the models supporting have always been developed in an open and transparent process, with thousands of pages of meeting materials, records of decisions, model documentation, peer reviews and more are the record of "reasoned" decision-making [and the affirmation] that all factors relevant to the decision have been considered.

We note that the requested public web site of the modeling effort done for the Chesapeake TMDL has been available for the last several years and on this site are posted "all the past and new documents relating to the modeling effort":
http://www.chesapeakebay.net/committee_msc_info.aspx

http://www.chesapeakebay.net/publications.aspx?menuitem=16531

http://www.chesapeakebay.net/committee_msc_projects.aspx?menuitem=16525

Comment ID 0571.1.001.014

Author Name: Rountree Glynn

Organization: National Association of Home Builders (NAHB)

c. EPA's Impervious Calculations are Problematic and Not Supported.

NAHB understands that EPA's updated Watershed model for the Chesapeake Bay has a number of suspected deficiencies. One of particular interest is the estimate of the amount of impervious surfaces in each state, which is

surprisingly large in EPA's recent modeling efforts and much larger than previous estimates calculated by the previous Bay model. This issue is important to both the MS4s, whose goals for impervious pavement retrofit requirements will be determined by the final model calculations on impervious pavement, and to the home building industry that must obtain stormwater permits from the MS4 whenever conducting redevelopment projects in the MS4. In short, the MS4s are expected to require retrofits for redevelopment projects that reflect the retrofit requirements that the MS4 itself must meet.

The multi-billion dollar price tag for the proposed Chesapeake Bay MS4 retrofit requirements contained in the urban stormwater backstop allocations make it absolutely critical that EPA's impervious surface estimates be correct. This can only be assured if the estimates are transparent and reviewed by stakeholders and the public. NAHB requests that EPA post on its website all background documents related to its impervious pavement estimates, both past estimates and the current estimate, for stakeholder review and comment. The Chesapeake Bay states cannot allow EPA and its contractors to address the deficiencies of the existing Bay computer model without public scrutiny. Too much is at stake to leave the issue up to EPA, an agency that is adamant that the cost of its proposal is of no consequence.

Response

The Phase 5.3 Chesapeake Bay Watershed Model is fully sufficient for support of the 2010 Chesapeake TMDL, just as other, earlier versions of this model supported Chesapeake Bay Program allocations for more than two decades now. There will always be opportunities for model refinement and improvements in data collection and we are continuing our efforts in that regard. The Chesapeake Bay Program Watershed Model has been continually refined over its 28 years of application in the Chesapeake. The Phase 5.3 Watershed Model has well-found estimates of impervious land use as documented in Section 4 of the Phase 5 Model documentation which can be found here: ftp://ftp.chesapeakebay.net/Modeling/P5Documentation/SECTION_4.pdf.

The simulation of the MS4 managed areas and the BMPs used for MS4 discharges can be found in the web sites of documentation sources listed below. Specifically the simulation of developed urban and suburban is the same for both MS4 and non- MS4 areas. The estimates of the areas of developed land simulation can be found in Section 4 of the Phase 5.3 Model documentation, and the input loads for these areas are in Section 5. The BMPs used in developed urban and suburban lands can be found in the Scenario Builder documentation.

Scenario Builder and Watershed Model downloadable information:
Scenario Builder documentation (uploaded 9/16/10), source code (10/29), and database (11/5) are available on this site: ftp://ftp.chesapeakebay.net/Modeling/ScenarioBuilder/.

Scenario Builder inputs and outputs are available on this ftp site (continually updated as new results are run): ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/.

Phase 5.3 watershed model information is available here: http://ches.communitymodeling.org/models/CBPhase5/index.php.

Comment ID 0572.1.001.003

Author Name: Robinson Steve

Organization: National Association of Conservation Districts (NACD)

EPA acknowledges that the "Chesapeake Bay TMDL is the largest, most complex TMDL in the country, covering a 64,000-square-mile area in seven jurisdictions." EPA is proposing allocations for three pollutants in 92 water-body segments. Even EPA admits that this extraordinarily complex TMDL is based on a flawed model, and has indicated it plans to make changes to the model in 2011. Even so, EPA plans to issue a TMDL that will have significant regulatory consequences.

EPA is relying upon an untested and highly imperfect model of the Bay, including incomplete and incorrect information about agricultural practices in the region and their water quality performance. EPA's model fails to acknowledge BMPs employed by the agriculture community outside of cost-share programs. Since the pollution reductions and the costs associated with meeting them will be based on these model outputs, the accuracy of these numbers has very real consequences on the livelihood of producers and landowners in the region.

To address this deficiency, NACD is working closely with state governments to develop an accurate data collection system, which will capture the large number of farmers and landowners voluntarily implementing conservation practices in the Bay region. NACD encourages EPA to support this effort and incorporate this data into the EPA Bay model.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0573-cp.001.004

Author Name: Tabb B.

Organization:

Problems have been pointed out in the model but we are told we must move forward.
The problem with flawed models is that water runs uphill without a pump,when in reality it does not !

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0609.1.001.004

Author Name: Aubertine Darrel

Organization: Senate of the State of New York

EPA has determined that none of the Watershed Implementation Plans for the TMDL submitted to date by the Bay states and the District of Columbia are acceptable. Clearly, EPA's expectations, which are based on computer models, are out of touch with what the experts in the field believe can realistically be achieved.

Response

The jurisdictions' final Phase I Watershed Implementation Plans were significantly improved compared with the draft plans enabling EPA to remove and reduce most all of the backstop allocations published in the September 2010 draft TMDL.

Comment ID 0627-cp.001.001

Author Name: Surkamp Jim

Organization:

Speaking for myself having attended the meetings and listened much, I doubt the precision and reliability of the scientific data that had been ballyhooed at the Martinsburg in the meeting I attended from land grant universities. Those revisions have undergone independent scientific peer reviews, sponsored by the CBP's STAC, before review and approval by the CBP's Criteria Assessment Protocols Workgroup and then the Water Quality Steering Committee/Water Quality Implementation Team for EPA publication on behalf of the partnership.

Response

Thank you for your comment. The Chesapeake Bay Program Watershed Model has been in use for over two decades. It has been continually refined over that time period. The Phase 5.3 Watershed Model has been built through collaboration with federal, state, academic, and private partners. Development teams at CBPO and USGS include EPA, USGS, University of Maryland Center for Environmental Sciences, University of Maryland College of Agriculture and Natural Resources, Virginia Tech, and Chesapeake Research Consortium.

The technical direction and review of the Chesapeake Bay Program Partnership's models is accomplished through meetings of several groups within the CBP structure. Prominent among these are the Water Quality Goal Implementation Team, the Modeling Workgroup, the Agricultural Nutrient and Sediment Reduction Workgroup (NRCS and University of Maryland representatives are co-chairs), the Urban Stormwater Workgroup, the Forestry Workgroup, and the Wastewater Workgroup. All of these meetings are open to the public. Each has broad representation from state and federal government, academics, and stakeholder groups. Links to records of these meetings can be found in Appendix C of the Draft TMDL.

After more than five years of development work, calibration and validation were completed in March 2010 and reviewed by several of the above groups. In addition, there have been 2 major independent reviews of the Phase 5 Model in 2005 and 2008 by academic modelers from Penn State, Virginia Tech, Duke, University of North Carolina, University of Maryland Baltimore County, and

University of Florida. The peer reviews follow the guidance for regulatory models developed by EPA's Science Advisory Board available at http://www.epa.gov/spc/pdfs/modelpr.pdf.

The reviews and responses can be found here:

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_of_the_Chesapeake_Bay_Watershed_Modeling_Effort_2005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Effort_Review%20-%202005.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Review_Chesapeake_Bay_Watershed_Modeling_Effort_2008.pdf

http://archive.chesapeakebay.net/pubs/subcommittee/mdsc/Response_Chesapeake_Bay_Watershed_Modeling_Review_1-09.pdf

In addition to the above open meetings, there is an extensive public participation process which is detailed in section 11 of the final Bay TMDL. The Bay TMDL report has lists of additional TMDL-related meetings in Appendix C.

Comment ID 0648-cp.001.003

Author Name: Brath P.

Organization:

As a resident of Pennsylvania, a municipal consultant, a boater and fisherman and a concerned citizen, I have followed and been involved in the Chesapeake Bay Tributary Strategy implementation and now the DEP's Watershed Implementation Plan. The Environmental Protection Agency's draft Backstop Chesapeake Bay TMDL is a disappointing action that must be reconsidered. I have included comments to the EPA's plan below.

Comment #4:

The EPA should and must adjust the science of the model to account for proper base conditions. The base model is of a pristine Bay, better than conditions ever were, or ever will be and better than the natural waters that feed the bay. The model should be revised to be "realistic" with an achievable goal with a natural, livable, workable, playable Bay - fishable and swimmable.

Response

The Chesapeake TMDL is based not on an estimate of a pristine Chesapeake but on the loads under 2010 Chesapeake Bay watershed conditions that could be effectively reduced with different degrees of reductions from different States. Generally, the tidal Bay Sates had a higher relative reduction required that States further from tidal waters. Please see Section 6 of the final Bay TMDL report for more details.

Comment ID 0689.1.001.008

Author Name: Hann Steven

Organization: Capital Region Council of Governments TMDL Work Group

The draft TMDL notes throughout that the data used in the Phase 5.3 Chesapeake Bay Watershed Model covers a time period ending in 2005. Some recent data released by EPA indicates that there has been a significant decrease in both nitrogen and phosphorus delivered to the Bay. When will EPA re-run the model using more recent data to reflect such reductions?

Response

The calibration period of the Phase 5.3 Watershed Model is from 1985 to 2005. With a calibration period spanning two decades, the simulation of years outside the 1985 - 2005 period is easily handled. In the Chesapeake TMDL assessment the typical simulation year was the current one, 2010. Simulating the 2010 year is done by changing the land uses, point source loads, atmospheric deposition and all other conditions to a 2010 condition. This approach is the standard operating procedure in these types of environmental assessments.

Comment ID 0689.1.001.012

Author Name: Hann Steven

Organization: Capital Region Council of Governments TMDL Work Group

20. The draft TMDL states that "[t]he combined Chesapeake Bay monitoring and modeling frameworks effectively address all the factors necessary for developing a scientifically sound and reliable TMDL that meets the TMDL regulatory requirements" and cites a number of factors addressed through the models, including the assertion that "non-regulated non-point sources of nitrogen, phosphorus and sediment are fully considered and evaluated.. .in terms of their relative contributions to water quality impairment of the Chesapeake Bay's tidal waters." If EPA decides to proceed with its "backstop allocation" approach, regulating only point sources of pollutants to the Bay, the TMDL will cease to be "scientifically sound and reliable" based on the aforementioned provisions. Does EPA expect that regulating only the point sources of nutrients will produce a result consistent with the objective of the Bay TMDL?

21. The draft TMDL is not clear as to how recent the land use data is which was input into the Phase 5.3 Chesapeake Bay Watershed Model.

22. If the Phase 5.3 Chesapeake Bay Watershed Model uses data from non-point source loading, but non-point sources are ultimately not regulated under EPA's "backstop allocation" approach, is not the integrity of the draft TMDL ultimately called into question because the draft TMDL is relying on a Model that is either no longer being used for its intended purpose or input with data that is not used in the draft TMDL?

Response

20) The evaluation of the Phase I WIPS is described in Section 8 of the TMDL Documentation titled Watershed Implementation Plan Evaluation And Draft Backstop Allocations. Section 8 describes the methodology that EPA used to evaluate the draft Phase I WIPs and the process EPA used to develop the backstop allocations. The decision rules consistently applied to develop the Phase 1 WIP backstops were consistent with a scientifically sound and reliable TMDL and were a strong inducement for a well-found watershed implementation plan. The jurisdictions' final Phase I Watershed Implementation Plans were significantly improved compared with the draft plans enabling EPA to remove and reduce most all of the backstop allocations published in the September 2010 draft TMDL.

21) The documentation of the land use estimates used in the Phase 5.3 Model can be found in Section 4 of the Phase 5 Model documentation: ftp://ftp.chesapeakebay.net/Modeling/P5Documentation/SECTION_4.pdf.

22) The backstop allocation included nonpoint source load reductions from regulated MS4s and Confined Animal Feeding Operations. The decision rules for the development of the backstop allocations were entirely consistent with the open source, transparent, and collaborative decision-making that's characterized the CBP TMDL models.

Comment ID 0689.1.001.014

Author Name: Hann Steven

Organization: Capital Region Council of Governments TMDL Work Group

24. Describe the analysis given to "delivery ratios" in EPA's establishment of the draft TMDL. According to the draft TMDL, "isolation runs" were used to determine the relative effectiveness" numbers presented in Table 6.5. How many isolation runs were used to develop these numbers?

Response

Delivery factors for nutrients and sediment are the product of all the sequential river-segments in a basin between a segment and the tidal waters of the Chesapeake. This represents the fractional change in load from the edge-of-stream to tidal water for any segment. Delivery factors are unitless and they quantify the watershed attenuation of nutrient and sediment loads in the streams due to the hydrology regimen and anthropogenic processes such as best management practices. In periods of high flow the delivery factors can be greater than one. Sections 9 and 12 of the Phase 5.3 Chesapeake Bay Watershed Model documentation provides more information regarding delivery factors.

For more information and to review the P53 documentation, visit:
http://ches.communitymodeling.org/models/CBPhase5/documentation.php#p5modeldoc.

Nitrogen, phosphorus and sediment delivery factors are available on this site:

ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase%205.3%20Calibration/Model%20Output/.

About 18 isolation scenarios were used to examine the relative effectiveness of loads from above and below the fall line of the major rivers and for the different coastal plain regions of the Chesapeake Bay.

Comment ID 0689.1.001.026

Author Name: Hann Steven

Organization: Capital Region Council of Governments TMDL Work Group

39. EPA states that it will consider revisions to Phase 5.3 Chesapeake Bay Watershed Model. If additional model inputs are necessary to address deficiencies in the model, the issuance of the TMDL should be delayed until such deficiencies are resolved.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0689.1.001.031

Author Name: Hann Steven

Organization: Capital Region Council of Governments TMDL Work Group

44. There was no meaningful opportunity to review the model input data before the end of the comment period because the model input data was not available. These input data are voluminous and insufficient time was provided for analysis.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0690.001.003

Author Name: Crispell C.

Organization:

In regards to the Docket ID No. EPA-R03-OW-2010-0736 I oppose implementing the proposed Chesapeake Bay TMDL limits because, the EPA model is flawed, not proven and not suitable for being the basis for the proposed limitations.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0690.001.004

Author Name: Crispell C.

Organization:

In regards to the Docket ID No. EPA-R03-OW-2010-0736 I oppose implementing the proposed Chesapeake Bay TMDL limits because, most specifically, the EPA, should incorporate the model revisions recommended by the D.E.C in their Watershed Implementation Plan.

Response

Please see response to comment 0103-cp.001.004.

Comment ID 0691.1.001.004

Author Name: Kirk Ken

Organization: National Association of Clean Water Agencies (NACWA)

Modeling Framework
The Chesapeake Bay TMDL is based on complex models that simulate nutrient and sediment pollutant load sources and the associated water quality and biological responses. EPA has not provided the public with a thorough explanation of how the models work, the degree of reliability associated with the model output and how the model's limitations impact the TMDL. In fact, EPA has not made all of the models themselves available for sufficient review by the regulated community. As EPA admits in the TMDL, "the models produce estimates, not perfect forecasts. Hence, they reduce, but do not eliminate, uncertainty in environmental decision making." (p. 5-15) Despite the effort EPA has made to calibrate the models with monitoring data, EPA has not quantifiably qualified the limitations in the modeled results for the incredibly complex ecosystem of the 4,480-square-mile Chesapeake Bay and its 64,000-square-mile watershed. Therefore it is unknown whether the reliability of the models is acceptable for developing such a TMDL. Since the TMDL will affect so many entities and will be extremely expensive to implement, EPA must clarify the limitations of the model (accuracy, precision, etc.) and its outputs and provide a complete analysis of how these limitations could affect the nutrient and sediment allocations and the costs of implementing the TMDL and how these limitations are quantifiably addressed in the TMDL.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0696.001.002

Author Name: Belote James

Organization: Nancock Farms

The computer model for the Chesapeake Bay Program has been inaccurate from the start. I understand that you have finally admitted that it has its problems. We knew this when you first used it and have complained for years.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0699-cp.001.004

Author Name: Garvick Jeffrey

Organization: Board of Commissioners, Pennsylvania Township and York County

In line with that, the EPA model does not provide reasonable assurance that, should these severely low nutrient limits be appled, point source dischargers can effectively and successfully reduce loadings to anticipated levels. A case in point is the Penn Twp. WWTP, a phase 1 facility, now undergoing a $15M mandated upgrade to comply with approved limits of 6 mg/l TN & 0.8 mg/l TP. It would be a severe economic hardship to redesign and resonstruct another upgrade to meet the newer, stricter limits. We are also aware that point source dischargers such as Penn Twp. comprise only 14% of the daily nutrient loading entering the Bay but we are being ordered to absorb the bulk of the clean-up costs.

Finally, we quesstion the wisdom of modeling results that does not take into consideration the amount of nitrogen found in groundwater

Response

The evaluation of the Phase I WIPS is described in Section 8 of the TMDL Documentation titled Watershed Implementation Plan Evaluation And Draft Backstop Allocations. Section 8 describes the methodology that EPA used to evaluate the draft Phase I WIPs and the process EPA used to develop the backstop allocations. The decision rules consistently applied to develop the Phase 1 WIP backstops were consistent with a scientifically sound and reliable TMDL and were a strong inducement for a well-found watershed implementation plan. The backstop allocations were also found to provide enough nutrient and sediment reduction to fully achieve the Chesapeake water quality standards. The jurisdictions's final Phase I Watershed Implementation Plans were significantly improved compared with the draft plans enabling EPA to remove and reduce most all of the backstop allocations published in the September 2010 draft TMDL.

The Phase 5.3 Chesapeake Bay Watershed Model accounts for, and is calibrated to, surface and subsurface hydrology including the estimated loads of nitrogen in groundwater.

Comment ID 0701.001.003

Author Name: Barnes Walter

Organization: Jackson Township, Tioga County, PA and Partner, Maple Knoll Farm

Many articles concerning the need for the proposed restrictions discuss the faults of the computer model of the bay clean-up project. I believe the computer model had not looked at the agriculture community in the last 30 years.

Response

Please refer to the response to comment 0340.1.001.006.

Comment ID 0705.001.005

Author Name: Cuffee-Glenn Selena

Organization: City of Suffolk, Virginia

-The Phase 5.3 model and model inputs are not sufficiently developed to produce reliable predictions.

-The modeling predictions do not justify use of the chlorophyll-a criteria as the basis for the James River basin allocations.

Response

Please see EPA’s comprehensive responses to comment ID 0288.1.001.016.

Comment ID 0770.001.003

Author Name: Ayers C.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake bay TMDL limits because...

--The EPA model is flawed, not proven, and not suitable for being the basis for the proposed limitations.

Response

Thank your for the comment. EPA disagrees. Please see Section 5 of the TMDL and the response to comment 0340.1.001.006.

Comment ID 0770.001.004

Author Name: Ayers C.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake bay TMDL limits because...

--Most specifically, the EPA should incorporate the model revisions recommended by the DEC in their Watershed Implementation Plan.

Response

Please see the response to comment 0103-cp.001.004.

Response to Public Comments: Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

Issue Category:
9. Criteria Assessment Program

Pages 1080 – 1084

December 29, 2010

Docket #: EPA-R3-OW-2010-0736

9 - CRITERIA ASSESSMENT PROGRAM

Comment ID 0169.1.001.002

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

The EPA has not adequately demonstrated what levels constitute a "healthy" Bay, nor what the normal variability in these levels is, nor what are healthy levels in similar estuaries.

Response

Attainment of the water quality standards of dissolved oxygen, chlorophyll, and SAV-clarity is the objective of the Chesapeake TMDL and is also the water quality that key living resources in the Chesapeake need to thrive Please refer to Section 3 of the TMDL documentation (http://www.regulations.gov/search/Regs/home.html#documentDetail?R=0900006480b5e9a0) for details of how the water quality standards were determined in order to meet the needs of the Chesapeake living resources.

Comment ID 0227.1.001.015

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

We support the procedures for determining attainment with water quality standards, which reflect use of Chesapeake Bay science (section 6.2).

Response

Thank you for your comment of support for the procedures of assessing Chesapeake water quality standard attainment.

Comment ID 0230.1.001.042

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

D. EPA's Failure to Recognize Essential Equivalency in Its Target Load Options Is Unreasonable

In the determination of basin nutrient loadings (190 TN and 12.7 TP) EPA utilized the 1% rule to determine compliance (with the exception of certain problem segments). Bell (2010b) performed a statistical "power analysis" to evaluate the

minimum difference in D.O. that would be statistically detectable in the Chesapeake Bay Monitoring Program. [FN72] Based on the results of this analysis, segments that are close to attainment would require spatial D.O. violation rates that differ by 4% or more before they would be statistically distinguished from one another. The management implications are that Bay model D.O. scenario results with differences less than 4% should be considered "essentially equivalent." This is not the case in the current TMDL. Based on the above referenced "power analysis," the scenario associated with Target load Option A produces results that are "essentially equivalent" to EPA's recommended basin target loads of 190 mpy/yr TN and 12.7 mpy/yr TP (Bell, 2010a). At this level of nutrient loading the key Bay segments of CB4MH, CB5MH, MD5MH, and VA5MH are predicted to be in attainment or be within 2% of attainment. It is recognized that Target load Option A would not immediately address attainment in some of the side segments. However, effectively addressing these side segments would require separate, locally oriented modeling analysis with tools better adapted to evaluating local conditions. The Target Load Option A to comply with D.O. standards in the main bay is essentially equivalent to the more stringent and costly to attain allocations associated with 190 TN and 12.7 T and the TMDL; this must be recognized in the TMDL.

[FN72] Attached hereto as Appendix 41.

Response

Application of the Target Load A Scenario for determining the TMDL load allocations is infeasible. The Chesapeake TMDL needs to address all of Chesapeake's water quality impairments. A "separate, locally-oriented modeling analysis with tools better adapted to evaluating local conditions" would not be possible in the time allowed by the court imposed deadline in 2011.

A key point though is that the Chesapeake Bay Program uses adaptive management in setting and applying the Chesapeake TMDL allocations. The nutrient load reductions are planned with the Chesapeake Bay Program models, but assessment of achievement of the standards is through observed data collected at monitoring stations. As the TMDL proceeds through the 2-year milestone assessments and the 2017 mid-course assessment potential overshoots or undershoots of nutrient and sediment controls can be considered.

Comment ID 0272.2.001.011

Author Name: Pippel Julie

Organization: Maryland Association of Municipal Wastewater Agencies, Inc. (MAMWA)

EPA's Refusal to Consider Essential Equivalency in Target Loads Is Unreasonable

In the determination of basin nutrient loadings (190 TN and 12.7 TP) EPA utilized the so-called "1% rule" to determine compliance (with the exception of certain problem segments). Bell (2010b) performed a statistical "power analysis" to evaluate the minimum difference in D.O. that would be statistically detectable in the Chesapeake Bay Monitoring Program. Based on the results of this analysis, segments that are close to attainment would require spatial D.O. violation rates that differ by 4% or more before they would be statistically distinguished from one another. The management implications are that Bay model D.O. scenario results with differences less than 4% should be considered

"essentially equivalent." However, this is not recognized in the Draft TMDL.

Based on the above referenced "power analysis," the scenario associated with "Target Load Option A" (200 mpy TN and 15 mpy TP) produces results that are "essentially equivalent" to EPA's recommended basin target loads in the Draft TMDL of 190 mpy TN and 12.7 mpy TP (Bell, 2010a). At this level of nutrient loading the key Bay segments of CB4MH, CB5MH, MD5MH, and VA5MH are predicted to be in attainment or be within 2% of attainment.

It is recognized that Target Load Option A would not immediately address attainment in some of the side segments; however, effectively addressing these side segments would require separate, locally-oriented modeling analysis with tools better adapted to evaluating local conditions.

The "Target Load Option A" TN and TP targets to comply with D.O. standards in the main bay is essentially equivalent to the more stringent and costly-to-attain cap loads associated with 190 TN and 12.7 TP in the TMDL. Therefore, it would be unreasonable for the final TMDL to opt for the higher cost alternative of these two equivalent compliance scenarios.

Response

Application of the Target Load A Scenario for determining the TMDL load allocations is infeasible. The Chesapeake Bay TMDL needs to address all of Chesapeake's water quality impairments. A "separate, locally-oriented modeling analysis with tools better adapted to evaluating local conditions" would not be possible in the time allowed by the court imposed deadline in 2011.

A key point though is that the Chesapeake Bay Program uses adaptive management in setting and applying the Chesapeake TMDL allocations. The nutrient load reductions are planned with the Chesapeake Bay Program models, but assessment of achievement of the standards is through observed data collected at monitoring stations. As the TMDL proceeds through the 2-year milestone assessments and the 2017 mid-course assessment potential overshoots or undershoots of nutrient and sediment controls can be considered.

Comment ID 0591.1.001.007

Author Name: Shields M.

Organization:

To claim that "revisions have undergone independent scientific peer reviews, sponsored by the CBP‘s STAC, before review and approval by the CBP‘s Criteria Assessment Protocols Workgroup and then the Water Quality Steering Committee/Water Quality Implementation Team for EPA publication on behalf of the partnership", sounds impressive to the laymen but to me, these reviews have been self-supporting and conjecture based - not based on sound scientific data.

Any time I see a scientific paper sponsored by the party of interest, or reviewed by the sponsor, my "sniff-meter" goes off!

A person can pick and chose the argument - either way - with this type of "Data":

Response

Reviews of the Chesapeake Bay Program Models follow the peer review guidance developed by EPA's Science Advisory Board (SAB) for regulatory models: http://www.epa.gov/spc/pdfs/modelpr.pdf and the peer review guidance developed by the Ecological Society of America and endorsed by the American College of Preventive Medicine, American Fisheries Society, American Institute of Biological Sciences, American Public Health Association, American Society of Agronomy, American Society of Limnology and Oceanography, Association of Teachers of Preventive Medicine, Crop Science Society of America, Ecological Society of America, Estuarine Research Federation, Institute of Food Technologists, Soil Science Society of America, Society for Conservation Biolog http://www.acpm.org/2004-033(H).htm

Peer reviews of the CBP Models can be found at:http://www.chesapeakebay.net/committee_msc_projects.aspx?menuitem=16525

A sampling of the CBP model peer reviews follow:
CMAQ Review Process: During the past three years, CMAS, in collaboration with EPA scientists, has organized two CMAQ review panel meetings etc. The first CMAQ review meeting was held during December 2003. The second meeting was held during May 2005. The review process usually starts by inviting a number of key scientists to participate in the process. The scientists are selected based on their expertise in accordance with the focus of the review session. After reviewing numerous reports and articles and completing their meeting in Research Triangle Park, North Carolina, the review panel prepares a comprehensive report on their findings and recommendations. EPA then responds to the comments of the reviewers. Final review reports are posted below.
First Review (December, 2003) o Presentations (in PDF format):
§ AN EVALUATION OF ETA-CMAQ AIR QUALITY FORECAST MODEL (EDER)
§ CMAQ AEROSOL MODULE (BHAVE)
§ CMAQ MODELING OF ATMOSPHERIC MERCURY (BULLOCK)
§ CMAQ MODELING SYSTEM OVERVIEW (SCHERE)
§ CMAQ OVERVIEW (SCHERE)
§ CMAQ PLUME-IN-GRID MODELING EFFORT (GODOWITCH)
§ CREATING METEOROLOGY FOR CMAQ (OTTE)
§ DIAGNOSTIC AND IN-DEPTH MODEL EVALUATION (DENNIS)
§ EMISSIONS MODELING SUPPORT AND RESEARCH FOR CMAQ (PIERCE)
§ EVALUATION OF 2003 RELEASE OF MODELS-3 CMAQ (EDER)
§ FINAL REPORT
§ FUTURE DEVELOPMENT PLANS FOR CMAQ (SCHERE)
§ GAS-PHASE CHEMISTRY (GIPSON)
§ INVERSE MODELING TO ESTIMATE SEASONAL NH3 EMISSIONS (GILLILAND)
§ LAND SURFACE MODELING AND DRY DEPOSITION (PLEIM)
§ LINKING ETA TO CMAQ FOR AQ FORECASTING (OTTE) § LINKING WITH NWS ETA MODEL FOR AIR QUALITY FORECASTING (SCHERE)
§ MODEL EVALUATION PLANS FOR CMAQ04 (GILLILAND)

§ PREDICTING FATE AND TRANSPORT OF TOXIC AIR POLLUTANTS (LUECKEN)
§ RECENT DEVELOPMENTS FOR PARALLEL CMAQ (YOUNG)
§ TRANSPORT PROCESSES IN CMAQ (PLEIM)
o Final Report Summary: December 2003 Peer Review of the CMAQ Model Second Review (May, 2005)
o Final Report: Second Peer Review of the CMAQ Model, July, 2005 [PDF]
o Response to the Second Peer Review of the CMAQ Model, August, 2005 [PDF] Third Review (February, 2007)
o Final Report: Third Peer Review of the CMAQ Model, February, 2007 [PDF]
o Response to the Third Peer Review of the CMAQ Model, April, 2007 [PDF]

• Chesapeake Bay Models
o Modeling in the Chesapeake Bay Program: 2010 and Beyond (1 MB .pdf)

• First Chesapeake Bay Phase 5 Watershed Model Review
o Questions Posed to the Watershed Model Reviewers (16 kb .pdf)
o Review of the Chesapeake Bay Watershed Modeling Effort – 2005 (120 kb .pdf)
o Response to the Chesapeake Bay Watershed Modeling Effort Review – 2005 (3.6 MB .pdf)
• Second Chesapeake Bay Phase 5 Watershed Model Review
o Questions Posed to the Watershed Model Reviewers (20 kb .pdf)
o Review of the Chesapeake Bay Watershed Modeling Effort – 2008 (185 kb .pdf)
o Response to the Chesapeake Bay Watershed Modeling Effort Review – 2008 (45 kb .pdf)

• Chesapeake Bay Water Quality and Sediment Transport Model
o Sediment Transport Model Review Team Comments - March 2005 (46 kb .pdf)
o Sediment Transport Model Review Team Comments - July 2005 (54 kb .pdf)
o Sediment Transport Model Review Team Comments - March 2006 (59 kb .pdf)
o Sediment Transport Model Review Team Comments - April 2006 (19 kb .pdf)
o Sediment Transport Model Review Team Comments - July 2006 (31 kb .pdf)
o Sediment Transport Model Review Team Comments - October 2006 (58 kb .pdf)
o Sediment Transport Model Review Team Comments - January 2007 (36 kb .pdf)
o Sediment Transport Model Review Team Comments - April 2007 (46 kb .pdf)
o Sediment Transport Model Review Team Comments - July 2007 (68 kb .pdf)
o Sediment Transport Model Review Team Comments - October 2007 (68 kb .pdf)

• Review of the Shallow Water SAV and Clarity Simulation
• Reviewers of the Shallow Water SAV and Clarity Simulation
• Questions Posed to the Reviewers
• Review of the Shallow Water SAV and Clarity Simulation

Response to Public Comments: Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

Issue Category:
10. Climate Change Simulation

Pages 1085 – 1098

December 29, 2010

Docket #: EPA-R3-OW-2010-0736

10 - CLIMATE CHANGE SIMULATION

Comment ID 0230.1.001.053

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

EPA Has Ignored Climate Change Impacts in its Bay TMDL

EPA has not mentioned the climate change impacts of its proposal to reduce POTW allocations below the levels found in Virginia's Draft WIP. Instead, EPA has said:

To support the 2017 assessment requirement, climate change will be examined to explicitly determine the scope, magnitude, and timing of potential effects. An improved understanding of climate change impacts…will enable water managers to better evaluate risk and make informed decisions about meeting supply needs, complying with water quality regulations, and protecting aquatic ecosystems over a range of time scales. Future assessments will include the tidal Bay response in DO, chlorophyll a, SAV, and water clarity...[FN100]

This is arbitrary, and contradictory to other public statements EPA has made regarding the importance of climate change considerations in its Bay clean-up considerations. EPA should carefully consider the climate change impacts of its proposal to reduce POTW WLAs before it issues its final TMDL in December 2010. If WLA reductions would exacerbate climate change, as VAMWA anticipates, EPA should adjust the POTW WLAs accordingly as suggested elsewhere in these comments.

[FN100] Draft TMDL at 10-7.

Response

The comment states that “if WLA reductions would exacerbate climate change, as VAMWA anticipates, EPA should adjust the POTW WLAs accordingly as suggested elsewhere in these comments.” With the warming of the Chesapeake Bay’s water column temperature, as already observed and documented at long term temperature monitoring sites operated by academic institutions on the Bay, the Bay’s waters will have a reduced capacity to hold dissolved oxygen. This outcome of climate change alone would signal the need for lower allocations not higher ones. EPA understands that further reducing nitrogen and phosphorus loads from municipal and industrial wastewater treatment facilities requires more energy inputs and, depending on the source of that energy, can lead to generation of more greenhouse gas emissions. However, that fact alone is not a strong enough rationale for increasing the waste load allocations for municipal and industrial wastewater treatment facilities which provide: reductions are can be reasonable assured through the establish permitting programs, more cost effective reductions that other urban runoff reduction technologies, and are the principal source of nitrogen and phosphorus to tidal tributaries and the Chesapeake Bay.

The potential effects of future climate change were accounted for in the current Bay TMDL allocations based on a preliminary assessment of climate change impacts on the Chesapeake Bay. Because of well known limitations in the current suite of Bay models

to fully simulate the effects of climate change as listed below, EPA and its partners are committed to a more comprehensive assessment in 2017. Effects of climate change already observed in the mid-Atlantic region have been factored in the Bay TMDL through the application of recent records of precipitation, streamflow, and Chesapeake Bay water column temperatures which reflect changes in the regional climate over the past several decades.

A preliminary assessment of climate change impacts on the Chesapeake Bay was conducted, in parallel, using an earlier version of the Phase 5 Bay Watershed Model and tools developed for EPA's BASINS 4 system including the Climate Assessment Tool (see Appendix E in the final Bay TMDL report for details). The results provide an indication of likely precipitation and flow patterns under future potential climate conditions (Linker et al. 2007, 2008) (see Appendix E). Projected temperature increases tend to increase evapotranspiration in the Bay watershed, effectively offsetting increases in precipitation. The preliminary analysis indicated overall decreases in annual stream flow, nitrogen and phosphorus loads. The higher intensity precipitation events yielded estimated increases in annual sediment loads. These preliminary findings support the nitrogen and phosphorus allocations within the Bay TMDL and application of an implicit margin of safety for these two pollutants, recognizing these loads might not increase, even decrease. These same preliminary findings support EPA's decision for an explicit sediment allocation margin of safety, recognizing the potential for increased sediment loads.

EPA and its partners are committed to conducting a more complete analysis of climate change effects on TMDL nitrogen, phosphorus, and sediment loads, which is to be made during the mid-course assessment of Chesapeake Bay TMDL progress in 2017 as called for in Section 203 of the Chesapeake Executive Order 13508 (May 12, 2009).

To carry out a more complete analysis of climate change effects, changes will needed to the current suite of Bay models and tools including:

• Applying the results from the next generation of global climate change models to develop the best available estimates of the effects of climate change on the mid-Atlantic region.

• Developing a better means for downscaling the results from the applicable global climate change models to match the finer segmentation of the Phase 5.3 Chesapeake Bay Watershed Model.

• Developing the means to better understand and fully simulate the interactions between increased evapotranspiration and high intensity precipitation events within the Chesapeake Bay Watershed Model.

• Building the capacity to simulate the effects of change in tidal water column temperatures on all the existing temperature dependent rates and processes currently simulated with the hydrodynamic, estuarine water quality, sediment transport, living resources and filter feeder component models of the Chesapeake Bay Water Quality and Sediment Transport model.

• Reevaluate the temperature dependent effects on key species and communities (e.g., eelgrass) to ensure the latest scientific understanding has been factored into the suite of Bay models.

Comment ID 0288.1.001.034

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

EPA Has Ignored Climate Change Impacts in its Bay TMDL

EPA has not mentioned the climate change impacts of its proposal to reduce POTW allocations below the levels found in Virginia's Draft WIP. Instead, EPA has said:

To support the 2017 assessment requirement, climate change will be examined to explicitly determine the scope, magnitude, and timing of potential effects. An improved understanding of climate change impacts…will enable water managers to better evaluate risk and make informed decisions about meeting supply needs, complying with water quality regulations, and protecting aquatic ecosystems over a range of time scales. Future assessments will include the tidal Bay response in DO, chlorophyll a, SAV, and water clarity...[FN100]

This is arbitrary, and contradictory to other public statements EPA has made regarding the importance of climate change considerations in its Bay clean-up considerations. EPA should carefully consider the climate change impacts of its proposal to reduce POTW WLAs before it issues its final TMDL in December 2010. If WLA reductions would exacerbate climate change, as VAMWA anticipates, EPA should adjust the POTW WLAs accordingly as suggested elsewhere in these comments.

[FN100] Draft TMDL at 10-7.

Response

The comment states that "if WLA reductions would exacerbate climate change, as VAMWA anticipates, EPA should adjust the POTW WLAs accordingly as suggested elsewhere in these comments." With the warming of the Chesapeake Bay's water column temperature, as already observed and documented at long term temperature monitoring sites operated by academic institutions on the Bay, the Bay's waters will have a reduced capacity to hold dissolved oxygen. This outcome of climate change alone would signal the need for lower allocations not higher ones. EPA understands that further reducing nitrogen and phosphorus loads from municipal and industrial wastewater treatment facilities requires more energy inputs and, depending on the source of that energy, can lead to generation of more greenhouse gas emissions. However, that fact alone is not a strong enough rationale for increasing the waste load allocations for municipal and industrial wastewater treatment facilities which provide: reductions are can be reasonable assured through the establish permitting programs, more cost effective reductions that other urban runoff reduction technologies, and are the principal source of nitrogen and phosphorus to tidal tributaries and the Chesapeake Bay.

The potential effects of future climate change were accounted for in the current Bay TMDL allocations based on a preliminary assessment of climate change impacts on the Chesapeake Bay. Because of well known limitations in the current suite of Bay models to fully simulate the effects of climate change as listed below, EPA and its partners are committed to a more comprehensive assessment in 2017. Effects of climate change already observed in the mid-Atlantic region have been factored in the Bay TMDL through the application of recent records of precipitation, streamflow, and Chesapeake Bay water column temperatures which reflect changes in the regional climate over the past several decades.

A preliminary assessment of climate change impacts on the Chesapeake Bay was conducted, in parallel, using an earlier version of the Phase 5 Bay Watershed Model and tools developed for EPA's BASINS 4 system including the Climate Assessment Tool (see Appendix E in the final Bay TMDL report for details). The results provide an indication of likely precipitation and flow patterns under future potential climate conditions (Linker et al. 2007, 2008) (see Appendix E). Projected temperature increases tend to increase evapotranspiration in the Bay watershed, effectively offsetting increases in precipitation. The preliminary analysis indicated overall decreases in annual stream flow, nitrogen and phosphorus loads. The higher intensity precipitation events yielded estimated increases in annual sediment loads. These preliminary findings support the nitrogen and phosphorus allocations within the Bay TMDL and application of an implicit margin of safety for these two pollutants, recognizing these loads might not increase, even decrease. These same preliminary findings support EPA's decision for an explicit sediment allocation margin of safety, recognizing the potential for increased sediment loads.

EPA and its partners are committed to conducting a more complete analysis of climate change effects on TMDL nitrogen, phosphorus, and sediment loads, which is to be made during the mid-course assessment of Chesapeake Bay TMDL progress in 2017 as called for in Section 203 of the Chesapeake Executive Order 13508 (May 12, 2009).

To carry out a more complete analysis of climate change effects, changes will needed to the current suite of Bay models and tools including:

• Applying the results from the next generation of global climate change models to develop the best available estimates of the effects of climate change on the mid-Atlantic region.

• Developing a better means for downscaling the results from the applicable global climate change models to match the finer segmentation of the Phase 5.3 Chesapeake Bay Watershed Model.

• Developing the means to better understand and fully simulate the interactions between increased evapotranspiration and high intensity precipitation events within the Chesapeake Bay Watershed Model.

• Building the capacity to simulate the effects of change in tidal water column temperatures on all the existing temperature dependent rates and processes currently simulated with the hydrodynamic, estuarine water quality, sediment transport, living resources and filter feeder component models of the Chesapeake Bay Water Quality and Sediment Transport model.

• Reevaluate the temperature dependent effects on key species and communities (e.g., eelgrass) to ensure the latest scientific understanding has been factored into the suite of Bay models.

Comment ID 0504.1.001.007

Author Name: Elliott James

Organization: Citizens Advisory Committee to the Chesapeake Executive Council

current and projected climate change impacts on the Chesapeake Bay must be integrated into the TMDL for nutrients and sediment. Draft Appendix E states that "The potential effects of climate change have not been explicitly accounted for in the current Chesapeake Bay TMDL allocations," despite the commendable efforts described in the Appendix to model potential climate change impacts. It is almost inconceivable that changes in water temperature ("in the Chesapeake Bay watershed, the 2030 estimated temperatures are about 1.5 degrees centigrade higher over the current temperatures"), stream flow rates, precipitation, et cetera will have no net impact on the health of the Bay. Climate change impacts on the Chesapeake Bay watershed undermine assumptions used in watershed modeling, such as the time series data that were used to develop the TMDL for nutrients and sediment. Though complicated, these impacts must be incorporated into the TMDL and from a rational risk-management perspective, greater variability and uncertainty in the modeling demands a more stringent TMDL regime to reduce the risk of having an unhealthy Bay in the future. If climate change impacts are an additional stressor on the Bay's health, other stressors, such as the nutrient and sediment loads may need further reductions to compensate. The sooner the citizens and stakeholders know this, the better.

Response

EPA agrees with all the points raised within the above comment. With the warming of the Chesapeake Bay's water column temperature, as already observed and documented at long term temperature monitoring sites operated by academic institutions on the Bay, the Bay's waters will have a reduced capacity to hold dissolved oxygen. This outcome of climate change alone would signal the need for lower allocations not higher ones.

In developing the Bay TMDL, EPA and its partner jurisdictions used the best scientific, data, information, and tools available to the partnership. The potential effects of future climate change were accounted for in the current Bay TMDL allocations based on a preliminary assessment of climate change impacts on the Chesapeake Bay. Because of well known limitations in the current suite of Bay models to fully simulate the effects of climate change as listed below, EPA and its partners are committed to a more comprehensive assessment in 2017. Effects of climate change already observed in the mid-Atlantic region have been factored in the Bay TMDL through the application of recent records of precipitation, streamflow, and Chesapeake Bay water column temperatures which reflect changes in the regional climate over the past several decades.

A preliminary assessment of climate change impacts on the Chesapeake Bay was conducted, in parallel, using an earlier version of the Phase 5 Bay Watershed Model and tools developed for EPA's BASINS 4 system including the Climate Assessment Tool (see Appendix E in the final Bay TMDL report for details). The results provide an indication of likely precipitation and flow patterns under future potential climate conditions (Linker et al. 2007, 2008) (see Appendix E). Projected temperature increases tend to increase evapotranspiration in the Bay watershed, effectively offsetting increases in precipitation. The preliminary analysis indicated overall decreases in annual stream flow, nitrogen and phosphorus loads. The higher intensity precipitation events yielded estimated increases in annual sediment loads. These preliminary findings support the nitrogen and phosphorus allocations within the Bay TMDL and application of an implicit margin of safety for these two pollutants, recognizing these loads might not increase, even decrease. These same preliminary findings support EPA's decision for an explicit sediment allocation margin of safety, recognizing the potential for increased sediment loads.

EPA and its partners are committed to conducting a more complete analysis of climate change effects on TMDL nitrogen,

phosphorus, and sediment loads, which is to be made during the mid-course assessment of Chesapeake Bay TMDL progress in 2017 as called for in Section 203 of the Chesapeake Executive Order 13508 (May 12, 2009).

Comment ID 0554.1.001.003

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

Much of the pollution imperiling the Bay comes from activities occurring miles from the Bay itself, along the more than 100,000 streams, creeks, rivers and accompanying wetlands that converge to form and replenish this mighty resource. Climate change makes clean-up and restoration efforts ever the more urgent. Sea-level rise, increased storm intensity, changes in weather patterns, warmer temperatures, and the other challenges climate change will bring makes it imperative that the Bay be restored and protected to allow for its natural functions to provide the type of pollution controls and quality habitat that will allow for the Bay to again flourish.

These challenges must be addressed forcefully by the TMDL. Climate change presents imminent challenges that are new and unprecedented. It means that past data on weather and climate events are no longer reliable indicators of what is to come. As such, the Draft TMDL must use modeling that looks forward and accounts for climate change. To the extent uncertainty surrounds such analysis, an explicit margin of safety must be built into the final TMDL. A failure to do this will mean that pollution limits in the TMDL will not be adequate to clean up the Bay, even if they would have been adequate under historic weather patterns.

Response

In developing the Bay TMDL, EPA and its partner jurisdictions used the best scientific, data, information, and tools available to the partnership. The potential effects of future climate change were accounted for in the current Bay TMDL allocations based on a preliminary assessment of climate change impacts on the Chesapeake Bay. Because of well known limitations in the current suite of Bay models to fully simulate the effects of climate change as listed below, EPA and its partners are committed to a more comprehensive assessment in 2017. Effects of climate change already observed in the mid-Atlantic region have been factored in the Bay TMDL through the application of recent records of precipitation, streamflow, and Chesapeake Bay water column temperatures which reflect changes in the regional climate over the past several decades.

A preliminary assessment of climate change impacts on the Chesapeake Bay was conducted, in parallel, using an earlier version of the Phase 5 Bay Watershed Model and tools developed for EPA's BASINS 4 system including the Climate Assessment Tool (see Appendix E in the final Bay TMDL report for details). The results provide an indication of likely precipitation and flow patterns under future potential climate conditions (Linker et al. 2007, 2008) (see Appendix E). Projected temperature increases tend to increase evapotranspiration in the Bay watershed, effectively offsetting increases in precipitation. The preliminary analysis indicated overall decreases in annual stream flow, nitrogen and phosphorus loads. The higher intensity precipitation events yielded estimated increases in annual sediment loads. These preliminary findings support the nitrogen and phosphorus allocations within the Bay TMDL and application of an implicit margin of safety for these two pollutants, recognizing these loads might not increase, even decrease. These same preliminary findings support EPA's decision for an explicit sediment allocation margin of safety,

recognizing the potential for increased sediment loads.

EPA and its partners are committed to conducting a more complete analysis of climate change effects on TMDL nitrogen, phosphorus, and sediment loads, which is to be made during the mid-course assessment of Chesapeake Bay TMDL progress in 2017 as called for in Section 203 of the Chesapeake Executive Order 13508 (May 12, 2009).

Comment ID 0554.1.001.006

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

EPA's plan to expand NPDES permitting to achieve water quality compliance in the Bay will likely fail unless TMDL accounts for the reality of climate change

Response

In developing the Bay TMDL, EPA and its partner jurisdictions used the best scientific, data, information, and tools available to the partnership. The potential effects of future climate change were accounted for in the current Bay TMDL allocations based on a preliminary assessment of climate change impacts on the Chesapeake Bay. Because of well known limitations in the current suite of Bay models to fully simulate the effects of climate change as listed below, EPA and its partners are committed to a more comprehensive assessment in 2017. Effects of climate change already observed in the mid-Atlantic region have been factored in the Bay TMDL through the application of recent records of precipitation, streamflow, and Chesapeake Bay water column temperatures which reflect changes in the regional climate over the past several decades.

A preliminary assessment of climate change impacts on the Chesapeake Bay was conducted, in parallel, using an earlier version of the Phase 5 Bay Watershed Model and tools developed for EPA's BASINS 4 system including the Climate Assessment Tool (see Appendix E in the final Bay TMDL report for details). The results provide an indication of likely precipitation and flow patterns under future potential climate conditions (Linker et al. 2007, 2008) (see Appendix E). Projected temperature increases tend to increase evapotranspiration in the Bay watershed, effectively offsetting increases in precipitation. The preliminary analysis indicated overall decreases in annual stream flow, nitrogen and phosphorus loads. The higher intensity precipitation events yielded estimated increases in annual sediment loads. These preliminary findings support the nitrogen and phosphorus allocations within the Bay TMDL and application of an implicit margin of safety for these two pollutants, recognizing these loads might not increase, even decrease. These same preliminary findings support EPA's decision for an explicit sediment allocation margin of safety, recognizing the potential for increased sediment loads.

EPA and its partners are committed to conducting a more complete analysis of climate change effects on TMDL nitrogen, phosphorus, and sediment loads, which is to be made during the mid-course assessment of Chesapeake Bay TMDL progress in 2017 as called for in Section 203 of the Chesapeake Executive Order 13508 (May 12, 2009).

Comment ID 0554.1.001.008

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

As EPA has noted, and as is described in both EO 13,508 and the Draft Bay Strategy, science is clear that climate change will increase pollutant loading to waters in the Bay's basin due to more intense storm events, more destructive storm surges and increased erosion from sea level rise, and will exacerbate the negative impacts of existing pollution by increasing biological activity that feeds on nutrients in water, depleting oxygen and enlarging dead zones. Therefore, the impacts of climate change must be accounted for in the TMDL or the TMDL targets will fall short of what is required for clean-up.

Response

EPA agrees that the possible impacts of future climate change must be accounted for in the Bay TMDL. In developing the Bay TMDL, EPA and its partner jurisdictions used the best scientific, data, information, and tools available to the partnership. The potential effects of future climate change were accounted for in the current Bay TMDL allocations based on a preliminary assessment of climate change impacts on the Chesapeake Bay. Because of well known limitations in the current suite of Bay models to fully simulate the effects of climate change as listed below, EPA and its partners are committed to a more comprehensive assessment in 2017. Effects of climate change already observed in the mid-Atlantic region have been factored in the Bay TMDL through the application of recent records of precipitation, streamflow, and Chesapeake Bay water column temperatures which reflect changes in the regional climate over the past several decades.

A preliminary assessment of climate change impacts on the Chesapeake Bay was conducted, in parallel, using an earlier version of the Phase 5 Bay Watershed Model and tools developed for EPA's BASINS 4 system including the Climate Assessment Tool (see Appendix E in the final Bay TMDL report for details). The results provide an indication of likely precipitation and flow patterns under future potential climate conditions (Linker et al. 2007, 2008) (see Appendix E). Projected temperature increases tend to increase evapotranspiration in the Bay watershed, effectively offsetting increases in precipitation. The preliminary analysis indicated overall decreases in annual stream flow, nitrogen and phosphorus loads. The higher intensity precipitation events yielded estimated increases in annual sediment loads. These preliminary findings support the nitrogen and phosphorus allocations within the Bay TMDL and application of an implicit margin of safety for these two pollutants, recognizing these loads might not increase, even decrease. These same preliminary findings support EPA's decision for an explicit sediment allocation margin of safety, recognizing the potential for increased sediment loads.

EPA and its partners are committed to conducting a more complete analysis of climate change effects on TMDL nitrogen, phosphorus, and sediment loads, which is to be made during the mid-course assessment of Chesapeake Bay TMDL progress in 2017 as called for in Section 203 of the Chesapeake Executive Order 13508 (May 12, 2009).

Comment ID 0554.1.001.010

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

A. The Draft TMDL Fails to Properly Account for the Polluting Impacts of Climate Change on the Bay.

Science is clear that climate change will greatly impact water quality. It will both increase pollutant loading to waters and make existing pollution problems more acute. Thus, current assumptions about pollutant loading will not hold true in the near future unless they account for the impacts of climate change. This is especially true of the Bay, which faces a host of threats from climate change that will increase nutrient and sediment loading, and make the harmful effects of the those pollutants more severe. As such, the TMDL must account for the pressing reality of climate change and how it will impact pollutant loading into the Bay and its watershed.

EPA has put forth a goal to "adapt implementation of core water programs to maintain and improve program effectiveness in the context of a changing climate."[FN25] EO 13,508 additionally mandates that lead agencies such EPA "assess the impacts of a changing climate on the Chesapeake Bay and develop a strategy for adapting natural resource programs and public infrastructure to the impacts of a changing climate on water quality and living resources of the Chesapeake Bay watershed."[FN26]

EPA has acknowledged that climate change will cause several alarming threats to water quality such as shorelines moving as a result of sea level rise, changes to ocean chemistry that alter aquatic habitat and fisheries, warming water temperatures that change contaminant concentrations in water and alter aquatic system uses, new patterns of rainfall and snowfall that alter water supply for drinking and other uses and lead to changes in pollution levels in aquatic systems, and more intense storms that threaten water infrastructure and increase polluted stormwater runoff.[FN27] Specifically, EPA has concluded that "[t]he number of waters recognized as ‘impaired' is likely to increase, even if pollution levels are stable."[FN28] This is largely because warmer temperatures will lead to warmer water, which holds less oxygen, and can foster harmful algal blooms and increase the toxicity of some pollutants.[FN29] Similarly, EPA has found that more extreme water-related events, such as increased and more intense storms, will have negative water quality impacts by causing more intense flooding and other events that result in high flows, increased sediment and erosion, and a resulting increase in nutrients, pathogens, and toxins entering waterbodies.[FN30]

Temperature increases will also change aquatic biology, disrupting aquatic system health and often resulting in the establishment of invasive and non-indigenous species in certain waters at the expense of native species.[FN31] As EPA has determined, this alone may "result in significant deterioration of aquatic ecosystem health in some areas."[FN32] Indeed, existing permitted infrastructure may prove less effective in dealing with water quality problems in the face of climate change. Given the above threats caused by climate change, EPA has concluded that existing treatment systems already permitted under the Clean Water Act, such as waste treatment systems, municipal stormwater systems, and combined sewer overall flow systems, may be overwhelmed by changes caused by climate change.[FN33] Additionally, climate change will displace shore lines, change flow rates in streams and lakes, change the size of streams and wetlands, and result in other disruptions relating to the flow, quantity, and presence of water in many of our waters.[FN34]

The impacts of climate change on the Chesapeake Bay have been well documented. For instance, the Federal Leadership Committee for the Chesapeake Bay, of which EPA is a member, has found in its Draft Bay Strategy that

available information is sufficient to begin adapting to and mitigating the most [climate change] impact scenarios and to raise awareness among policy makers and the public. Impacts to the Bay and watershed are expected as a result of sea-level rise; increases in water temperature, acidity, and salinity; and changing rainfall patterns and increases in rainfall intensity. Many of the region's urban centers and significant ecosystems are in low-lying areas that are particularly vulnerable to sea-level rise and storm surge. The impacts of climate change extend to infrastructure, habitat, fish and wildlife populations, stream flow, water quality and valued Bay landscapes and waters. Climate change threatens past restoration gains and the effectiveness of future actions to protect and restore the Chesapeake Bay and its watershed.[FN35]

Further, the report produced under Section 202(d) of EO 13,508, describes the water quality and other impacts of climate change "on the Chesapeake Bay and its watershed resulting from sea-level rise, increases in temperature, acidity, and salinity, and changing rainfall patterns and increases in rainfall intensity."[FN36] For example, the report notes that as both ambient and water temperatures increase with climate change, "the concentrations of dissolved oxygen in the Chesapeake Bay, its tributaries, and upland streams [will] decrease," which "may have a significant effect on water quality."[FN37] Further, the report finds that "[c]limate change will impact ecosystem functions related to water quality such as denitrification and sediment storage," and that increased precipitation variability and intensity, and associated increases in stream flow and erosion, will increase nutrient and sediment loads and "will have profound effects on river discharge, nutrient loadings, Bay productivity, and dissolved oxygen levels, ultimately affecting all or most ecosystems in what are now ‘designated use' areas within Chesapeake Bay."[FN38] Accordingly, the report concludes that "due to the potentially significant impacts from climate change, resource managers should err on the side of being more aggressive when establishing restoration and conservation goals" and recommends that agencies "[a]ssess climate impacts on water quality restoration program priorities (e.g., Total Maximum Daily Load assessments and Tributary Strategies)."[FN39]

Following from these well-documented findings, the Draft Bay Strategy sets forth as an initiative "[u]ndertak[ing] a concerted effort to coordinate climate change science and adaptation throughout the watershed," under which it concludes that "[l]inking science with management is essential for making the decisions today about potential impacts on water quality and related plans to meet the Bay TMDL and that will increase resiliency of Bay communities and habitats to future climate change impacts."[FN40] As stated above, EO 13,508 places an additional mandate on agencies such as EPA to assess climate change impacts on water quality and to develop a strategy to adapt to such impacts.

Other evidence also clearly indicates that in order to achieve water quality standards in the Bay, the TMDL must account for climate change impacts. Several studies, including those by the State of Maryland Commission on Climate Change and the Chesapeake Bay Program's Science and Technical Advisory Committee, have concluded that for the Chesapeake Bay and coastal ecosystems, "[i]ncreased winter-spring runoff [due to climate change] would wash more nutrients into the Bays and higher temperatures and stronger density stratification in the estuaries would tend to exacerbate water quality impairment."[FN41] As such, the Maryland Commission on Climate Change's study and other studies have concluded that "nutrient loads would have to be reduced beyond current targets to achieve water quality requirements."[FN42] Studies have additionally determined that "[v]ery significant changes are also likely to occur that affect sediment delivery and sedimentation in the estuaries, but are difficult to quantitatively predict. These include potential increases in sediment load from rivers as a result of increased runoff and more erosive extreme discharge events, including those caused by hurricanes, and from shoreline and wetland erosion as a result of accelerated sea-

level rise."[FN43]

Despite this overwhelming evidence regarding the impacts of climate change on water quality in the Bay, EPA has failed to meaningful incorporate climate change considerations into the Draft TMDL. Indeed, the Draft TMDL admits this shortcoming: "The potential effects of climate change have not been explicitly accounted for in the current Bay TMDL beyond application of the 10-year hydrologic period because of staff resource and time constraints and known limitations in the current suite of Bay models to fully simulate the effects of climate change."[FN44]

[FN25] U.S. Environmental Protection Agency, Office of Water, National Water Program Strategy: Response to Climate Change (hereinafter "National Water Program Climate Strategy"), EPA 800-R-08-001 (September 2008) at 23.

[FN26] 74 Fed. Reg. at 23,100.

[FN27] National Water Program Climate Strategy, at ii.

[FN28] Id.

[FN29] Id.

[FN30] Id.

[FN31] Id. at ii-iii.

[FN32] Id. at iii.

[FN33] See National Water Program Climate Strategy at 13 ("water quality changes may be observed in the future as a result of overloading the capacity of water and wastewater treatment plants during extreme rainfall") (quotations and citation omitted).

[FN34] Id. at ii.

[FN35] EO 13,508: Draft Strategy for Protecting and Restoring the Chesapeake Bay (hereinafter "Draft Bay Strategy") (November 9, 2009) at 21-2.

[FN36] Responding to Climate Change in the Chesapeake Bay Watershed: A draft report fulfilling Section 202(d) of Executive Order 13,508 (hereinafter "Bay Climate Change Report") (November 19, 2009) at 7; see generally id. at 6-21.

[FN37] Id. at 13.

[FN38] Id. at 15-16.

[FN39] Id. at 16, 32 (emphasis added).

[FN40] Draft Bay Strategy at 43.

[FN41] Maryland Commission on Climate Change,
Climate Change Action Plan (Aug. 2008) at Exec. Sum. p.15; see also Pyke, C. R., et al, Climate Change and the Chesapeake Bay: State-of-the-Science Review and Recommendations (Sept. 2008), at 5 ("[w]arming and greater winter-spring streamflow will increase hypoxia"); Najjar, R.G., et al, The potential impacts of climate change on the mid-Atlantic coastal region, CLIMATE RESEARCH, 14: 219-233 (2000), at 225-226; Boesch, D.F., et al, Coastal Dead Zones & Global Climate Change: Ramifications of Climate Change for Chesapeake Bay Hypoxia (Dec. 2007), available at http://www.pewclimate.org/docUploads/Regional-Impacts-Chesapeake.pdf at 11 (last visited Nov. 1, 2010) ("many of the anticipated changes (increased streamflow, warmer temperatures, calmer summer winds, and increased depth due to sea-level rise) [caused by climate change in the Chesapeake] would move the ecosystem in the direction of worsening hypoxia").

[FN42] Climate Change Action Plan, at Exec. Sum. p.15; see also Boesch, at 11 ("If the bay does face these anticipated changes [(increased streamflow, warmer temperatures, calmer summer winds, and increased depth due to sea-level rise)], nutrient loads would have to be reduced further - beyond current targets - to meet the water quality objectives needed to support living resources.").

[FN43] Climate Change Action Plan, at Exec. Sum. p.15.

[FN44] Draft TMDL at § 5.11, p.5-41

Response

The potential effects of future climate change were accounted for in the current Bay TMDL allocations based on a preliminary assessment of climate change impacts on the Chesapeake Bay. Because of well known limitations in the current suite of Bay models to fully simulate the effects of climate change as listed below, EPA and its partners are committed to a more comprehensive assessment in 2017. Effects of climate change already observed in the mid-Atlantic region have been factored in the Bay TMDL through the application of recent records of precipitation, streamflow, and Chesapeake Bay water column temperatures which reflect changes in the regional climate over the past several decades.

A preliminary assessment of climate change impacts on the Chesapeake Bay was conducted, in parallel, using an earlier version of the Phase 5 Bay Watershed Model and tools developed for EPA's BASINS 4 system including the Climate Assessment Tool (see Appendix E in the final Bay TMDL report for details). The results provide an indication of likely precipitation and flow patterns under future potential climate conditions (Linker et al. 2007, 2008) (see Appendix E). Projected temperature increases tend to increase evapotranspiration in the Bay watershed, effectively offsetting increases in precipitation. The preliminary analysis indicated overall decreases in annual stream flow, nitrogen and phosphorus loads. The higher intensity precipitation events yielded estimated increases in annual sediment loads. These preliminary findings support the nitrogen and phosphorus allocations within the Bay TMDL and application of an implicit margin of safety for these two pollutants, recognizing these loads might not increase, even decrease. These same preliminary findings support EPA's decision for an explicit sediment allocation margin of safety, recognizing the potential for increased sediment loads.

EPA and its partners are committed to conducting a more complete analysis of climate change effects on TMDL nitrogen, phosphorus, and sediment loads, which is to be made during the mid-course assessment of Chesapeake Bay TMDL progress in 2017 as called for in Section 203 of the Chesapeake Executive Order 13508 (May 12, 2009).

To carry out a more complete analysis of climate change effects, changes will needed to the current suite of Bay models and tools including:

• Applying the results from the next generation of global climate change models to develop the best available estimates of the effects of climate change on the mid-Atlantic region.

• Developing a better means for downscaling the results from the applicable global climate change models to match the finer segmentation of the Phase 5.3 Chesapeake Bay Watershed Model.

• Developing the means to better understand and fully simulate the interactions between increased evapotranspiration and high intensity precipitation events within the Chesapeake Bay Watershed Model.

• Building the capacity to simulate the effects of change in tidal water column temperatures on all the existing temperature dependent rates and processes currently simulated with the hydrodynamic, estuarine water quality, sediment transport, living resources and filter feeder component models of the Chesapeake Bay Water Quality and Sediment Transport model.

• Reevaluate the temperature dependent effects on key species and communities (e.g., eelgrass) to ensure the latest scientific understanding has been factored into the suite of Bay models.

Comment ID 0554.1.001.013

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

as a recent draft report has found, past hydrologic data is unlikely to properly account for the impacts of climate change and is unlikely to accurately represent future conditions. Thus, data from 1990s is not likely an accurate gauge for Bay conditions over the next decade. In this draft report, A Method to Assess Climate Change Relevant Decisions: Application in the Chesapeake Bay, EPA acknowledges that past historical data is no longer going to be reliable in assessing future conditions, stating that "water managers often rely on historical precipitation data, implicitly assuming stationarity or an unchanging climate. Since decision makers can act to ameliorate or exacerbate their vulnerability to climate change, it is critical that they have practical, yet systematic information and tools for identifying and understanding risks and opportunities posed by a dynamic climate."[FN49] New modeling is needed to look forward and predict changes in precipitation, temperature, rainfall intensity, snowmelt and other factors in the Bay that will be influenced by climate change.[FN50] Further supporting the need for data that incorporates climate change, the Council on Environmental Quality initiated an Interagency Climate Change Adaptation Task Force, which issued a report urging agencies to use a "flexible, forward-thinking approach that moves away from using past conditions as indicators of the future."[FN51]

The reason proper hydrologic period data is necessary for the TMDL to be both successful and in compliance with the CWA is that it is used to determine WLAs, LAs and MOS.[FN52] If this data is not representative of future conditions because rainfall, temperature and other conditions over the next decade is not going to mimic conditions from two decades ago - which climate science tells is almost certainly going to be the case - than the limits derived from this data are not going to be protective. This is a serious flaw. It is imperative this flaw be addressed.

[FN49] EPA, A Method to Assess Climate-Relevant Decisions: Application in the Chesapeake Bay, DRAFT, (June 2010). Although this report states that it is an External Review Draft and should not be cited, it is ironic that this report, EPA encourages changes based on impending climate change to assist in the adaptation process, yet simultaneously publishes a TMDL that does just the opposite.

[FN50] EPA, A Method to Assess Climate-Relevant Decisions: Application in the Chesapeake Bay, DRAFT, (June 2010). Although this report states that it is an External Review Draft and should not be cited, it is ironic that this report, EPA encourages a hard look at climate change to assist in the adaptation process, yet simultaneously publishes a TMDL that does just the opposite.

[FN51] White House Council on Environmental Quality, Progress Report of the Interagency Climate Change Adaptation Task Force: Recommended Actions in Support of a National Climate Change Adaptation Strategy, 25 (October 5, 2010).

[FN52] See Draft TMDL §6.2.3 6-11-6-12; see also Draft TMDL, Appendix F, Determination of the Hydrologic Period for Model Application.

Response

Please refer to the detailed response to comment 0554.1.001.010.

Response to Public Comments: Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

Issue Category: 11. Critical Conditions

Pages 1099 – 1101

December 29, 2010

Docket #: EPA-R3-OW-2010-0736

11 - CRITICAL CONDITIONS

Comment ID 0227.1.001.014

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

We support EPA's decisions on the model parameters, such as hydrologic period and critical conditions (section 6.1),

Response

EPA acknowledges this comment and its support of EPA’s decisions on the hydrologic period and critical conditions for the 2010 Bay TMDL.

Comment ID 0230.1.001.040

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

B. EPA's Critical Period Is Appropriate

HRSD concurs with EPA's decision to use 1993-95 as the critical period for the nutrient TMDL. [FN71] This period had relatively high winter-spring inflows, but not so extreme that the TMDL would be based on an extremely rare hydrologic event. A TMDL based on 1993-95 hydrology will be protective under the great majority of hydrologic conditions.

[FN71] See July 16, 2009 Technical Memorandum from C. Bell to C. Pomeroy (Analysis of January-May Inflows to the Chespeake Bay during the 1996-98 Period) and follow-up materials (attached hereto as Appendix 40).

Response

EPA agrees with the comments and recognizes the significant technical contributions made by VAMWA and its technical contractor to EPA and its jurisdictional partners selection of the 1993-1995 critical period.

Comment ID 0272.2.001.009

Author Name: Pippel Julie

Organization: Maryland Association of Municipal Wastewater Agencies, Inc. (MAMWA)

EPA's Use of the 1993-1995 Critical Period Is Appropriate

MAMWA concurs with EPA's decision to use 1993-95 as the critical period for the nutrient TMDL. This period had relatively high winter-spring inflows, but not so extreme that the TMDL would be based on an extremely rare hydrologic event. A TMDL based on 1993-95 hydrology will be protective under the great majority of hydrologic conditions.

Response

EPA acknowledges this comment and its support of EPA's decision to use 1993-1995 as the critical period for the 2010 Bay TMDL.

Comment ID 0288.1.001.022

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

B. EPA's Critical Period Is Appropriate

VAMWA concurs with EPA's decision to use 1993-95 as the critical period for the nutrient TMDL. [FN71] This period had relatively high winter-spring inflows, but not so extreme that the TMDL would be based on an extremely rare hydrologic event. A TMDL based on 1993-95 hydrology will be protective under the great majority of hydrologic conditions.

[FN71] See July 16, 2009 Technical Memorandum from C. Bell to C. Pomeroy (Analysis of January-May Inflows to the Chesapeake Bay during the 1996-98 Period) and follow-up materials (attached hereto as Appendix 40). [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A40]

Response

EPA agrees with the comments and recognizes the significant technical contributions made by VAMWA and its technical contractor to EPA and its jurisdictional partners selection of the 1993-1995 critical period.

Comment ID 0590.1.001.008

Author Name: Chavez Jennifer

Organization: Earthjustice et al.

6. Critical Conditions: EPA's initial analysis found that 1996-98 represented the highest streamflow period for the Chesapeake Bay draining during the 1991-2000 hydrology period. TMDL at 6-3 to -4. However, EPA is proposing to reject use of 1996-98 for TMDL modeling because this 3-year period represented a "high-flow period" that would generally occur once every 20 years. EPA does no offer a reasoned explanation of why that fact disqualifies 1996-98 as the reference critical flow period, and no rational explanation appears to exist. A twenty year period is hardly an excessive time frame for gauging critical flows, particularly give that EPA is proposing to allow the states 15 years to implement the Bay TMDLs. Moreover, EPA itself acknowledges elsewhere in the document that climate change induced by greenhouse gas emissions is likely to lead to increases in rainfall in the Bay region, making the 1996-98 period more, not less representative.

Response

The rationale for choosing 1993-1995 with a return period of approximately 10 years as the critical period documented in detail in Appendix G of the final Bay TMDL. Appendix G provides an extensive review of how critical periods were selected in other TMDLs drawn from around the country as well as the seven Chesapeake Bay watershed jurisdictions. 7Q10, which has a return period of 10 years, is often chosen for critical conditions. Other state-developed and EPA-approved TMDLs use high, low, and average flows as critical conditions which would tend to give more of an average result. Still other state-developed and EPA-approved TMDLs choose the highest flow or worst water quality year on record, however, these may not have extensive data records so it is not reasonable to assume a return period of longer than 10 years. No examples of TMDLs with a 20-year return period for critical conditions were found as a result of this comprehensive review of critical conditions.

The commenter’s concern about addressing effects from future climate change needs to be addressed more wholistically across all components of the Bay TMDL, not just within the selection of a critical period. EPA agrees that the possible impacts of future climate change must be accounted for in the Bay TMDL. The 2010 Chesapeake Bay TMDL accounts for climate change impacts observed to date by its dependence on a decadal hydrologic period representative of the recent recorded hydrology. However, current hydrology will not ensure protection against future hydrological conditions influences by changed climate change. To fully assess the possible impacts, there is much work to be done to build the capacity for quantifying the impacts that the scale of the Bay TMDL—92 Bay segments and their surrounding watersheds down to the scales of the Phase II Watershed Implementation Plans’ target loads—into the full suite of Bay models and other decision support tools.

EPA and its partners are committed a more complete analysis of climate change effects on TMDL nutrient and sediment to be made during the mid-course assessment of Chesapeake TMDL progress in 2017, as called for in Section 203 of the Chesapeake Executive Order (May 12, 2009), accessible at http://executiveorder.chesapeakebay.net/EO/file.axd?file=2009%2f8%2fChesapeake+Executive+Order.pdf. As new scientific understanding becomes available, EPA has committed to take an adaptive management approach to the Bay TMDL and factor that new understanding into the Bay TMDL, in this case during the mid-course assessment.

Response to Public Comments: Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

Issue Category: 12. Seasonal Variation

Pages 1102 – 1102

December 29, 2010

Docket #: EPA-R3-OW-2010-0736

12 - SEASONAL VARIATION

No Comments are Applicable to this Issue Category, and Thus No Response is Necessary.

Response to Public Comments: Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

Issue Category: 13. Margin of Safety

Pages 1103 – 1118

December 29, 2010

Docket #: EPA-R3-OW-2010-0736

13 - MARGIN OF SAFETY

Comment ID 0169.1.001.016

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

Many of the TMDL limits are targeted to pollutant reduction levels that are considerably less than the margin of uncertainty in the modeling process itself. Dr. Kathy Boomer of the Smithsonian Institute has conducted specific research and concluded that the margin of uncertainty in the TMDL models was much greater than the reductions being sought in pollutant loading. Dr. Ken Reckhow of Duke University (who chaired the Chesapeake Bay TMDL Review Committee for the National Academy) has repeatedly cautioned regulators against reporting modeling results without stipulating the uncertainty. Dr. Reckhow notes that TMDL prediction uncertainty is high, and Chesapeake Bay modelers have had issues with political decision makers being able to understand uncertainty. However, Section 5 of the Draft TMDL states:

"Models have some inherent uncertainty. Because of the amount of data and resources taken to develop, calibrate, and verify the accuracy of the Bay models, the uncertainly of the suite of models is minimized."

Quite the opposite is true-the amount of data and complexity of the system work to increase the uncertainty, particularly when the source and content of the data have not been disclosed. Such a statement cannot be substantiated, and certainly not with vague assurances that the model is based on "good" or "strong" science.

It is important to note that the mathematical equation for a TMDL is: TMDL = Sum of Wasteload Allocations + Sum of Load Allocations + Margin of Safety

and the margin of safety is supposed to account for uncertainty in ensuring that the TMDL is effective, but there are errors and uncertainties in the computation of the load allocations themselves.

Response

EPA recognizes the need and desire for a clear quantification of uncertainty. However, given the complexity and scale of the Bay TMDL and the suite of model simulation and other decision support tools applied in its development, there is no single system in place for producing a simple quantification of uncertainty. EPA was fortunate to have access to Dr. Ken Reckhow as a member of an independent scientific peer review panel reviewing the Phase 5 Chesapeake Bay Watershed Model as well as in the capacity described by the commenter. Dr. Reckhow made similar recommendations as part of the final peer review panel's report to the Chesapeake Bay Program partnership. EPA is committed to working the 'best and the brightest' minds on this extremely complex problem, but at the time of development of the Bay TMDL, EPA needed to make decisions based on the best available scientific understanding and model simulation tools.

EPA acknowledges that uncertainty is always present in the application of model estimates in a TMDL. TMDL decision rules allow

for either an implicit or an explicit margin of safety (MOS). Under EPA's regulations, a TMDL is mathematically expressed as TMDL = WLA + LA + MOS where: TMDL is the total maximum daily load for the water segment; WLA is the wasteload allocation, or the load allocated to point sources; LA is the load allocation, or the load allocated to nonpoint sources; and MOS is the margin of safety to account for any uncertainties in the supporting data and the model.

The margin of safety (MOS) is the portion of the pollutant loading reserved to account for any lack of knowledge concerning the relationship between LAs and WLAs and water quality [CWA 303(d)(1)(c) and 40 CFR 130.7(c)(1)]. For example, knowledge is incomplete regarding the exact nature and magnitude of pollutant loads from various sources and the specific impacts of those pollutants on the chemical and biological quality of complex, natural waterbodies. The MOS is intended to account for such uncertainties in a manner that is conservative from the standpoint of environmental protection. On the basis of EPA guidance, the MOS can be achieved through two approaches: (1) implicitly incorporate the MOS by using conservative model assumptions to develop allocations; or (2) explicitly specify a portion of the TMDL as the MOS and use the remainder for allocations.

In the absence of a clear quantification of uncertainty applicable across the full of Bay models, EPA and its jurisdictional partners made a series of decisions regarding MOS. In the Chesapeake TMDL the nutrient allocations applied an implicit MOS; for sediment loads an explicate MOS was used as described in detail in Section 6 of the TMDL documentation. These decisions were made based on an in-depth understanding of data, conservative assumptions, and calibration decisions within the suite of Bay models.

Comment ID 0227.1.001.016

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

We agree with EPA's rationale for using the "implicit" Margin of Safety for the nutrient allocations.

Response

EPA acknowledges this comment and its support on the application of an implicit margin of safety for nutrients as described in detail in Section 6 of the final Bay TMDL.

Comment ID 0230.1.001.041

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

C. EPA's Use of An Implicit Margin of Safety Is Appropriate

The Draft TMDL depends on a very complex framework of water quality standards, assessment methodologies, and models to derive allocations; each with its own environmental conservatism. This combined framework results in a sum

level of conservatism reflecting all of the contributing sources of conservatism.

For example, the water quality criteria themselves are conservative, as stated in the original criteria document (EPA CBPO, 2003): "…these criteria were developed with conservative (protective) assumptions, allowing a small percentage of circumstances in which the criteria may be exceeded will still fully protect the tidal-water designated uses."

The assessment methodology includes several conservative elements, such as the fact that any exceedance of the cumulative frequency distribution ("CFD") reference curve is considered a potential violation, even if the segment being assessed has a lower total violation rate in time-space (i.e., area under the CFD curve) than the reference condition. The use of the default 10- percent reference curve for some criteria is also conservative in that Bay sites that are believed to be complying with standards are being found not to be in compliance based on conservative assumptions of the TMDL. The fact that the TMDL is developed for a critical 3-year condition, instead of average conditions, provides another layer of conservatism.

Furthermore, although the model is not designed to be explicitly conservative, a review of the UMD/MAWP Year 1 and Year 2 BMP efficiency reports revealed many examples of where conservatively low BMP efficiencies were selected for use with the Phase 5 watershed model. For example:

<Refer to Table Listing BMP Efficiency Reports per BMP on page 46 of Comment Letter EPA-R03-OW-2010-0736-0230>

The Bay Program Office has identified specific sources of environmental conservatism that are built into the analysis that justify an implicit margin of safety for the TMDL:

• The fact that allocations to achieve D.O. standards are driven by a relatively small area in the Bay (segment CB4), and that most of the rest of the Bay system would achieve DO standards under higher nutrient loading levels.

• The fact that 100% of point sources are assumed in model scenarios to operate at their maximum permissible loading levels, which is highly unlikely to ever occur.

Given the multiple layers of conservatism in the TMDL allocation process, HRSD supports EPA's decision to use an implicit margin of safety.

Response

EPA acknowledges this comment and its support on the application of an implicit margin of safety for nutrients as described in detail in Section 6 of the final Bay TMDL.

Comment ID 0272.2.001.010

Author Name: Pippel Julie

Organization: Maryland Association of Municipal Wastewater Agencies, Inc. (MAMWA)

EPA's Use of an Implicit Margin of Safety Is Appropriate

MAMWA concurs with EPA's decision to use an implicit margin of safety for development of the TMDL. The Draft TMDL depends on a very complex framework of water quality standards, assessment methodologies, and models to derive allocations, each with its own environmental conservatism. This combined framework results in a sum level of conservatism reflecting all of the contributing sources of conservatism. For example, the water quality criteria themselves are conservative, as stated in the original criteria document (EPA CBPO, 2003):

…these criteria were developed with conservative (protective) assumptions, allowing a small percentage of circumstances in which the criteria may be exceeded will still fully protect the tidal-water designated uses.

The assessment methodology includes several conservative elements, such as the fact that any exceedance of the cumulative frequency distribution ("CFD") reference curve is considered a potential violation, even if the segment being assessed has a lower total violation rate in time-space (i.e., area under the CFD curve) than the reference condition. The use of the default 10-percent reference curve for some criteria is also conservative in that Bay sites that are believed to be complying with standards are being found not to be in compliance based on conservative assumptions of the TMDL. The fact that the TMDL is developed for a critical 3-year condition, instead of average conditions, provides another layer of conservatism.

Furthermore, although the model is not designed to be explicitly conservative, a review of the UMD/MAWP Year 1 and Year 2 BMP efficiency reports revealed many examples of where conservatively low BMP efficiencies were selected for use with the Phase 5 watershed model. For example:

[Please see page 8 of the original letter (Docket ID # EPA-R03-OW-2010-0736-0272.2) for the table presented.]

The Bay Program Office has identified specific sources of environmental conservatism that are built into the analysis that justify an implicit margin of safety for the TMDL:

--The fact that allocations to achieve D.O. standards are driven by a relatively small area in the Bay (segment CB4), and that most of the rest of the Bay system would achieve D.O. standards under higher nutrient loading levels.
--The fact that 100% of point sources are assumed in model scenarios to operate at their maximum permissible loading levels, which is highly unlikely to ever occur.

Given the multiple layers of conservatism in the TMDL allocation process, MAMWA supports EPA's decision to use an implicit margin of safety.

Response

EPA acknowledges this comment and its support on the application of an implicit margin of safety for nutrients as described in detail in Section 6 of the final Bay TMDL.

Comment ID 0288.1.001.023

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

C. EPA's Use of An Implicit Margin of Safety Is Appropriate

The Draft TMDL depends on a very complex framework of water quality standards, assessment methodologies, and models to derive allocations; each with its own environmental conservatism. This combined framework results in a sum level of conservatism reflecting all of the contributing sources of conservatism.

For example, the water quality criteria themselves are conservative, as stated in the original criteria document (EPA CBPO, 2003): "…these criteria were developed with conservative (protective) assumptions, allowing a small percentage of circumstances in which the criteria may be exceeded will still fully protect the tidal-water designated uses."

The assessment methodology includes several conservative elements, such as the fact that any exceedance of the cumulative frequency distribution ("CFD") reference curve is considered a potential violation, even if the segment being assessed has a lower total violation rate in time-space (i.e., area under the CFD curve) than the reference condition. The use of the default 10-percent reference curve for some criteria is also conservative in that Bay sites that are believed to be complying with standards are being found not to be in compliance based on conservative assumptions of the TMDL. The fact that the TMDL is developed for a critical 3-year condition, instead of average conditions, provides another layer of conservatism.

Furthermore, although the model is not designed to be explicitly conservative, a review of the UMD/MAWP Year 1 and Year 2 BMP efficiency reports revealed many examples of where conservatively low BMP efficiencies were selected for use with the Phase 5 watershed model. For example:

[BMP-Conservative Assumption Chart. Please see original document 0288.1]

The Bay Program Office has identified specific sources of environmental conservatism that are built into the analysis that justify an implicit margin of safety for the TMDL:

The fact that allocations to achieve D.O. standards are driven by a relatively small area in the Bay (segment CB4), and that most of the rest of the Bay system would achieve DO standards under higher nutrient loading levels.
The fact that 100% of point sources are assumed in model scenarios to operate at their maximum permissible loading levels, which is highly unlikely to ever occur.

Given the multiple layers of conservatism in the TMDL allocation process, VAMWA supports EPA‘s decision to use an implicit margin of safety.

Response

EPA acknowledges this comment and its support on the application of an implicit margin of safety for nutrients as described in detail in Section 6 of the final Bay TMDL.

Comment ID 0331.1.001.012

Author Name: Wilson B.

Organization: City of Virginia Beach, Virginia

Many of the TMDL limits are targeted to pollutant reduction levels that are considerably less than the margin of uncertainty in the modeling process itself. Dr. Kathy Boomer of the Smithsonian Institute has conducted specific research and concluded that the margin of uncertainty in the TMDL models was much greater than the reductions being sought in pollutant loading. Dr. Ken Reckhow of Duke University (who chaired the Chesapeake Bay TMDL Review Committee for the National Academy) has repeatedly cautioned regulators against reporting modeling results without stipulating the uncertainty. Dr. Reckhow notes that TMDL prediction uncertainty is high, and Chesapeake Bay modelers have had issues with political decision makers being able to understand uncertainty. However, Section 5 of the Draft TMDL states:

"Models have some inherent uncertainty. Because of the amount of data and resources taken to develop, calibrate, and verify the accuracy of the Bay models, the uncertainly of the suite of models is minimized."

Quite the opposite is true-the amount of data and complexity of the system work to increase the uncertainty, particularly when the source and content of the data have not been disclosed. Such a statement cannot be substantiated, and certainly not with vague assurances that the model is based on "good" or "strong" science.

It is important to note that the mathematical equation for a TMDL is:

TMDL = Sum of Wasteload Allocations + Sum of Load Allocations + Margin of Safety

and the margin of safety is supposed to account for uncertainty in ensuring that the TMDL is effective, but there are errors and uncertainties in the computation of the load allocations themselves.

Response

EPA recognizes the need and desire for a clear quantification of uncertainty. However, given the complexity and scale of the Bay TMDL and the suite of model simulation and other decision support tools applied in its development, there is no single system in place for producing a simple quantification of uncertainty. EPA was fortunate to have access to Dr. Ken Reckhow as a member of an independent scientific peer review panel reviewing the Phase 5 Chesapeake Bay Watershed Model as well as in the capacity described by the commenter. Dr. Reckhow made similar recommendations as part of the final peer review panel's report to the Chesapeake Bay Program partnership. EPA is committed to working the 'best and the brightest' minds on this extremely complex problem, but at the time of development of the Bay TMDL, EPA needed to make decisions based on the best available scientific

understanding and model simulation tools.

EPA acknowledges that uncertainty is always present in the application of model estimates in a TMDL. TMDL decision rules allow for either an implicit or an explicit margin of safety (MOS). Under EPA's regulations, a TMDL is mathematically expressed as TMDL = WLA + LA + MOS where: TMDL is the total maximum daily load for the water segment; WLA is the wasteload allocation, or the load allocated to point sources; LA is the load allocation, or the load allocated to nonpoint sources; and MOS is the margin of safety to account for any uncertainties in the supporting data and the model.

The margin of safety (MOS) is the portion of the pollutant loading reserved to account for any lack of knowledge concerning the relationship between LAs and WLAs and water quality [CWA 303(d)(1)(c) and 40 CFR 130.7(c)(1)]. For example, knowledge is incomplete regarding the exact nature and magnitude of pollutant loads from various sources and the specific impacts of those pollutants on the chemical and biological quality of complex, natural waterbodies. The MOS is intended to account for such uncertainties in a manner that is conservative from the standpoint of environmental protection. On the basis of EPA guidance, the MOS can be achieved through two approaches: (1) implicitly incorporate the MOS by using conservative model assumptions to develop allocations; or (2) explicitly specify a portion of the TMDL as the MOS and use the remainder for allocations.

In the absence of a clear quantification of uncertainty applicable across the full of Bay models, EPA and its jurisdictional partners made a series of decisions regarding MOS. In the Chesapeake TMDL the nutrient allocations applied an implicit MOS; for sediment loads an explicate MOS was used as described in detail in Section 6 of the TMDL documentation. These decisions were made based on an in-depth understanding of data, conservative assumptions, and calibration decisions within the suite of Bay models.

Comment ID 0334.1.001.004

Author Name: Troutman John

Organization: Buchart Horn, Inc.

Pennsylvania Department of Environmental Protection's (PADEP) draft WIP submitted expresses Pennsylvania's 2009 progress for Total Nitrogen as 106,400,000 pounds and Total Phosphorus is listed as 3,960,000 pounds. One of EPA's concerns with the draft WIP was a Total Phosphorus load is 11% above EPA's target. At 3,960,000 pounds, Total Phosphorus is 7% above EPA's "target". There is no acknowledgement on the Total Maximum Daily Load by EPA as to margin of error and the 7% may in fact be within the target load. DEP should be able to add to their phase II and phase III WIP's that loading will be verified and account for adjustments at that time.

Response

The Chesapeake Bay Program has actively and productively worked with DEP in supporting their development of the Phase I WIP and we look forward to refinements and any adjustments in future WIPs as part of the adaptive management approach adopted by the Chesapeake Bay Program. A key part of the CBP adaptive management approach is to plan management changes with the models, but assess attainment of the water quality standards only through the observed monitoring data. Currently, monitoring data, research, and the CBP models all indicate that nutrient loads from the Susquehanna River watershed are too high. Best estimates

available are that reductions of Susquehanna nutrient loads to the 2010 TMDL Allocation level will achieve the water quality standards in the Chesapeake that are protective of its living resources.

Comment ID 0410.1.001.026

Author Name: Pujara Karuna

Organization: Maryland State Highway Administration (SHA)

SHA questions whether the implicit margins of safety of the TMDL are appropriate and reasonable in view of the unprecedented scope and costs of roadway water quality retrofits projected in the Draft Phase I WIP. (add issue of explicit MOS for sediment adjustments based on WIP)

SHA feels that significant margins of safety may not be warranted for wastewater treatment plants as highly regulated sectors of the TMDL, since these entities have shown significant increases in efficiency, are subject to close regulatory scrutiny, and will likely experience future enhancements.

If such margins of safety are carried forward in the TMDL, SHA feels that Maryland's WIP will unfairly burden SHA with inappropriate expectations and costs.

25) The explicit margin of safety employed in the allocation of sediment loads seems to be very arbitrary and we question the validity. Why not allocate the lower number in the sediment range to all sectors?

Response

EPA believes the commenter is mixing reference to an implicit margin of safety with the backstop allocations applied in the jurisdictions' draft Phase I Watershed Implementation Plans. EPA does not apply a margin of safety specifically to individual pollutant source sectors.

In the case of the range in sediment allocations, EPA applied the following set of decision rules to determining a single sediment allocation: where a jurisdictions' Phase I watershed implementation plan contained sediment allocations above the sediment allocation range, EPA set the sediment allocation to equal the high end of the range; where a jurisdictions' Phase I watershed implementation plan contained sediment allocations falling within sediment allocation range, EPA set the sediment allocation to sediment allocation within the jurisdictions' plan; and where a jurisdictions' Phase I watershed implementation plan contained sediment allocations below the sediment allocation range, EPA set the sediment allocation to equal the low end of the range.

Comment ID 0418.1.001.024

Author Name: Devine Jon

Organization: Natural Resources Defense Council (NRDC)

d. TMDL Must Contain An Adequate Margin of Safety

As EPA is aware, a TMDL must include a margin of safety that takes into account any lack of knowledge concerning the relationship between pollution controls and water quality.[FN 43]

i. General Deficiencies in the Margin of Safety

As NRDC understands EPA's reasoning, conservative assumptions in Chesapeake Bay models significantly reduce the degree of uncertainty that the TMDL's allocations will be sufficient to lead to compliance with applicable water quality standards, and therefore allow the Agency to opt for an implicit margin of safety (MOS) for nutrients.[FN 44] However, it is difficult to evaluate the sufficiency of an implicit MOS because EPA did not provide detailed results of the calculations behind its three principal sets of conservative assumptions. [FN 45]

For example, the TMDL does not readily describe the extent to which a select set of deep-water and deep-channel DO standards in the mainstem Bay and adjoining embayments can be achieved despite higher loadings in the remaining Bay segments and tributaries.[FN 46] Despite EPA's confidence in the conservative nature of its allocation approach, the history and difficulty of achieving real pollutant control in the Bay watershed compels the inclusion of explicit MOS, or at very least, incorporation of explicit MOS elements in various TMDL components.

For example, EPA's modeling suggests that, as pollutant loads were reduced, the percent nonattainment for many water bodies consistently declined, "until approximately 1 percent nonattainment."[FN 47] At this point, the Agency seems to accept that watershed demonstrating 1 percent nonattainment "were considered to be in attainment for a segment's designated use for purposes of developing the Chesapeake Bay TMDL."[FN 48] The persistence of water quality violations -- or, perhaps more accurately, the persistence of modeling results suggesting water quality violations in these waters may not be conclusively eliminated by current allocations -- demonstrates the need for marginally reduced allocations.

Similarly, the difference in nutrient effectiveness delivered by the Bay's northern and southern tributaries injects a degree of bias into the allocations system. Reductions achieved in the Susquehanna and other northern tributaries have greater beneficial impact on the Bay health than similar reductions achieved in the York, James and other more southerly tributaries.[FN 49] EPA must account for these differences in effectiveness ratios in any interstate or interbasin trading programs by insisting on a greater than 1:1 credit-offset ratio when credits from less effective watersheds are applied in those with higher effectiveness ratios. This variability in the relative effectiveness of reductions is another reason to include an explicit MOS.

As a first step, NRDC suggests that the 5% temporary reserve identified by EPA should be retained, and incorporated into revised allocations as an explicit Margin of Safety.

ii. Lack of Margin of Safety to Account for Climate Change

EPA notes that climate change effects have not been explicitly accounted for in the TMDL "because of staff resource and time constraints and known limitations in the current suite of Bay models to fully simulate the effects of climate change."[FN 50] Instead, EPA claims climate change is adequately addressed because of an implicit margin of safety for nutrient loading and an explicit margin of safety for sediment loading.[FN 51]

For nutrient loading, the TMDL's conclusions regarding a predicted relative decline in flows and nutrient loads on an annual basis due to climate change do not appear to be consistent with EPA's recent draft Method to Assess Climate Relevant Decisions: Application in the Chesapeake Bay.[FN 52] EPA should explain these apparent inconsistencies.

For sediment loading, EPA recognizes that under a changing climate, "increased precipitation and its related flows may increase sediment loads."[FN 53] However - despite claims of an explicit margin of safety - there are no data presented that quantify the alleged explicit margin of safety with regard to this potential increase in sediment loads due to climate change. At best, the margin of safety appears to be designed to overcome "overly optimistic" observations in model results compared to current conditions.[FN 54] The TMDL also appears to reference a margin of safety in the underlying water quality standards for SAV-water clarity.[FN 55] Under either scenario, the margin of safety does not address increased sediment load related to climate change, but only focuses on the historic record, the state WIPs, and compensating for model shortcomings. The methodology described in § 6.4.2 also fails to account for or explain the limits of stationarity in the context of a changing climate. For these reasons, the margin of safety for sediment is inadequate.[FN 56]

Finally, EPA states that the 2017 assessment of implementation progress will include an explicit assessment of climate change influences.[FN 57] Yet the TMDL does not indicate that the 2017 climate change assessment will result in modifications to the TMDL, and even if it did, this future adaptive management approach does not relieve the Agency of its legal obligation to include an adequate margin of safety in an adopted TMDL - particularly where EPA has data to show likely increases in sediment load due to climate change.[FN 58]

By not including an adequate margin of safety in the allocations being adopted now, EPA risks seriously underestimating the additional pollution loadings that will result from climate change, rendering the proposed allocations insufficient to meet the water quality standard and insufficient to comply with legal requirements for an adequate margin of safety.

[FN 43] CWA § 303(d)(4)(A), 33 U.S.C. § 1313(d)(4)(A), 40 C.F.R. §§ 130.7(c)(1).

[FN 44] See Draft TMDL at p. 6-13.

[FN 45] See id.

[FN 46] Id.

[FN 47] Draft TMDL at p. 6-11.

[FN 48] Id.

[FN 49] See TMDL at 6-19 to 6-23

[FN 50] Draft TMDL at p. 5-41.

[FN 51] Id. at § 6.2.3.

[FN 52] Compare TMDL at E-5 with U.S. EPA, Method to Assess Climate Relevant Decisions: Application in the Chesapeake Bay (Draft, June 2010) at 20-21 (discussing climate drivers) and 47 (discussing POTW nutrient management)

[FN 53] Draft TMDL at p. E-5.

[FN 54] Id. at p. 6-14.

[FN 55] Id. at p. 6-48.

[FN 56] CWA § 303(d)(4)(A), 33 U.S.C. § 1313(d)(4)(A), 40 C.F.R. §§ 130.7(c)(1). "Stationarity" reflects the idea that natural systems fluctuate within an unchanging envelope of variability. See, e.g., U.S. EPA, Climate Change Vulnerability Assessments: A Review of Water Utility Practices, at 2 (Aug. 2010); see also, Milly, P.C.D., J. Betancourt, M. Falkenmark, R.M. Hirsch, Z.W. Kundzewicz, D.P. Lettenmaier, and R.J. Stouffer, Stationarity is dead: Whither water management?, Science 319:573-574 (2008).

[FN 57] Draft TMDL at p. 5-41.

[FN 58] CWA § 303(d)(1)(C), 33 U.S.C. § 1313(d)(1)(C); APA§ 706(2), 5 U.S.C. § 706(2).

Response

Quantification of EPA's Conservative Assumptions

EPA described three principal conservation assumptions within Section 6 of the final Bay TDML. However, one quantitative conservation assumption stands apart from the rest: the basinwide allowable nutrient loads were determined on the basis of achieving a select set of deep-water and deep-channel DO standards in the mainstem Bay and adjoining embayments—middle (CB4MH) and lower (CB5MH) central Chesapeake Bay, Eastern Bay (EASMH), and lower Chester River (CHSMH). The Bay TMDL calls for nitrogen reductions upwards of 150 million pounds lower to achieve the dissolved oxygen WQS in these three Bay segments compared with most of the remaining 88 Bay segments. This is a clear, quantitative, conservative assumption that ensures water quality restoration and protection of the vast majority of Chesapeake Bay's tidal waters.

Reduced Sensitivity at Low Non-Attainment Percentages

EPA documented reduced sensitivity at low non-attainment percentages (less than and equal to 1 percent) for dissolved oxygen, water clarity/SAV, and chlorophyll a criteria due to the nature of criteria assessment methodology (see Appendix I within the final Bay TMDL). This was an artifact of the unique criteria assessment methodology, which relies on a comparison of a cumulative frequency distribution of percent time and space of non-attainment and a reference curve, and the reduce sensitivity as very low pollutant loading levels. EPA did not put this forward as a conservation approach to justify an implicit margin of safety as stated in the comment.

Accounting for Differences in Nutrient Effectiveness

EPA acknowledges and agrees with the comment's statement that "the difference in nutrient effectiveness delivered by the Bay's

northern and southern tributaries injects a degree of bias into the allocations system. Reductions achieved in the Susquehanna and other northern tributaries have greater beneficial impact on the Bay health than similar reductions achieved in the York, James and other more southerly tributaries." EPA's Bay TMDL allocation methodology is built on that exact well recognized, fundamental nature of the relationship between location of the load source and relative effect on Bay water quality.

EPA acknowledges that the " EPA must account for these differences in effectiveness ratios in any interstate or interbasin trading programs". EPA disagrees that "this variability in the relative effectiveness of reductions is another reason to include an explicit MOS". As stated above, EPA's allocation methodology already accounts for the vast differences in the relative effectiveness of the local nutrient loads. There are other mechanism for addressing these differences within trading programs independent of how EPA determines a MOS.

5% Temporary Reserve
EPA established the temporary reserve for a purpose separate from the determination of the MOS.

Climate Change and MOS
The 2010 Chesapeake Bay TMDL accounts for climate change impacts observed to date by its dependence on a decadal hydrologic period representative of the recent recorded hydrology. However, current hydrology will not ensure protection against future hydrological conditions influences by changed climate change.

In developing the margin of safety for the 2010 Bay TMDL, EPA considered the preliminary analysis of the influence climate change on estimated Chesapeake watershed flows, nutrient, and sediment loads has been included in the TMDL documentation—please see Appendix E. Summary of Initial Climate Change Impacts on the Chesapeake Bay Watershed Flows and Loads. A key preliminary finding was temperature increases tending to increase evapotranspiration in watershed, possibly offsetting increases in precipitation, flows and nutrient loads. The preliminary findings also pointed to possible increases in sediment loads. Clearly, more work is needed to fully understand this aspect and many other impacts of climate change on the Bay. These two sets of findings were factored into EPA's decisions for an implicit margin of safety for nutrients and an explicit margin of safety for sediment.

To fully assess the possible impacts, there is much work to be done to build the capacity for quantifying the impacts that the scale of the Bay TMDL—92 Bay segments and their surrounding watersheds down to the scales of the Phase II Watershed Implementation Plans' target loads—into the full suite of Bay models and other decision support tools.

EPA and its partners are committed a more complete analysis of climate change effects on TMDL nutrient and sediment to be made during the mid-course assessment of Chesapeake TMDL progress in 2017, as called for in Section 203 of the Chesapeake Executive Order (May 12, 2009), accessible at
http://executiveorder.chesapeakebay.net/EO/file.axd?file=2009%2f8%2fChesapeake+Executive+Order.pdf. As new scientific understanding becomes available, EPA has committed to take an adaptive management approach to the Bay TMDL and factor that new understanding into the Bay TMDL, in this case during the mid-course assessment.

As stated in the letter from Shawn Garvin (EPA Region 3 Administrator) to the Principals' Staff Committee on June 11, 2010 (accessible at http://archive.chesapeakebay.net/pubs/TMDLScheduleLetter.pdf), EPA has committed to modify the Bay TMDL, as

necessary, in 2017.

Comment ID 0554.1.001.012

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

The Draft TMDL fails to incorporate climate change in two important ways. the Draft TMDL does not account for uncertainty regarding climate changes impacts on conditions in the Bay in the MOS.

Response

The Chesapeake Bay TMDL accounts for climate change impacts observed to date by its dependence on a decadal hydrologic period representative of the recent recorded hydrology. However, current hydrology will not ensure protection against future hydrological conditions influenced by changed climate change.

In developing the Bay TMDL's margin of safety, EPA considered its preliminary analysis of the influence climate change on estimated Chesapeake watershed flows, nutrient, and sediment loads—please see Appendix E. A key preliminary finding was temperature increases tending to increase evapotranspiration in watershed, possibly offsetting increases in precipitation. These preliminary results did not provide clear evidence for changes to the TMDL allocations through a margin of safety. Clearly, more work is needed to fully understand this aspect and many other impacts of climate change on the Bay.

EPA and its partners are committed a more complete analysis of climate change effects on TMDL nutrient and sediment to be made during the mid-course assessment of Chesapeake Bay TMDL progress in 2017, as called for in Section 203 of the Chesapeake Executive Order 13508 (May 12, 2009), accessible at http://executiveorder.chesapeakebay.net/EO/file.axd?file=2009%2f8%2fChesapeake+Executive+Order.pdf. As new scientific understanding becomes available, EPA has committed to take an adaptive management approach to the Bay TMDL and factor that new understanding into the Bay TMDL, in this case during the mid-course assessment.

To fully assess the possible impacts, there is much work to be done to build the capacity for quantifying the impacts from climate change at the scale of the Bay TMDL—92 Bay segments and their surrounding watersheds down to the scales of the Phase II Watershed Implementation Plans' target loads—into the full suite of Bay models and other decision support tools.

Comment ID 0554.1.001.014

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

Additionally, to the extent there is uncertainty regarding climate change's impact on conditions in the Bay, this

uncertainty must be accounted for explicitly in the MOS. As the Draft TMDL states: "In a TMDL, where there is uncertainty, an explicit MOS is appropriate."[FN53] However, the MOSs mentioned in the TMDL - an "implicit" one for nutrients reflected in data from the 1990s supposedly reflective of high rainfall years, and an explicit one for sediment - do not account for climate change. The MOS must do so. And do so explicitly.

[FN53] Id. at § 6.4.2, p.6-48.

Response

EPA acknowledges that uncertainty is always present in the application of model estimates in a TMDL. TMDL decision rules allow for either an implicit or an explicit margin of safety (MOS). Under EPA's regulations, a TMDL is mathematically expressed as TMDL = WLA + LA + MOS where: TMDL is the total maximum daily load for the water segment; WLA is the wasteload allocation, or the load allocated to point sources; LA is the load allocation, or the load allocated to nonpoint sources; and MOS is the margin of safety to account for any uncertainties in the supporting data and the model.

The margin of safety (MOS) is the portion of the pollutant loading reserved to account for any lack of knowledge concerning the relationship between LAs and WLAs and water quality [CWA 303(d)(1)(c) and 40 CFR 130.7(c)(1)]. For example, knowledge is incomplete regarding the exact nature and magnitude of pollutant loads from various sources and the specific impacts of those pollutants on the chemical and biological quality of complex, natural waterbodies. The MOS is intended to account for such uncertainties in a manner that is conservative from the standpoint of environmental protection. On the basis of EPA guidance, the MOS can be achieved through two approaches: (1) implicitly incorporate the MOS by using conservative model assumptions to develop allocations; or (2) explicitly specify a portion of the TMDL as the MOS and use the remainder for allocations.

In the absence of a clear quantification of uncertainty applicable across the full of Bay models, EPA and its jurisdictional partners made a series of decisions regarding MOS. In the Chesapeake TMDL the nutrient allocations applied an implicit MOS; for sediment loads an explicate MOS was used as described in detail in Section 6 of the TMDL documentation. These decisions were made based on an in-depth understanding of data, conservative assumptions, and calibration decisions within the suite of Bay models.

In developing the margin of safety for the 2010 Bay TMDL, EPA considered the preliminary analysis of the influence climate change on estimated Chesapeake watershed flows, nutrient, and sediment loads has been included in the TMDL documentation—please see Appendix E. Summary of Initial Climate Change Impacts on the Chesapeake Bay Watershed Flows and Loads.

Appendix E describes a preliminary assessment of climate change impacts on the Chesapeake Bay using an earlier version of the Phase 5 Chesapeake Bay Watershed Model (Phase 5.2) and tools developed for EPA's BASINS 4 system including the Climate Assessment Tool (CAT). Flows and associated nutrient and sediment loads were assessed in all river basins of the Chesapeake Bay with three key climate change scenarios reflecting the range of potential changes in temperature and precipitation in the year 2030. The three key scenarios came from a larger set of 42 climate change scenarios that were evaluated from 7 Global Climate Models (GCMs), 2 scenarios from the Intergovernmental Panel on Climate Change (IPCC) SRES (Special Report on Emissions Scenarios) storylines, and 3 assumptions about precipitation intensity in the largest events. A key preliminary finding was temperature increases tending to increase evapotranspiration in watershed, possibly offsetting increases in precipitation. Clearly, more work is

needed to fully understand this aspect and many other impacts of climate change on the Bay.

Comment ID 0590.1.001.010

Author Name: Chavez Jennifer

Organization: Earthjustice et al.

8. Margin of Safety: EPA's proposal to rely on an "implicit" margin of safety for the nutrients TDMLs is unlawful and irrational. The Act requires each TMDL to be set "at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality." 33 U.S.C. 1313(d)(1)(C). The statute is therefore precautionary in nature, requiring EPA to explicitly (not implicitly) provide for a margin of safety.

Even if an "implicit" margin of safety was allowable, EPA has failed to rationally justify its claim that the proposed TMDLs provide such a margin. First, reliance solely on an "implicit" margin of safety that is neither measurable nor verifiable provides no rational basis for determining that the statutory test for a margin of safety has been met. The agency asserts that an implicit margin of safety is provided by virtue of various allegedly conservative assumptions used in the modeling, but fails to quantify the alleged benefit of those assumptions in providing a margin of safety (as opposed to simply avoiding making TMDLs that are less protective than necessary from being even more deficient).

Second, the margin of safety must be sufficient to account for any lack of knowledge or uncertainty involved in developing the TMDL. 33 U.S.C. § 1313(d)(C). The uncertainties and knowledge gaps involved in developing the Chesapeake Bay TMDL are enormous given the scale and complexity of the watershed. Yet EPA has conducted no formal analysis, either by systematically identifying the uncertainties and lack of knowledge involved in developing these TMDLs or by otherwise estimating the model's margin of error, that would allow determination of whether the implicit margin of safety claimed in the Draft TMDL is sufficiently conservative to take into account "any lack of knowledge concerning the relationship between effluent limitations and water quality," as is required under § 303(d)(1)(C) of the CWA and the TMDL regulations at 40 C.F.R. § 130.7(c)(1). Because there is no analysis connecting the existing lack of knowledge with the claimed margin of safety, there is no showing or reasoned demonstration that the margin of safety is adequate.

Finally, the Draft provides no explanation or analysis demonstrating that each of the claimed "conservative assumptions" actually create a margin of safety. To the contrary, EPA acknowledges (at 6- 11) that even with these assumptions, the model projects DO criteria nonattainment across a wide range of segments and designated uses. The agency excuses these continued violations simply by ignoring nonattainment percentages projected by the model rounded to 1 percent - hardly a conservative approach. Even then, the agency projects the nutrient TMDLs will still result in DO nonattainment in one Bay segment. TMDL at 6-13. See also Table 6-7 (showing continued nonattainment in 9 segments under the proposed TMDL); page 6-40 (indicating that model showed nonattainment of Anacostia and Potomac Rivers for chlorophyll a under proposed TMDL).

EPA also cites as "conservative" its reliance on a 3-year period that allegedly represents 10 year high-flow conditions (an assumption that we question above in relation to critical conditions), but again fails to show why use of that period is inherently conservative or actually results in a TMDL that is more protective than necessary to implement standards.

Moreover, the requirement for TMDLs to include a margin of safety is a stand-alone requirement of the CWA, 33 U.S.C. § 1313(d)(C). That statutory requirement must be satisfied in addition to the requirement in CWA regulations for TMDLs to include a margin of safety and "take into account critical conditions," 40 C.F.R. § 130.7(c)(1). In other words, meeting the "critical conditions" requirement cannot itself be counted as a margin of safety.

Equally meritless is EPA's claim that a margin of safety derives from the fact that NPDES permit holders can be expected to discharge lower pollution levels than their permitted maxima. This assumption is patently invalid because it disregards countervailing evidence, including the fact that population increases in the Bay watershed (along with the inevitable growth in construction and industrial development) are projected to grow substantially during the TMDL implementation period. See, e.g., discussion at 2-5. Even if that assumption was verified (which it is not), it hardly justifies an assumption that the TMDL itself is more protective than necessary, particularly when EPA is proposing to allow the use of trading, and when EPA cannot assure that many other dischargers (e.g., MS4 systems, nonpoint sources) will discharge at levels lower (or even at) the levels assumed in the model.

Response

The margin of safety (MOS) is the portion of the pollutant loading reserved to account for any lack of knowledge concerning the relationship between LAs and WLAs and water quality [CWA 303(d)(1)(c) and 40 CFR 130.7(c)(1)]. For example, knowledge is incomplete regarding the exact nature and magnitude of pollutant loads from various sources and the specific impacts of those pollutants on the chemical and biological quality of complex, natural waterbodies. The MOS is intended to account for such uncertainties in a manner that is conservative from the standpoint of environmental protection. On the basis of EPA guidance, the MOS can be achieved through two approaches (USEPA 1999): (1) implicitly incorporate the MOS by using conservative model assumptions to develop allocations; or (2) explicitly specify a portion of the TMDL as the MOS and use the remainder for allocations.

EPA has established a 27 year history of scientific and technical advancements in the understanding of “the exact nature and magnitude of pollutant loads from various sources and the specific impacts of those pollutants on the chemical and biological quality of complex, natural waterbodies” (see Appendix B for an index of the extensive supporting documentation). The significant advancements in the scientific understanding is clearly established in the significant evolution of the policy agreements and supporting nutrient and sediment reduction commitment over the past three decades—1983 Chesapeake Bay Agreement, 1987 Chesapeake Bay Agreement, 1992 Amendment to the Bay Agreement, 1997 Reevaluation, and Chesapeake 2000. EPA and its partners have amassed a wealth of data and understanding that supports an implicit margin of safety for the nitrogen and phosphorus allocations.

The Chesapeake Bay TMDL for nitrogen and phosphorus applies an implicit MOS in derivation of the DO and chlorophyll a-based nutrient allocations through the use of numerous conservative assumptions in the modeling framework. The principal conservative assumption used in the determining the actual allocations was the basinwide allowable nutrient loads were determined on the basis of achieving a select set of deep-water and deep-channel DO standards in the mainstem Bay and adjoining embayments—middle (CB4MH) and lower (CB5MH) central Chesapeake Bay, Eastern Bay (EASMH), and lower Chester River (CHSMH). The Bay TMDL calls for nitrogen load reductions upwards of 50 million pounds lower to achieve the dissolved oxygen WQS in these four Bay segments compared with many of the remaining 88 Bay segments.

Response to Public Comments: Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

Issue Category: 14. Temporary Reserve

Pages 1119 – 1119

December 29, 2010

Docket #: EPA-R3-OW-2010-0736

14 - TEMPORARY RESERVE

Comment ID 0334.1.001.007

Author Name: Troutman John

Organization: Buchart Horn, Inc.

EPA has reserved 5% of the nutrient allocations for Total Nitrogen and Total Phosphorus in the event of different values in the model 5.3. Will this reserve be returned to states load allocations?

Response

Yes, the reserve was intended to be returned to the states after the models were updated. However, based on public comments received, with the final TMDL, EPA has chosen to remove the reserve concept. So the full allocation has been provided to the states with no reserve.

Comment ID 0681.1.001.001

Author Name: Baxter Russ

Organization: VA Department of Environmental Quality

On Page 6-15, the TMDL states that EPA "is seeking comment" on whether to include a "temporary reserve" in the final TMDL allocations.

Recommendation: DEQ does not support inclusion of a temporary reserve. TMDL allocations should not be set with an assumed margin of error based on proposed modifications to the Chesapeake Bay model.

Response

Based on comments received, within the Bay final TMDL, EPA has chosen to remove the temporary reserve concept.

Response to Public Comments: Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

Issue Category: 15. Daily Loads

Pages 1120 – 1129

December 29, 2010

Docket #: EPA-R3-OW-2010-0736

15 - DAILY LOADS

Comment ID 0230.1.001.023

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

EPA's Choice of Daily Loads That Are Too Low is Unreasonable

HRSD is concerned that EPA has not appropriately addressed daily loads in the Draft TMDL. Existing Chesapeake Bay programs are properly built on the concept of annual load. As to point source permitting, this approach has been documented in an EPA 2004 Memorandum, and HRSD supports that approach. In the Draft TMDL, however, EPA has inappropriately set daily loads at the segment level based upon the 95% percentile and indicates this statistical approach assumes the daily maximum load would be violated 5% of the time. Obviously this is acceptable to EPA as this statistic does not represent a real world water quality problem, and HRSD agrees. However, HRSD believes that higher daily loads would be appropriate, and that the ecological insignificance of daily should be clarified.

Response

Please refer to the response for comment 0288.1.001.030 regarding daily loads.

Comment ID 0230.1.001.049

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

XII. EPA'S CHOICE OF DAILY LOADS THAT ARE TOO LOW IS UNREASONABLE

EPA has not appropriately addressed daily loads in the Bay TMDL. Existing Chesapeake Bay programs were built on the concept of annual load goals. A correct approach on this point is critical for cost-effectiveness and attainability.

It is well established that daily nutrient load variations are environmentally insignificant to the Bay. Furthermore, EPA determined in a 2004 Memorandum, [FN91] and cited by EPA at Draft TDML, 4-9) that annual limits are appropriate in CWA permitting. EPA has stated that:

• The exposure period of concern for nutrient loadings to the Bay and its tidal tributaries is very long;

• The area of concern is far-afield (as opposed to the immediate vicinity of the discharge); and

• The average pollutant load rather than the maximum pollutant load is of concern.

Based on modeling, EPA concluded that "Chesapeake Bay and its tidal tributaries in effect integrate variable point source monthly loads over time, so that as long as a particular annual total load of nitrogen and phosphorous is met, constant or variable intraannual load variation from individual point sources has no effect on water quality in the main bay." [FN92] According to EPA, "[e]ven a simply steady-state model for permit development such as dividing the annual limit by 12 and establishing that value as the monthly limit is therefore not appropriate." [FN93]

EPA has repeated its 2004 message in the Draft TMDL:

Numerous Chesapeake studies show that annually based wastewater treatment nutrient reductions are sufficient to protect Chesapeake Bay water quality (Linker 2003, 2005). The seasonal aspects of the jurisdictions' Chesapeake Bay WQS are due to the presence of the living resources being protected, but annual nutrient and sediment load reductions are most important to achieve and maintain the seasonal water quality criteria, some of which span multiple seasons-open-water, shallow-water bay grass, migratory spawning and nursery… [FN94]

HRSD agrees that the proper technical basis for the TMDL and WLAs is annual in this case. In our December 2009 Comments, [FN95] VAMWA made the following recommendations about how to reflect a temporal period in the Bay TMDL:

1. Select a Large Geographic Scale- The scale of any "daily" load component of a TMDL should be Bay watershed scale, rather than at any smaller scale such as a Tributary scale.

2. Set the Daily Load Conservatively High- Any "daily" load component should include a large percentage of the annual load, such that the daily load would never be a limiting factor for TMDL compliance, even under short-term extreme hydrological conditions.

3. Document the Key Assumptions About Daily and Annual Loads- 40 CFR 122.44(d)(1)(vii)(B) requires that: "[e]ffluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7." Therefore, for completeness and clarity for future permitting, the TMDL should document the following WLA assumptions consistent with the 2004 Memorandum: (A) daily WLAs are essentially meaningless in this context and will not be used for permitting purposes, and (B) permit limits for POTWs and industrial discharges will be annual limits to meet annual waste loads. The 2004 Memorandum should be referenced in and incorporated into the TMDL.

In its Draft TMDL, EPA established maximum daily loads for each of the 92 impaired segments in the TMDL, and provided an explanation for how the reader could calculate the seasonal maximum daily load "for any segment, WLA, or LA of interest." [FN96] EPA also provided annual WLAs and LAs in Draft Appendix Q.

HRSD objects to EPA's decision to set daily loads at an impaired segment level (rather than the Bay level only), and to establish daily loads based upon the 95% percentile of daily loads. [FN97] This means that, even if the TMDL were fully achieved, and the modeling has perfectly captured flows, the daily maximum load would be "violated" 5% of the time, or approximately one day out of every twenty.

This methodology would not be as critical if EPA had clearly stated that it would not be using daily WLAs for permitting

or compliance purposes for regulated sources. Although HRSD appreciates EPA's reference to the 2004 Memorandum, and the language quoted above from Draft TMDL at 6-6, EPA has not clearly addressed the inapplicability of daily loads to POTW dischargers. This is highly problematic, as POTWs throughout Virginia and other Bay States have been designed, and the Nutrient Exchange has been developed, to ensure compliance with annual loads. Considerations of treatment plant design and capital and operating costs, including seasonal variation in performance of BNR technology, support an annual rather than daily approach with respect to the point source components of the TMDL.

For these reasons, EPA should revise its Draft TMDL to clearly state that daily loads will not be the yardstick against which POTW compliance is measured. This should be clear in the body of the TMDL itself (e.g., in Section 6) and in all appendices that reference daily loads.

[FN91] Attached hereto as Appendix 49.

[FN92] 2004 Memorandum at 3.

[FN93] Id. at 5.

[FN94] Draft TMDL at 6-6.

[FN95] See also December 22, 2008 Memorandum ("Daily" Loads Element of Chesapeake Bay TMDL) from VAMWA/MAMWA Chesapeake Bay Team to CBP Water Quality Steering Committee (attached hereto as Appendix 49).

[FN96] Draft TMDL at 6-18.

[FN97] Draft TMDL at 6-18.

Response

Please refer to the response for comment 0288.1.001.030 regarding daily loads.

Comment ID 0272.2.001.013

Author Name: Pippel Julie

Organization: Maryland Association of Municipal Wastewater Agencies, Inc. (MAMWA)

EPA Should Revise the Discussion of Daily Loads

EPA has not appropriately addressed daily loads in the Bay TMDL. Existing Chesapeake Bay programs were built on the concept of annual load goals. A correct approach on this point is critical for cost-effectiveness and attainability.

It is well established that daily nutrient load variations are environmentally insignificant to the Bay. Furthermore, EPA

agreed in a 2004 Memorandum (cited by EPA at Draft TDML, 4-9) that annual limits are appropriate in CWA permitting. EPA has stated that:

--The exposure period of concern for nutrient loadings to the Bay and its tidal tributaries is very long;
--The area of concern is far-afield (as opposed to the immediate vicinity of the discharge); and
--The average pollutant load rather than the maximum pollutant load is of concern.

Based on modeling, EPA concluded that "Chesapeake Bay and its tidal tributaries in effect integrate variable point source monthly loads over time, so that as long as a particular annual total load of nitrogen and phosphorous is met, constant or variable intra-annual load variation from individual point sources has no effect on water quality in the main bay." [FN19] According to EPA, "[e]ven a simply steady-state model for permit development such as dividing the annual limit by 12 and establishing that value as the monthly limit is therefore not appropriate." [FN20]

EPA has repeated its 2004 message in the Draft TMDL:

Numerous Chesapeake studies show that annually based wastewater treatment nutrient reductions are sufficient to protect Chesapeake Bay water quality (Linker 2003, 2005). The seasonal aspects of the jurisdictions' Chesapeake Bay WQS are due to the presence of the living resources being protected, but annual nutrient and sediment load reductions are most important to achieve and maintain the seasonal water quality criteria, some of which span multiple seasons-open-water, shallow-water bay grass, migratory spawning and nursery… [FN21]

In its December 2009 Comments, MAMWA made the following recommendations about how to reflect a temporal period in the Bay TMDL:

--Select a Large Geographic Scale - The scale of any "daily" load component of a TMDL should be a Bay watershed scale, rather than at any smaller scale such as a Tributary scale.
--Set the Daily Load Conservatively High - Any "daily" load component should include a large percentage of the annual load, such that the daily load would never be a limiting factor for TMDL compliance, even under short-term extreme hydrological conditions.
--Document the Key Assumptions About Daily and Annual Loads - 40 CFR 122.44(d)(1)(vii)(B) requires that: "[e]ffluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7." Therefore, for completeness and clarity for future permitting, the TMDL should document the following WLA assumptions consistent with the 2004 Memorandum: (A) daily WLAs are essentially meaningless in this context and will not be used for permitting purposes, and (B) permit limits for POTWs and industrial discharges will be annual limits to meet annual waste loads. The 2004 Memorandum should be referenced in and incorporated into the TMDL.

In its Draft TMDL, EPA established maximum daily loads for each of the 92 impaired segments in the TMDL, and provided an explanation for how the reader could calculate the seasonal maximum daily load "for any segment, WLA, or LA of interest." [FN22] EPA also provided annual WLAs and LAs in Draft Appendix Q.

MAMWA disagrees with EPA's decision to set daily loads at an impaired segment level, and to establish daily loads based upon the 95% percentile of daily loads. [FN23] This means that, even if the TMDL were fully achieved, and the

modeling has perfectly captured flows, the daily maximum load would be violated 5% of the time, or approximately one day out of every twenty.

This methodology would not be as critical if EPA had clearly stated that it would not be using daily WLAs for permitting or for POTWs compliance purposes. Although MAMWA appreciates EPA's reference to the 2004 Memorandum, and the language quoted above from Draft TMDL at 6-6, EPA has not clearly addressed the application of daily loads to POTW dischargers. This is highly problematic, as POTW facilities have been designed to ensure compliance with annual loads. Considerations of treatment plant design and capital and operating costs, including seasonal variation in performance of wastewater technology, support an annual rather than daily approach with respect to the point source components of the TMDL.

For these reasons, EPA should revise its Draft TMDL to clearly state that daily loads will not be the yardstick against which POTW compliance is measured. This should be clear in the body of the TMDL itself (e.g., in Section 6) and in all appendices that reference daily loads. [FN24]

[FN19] 2004 Memorandum at 3.

[FN20] Id. at 5.

[FN21] Bay TMDL at 6-6.

[FN22] Draft TMDL at 6-18.

[FN23] Draft TMDL at 6-18.

[FN24] On a related note, in Table Q-1, EPA's Draft TMDL appears to provide individual WLAs for non-significant WWTPs (including POTWs). This is in contrast to Maryland's Draft WIP (aggregates WLAs for non-significant WWPTs). MAMWA strongly supports the State's approach. These smaller plants are not being required to upgrade (see discussion above). EPA should correct its TMDL to provide aggregate loadings. Furthermore, EPA should make it clear in the text and in all appendices that reference loadings that insignificant WWTPs are being aggregated for purposes of the TMDL, but that they are not expected to upgrade to attain such loadings, nor should their permits reflect any individual loading.

Response

Please refer to the response for comment 0288.1.001.030 regarding daily loads.

Comment ID 0288.1.001.030

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

EPA'S CHOICE OF DAILY LOADS THAT ARE TOO LOW IS UNREASONABLE

EPA has not appropriately addressed daily loads in the Bay TMDL. Existing Chesapeake Bay programs were built on the concept of annual load goals. A correct approach on this point is critical for cost-effectiveness and attainability.

It is well established that daily nutrient load variations are environmentally insignificant to the Bay. Furthermore, EPA determined in a 2004 Memorandum,[FN91] and cited by EPA at Draft TDML, 4-9) that annual limits are appropriate in CWA permitting. EPA has stated that:

--The exposure period of concern for nutrient loadings to the Bay and its tidal tributaries is very long;
--The area of concern is far-afield (as opposed to the immediate vicinity of the discharge); and
--The average pollutant load rather than the maximum pollutant load is of concern.

Based on modeling, EPA concluded that "Chesapeake Bay and its tidal tributaries in effect integrate variable point source monthly loads over time, so that as long as a particular annual total load of nitrogen and phosphorous is met, constant or variable intraannual load variation from individual point sources has no effect on water quality in the main bay." [FN92] According to EPA, "[e]ven a simply steady-state model for permit development such as dividing the annual limit by 12 and establishing that value as the monthly limit is therefore not appropriate." [FN93]

EPA has repeated its 2004 message in the Draft TMDL:

Numerous Chesapeake studies show that annually based wastewater treatment nutrient reductions are sufficient to protect Chesapeake Bay water quality (Linker 2003, 2005). The seasonal aspects of the jurisdictions‘ Chesapeake Bay WQS are due to the presence of the living resources being protected, but annual nutrient and sediment load reductions are most important to achieve and maintain the seasonal water quality criteria, some of which span multiple seasons-open-water, shallow-water bay grass, migratory spawning and nursery… [FN94]

VAMWA agrees that the proper technical basis for the TMDL and WLAs is annual in this case. In our December 2009 Comments,[FN95] VAMWA made the following recommendations about how to reflect a temporal period in the Bay TMDL:

1. Select a Large Geographic Scale- The scale of any "daily" load component of a TMDL should be Bay watershed scale, rather than at any smaller scale such as a Tributary scale.

2. Set the Daily Load Conservatively High- Any "daily" load component should include a large percentage of the annual load, such that the daily load would never be a limiting factor for TMDL compliance, even under short-term extreme hydrological conditions.

3. Document the Key Assumptions About Daily and Annual Loads- 40 CFR 122.44(d)(1)(vii)(B) requires that: "[e]ffluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7." Therefore, for completeness and clarity for future permitting, the TMDL should document the following WLA assumptions consistent with the 2004 Memorandum: (A) daily WLAs are essentially meaningless in this context and will not be used for permitting purposes, and (B) permit limits for POTWs

and industrial discharges will be annual limits to meet annual waste loads. The 2004 Memorandum should be referenced in and incorporated into the TMDL.

In its Draft TMDL, EPA established maximum daily loads for each of the 92 impaired segments in the TMDL, and provided an explanation for how the reader could calculate the seasonal maximum daily load "for any segment, WLA, or LA of interest." [FN96] EPA also provided annual WLAs and LAs in Draft Appendix Q.

VAMWA objects to EPA's decision to set daily loads at an impaired segment level (rather than the Bay level only), and to establish daily loads based upon the 95% percentile of daily loads. [FN97] This means that, even if the TMDL were fully achieved, and the modeling has perfectly captured flows, the daily maximum load would be "violated" 5% of the time, or approximately one day out of every twenty.

This methodology would not be as critical if EPA had clearly stated that it would not be using daily WLAs for permitting or compliance purposes for regulated sources. Although VAMWA appreciates EPA's reference to the 2004 Memorandum, and the language quoted above from Draft TMDL at 6-6, EPA has not clearly addressed the inapplicability of daily loads to POTW dischargers. This is highly problematic, as POTWs throughout Virginia and other Bay States have been designed, and the Nutrient Exchange has been developed, to ensure compliance with annual loads. Considerations of treatment plant design and capital and operating costs, including seasonal variation in performance of BNR technology, support an annual rather than daily approach with respect to the point source components of the TMDL.

For these reasons, EPA should revise its Draft TMDL to clearly state that daily loads will not be the yardstick against which POTW compliance is measured. This should be clear in the body of the TMDL itself (e.g., in Section 6) and in all appendices that reference daily loads.

[FN91] Attached hereto as Appendix 49. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A49]

[FN92] 2004 Memorandum at 3.

[FN93] Id. at 5.

[FN94] Draft TMDL at 6-6.

[FN95] See also December 22, 2008 Memorandum ("Daily" Loads Element of Chesapeake Bay TMDL) from VAMWA/MAMWA Chesapeake Bay Team to CBP Water Quality Steering Committee (attached hereto as Appendix 49). [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A49]

[FN96] Draft TMDL at 6-18.

[FN97] Draft TMDL at 6-18.

Response

Although EPA agrees with the commenters that annual/seasonal loads are the applicable expression of loadings in the Chesapeake Bay TMDL, EPA reminds the commenters that loads expressed on a daily time increment are consistent with the D.C. Circuit Court of Appeals decision in Friends of the Earth, Inc. v. EPA (446 F.3d 140 (D.C. Cir. 2006)) and thus will be included in the TMDL. One of the reasons that annual/seasonal loads are most appropriate is because loadings in the Bay TMDL vary with both precipitation and flow, which vary on a time interval other than daily.

EPA also wishes to clarify that TMDLs are being established for the 92 segments and daily loads will be expressed for each numeric TMDL, WLA and LA. EPA views each of the 92 segment-pollutant combinations as TMDLs and must express each of these as daily loads in addition to other appropriate expressions. Therefore, a single basin-wide scale daily load would not be adequate.

EPA does not believe that the D.C. Circuit Court decision requires any changes in the way WLAs are currently implemented in National Pollutant Discharge Elimination System (NPDES) permits. Water quality-based effluent limits (WQBELs) in NPDES permits that implement WLAs in approved TMDLs must be "consistent with the assumptions and requirements of any available WLA for the discharge" (Title 40 of the Code of Federal Regulations [CFR] 122.44(d)(1)(vii)(B)). Note that these provisions do not require that effluent limits in NPDES permits be expressed in a form that is identical to the form in which the wasteload allocation for the discharge is expressed in a TMDL. Permit limits need only be "consistent with the assumptions and requirements" of a TMDL's wasteload allocation.

The commenter offers no defensible methodology for calculating daily loads. It is EPAs professional opinion that the method used for developing daily loads is appropriate.

On the other hand, EPA agrees with the commenter that the TMDL document could have been more clear on EPAs disposition on the permitting of these TMDL requirements. Therefore, EPA has added a new paragraph in Section 6 that makes it clear that, while daily loads are provided in the TMDL, annual only loads in the permit for the Bay-based limits, are acceptable.

Comment ID 0293.1.001.007

Author Name: Pomeroy Christopher

Organization: Virginia Municipal Stormwater Association, Inc. (VAMSA)

EPA's Choice of Daily Loads That Are Too Low and Its Failure to Appropriately Address MS4 Allocations is Unreasonable

VAMSA is concerned that EPA has not appropriately addressed daily loads in the Bay TMDL. Existing Chesapeake Bay programs are properly built on the concept of annual load. As to point source permitting, this approach has been documented in an EPA 2004 Memorandum, and VAMSA supports that approach. In the TMDL, however, EPA has inappropriately set daily loads at the segment level based upon the 95% percentile and indicates this statistical approach assumes the daily maximum load would be violated 5% of the time. Obviously this is acceptable to EPA as

this statistic does not represent a real world water quality problem, and VAMSA agrees. However, VAMSA believes that higher daily loads would be appropriate, and that the ecological insignificance of daily should be clarified, particularly in the context of WLAs for MS4s. MS4s have discharges that are highly influenced by uncontrollable precipitation events.

Response

Please refer to the response for comment 0288.1.001.030 regarding daily loads.

Comment ID 0293.1.001.016

Author Name: Pomeroy Christopher

Organization: Virginia Municipal Stormwater Association, Inc. (VAMSA)

EPA'S CHOICE OF DAILY LOADS THAT ARE TOO LOW AND ITS FAILURE TO APPROPRIATELY ADDRESS MS4 ALLOCATIONS IS UNREASONABLE

EPA has not appropriately addressed daily loads in the Bay TMDL. Existing Chesapeake Bay programs were built on the concept of annual load goals. A correct approach on this point is critical for cost-effectiveness and attainability.

It is well established that daily nutrient load variations are environmentally insignificant to the Bay. Furthermore, EPA determined in a 2004 Memorandum,[FN33] and cited by EPA at Draft TDML, 4-9) that annual limits are appropriate in CWA permitting. EPA has stated that:

• The exposure period of concern for nutrient loadings to the Bay and its tidal tributaries is very long;
• The area of concern is far-afield (as opposed to the immediate vicinity of the discharge); and
• The average pollutant load rather than the maximum pollutant load is of concern.

Based on modeling, EPA concluded that "Chesapeake Bay and its tidal tributaries in effect integrate variable point source monthly loads over time, so that as long as a particular annual total load of nitrogen and phosphorous is met, constant or variable intraannual load variation from individual point sources has no effect on water quality in the main bay."[FN34] According to EPA, "[e]ven a simply steady-state model for permit development such as dividing the annual limit by 12 and establishing that value as the monthly limit is therefore not appropriate."[FN35]

EPA has repeated its 2004 message in the Draft TMDL:

Numerous Chesapeake studies show that annually based wastewater treatment nutrient reductions are sufficient to protect Chesapeake Bay water quality (Linker 2003, 2005). The seasonal aspects of the jurisdictions' Chesapeake Bay WQS are due to the presence of the living resources being protected, but annual nutrient and sediment load reductions are most important to achieve and maintain the seasonal water quality criteria, some of which span multiple seasons-open-water, shallow-water bay grass, migratory spawning and nursery… [FN36]

In its Draft TMDL, EPA established maximum daily loads for each of the 92 impaired segments in the TMDL, and

provided an explanation for how the reader could calculate the seasonal maximum daily load "for any segment, WLA, or LA of interest."[FN37] EPA also provided annual WLAs and LAs in Draft Appendix Q.

Given that VAMSA members handle stormwater and have no control over when and how much it rains, VAMSA objects to EPA's decision to set daily loads at an impaired segment level (rather than the Bay level only), and to establish daily loads based upon the 95% percentile of daily loads.[FN38] This means that, even if the TMDL were fully achieved, and the modeling has perfectly captured flows, the daily maximum load would be "violated" 5% of the time, or approximately one day out of every twenty.

This methodology would not be as critical if EPA had clearly stated that it would not be using daily WLAs for permitting or compliance purposes for regulated sources. This is highly problematic and inappropriate given the fact that the compliance standard for MS4s per the CWA is "MEP" (maximum extent practicable) and not compliance with a daily numeric loading.

For these reasons, EPA should revise its Draft TMDL to clearly state that daily loads will not be the yardstick against which MS4 compliance is measured, and further, that MS4s will not be required to comply with any numeric allocations found in the Draft TMDL (even if they are provided in aggregated form). This should be clear in the body of the TMDL itself (e.g., in Section 6) and in all appendices that reference daily loads.

[FN33] Attached hereto as Appendix 12 [Comment Letter contains additional information in the form of an attachment. See comment 0574.1.001.001].

[FN34] 2004 Memorandum at 3.

[FN35] Id. at 5.

[FN36] Bay TMDL at 6-6.

[FN37] Draft TMDL at 6-18.

[FN38] Draft TMDL at 6-18.

Response

Please refer to the response for comment 0288.1.001.030 regarding daily loads.

Response to Public Comments: Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

Issue Category:
16. Allocation Methodology

Pages 1130 – 1218

December 29, 2010

Docket #: EPA-R3-OW-2010-0736

16 - ALLOCATION METHODOLOGY

Comment ID 0217.1.001.004

Author Name: Pozgar David

Organization: Logan Township

The Chesapeake Bay has been rightly called a National Treasure but the draft EPA TMDL is requiring the ratepayers of point source wastewater treatment facilities to unfairly bear the majority of the cost for restoration.

Response

Since the states' final Phase I Watershed Implementation Plans were much improved over the drafts, EPA has significantly reduced or removed most of the backstop allocations. This puts less cost burden on the ratepayers of the WWTPs

Comment ID 0217.1.001.007

Author Name: Pozgar David

Organization: Logan Township

More Draconian is that many of the industrial point sources are listed as having nutrient limits that appear to be arbitrary and are well below the limit of technology.

Response

Please refer to the response to comment 0217.1.001.004

Comment ID 0230.1.001.046

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

X. EPA's VIEW OF RELATIVE EFFECTIVENESS IS INCORRECT

The James and York Rivers have an insignificant effect on Chesapeake Bay DO. Furthermore, Rappahannock loads are small in relation to other rivers.

A. The James & York River Basins Have No Meaningful Impact on Water Quality in the Mainstem Bay

In the 2003 allocation effort, allocations for the James and York River basins were established at "Tributary Strategy" loadings. This decision reflected recognition that the nutrient loadings for these basins did not significantly influence the mainstem D.O. conditions at segment CB4 and, further, that additional nutrient controls (point and non-point) were warranted for local water quality needs only. [FN75] This was a fundamental assumption of the 2005 Virginia Tributary Strategies. In 2009, the impact of nutrient reductions on improving mid-Bay D.O. were reevaluated for the basins with a different approach taken to assess the "relative effectiveness" as follows:

• River basins were sub-divided further into Above-Fall-Line ("AFL") and Below-Fall- Line ("BFL") segments (previously only major tributaries were considered).

• Estuarine effectiveness [FN76] considered CB3-CB5 Deep Water (DW) plus Potomac Mesohaline DW and Deep Channel (previously the analysis focused on CB4 DW).

Relative effectiveness scores [FN77] were calculated by multiplying estuarine effectiveness with the respective delivery factors [FN78] for each of these basins (previously delivery factors were not addressed in the scores). Draft results under this revised scoring method are shown in Figure 7. A comparison between Figure 8 (2003) and Figure 7 (2009 draft) indicates that the relative order of importance of the basins has changed along the x-axis. For example, the relative importance of the lower James now is greater than the above fall line York and Rappahannock; with the below fall line York greater than the above fall line Patuxent and Potomac.

<Figure 7: "Revised Scoring Method for Relative Effectiveness (x-axis)" on page 52 of Comment Letter EPA-R03-OW-2010-0736-0230>

<Figure 8: "Estuarine Effectiveness (2003)" on page 53 of Comment Letter EPA-R03-OW-2010-0736-0230>

To further address the issues, the geographical scoring data (2009) was requested and received from the CBPO for review and analysis. [FN79] Key findings are as follows:

First, in terms of "estuarine effectiveness," the relative rankings of the basins remain comparable in 2009 to those determined in 2003. The James and York basins (now considered separately for AFL and BFL) continue to consistently have the lowest "estuarine effectiveness" of all other basins (Figure 9). Note: The separations between "Low," "Medium," and "High" were based on dividing the response range by three. This is for illustrative purposes to compare the 2003 and draft 2009 approaches.

<Figure 9: "Estuarine Effectiveness-Mean DO (ug/l) per million algal units CB3-5 DW + POTMH + DC (NPS+PS Loads)" on page 54 of Comment Letter EPA-R03-OW-2010-0736-0230>

Second, the absolute impact of the James and York Rivers on mid-Bay D.O. was estimated by multiplying delivered loads by their respective estuarine effectiveness. The results indicated that at the Working Target Loads (established by EPA in a letter to the Virginia Secretary of Natural Resources, November 3, 2009) [FN80] the combined impact of the James and York Rivers on mean mid-Bay D.O. was 0.033 mg/L. Further, reducing 2005 Tributary Strategy Loads to "E3" levels indicated an incremental improvement of only 0.007 mg/L D.O. This near zero incremental D.O. improvement potential at the mid-Bay associated with additional James and York controls is negligible because it is well

within the error of analytical D.O. measurement and/or reliability of model predictions. These findings confirm that the James and York Rivers have an insignificant effect on main Bay D.O. conditions and therefore further reductions are not necessary.

<Table: "Estimate of York and James loads on mid Bay DO conditions based on estuarine effectiveness" on page 55 of Comment Letter EPA-R03-OW-2010-0736-0230>

Third, it is recognized that the new revised scoring methods have created confusion about the management of the York and James. However, the low relative effectiveness of small, isolated headwater basins elsewhere in the Bay watershed do not cancel the established scientific basis for regulating the James and York basins based on local water quality conditions rather than on mid-Bay D.O. With regard to the relative effectiveness plots identifying that selected other basin-jurisdictions also have low relative effectiveness (plotting on the left side of the relative effectiveness charts in Figure 7), most of these other segments are small, headwater basins that are not representative of the larger, high-estuarine-effectiveness basins to which they drain. Their plotting position is largely driven by state-line truncations that isolate headwaters far from tidal waters (e.g., Potomac above fall line (PotA) for West Virginia, PotA for Pennsylvania (PA), and the western shore of PA), or by other unusual characteristics of these small headwater basins (e.g., high reservoir density in the Maryland portion of the Patuxent above the fall line. Obviously, it is possible to subdivide larger basins in any number of ways to isolate small headwaters with low relative effectiveness. However, such subdivisions are not a legitimate basis for making decisions about whether basins as a whole are to be included or excluded in allocations based on mid-Bay D.O. considerations. Such an approach would create an awkward patchwork, with high-effectiveness estuaries such as those identified in this paragraph mostly included in the TMDL but missing small, non-representative headwater segments. In contrast, the established decision to exclude the James and York basins from mid-Bay based allocation principles is based on the fact that the James and York basins as a whole have negligible impact on mid-Bay D.O. This logic remains in effect and the existing scientific and policy decisions must be maintained.

Given the minimal effects of the James and York on the mainstem Chesapeake Bay D.O conditions the TMDLs for these rivers are a Virginia responsibility rather than EPA's responsibility.

[FN75] Memorandum from W. Tayloe Murphy, Jr., Chair, PSC to PSC Members and Headwaters Representatives (attached hereto as Appendix 44).

[FN76] Estuarine effectiveness is a measure of the mean change in D.O. at a region of the Bay covering an area of CB3-5 DW plus Potomac MH DW and deep-channel-per million algal units. An algal unit is calculated as (TN+TP*10)/2. It is calculated through modeling by isolating a particular basin in question for reduction to E3 loads while all other basins are held constant at calibration levels. Once the basin is isolated the incremental change in D.O. at the mid- Bay is measured and recorded. For example, an estuarine effectiveness for the James below the fall line of 1 ug/L indicates that mean D.O. in the mid-Bay (as defined above) would change 0.001 mg/L for each million algal unit reduced.

[FN77] Relative effectiveness is a factor calculated as estuarine effectiveness times the delivery factor. Relative effectiveness is an attempt to normalize the estuarine effectiveness by the delivery factor of nutrients.

[FN78] Delivery factor is a ratio of the delivered load to the edge of stream loads to "tidal waters" of the watershed model.

[FN79] Attached hereto as Appendix 45.

[FN80] Attached hereto as Appendix 46.

Response

Please see response to comment 0288.1.001.028

Comment ID 0230.1.001.047

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

B. EPA Should Adequately Document the Small Influence of the Rappahannock River

The TMDL does not adequately document the small influence of the Rappahannock River on the Chesapeake Bay. Figure 10 indicates the percentage of inflow attributable to the major river basins of the Bay from 1978-2009. The Rappahannock River accounts for only 2.7% of total inflow to the Bay. Although this river has a moderate estuarine effect on D.O. on the mainstem Bay on a per pound basis (Figure 10) its actual effect on mainstem Bay D.O. is quite small because of its relatively low inflows and loads.

<Figure 10: "Flow Contributions (Figure taken from Water Quality Steering Committee conference call materials (09-09-09)" on page 56 of Comment Letter EPA-R03-OW-2010-0736-0230>

Response

Please see response to comment 0288.1.001.028

Comment ID 0288.1.001.028

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

EPA's VIEW OF RELATIVE EFFECTIVENESS IS INCORRECT

The James and York Rivers have an insignificant effect on Chesapeake Bay DO. Furthermore, Rappahannock loads are small in relation to other rivers.

A. The James & York River Basins Have No Meaningful Impact on Water Quality in the Mainstem Bay

In the 2003 allocation effort, allocations for the James and York River basins were established at "Tributary Strategy" loadings. This decision reflected recognition that the nutrient loadings for these basins did not significantly influence the mainstem D.O. conditions at segment CB4 and, further, that additional nutrient controls (point and non-point) were warranted for local water quality needs only. [FN75] This was a fundamental assumption of the 2005 Virginia Tributary Strategies. In 2009, the impact of nutrient reductions on improving mid-Bay D.O. were re-evaluated for the basins with a different approach taken to assess the "relative effectiveness" as follows:

--River basins were sub-divided further into Above-Fall-Line ("AFL") and Below-Fall-Line ("BFL") segments (previously only major tributaries were considered).

--Estuarine effectiveness [FN76] considered CB3-CB5 Deep Water (DW) plus Potomac Mesohaline DW and Deep Channel (previously the analysis focused on CB4 DW). Relative effectiveness scores [FN77] were calculated by multiplying estuarine effectiveness with the respective delivery factors [FN78] for each of these basins (previously delivery factors were not addressed in the scores). Draft results under this revised scoring method are shown in Figure 7. A comparison between Figure 8 (2003) and Figure 7 (2009 draft) indicates that the relative order of importance of the basins has changed along the x-axis. For example, the relative importance of the lower James now is greater than the above fall line York and Rappahannock; with the below fall line York greater than the above fall line Patuxent and Potomac.

[Figure 7: Revised Scoring Method for Relative Effectiveness (x-axis). Please see original document 0288.1]

[Figure 8: Estuarine Effectiveness (2003). Please see original document 288.1]

To further address the issues, the geographical scoring data (2009) was requested and received from the CBPO for review and analysis.[FN79] Key findings are as follows:

First, in terms of "estuarine effectiveness," the relative rankings of the basins remain comparable in 2009 to those determined in 2003. The James and York basins (now considered separately for AFL and BFL) continue to consistently have the lowest "estuarine effectiveness" of all other basins (Figure 9). Note: The separations between "Low", "Medium", and "High" were based on dividing the response range by three. This is for illustrative purposes to compare the 2003 and draft 2009 approaches.

[Figure 9: Estuarine Effectiveness- Mean DO (ug/l) per million algal units. CB3-5 DW + POTMH + DC (NPS+PS Loads). Please see the original document 0288.1]

Second, the absolute impact of the James and York Rivers on mid-Bay D.O. was estimated by multiplying delivered loads by their respective estuarine effectiveness. The results indicated that at the Working Target Loads (established by EPA in a letter to the Virginia Secretary of Natural Resources, November 3, 2009) [FN80] the combined impact of the James and York Rivers on mean mid-Bay D.O. was 0.033 mg/L. Further, reducing 2005 Tributary Strategy Loads to "E3" levels indicated an incremental improvement of only 0.007 mg/L D.O. This near zero incremental D.O. improvement potential at the mid-Bay associated with additional James and York controls is negligible because it is well within the error of analytical D.O. measurement and/or reliability of model predictions. These findings confirm that the James and York Rivers have an insignificant effect on main Bay D.O. conditions and therefore further reductions are not necessary.

[Table of the Estimate of York and James loads on mid Bay DO concentrations based on estuarine effectiveness. Please see the original document 0288.1]

Third, it is recognized that the new revised scoring methods have created confusion about the management of the York and James. However, the low relative effectiveness of small, isolated headwater basins elsewhere in the Bay watershed do not cancel the established scientific basis for regulating the James and York basins based on local water quality conditions rather than on mid-Bay D.O. With regard to the relative effectiveness plots identifying that selected other basin-jurisdictions also have low relative effectiveness (plotting on the left side of the relative effectiveness charts in Figure 7), most of these other segments are small, headwater basins that are not representative of the larger, high-estuarine-effectiveness basins to which they drain. Their plotting position is largely driven by state-line truncations that isolate headwaters far from tidal waters (e.g., Potomac above fall line (PotA) for West Virginia, PotA for Pennsylvania (PA), and the western shore of PA), or by other unusual characteristics of these small headwater basins (e.g., high reservoir density in the Maryland portion of the Patuxent above the fall line. Obviously, it is possible to subdivide larger basins in any number of ways to isolate small headwaters with low relative effectiveness. However, such subdivisions are not a legitimate basis for making decisions about whether basins as a whole are to be included or excluded in allocations based on mid-Bay D.O. considerations. Such an approach would create an awkward patchwork, with high-effectiveness estuaries such as those identified in this paragraph mostly included in the TMDL but missing small, non-representative headwater segments. In contrast, the established decision to exclude the James and York basins from mid-Bay based allocation principles is based on the fact that the James and York basins as a whole have negligible impact on mid-Bay D.O. This logic remains in effect and the existing scientific and policy decisions must be maintained.

Given the minimal effects of the James and York on the mainstem Chesapeake Bay D.O conditions the TMDLs for these rivers are a Virginia responsibility rather than EPA‘s responsibility.

B. EPA Should Adequately Document the Small Influence of the Rappahannock River

The TMDL does not adequately document the small influence of the Rappahannock River on the Chesapeake Bay. Figure 10 indicates the percentage of inflow attributable to the major river basins of the Bay from 1978-2009. The Rappahannock River accounts for only 2.7% of total inflow to the Bay. Although this river has a moderate estuarine effect on D.O. on the mainstem Bay on a per pound basis (Figure 10) its actual effect on mainstem Bay D.O. is quite small because of its relatively low inflows and loads.

[Figure 10. Please see original document 0288.1]

[FN75] Memorandum from W. Tayloe Murphy, Jr., Chair, PSC to PSC Members and Headwaters Representatives (attached hereto as Appendix 44). [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A44]

[FN76] Estuarine effectiveness is a measure of the mean change in D.O. at a region of the Bay covering an area of CB3-5 DW plus Potomac MH DW and deep-channel-per million algal units. An algal unit is calculated as (TN+TP*10)/2. It is calculated through modeling by isolating a particular basin in question for reduction to E3 loads while all other basins are held constant at calibration levels. Once the basin is isolated the incremental change in D.O. at the mid-Bay

is measured and recorded. For example, an estuarine effectiveness for the James below the fall line of 1 ug/L indicates that mean D.O. in the mid-Bay (as defined above) would change 0.001 mg/L for each million algal unit reduced.

[FN77] Relative effectiveness is a factor calculated as estuarine effectiveness times the delivery factor. Relative effectiveness is an attempt to normalize the estuarine effectiveness by the delivery factor of nutrients.

[FN78] Delivery factor is a ratio of the delivered load to the edge of stream loads to "tidal waters" of the watershed model.

[FN79] Attached hereto as Appendix 45. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A45]

[FN80] Attached hereto as Appendix 46.[Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A46]

Response

The commenter takes issue with EPA approach for determining the allocation for each basin-jurisdiction needed to achieve Maryland and Virginia's respective Chesapeake Bay dissolved oxygen water quality standards for the middle section of the Chesapeake Bay mainstem.

The approach used by EPA is based on a correct determination of relative effectiveness. The per-pound influence that each major tributary basin has on the main bay can be estimated based on a model-based determination of the estuarine effectiveness times the delivery factors. While this approach is similar to that used in 2003 it does differ in that it yields quantitative estimates of the relative effectiveness for each basin rather than the qualitative approach used in 2003. Using this measure of relative effectiveness, EPA then used an approach that related that measure to the % of controllable load. This approach yielded target loads for each basin-jurisdiction that was different than the loads from the state tributary strategies. Five of the seven watershed jurisdictions, including Virginia agreed with this methodology.

While the process of 2003 was informative in establishing the allocations, EPA and the states were not bound by these allocations, or by the approach used at that time. Surely, the 7 years of additional monitoring data and increased scientific understanding since that time have provided EPA and our partners with much improved models, a sense of the challenges in achieving the loads, and, therefore, a more refined approach like was used is appropriate and EPA stands by the allocations established based on this method.

The commenter suggests that the loadings from the York and the James Rivers are in his words 'negligible'. Using that same methodology and logic of 'absolute impact', it is probable that the commenter would also suggest that the loads from the eastern shore of Delaware, the eastern shore of Virginia, the state of West Virginia, and even the District of Columbia are also negligible. The commenter seems to dismiss that fact that the Bay system is a 200 to 300 million pound per year of nitrogen system and it takes large load reductions to 'move the needle' of dissolved oxygen improvement. Further, if you analyze improvements in oxygen from each of the sectors or basins or even some states, these parcels by themselves may not be large, but in the aggregate they all contribute to the current impairment of the Chesapeake Bay.

In spite of all of this, the allocations for the James River, similar to 2003, were based on restoring local water quality, not on restoring the mainstem Bay water quality alone. So the discussion on the merits of allocating loadings to the York and James river basin based on the improvement in dissolved oxygen on the main bay is academic.

Comment ID 0293.1.001.023

Author Name: Pomeroy Christopher

Organization: Virginia Municipal Stormwater Association, Inc. (VAMSA)

EPA's View Of Relative Effectiveness Is Incorrect

The James and York Rivers have an insignificant effect on Chesapeake Bay D.O. In the 2003 allocation effort, allocations for the James and York River basins were established at "Tributary Strategy" loadings in recognition of the fact that the nutrient loadings for these basins did not significantly influence the mainstem D.O. conditions at segment CB4 and, further, that additional nutrient controls (point and non-point) were warranted for local water quality needs only. This was a fundamental assumption of the 2005 Virginia Tributary Strategies. In 2009, the impact of nutrient reductions on improving mid-Bay D.O. were re-evaluated for the basins with a different approach taken to assess the "relative effectiveness." VAMSA disagrees with the conclusions EPA reached on this point.

Furthermore, Rappahannock loads are small in relation to other rivers. EPA's TMDL should, but currently does not, appropriately reflect this point.

VAMSA's full discussion on relative effectiveness is provided as Appendix 13.

Response

Please see the response to comment 0288.1.001.028

Comment ID 0314.001.002

Author Name: Santulli Thomas

Organization: Southern Tier Central Regional Planning and Development Board (STCRPDB)

-Current contribution to Bay impairment: New York's water quality far surpasses that of any other jurisdiction within the Bay watershed. If each of the Bay states had New York's current water quality (as measured near the Pennsylvania border), excess nutrient and sediment issues would not exist in the Chesapeake Bay. In addition, due to the distance from the Bay itself, the proportion of each pollutant discharged to New York's waters that reaches the Bay (delivery factor) is also low. New York State's impact on the Bay's water quality is thus significantly less than that of other states closer to the Bay.

-Cost to improve the quality of clean water: Because New York's water quality is relatively high and delivery factors are low, it will cost substantially more for New York State to remove a pound of delivered pollutant from the Bay than it would for other watershed states.
-Economic benefits from the Chesapeake Bay: "States that benefit most from the Chesapeake Bay recovery must do more." This principle should not have been removed from EPA's allocation methodology. New York State is remote from the Chesapeake Bay and would derive no direct benefit from improvements to its water quality. It is unfair to ask taxpayers and businesses in headwater states to pay for improved Bay water quality when the resulting economic benefits would be limited to states adjacent to the Bay.
-Population growth and land use changes: Although the population within the Chesapeake Bay Watershed had increased by 3 .5 million people over the last two decades, the population within the New York portion of the watershed has stagnated or declined over the same period . With only nominal increases in urban land cover and significant increases in forest cover, New York should not be expected to compensate for the water quality impainnents that result from population growth and land use changes in other parts of the watershed.

Response

Please see response to comment #0080-cp.001.002

Comment ID 0330.1.001.009

Author Name: Krasnoff Alan

Organization: City of Chesapeake, Virginia

The EPA should also recognize that focusing on the urban runoff sector to provide significant reductions, primarily because localities are directly regulated through MS4 NPDES permits, fails to fully recognize that other currently unregulated sectors are major contributors to water quality impacts.

Response

EPA has reconsidered its approach to backstop allocations as proposed in the draft TMDL. This is in large part due to the significantly improved states' final Phase I Watershed Implementation Plans and informative public comments on the issue. The final TMDL places much greater emphasis on states' final Phase I Watershed Implementation Plans and less emphasis on backstops in deriving the loading allocations for all pollutant source sectors.

Comment ID 0376.1.001.014

Author Name: Smith Brooks

Organization: Virginia Manufacturers Association VMA

Virginia's WIP included an aggregated wasteload allocation for nonsignificant point sources. This is the same approach that Virginia has used successfully hundreds of times in the past through TMDLs reviewed and approved by EPA. In this case, Virginia derived the aggregate allocation with support from EPA and EPA's contractor, TetraTech, using SIC classifications and facility size to project loadings. Virginia's WIP is backstopped by the Nutrient Credit Exchange Law, which provides a mechanism for holding nonsignificant dischargers below certain thresholds.

EPA's proposal, by contrast, would assign an individual wasteload allocation to each and every nonsignificant discharger. Such an approach is unnecessary and rife with potential for error. Among other problems, EPA cannot meaningfully identify each and every nonsignificant discharger within a 64,000 square mile watershed. Toward that end, we understand that EPA excluded many dischargers based on its inability to locate them in the model. Moreover, EPA assumed in the draft TMDL that nonsignificant dischargers for which no data were available would have a wasteload allocation of zero. Setting allocations without any basis in fact must fail both as a matter of good science and good public policy.

Response

As noted, the VMA (and others) have made significant investments for the betterment of local water quality and the Chesapeake Bay. In the final Bay TMDL, EPA has chosen to aggregate the loadings of all of the non-significant WWTP facilities. Yet it is still critical to identify those facilities that have a share in that aggregate allocation. Any facility not identified as having a share in that aggregate will not be permitted to discharge nutrient or sediment into the bay watershed. It is also critical for the state to track the permitted loading of these non-significant facilities so as to assure that the aggregate WLA is achieved.

Comment ID 0376.1.001.019

Author Name: Smith Brooks

Organization: Virginia Manufacturers Association VMA

EPA's Proposed Allocations for Stormwater Contain Mistakes that Must be Corrected Before the TMDL is Finalized.

The TMDL provides a wasteload allocation for municipal separate storm sewer systems but not for industrial or construction stormwater sources. We understand that EPA's designation is in error and that EPA intended for its wasteload allocation to include all three sources of stormwater loading. EPA needs to correct the TMDL to reflect this. EPA also needs to explain how it assigned this allocation, recognizing that in many cases, the loading from municipal, industrial and construction sources overlap (e.g., within the same local jurisdiction).

Response

Thank you for your comment. The final TMDL has been modified in response to this comment. That is, an aggregate stormwater waste load allocation has been developed that includes MS4 systems, industrial and construction stormwater sources.

Comment ID 0377-cp.001.003

Author Name: Martin Larry

Organization: Sustainable Community Initiatives

It is appropriate that tributary basins that contribute the most to the Bay water quality problems must do the most to resolve those problems (on a pound per pound basis).

Response

Agree

Comment ID 0457.1.001.005

Author Name: Zaepfel Patrick

Organization:

5. The Draft TMDL fails to explain how the government decided to allocate cap loads by industry, so that it is impossible to determine if the allocation is rational. For example, in the Pennsylvania allocation, some industries got merely 1% of the TN cap load and some were allocated 49%. Such distinctions may very well be justified, but failing to explain them is not.

6. The Draft TMDL fails to explain why the Pennsylvania industrial cap loads are significantly lower than its municipal cap loads. In the Draft TMDL, municipal point source cap load allocations were based on 3 mg/l of TN and 0.1 mg/L of TP and insignificant municipal point sources on 8 mg/L of TN and 2 mg/L of TP at design flow conditions. The industrial cap loads are significantly lower, for some significant industrial dischargers as low as 0.46 mg/L of TN and 0.003 mg/L of TP. Several "insignificant" industrial point sources were even given cap loads of zero (0) pounds per year of TP, which is inexplicable. Failing to describe the basis of these allocations is a fundamental flaw and is a stark example of how the Draft TMDL is arbitrary and capricious.

7. The Draft TMDL gives limits to many industrial facilities that are less than the limit of treatment technology at design flow conditions. The cap loads cannot be achieved when the industry must treat the wastewater to reduce the concentrations of TN or TP in the discharge. This condition forces every industrial facility, as it approaches design conditions, to purchase nutrient credits, if it can. However, for those facilities that discharge to streams that are already nutrient impaired, purchasing of nutrient credits is not allowed by the PA DEP. In effect, this amounts to a governmental directive to close these facilities. By failing to describe the path forward for facilities in such circumstances, EPA fails its responsibilities to the public and violates the APA.

Response

The draft wasteload allocations resulted from backstop allocations imposed by EPA. These backstops were necessary because the state draft WIP was insufficient. The final WIP is much improved and therefore the backstop allocations have been removed or reduced. As a result the final TMDL WLAs are much more aligned with the state WIP. The final WLAs for significant facilities can be found in Section 9. For non-significant facilities, an aggregate allocation has been provided.

Comment ID 0480.1.001.014

Author Name: Falk Hilary

Organization: Choose Clean Water Coalition

EPA, in cooperation with its Bay state partners and after years of allocation experience, has established sound, supportable rules and methods for establishing the Bay TMDL.

Response

Agreed. Thank you.

Comment ID 0515.1.001.001

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

After adoption, this TMDL will constitute a fundamental economic development tool for the benefit of the Bay shoreline jurisdictions. We support reasonable, cost-effective efforts to restore the Bay, in proportion to the relative burdens each jurisdiction places on the Bay and proportionate to the relative benefit each jurisdiction receives from the Bay. Nevertheless, in the absence of clear evidence of excessive pollution from an upstream jurisdiction burdening the Bay, the TMDL should not be structured in a punitive way that essentially sacrifices the economic vitality of remote upstream/headwater jurisdictions for the benefit of Bay shoreline jurisdictions.

Response

The basis for EPA's allocation to NY is provided in the response to comment 0080-cp.001.002

Comment ID 0542.1.001.001

Author Name: Hooker Patrick

Organization: New York State Department of Agriculture and Markets

The Department of Agriculture and Markets has completed its review of the U.S. Environmental Protection Agency's draft Chesapeake Bay Total Maximum Daily Load (TMDL), and subsequent information related to this document. I feel compelled to vocalize the Department's ongoing concern with the lack of parity amongst states in the Bay Watershed, lack of credit for New York's aggressive performance reducing pollution and EPA's lack of understanding about New York State agriculture and stewardship program, which has been acknowledged by EPA's staff after release of the draft TMDL.

Given our geographic location in the Chesapeake Bay Watershed, land-use, and performance to date, EPA's draft allocations for New York State raise several questions about parity among the Bay states under the presented TMDL. The 16 counties, 16 Soil and Water Conservation Districts, over 2000 family farms, and 629,000 residents living and working in New York's portion of the Bay Watershed have made great strides to reduce nitrogen (N), phosphorus (P) and sediment loads to the Chesapeake Bay. The vast majority of other Bay states have experienced significant increases of people and livestock, land-use stress and intensification, accompanied by increased N and P loads over the last 25 years. New York's sixteen counties have had the reverse experience on all these fronts. In 1985, New York's baseline "no action" loads were 13.47 million lbs. N and 1.05 million lbs. P. Today, the same baseline "no action" loads are 11.03 million lbs. N and 0.97 lbs. P. New York State should be credited with the load reductions we have achieved since 1985. These are the product of progressive state and local conservation efforts and, unfortunately, of economic stress in the region.

EPA disregard of New York's documented reductions and the ratcheting down of allocations for New York, so as to alleviate the need for increased actions by other states, while maintaining the overall TMDL goal is inequitable. This imposes unrealistic costs on the businesses, governments, and people of New York State. The reductions EPA is asking of New York are more complex to implement and expensive due to decreasing returns at the margins. The EPA draft TMDL allocation for New York is unrealistic.

• New York State is held to deliver an equivalent percentage reduction for N (-22%) and by far the highest percentage reduction in P (35%) of all the Bay states.

We understand that even if other Bay states could reduce their loads to the draft EPA allocations by 2025, the water leaving their jurisdictions would still deliver higher nutrient loads per acre than New York's current 2010 load/ acre.

• As the state that has the lowest present delivered loads, (2.65 lbs N/acre/year and 0.20 lbs P/acre/year) New York State is required to accomplish relatively more than the other states with two to three times our current loading rate.

If all states were to achieve the modest loads currently leaving New York State, the Chesapeake Bay would meet water quality standards eliminating the need for a TMDL.

• EPA proposes to allow those other states to continue to deliver two to three times New York State's draft allocation (2.07 lbs N/acre/year and 0.13 lbs P/acre/year) in its 2025 TMDL goals.

Response

Please see response to comment #0080-cp.001.002

Comment ID 0590.1.001.012

Author Name: Chavez Jennifer

Organization: Earthjustice et al.

10. MS4 Systems: Although MS4s are major contributors to standards violations in the Bay, EPA's draft TDML does not appear to assign WLAs to specifically named MS4 systems (e.g., identified by name of municipality and by NPDES permit number). Appendix R does appear to assign WLAs to MS4s on various segments, but identification of the specific systems and outfalls covered by those allocations is essential to comply with EPA's rules. See 40 C.F.R. 130.2(h)(defining Wasteload Allocation as the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution). Because some stream segments have multiple MS4 discharge points, it is particularly important that WLAs be assigned to individual municipal dischargers by name.

Response

Please refer to the response to comment 0293.1.001.008

16.1 - NUTRIENT ALLOCATION METHODOLOGY

Comment ID 0064-cp.001.004

Author Name: Hutchins Lawrence

Organization: Quail's Nest Industries

EPA must allow Pennsylvania to meet its gross state allocation, without meeting specific sector allocations.

Response

The resolution of this issue was largely up to the state. EPA has been clear for two years--if the Commonwealth of Pennsylvania provides an acceptable Watershed Implementation Plan which provides reasonable assurance that the Commonwealth can achieve its load allocations, EPA was prepared to include only a gross point source wasteload allocation and a non-point source load allocation in the Bay TMDL. Pennsylvania’s final Watershed Implementation Plan did not fully meet EPA’s requested reasonable assurance and the Bay TMDL contains sector specific allocations.

Comment ID 0178.1.001.002

Author Name: Curatolo James

Organization: Upper Susquehanna Coalition

5. A USGS analysis of N and P levels shows that at present NY water levels of N and P are below what the Bay needs to meet the TMDL; in other words if all the states had the same water quality as NY the Bay would meet its allocation. This was also confirmed by an EPA Bay Modeler who answered "yes" when I asked him if the Bay would meet standards if the water quality of the Bay. was the same as that measured at Towanda, PA, the CBP official site that measures NY (and a small portion of PA) was the same as the

6. Water quality of all the States will have higher N and P levels AFTER the TMDL is met by all states than the Water Quality of NY's water is at present.

7. NY loses about 60% of its N along the way after it leaves the edge of stream. In the model as the water becomes cleaner (less nutrients) more of the nutrients "make it" to the Bay. This means that as more BMPs are implemented you get less reductions. The concept that cleaner water allows more nutrients to pass through the system is completely opposite to any scientific logic as biological activity would utilize more not less of nutrients as they become less. The CBP has never provided any scientific documentation for this quirk in the model. The only response was the efficacy ratings were developed by running the model backwards.

8. Up to Dec 2009 the CBP edict was that those states that benefit the most would do the most work. In early 2010 this changed where all states have been given the same reduction percents.

9. NY is the only state to have its population and agricultural operations decrease and increased its forest cover from 1985 through 2010. As the TMDL is based on the status of states as of 2009, NY is being punished for its reductions while all the other states were able to increase their N and P loads for all of those years and are starting at a much higher baseline. The TMDL should be based on 1985 baseline or whenever the Court Order was given that provided for the original voluntary approach. As the Court said "clean up by 2010 or get a TMDL" ,then that is the date the TMDL should be based on.

Response

In response to comments 5 and 6 above, please refer to the response to comment 0080-cp.001.002.

Comment 7: Delivery factors are calculated outputs of the modeled streams and rivers in the Phase 5.3 Chesapeake Bay Watershed Model. These factors are the pounds of material that makes it to Bay tidal waters for every pound put in to the stream or river at an upstream point. These factors are calculated for each scenario based on model delivery for that scenario. Generally, as lower loads of one nutrient are put into the stream, the delivery factor for the other nutrient increases due to uptake limitation. For example, putting less phosphorus in the water limits the amount of algal growth in the streams, which decreases the amount of nitrogen taken up, increasing the nitrogen delivery factor.

Comment 8: It is true that most of the Bay Program partners and EPA agreed to remove the state allocation guideline that the states that benefit the most for an improved bay must do the most but it is not true that all states must do the same percent reduction.

Chapter 6 of the TMDL document clearly describes that the % of controllable load required of a state/basin is related to the amount of impact that a state/basin has on the Chesapeake Bay on a pound for pound basis.

The primary reason that this guideline was dropped is that under the previous state allocation methodology very crude determinations of impact were made such that the NY loads had the same level of impact as the Susquehanna portion of PA and even the western shore of Maryland. Under the current assessment of impact, measures of the impact of each of the states/basins has been made and those basins impacting the least are asked to control the least and vice versa. Also it should be noted that to address many issues raised by NY on equity issues, EPA allocated additional loading to NY as described in Chapter 6.

Comment 9: The most relevant legal action with regard to the Chesapeake Bay TMDL was the consent decree in Virginia which required EPA to develop a TMDL for all waters listed on the 1998 impaired waters list. This consent decree was signed in 1999. While EPA disagrees with the suggestion in the comment to base the TMDL on the consent decree timeline, EPA has provided NY with additional allocation, as described in Chapter 6, to address the equity issues raised.

Comment ID 0179.1.001.002

Author Name: Curatolo James

Organization: Upper Susquehanna Coalition

If all States were required to have similar allowable loads from their various sectors, the states would have to reduce their loads to NY's level to meet the TMDL (see graph).

Why is delivered load used instead of generated load, that is, the load each state actually generates? For every 100 pounds of N in NY, according it the model only 40 pounds is delivered, in MD it is almost 100. Currently very state must do the same percent reduction, thus NY must spend 2.5 times the cost of a pound reduction versus MD. Is to using delivered load not as fair as generated. To say the states voted to use delivered loads and percent reductions is capricious, as it does not treat all states the in the same manner (not allowing for a very real reduction that is occurring)

Response

The comment is not true that all states must achieve the same percent reduction. Section 6 of the TMDL document clearly shows that the amount to be reduced is different as a function of the amount of impact a state/basin has on the Bay on a pound for pound basis.

In developing the TMDL it is important to establish the allocations based on delivered load because that is the load that actually reaches the Bay and determines if the states' Chesapeake Bay water quality standards are met. To put it another way, if EPA allocated edge of stream load (generated load), if all of that load was located in the headwaters of the state then lesser % of that load would reach the Bay and the states' Bay water quality standards would be met. On the other hand, if all of that load was placed in the downstream portion of a state, then a higher % of that load would be delivered to the Bay and the states' Bay water quality

standards would not be met. So there is an important geographic component of generated load. Since the Bay TMDL is based on meeting standards in the Bay and tidal tributaries, delivered load is most appropriate.

Comment ID 0179.1.001.006

Author Name: Curatolo James

Organization: Upper Susquehanna Coalition

A USGS analysis shows N needs to be 1.1mg/l in the Bay to met federal standards. NY water is that at present. Why is NY being told to reduce its load further?

Response

There are no federal water quality standards for nitrogen. The basis of EPA's division of the allowable load to the states is discussed in detail in Section 6 of the final Bay TMDL document. Also, please refer to the response to comment 0080-cp.001.002.

Comment ID 0179.1.001.007

Author Name: Curatolo James

Organization: Upper Susquehanna Coalition

1. NY farmers are required to install practices to reduce nutrients. If they rip out a riparian buffer the load for NY goes up because the buffer is no longer filtering the water, Why is MD not given a lower load allocation to take into account all of the oysters removed which act as filters in the same way a riparian buffer does? There is very good scientific data on the amount of filtering and there is very good data on the amount of oysters removed. Why is MD and VA not made to make up for this practice? This also apples to menhaden, which recent studies show there is some filtering.

2. I the Susquehanna River if one dos not include forest, which are basically not anthropogenic loads, why is NY percent reduction greater than MD?

[Table 1 and Table 2. Please see pages 2 and 3 of document 0179.1]

Response

Comment 1. The Bay Water Quality Model, and, therefore, the TMDL is based on the current filtering capacity of oysters and menhaden in the Chesapeake Bay. Unfortunately, especially for oysters, the population and filtering capacity has been dramatically reduced due to water quality, habitat, disease, and harvesting over the past 100 years. For this reason, the TMDL is based on the

current filtering capacity of the Bay's living resource populations. If this filtering capacity changes in future years and can be documented with actual monitoring data, then EPA may reassess the effect on the Bay TMDL.

Comment 2. The calculations in support of this comment are not provided, making it difficult to respond, but the commenter is reminded that the state allocations are based on percent of controllable load not percent of total load.

Comment ID 0202.1.001.004

Author Name: Carl Jimmie

Organization: Southern Tier New York WWTP

Furthermore, the percentage of a nutrient quantity discharged to a river that is actually delivered to the Bay decreases with the distance from the Bay itself. The ratio of the "edge of stream" nutrient quantity to the portion reaching the Bay is known as a delivery factor. As New York State is located in the headwaters of the Chesapeake Bay watershed at a considerable upstream distance from the Bay, some of the lowest nutrient delivery ratios exist within New York. For example, in regards to Total Phosphorus, the delivery ratios for New York State range from 23 to 47 percent, whereas the portions of Maryland and Virginia near the Bay have a delivery factor of 80 to 100 percent. Also, for example, the Hornell/Canisteo area of New York is located in the upper portion of the watershed and has a delivery factor of Total Nitrogen of less than 20 percent.

These concepts are significant for the following reasons:

1. Given its good water quality and the low nutrient delivery factors, New York State's impact on the Bay's water quality is significantly less than that of other states closer to the Bay.

Response

Please see response to comment #0080-cp.001.002

Comment ID 0202.1.001.006

Author Name: Carl Jimmie

Organization: Southern Tier New York WWTP

B. Limited Overall Nutrient Reduction Potential

The amount of nutrients delivered to the Chesapeake Bay from the significant WWTPs in New York State is relatively small in comparison to the current overall nutrient loadings being delivered to the Bay. Consider the following in regards

to Total Nitrogen (TN) and Total Phosphorus (TP).

Overall Delivered TN to Bay = 259 million lbs/year (from all sources)
Delivered TN from WWTPs in New York = 1.76 million lbs/year
% of TN from WWTP in Overall Delivered TN = 1.76/259 x 100 =0.7%

Overall Delivered TP to Bay = 17,751,000 lbs/year (from all sources)
Delivered TP from WWTPs in New York = 197,114 lbs/year
% of TP from WWTP in Overall Delivered TP = 197,114/17,751,000 x 100 =1.1%

As such, at present, New York State's significant WWTPs contribute only 0.7 percent and 1.1 percent of the TN and TP delivered to the Chesapeake Bay, respectively. Given this small percent contribution, upgrading New York's WWTPs would result in reductions in TN and TP loadings to the Bay of less than 1 percent, respectively. This apparent lack of a sizeable percentage impact may speak to the possible ineffectiveness of a basin-wide WWTP nutrient removal requirement for New York State, and casts doubt if the associated funding would be wisely used.

Response

The nitrogen, phosphorus and sediment problems in the Chesapeake Bay are literally the result of a multitude of sources, from wastewater treatment facilities to individual homeowner's fertilizer lawns. As such, these multitude of sources will need to reduce their loadings of nitrogen, phosphorus, and sediment. Furthermore, there is no single source or even source sector that can by itself resolve the nutrient and sediment problems. This commenter singles out one source sector within one state and asserts that the loading contributions from this sector are small to the Bay. One could make a similar case for almost any source sector in any state. For example, the WWTP in the District of Columbia delivers less phosphorous load to the Bay than the WWTPs in New York. Is this to suggest that the WWTPs in DC should also not be limited in this TMDL? It so happens that the WWTPs in the District are mostly from a single 370 million gallon per day plant in the District.

EPA has allocated loads to the states so that the burden for controls is shared among the states equitably but not equally. As long as EPA accepted the state's watershed implementation plan, EPA left the states with the flexibility to decide the best combination of controls to achieve the state allocated load. But for New York or any state, the allocations assigned to a state cannot be achieved by exempting whole source sectors from needed controls.

Comment ID 0228.1.001.006

Author Name: Rolband Michael

Organization: Wetland Studies and Solutions, Inc.

The Draft WIP proposes no WWTP improvements beyond current permit requirements, which is vastly different than the requirements placed on other sectors. The lack of requirements on the Wastewater sector is not cost effective as it places a larger financial burden on the same segment of the population compared to other available options.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0228.1.001.008

Author Name: Rolband Michael

Organization: Wetland Studies and Solutions, Inc.

It seems unreasonable for people in one portion of the Bay watershed to provide such cleaner discharges than others. First, equity suggests that all of the Bay watershed operate below 3.0 mg/L and 0.18 mg/L. Second, a look at cost-effectiveness shows that EPA's backstop for WWTPs in DE, NY, PA, and WV (3.0 mg/l TN and 0.10 mg/l TP) is actually the most reasonable proposal because it reduces the total cost of nutrient removal throughout the watershed, as briefly discussed above in Section A.

Response

EPA has been clear that there is a preference for the states to decide how much reduction to seek from the various sources within the state. While this decision does provide the states with flexibility, it does invite an inconsistent approach to controls. EPA considers this inconsistency to be acceptable since the state tailored program allow the states to take advantage of their individual strengths in achieving the challenging nutrient and sediment controls.

Comment ID 0255.1.001.003

Author Name: Gumm Gary

Organization: Washington Suburban Sanitary Commission (WSSC)

The WSSC has played an important role in reducing pollutant loading to the Bay from its wastewater treatment plants, designing and deploying advanced technologies and we are now finalizing construction plans to upgrade all WSSC major WWTPs to the meet the requirements established in the Maryland WIP of 4 mg/L TN and 0.3 mg/L TP or better where required to meet local water quality standards. However, we can never address the multitude of challenges facing the health of the Bay without equitably sharing the burdens among all sources of water quality impairment which impact the Bay. To move forward in a meaningful way will require a comprehensive approach that allocates federal, state, local and nongovernmental resources efficiently and mandates equitably to maximize pollution reductions from all remaining sources. The Final Bay TMDL must provide a framework for addressing all sectors of pollution on an equitable basis if the mandate for meeting water quality standards is to be achieved.

Response

The value of this or any TMDL is that it provides a comprehensive view of the many (in the case of the Bay TMDL, tens of thousands) of sources that contribute to the pollution problem. The Bay TMDL breaks the allowable load into equitable allocations for each state and the states then further divide the allowable loading to many different sources and source sectors. EPA agrees with the comment that loading reductions will need to be realized from many sources. So the TMDL will apply appropriate load levels to these many sources, including the air sector, to realize the challenging task of reducing the nutrient and sediment loading to level s that will restore the Chesapeake Bay.

Comment ID 0259.1.001.004

Author Name: Jackson Marjorie

Organization: The Elizabeth River Project

6) Beyond the chlorophyll study mentioned in the appendix, the plan does not appear to address the Elizabeth River specifically. The Elizabeth contains some of the highest nutrient concentrations in the Chesapeake Bay. For this reason, we request that the state provide more focus on strategies to reduce nutrients in the Elizabeth. We recommend that the TMDL recognize the watershed plan adopted by Virginia already for the Elizabeth River (updated 2008) and indicate continued commitment to that plan. In addition, Virginia should work with local stakeholders including Elizabeth River Project to implement specific nutrient reduction projects for reducing nutrients in the Elizabeth River.

Response

The TMDL for the Chesapeake Bay is actually a compilation of 276 sets of TMDLs--nitrogen, phosphorus and sediment TMDLs for each of the 92 Bay segments. Five of those segments are within the Elizabeth River watershed. So point source wasteload allocations and nonpoint source load allocations for nitrogen, phosphorus, and sediment have been established for each of the 5 segments. In the case where there are nested TMDLs as may be the case with the Bay TMDLs and the Elizabeth River TMDLs, the more stringent TMDL governs.

Comment ID 0266.1.001.009

Author Name: Fagerstrom Angela

Organization: City of Binghamton, New York

WHEREAS, even if the other states achieve their EPA mandated pollution allocations by 2025, their water would still contain higher nutrient loads per acre than New York's current 2010 load per acre; and

WHEREAS, New York is being expected to make nutrient reductions at proportionately the same level as other states and watersheds where there has been rapid population growth, dramatic expansions of animal agriculture and corresponding significant increased in pollution since 1985, while New York has decreased and contracted

Response

Please refer to the response to comment 0080-cp.001.002

Comment ID 0267.1.001.020

Author Name: Bowman Cynthia

Organization: Cornell Law School Water Law Clinic

The agricultural nitrogen load delivered from New York decreased more than 27 percent according to the latest "progress run" modeling by EPA,[FN 10] an achievement due in large part to AEM. Yet, New York receives no acknowledgement for this nitrogen loading reduction in the draft TMDL model. We urge EPA to better recognize the contribution of AEM. EPA can do this by adjusting New York's nitrogen loading allocation

[FN 10] See WIP I at 13.

Response

EPA has adjusted the allocated load for nitrogen for New York for this and other reasons as explained in Section 6. Also, please refer to the response to comment 0080-cp.001.002.

Comment ID 0267.1.001.022

Author Name: Bowman Cynthia

Organization: Cornell Law School Water Law Clinic

EPA should adjust New York's nitrogen allocation

Response

Please see response to comment #0080-cp.001.002

Comment ID 0288.1.001.012

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

EPA's BACKSTOPS WILL NEGATIVELY IMPACT SMART GROWTH & ECONOMIC DEVELOPMENT

A. Smart Growth

Most major POTWs in the Chesapeake Bay watershed currently have allocations that were calculated using design flows and a TN concentration between 4 and 6 mg/L. In comparison, secondary treatment POTWs may discharge at a concentration of approximately 25 mg/L TN plus or minus. The generally-agreed upon limit of technology (LOT) for nitrogen removal at POTWs is 3 mg/L; thus, treatment at the 4-6 mg/L level is about 85%-to 95% of the maximum technically feasible reduction.

After making these major reductions, what remains is only limited capacity for POTWs to serve future growth in wastewater flows in the environmentally beneficial manner of using these advanced treatment facilities rather than to less effective on-site disposal systems ("OSDSs"). In contrast, the reductions reflected in EPA's TMDL could increase net (POTW+OSDS) nitrogen loadings, harm smart growth, and cause environmental detriments associated with OSDS-based sprawl.[FN39]

The interaction between POTW and OSDS loads is of high importance when considering future growth. VAMWA has performed simple calculations to quantify the net increase in nitrogen loading that could result from reducing POTW allocations and directing the flow associated with the "lost" treatment capacity to OSDSs.

The conclusion based upon those computations is that reduction in the concentrations of POTW allocations could result in a net increase in total nitrogen loadings to surface water, even using denitrifying OSDSs. Some of the potential increase could be prevented by wastewater recycle/reuse, depending on land availability, demand for recycle water, and costs. However, these calculations underscore the importance of joint planning of POTW and OSDS loads in light of future growth. EPA's decision to cut POTW allocations in its Draft TMDL risks this future environmental impact.

[FN39] See C. Bell and K. Dorken Paper (Calculation of Net Load Increases from Diverting Future Wastewater Flows to On-Site Disposal Systems Instead of ENR POTWS) (attached hereto as Appendix 20). [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A20]

Response

Since the Bay TMDL represents a cap on the amount of loading to the Bay, EPA agrees that planning around future sources is critical. To the extent that the TMDL WLAs may drive more OSDSs is a concern that EPA shares with the commenter. So its is critical that planning for this potential emerging problem be initiated

Comment ID 0329.1.001.006

Author Name: Harrington Marilou

Organization: Town of Caroline, New York

Whereas, EPA's proposed TMDL regulation imposes disproportionately heavier restrictions for water quality in New York in order to help other states meet their overall TMDL goal, ignores New York's excellent record of environmental

accomplishments over the past 25 years using state and local conservation efforts and forces unrealistic costs on the businesses, governments and residents within the watershed area; and

Whereas, even if the other states achieve their EPA mandated allocations by 2025, their water would still contain higher nutrient loads per acre than New York's current 2010 load per acre because of progressive natural resource management programs like New York State's Agricultural Environmental Management Program; and

Whereas, even with the elimination of animal agriculture and utilizing every best management practice available in the watershed area, New York would still not be able to meet EPA's TMDL allocation;

Response

Please see response to comment #0080-cp.001.002

Comment ID 0389.1.001.001

Author Name: Iwanowicz Peter

Organization: New York State Department of Environmental Conservation

As drafted, New York's primary concern with the TMDL is that EPA applied an overall uniform approach that does not fully take into account the unique circumstances found in the New York portion of the watershed, and the changes that have occurred throughout the watershed since 1985 when Bay impairments became widely known. As a result, the Draft TMDL requires a disproportionate and inequitable amount of pollution reduction from New York. Given this State's lack of formal involvement in the Bay program and the fact that New York was not a party to the various federal investigations and court orders spurring development of the Chesapeake Bay TMDL, the accountability framework that EPA has proposed seems inequitable.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0515.1.001.011

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

A. The TMDL Is Not Uniform In Its Allowance for Future Growth and Development in the Bay Watershed

Based on statements made during the October 27, 2010 EPA-hosted meeting about the TMDL in Binghamton, New York, it appears that there may be unused, or excess, sewage treatment capacity for as many as five million people

built-into the TMDL within the states of Maryland and Virginia. On the other hand, as discussed above, our Facilities were shortchanged by inclusion of a purported "design capacity" at only 57% of the presently permitted level at which our Facilities provide full tertiary treatment for denitrification. It would be arbitrary and capricious for the EPA to approve a TMDL based on "gerrymandered" excess sewage treatment capacity with the result that the opportunity for economic development in some Bay jurisdictions is fostered or enhanced while the growth and development of other Bay jurisdictions is stifled or choked-off. Although the comment period's shortness precludes us from preparing and presenting a more in-depth analysis, "equal protection" principles would seem to dictate that an equivalent allowance for expansion or growth should be afforded all Bay watershed jurisdictions (not just the Bay shoreline jurisdictions) under the TMDL's framework.

Further, from a policy standpoint, overdevelopment in the Bay shoreline jurisdictions should be addressed by requiring such Bay shoreline jurisdictions to bear the full incremental costs of corresponding WQ protection and Bay restoration for the affected segments of the Bay, even to the extent that such policy may create economic conditions which "push" population to exit those jurisdictions in favor of less densely developed jurisdictions such as New York.

Response

The Bay TMDL is uniform in how it applies allocations to states for future growth. What is not uniform is the rate at which the Bay watershed states are growing. In consideration of this and other factors, EPA made an adjustment to the New York state allocation as described in Section 6 and in the response to comment 0080-cp.001.002.

Comment ID 0727.001.001

Author Name: Thigpen Janet

Organization: Steuben County Environmental Management Council

Contribution to Bay impairment : New York's water quality far surpasses that of any other jurisdiction within the Bay watershed. In fact, if each Bay state had New York's current water quality, the Chesapeake Bay would not be impaired. New York State's impact on the Bay's water quality is thus significantly less than that of other states closer to the Bay.

Cost-effectiveness of remediation: Because New York's water quality is relatively high and delivery factors (percentage of pollutants that reach the Bay) are low, it will cost substantially more for New York State to remove a pound of delivered pollutant from the Bay than it would for other watershed states .

Economic benefits from the Chesapeake Bay: New York State is remote from the Chesapeake Bay and would derive no direct benefit from improvements to its water quality. It is unfair to ask taxpayers and businesses in headwater states to pay for improved Bay water quality when the resulting economic benefits would be limited to states adjacent to the Bay.

Population impacts : Many of the Chesapeake Bay's water quality problems can be attributed to the rapidly rising population within the watershed, which increased by 3 .5 million people over the last two decades and overwhelmed efforts to reduce pollution loads from other sources. The New York portion of the watershed has had a stable population

over this period and declining pollution loads. New York should not be expected to compensate for the water quality impairments that result from population growth and land use changes in other parts of the watershed.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0728.001.002

Author Name: Proto Frank

Organization: Tompkins County Water Resources Council

according to the New York Farm Bureau, even if the other states affected by the Regulatory Proposal achieve their EPA-mandated allocations by 2025, their water would still contain higher nutrient loads per acre than New York's current 2010 load per acre because of progressive natural resource management programs like New York State's Agricultural Environmental Management Program,

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0729.001.003

Author Name: Hannon Dennis

Organization: Village of Johnson City, Johnson City, New York

EPA's proposed TMDL imposes disproportionately heavy restrictions on NY. If other states reached the level of performance achieved in New York over the past decade for Nitrogen and Phosphorous, there would be no need for a TMDL . Even if other states in the watershed achieve their mandated allocations, their water would still contain more N and P than New York at present.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0734.001.002

Author Name: Augenstern Robert

Organization: Southern Tier East Regional Planning Development Board (STEPDB)

The communities of NYS that comprise the headwaters of the Susquehanna. and Chemung River watersheds have long recognized their role as partners in the restoration of the Chesapeake Bay. In acknowledgment of that role, NYS has made great strides to improve water quality through stringent regulations and programs in the areas of stormwater pollution prevention and agricultural environmental management, exceeding those mandated by the federal government. As a result, NYS' water quality far exceeds that of other jurisdictions in the Chesapeake Bay watershed.

EPA's proposed TMDL imposes disproportionately heavy restrictions on NY; it penalizes. If other states reached the level of performance achieved in NY over the past decade for Nitrogen (N) and Phosphorous (P), there would be no need for a TMDL. Even if other states in the watershed achieve their mandated allocations, their water would still contain more Nand P than NY at present.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0734.001.006

Author Name: Augenstern Robert

Organization: Southern Tier East Regional Planning Development Board (STEPDB)

Please keep in mind, for the Southern Tier region, and this is true for many of NYS' counties within the Chesapeake Bay watershed, six (6) out of eight (8) of the counties in STERPDB's region are within +/- 10,000 people of their total population at the time of the Civil War. This can not be said for other areas within the Chesapeake Bay. The growth there has been significant compared to NYS.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0743.001.003

Author Name: Declue Robert

Organization: Water Quality Coordinating Committee (WQCC)

Recent data at the Tonowanda, PA monitoring station indicates the flow of water essentially draining out of NYS via the Susuquehanna River is by far currently the cleanest as compared to the other major river basins of the Chesapeake Bay. Calling for all states in the Bay to ratchet down proportionately disregards the principle of "diminishing returns" . In effect, to make the waters significantly cleaner requires an inordinate amount of effort and money for very minimal

benefit, again relative to the other states in the Bay. This approach seems to unfairly punish NYS for having the best water of the Bay at the beginning of the whole TMDL process .

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0746.1.001.014

Author Name: Carl Jimmie

Organization: Southern Tier Chesapeake Bay TMDL Commenting Coalition

G. There Are Non-Arbitrary and Capricious Ways In Which is based on the Ways To Allocate The Required Reductions.

An allocation methodology can have significantly different results, an alternate allocation methodology is described in Appendix C which illustrates a "Uniform Delivered Load Basis" approach. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0746.1] The operating premise of this methodology is that each Bay State and jurisdiction should receive a delivered nutrient load allocation that is proportionate to their respective percentage of the overall Bay watershed area. This approach is both fair in concept and straightforward. Based on this analysis, utilizing this alternate allocation methodology, "Uniform Delivered Load Basis", New York State's nutrient allocations would be higher than their current nutrient loadings.

Two other possible additional sources of allowable "Nutrient Loadings" which could be reallocated among the Bay States are briefly described below.

Response

The commenter’s approach for allocating loads to the states was considered during the TMDL deliberations with the states. EPA rejected this method because it does not take into account the realities of unequal distribution of population, land use, and, therefore loadings. As an example, would it make sense to allocate federal highway transportation funds to the states totally on the basis of land area? No. So EPA allocated loads to the states was based on the best expression of equity that we could derive after several years of discussing this issue with all the Bay watershed states, including New York. For further information on this issue, please refer to the response to comment 0080-cp.001.002.

Comment ID 0746.1.001.024

Author Name: Carl Jimmie

Organization: Southern Tier Chesapeake Bay TMDL Commenting Coalition

The unfairness and unachievable comments made above in Section II (A) apply to the proposed NPS allocation. As the bulk of the proposed NPS Load Allocation (LA) must come from agriculture (as nearly 76 % of the New York Bay watershed is forested), the Load Allocation and the future looking model baseline needs to reflect the fact that New York agriculture has decreased its nutrient-related loads to Bay watershed waters since 1985 while agricultural-related loads in some of the other Bay states have increased significantly. According to data provided by EPA at the October 23 and 24th public meetings in New York, the New York agricultural nitrogen loads to the Bay decreased by over 39% (declining from 6.77 Million Pounds Per Year (MPY) to 4.11 MPY) between 1985 and 2009. Similarly, our agriculture-related Phosphorus inputs decreased by 31% (from 0.51 to 0.35 MPY). However, as discussed in Section II(A)(5) above, New York is being penalized for these significant reductions through reduced NPS and PS allocations.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0746.1.001.035

Author Name: Carl Jimmie

Organization: Southern Tier Chesapeake Bay TMDL Commenting Coalition

The following is a short discussion, outlining and comparing the following items for each of the Bay States.

• Current edge-of-stream and delivered Nt and Pt loadings to the Bay
• Required removal percentages for delivered Nt and Pt
• Unit area loadings, based on current edge-of-stream and delivered loadings
• Unit area loadings, based on the draft Nt and Pt allocations

I. Current Nutrient Loadings, Draft Allocations, and Required Percent Removals

The following table summarizes the current (2009) Nt and Pt loadings (edge-of-stream and delivered) for each of the Bay States.

[See Table B-1 on page 51 of original comment letter 0746.1]

The following table summarizes the draft delivered nutrient allocations for each state and DC. Also, the associated nutrient reduction percentages, required of each state and DC to realize the draft Nt and Pt loading allocations, are included in this Table.

[See Table B-2 on page 52 of original comment letter 0746.1]

II. Unit Area Loadings for Current Nutrient and Draft Allocated Loadings

Unit area loadings for current nutrient loadings are summarized in the following table. Unit area loadings are ratios of Nt

and Pt loadings to the respective tributary areas of each Bay state and DC. The unit area loadings provide a simple means of comparing the relative nutrient loads per acre of tributary area. For this exercise, unit area loadings are expressed in pounds of Nt or Pt/year/acre.

[See Table B-3 on page 53 of original comment letter 0746.1]

Unit area loadings for the draft allocated nutrient loadings are summarized in the following table. These unit area loadings are ratios of Nt and Pt allocations to the respective tributary areas of each Bay State.

[See Table B-4 on page 53 of original comment letter 0746.1]

III. Findings

Based upon this cursory exercise the following points are noted from the perspective of New York State.

1. New York has the lowest unit area loading for current edge-of-stream Nt and Pt loadings of any of the states or DC. This speaks to better local water quality, in regards to nutrient concentrations.

2. New York has the lowest unit area loading for current delivered Pt of any of the states or DC. Besides West Virginia, New York State has the lowest unit area loading for current delivered Nt of any of the states or DC.

In comparison, the unit area loadings for current delivered Pt for Delaware and Maryland are 3.5 and 2.9 times that of New York State, respectively. Also, the unit area loadings for current delivered Nt for Delaware and Maryland are 3.5 and 3.4 times that of New York State, respectively.

3. Based upon the draft Nt allocations, New York is being mandated to reduce its Pt loadings by 35 percent. This percentage is significantly higher than that of any other Bay State. For example, Delaware and Maryland are being mandated to reduce their Pt loading by 17.6 and 18.9 percent, respectively.

4. In regards to the edge-of-stream nutrient loadings with the draft allocations realized, New York will continue to have the lowest unit area loading for Nt and Pt loadings of any of the states or DC. In comparison, Delaware and Maryland would be allowed to discharge roughly twice the Pt loading per acre than that of New York State. Similarly, Delaware and Maryland would be allowed to discharge 1.5 and 1.9 times the Nt loading per acre than that of New York.

5. New York's current unit area loading for edge-of-stream Nt loading will be lower than that of any of the other Bay State once the allocated Nt loading is achieved. Besides Pennsylvania, New York's current unit area loading for edge-of-stream Pt loading will be lower than that of the other Bay States once the allocated Pt loading is achieved.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0763.001.001

Author Name: Child Laura

Organization: Otsego County, New York

New York is a minor contributor of nutrients and sediment to the Chesapeake Bay via the Susquehanna River as determined by the Chesapeake Bay Model 5.3; contributing less than 10%; and

WHEREAS, the quality of water leaving New York via the Susquehanna River is very high when compared to that of other Bay states and has improved, as shown by physical monitoring and numerous Chesapeake Bay model simulations since 1985; and

WHEREAS, the percent reductions in total nitrogen, total phosphorus and total suspended sediment in the TMDL proposed for the New York portion of the Bay's watershed by the EPA are of the same magnitude as those proposed for the Bay's major contributors of nutrients and sediment whose contributions have increased since 1985;

Response

Please refer to the response to comment 0080-cp.001.002.

16.2 - SEDIMENT ALLOCATION METHODOLOGY

Comment ID 0230.1.001.020

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

The TMDL Sediment Allocations Are Unreasonable

The "backstop" point source wasteload allocations for total suspended solids ("TSS") were based on a very low technology-based value (4-5 mg/L), which appears to have been derived from the State of Maryland's definition of enhanced nutrient removal ("ENR"). These allocations represent very large, costly reductions in currently-permitted loads for no environmental benefit. Significant point source dischargers represent a de minimis percentage of the TSS load to tidal waters-less than 1% according to Phase 5.3 model output. Even this small amount primarily consists largely of biodegradable, non-persistent material such as biological floc. In addition, there are no other scientific reports or data to support the conclusion that point source-derived TSS is a significant cause of impairments to submerged aquatic vegetation ("SAV"). Therefore, the proposed reductions have no water quality basis.

If EPA cuts TSS loads simply based on a presumption that these values would be coincident to nutrient reduction, EPA will have done so without a reasonable factual basis. Point sources can vary widely with regard to the treatment technology employed, and not all nutrient removal methods utilize filters that would achieve 4-5 mg/L effluent TSS. For

example, in biological phosphorus removal, the primary means of removing phosphorus are clarification and biosolids wasting that would not include incidental TSS control to the level EPA assumes.

Furthermore, new TSS wasteload allocations erect a new, serious barrier to efficient trading of nutrient credits and offsets, and thus to more cost-effective implementation. As proposed, the TMDL would drive all POTWs to filtration for TSS purposes, and POTW TSS load reductions - which until publication of the TMDL was not known to be a problem despite years of TMDL development efforts - will become the new driver for point source compliance.

EPA's approach to TSS for POTWs is arbitrary. In contrast, there are many examples of state and EPA-approved TMDLs for sediment that involve permitting point sources at existing TSS levels (secondary treatment or best practicable controls technologies), as proposed in the draft Virginia's WIP. HRSD supports such an approach and opposes the approach shown in Draft TMDL.

Response

Please see response to comment 0288.1.001.027

Comment ID 0230.1.001.045

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

IX. THE TMDL SEDIMENT ALLOCATIONS ARE UNREASONABLE

The "backstop" point source WLAs for TSS were based on a very low technology-based value (4-5 mg/L), which appear to have been derived from the State of Maryland's definition of ENR. The WLAs represent very large, costly reductions in currently-permitted loads for no environmental benefit. Point source dischargers (excluding MS4s) represent a de minimis proportion of the total suspended solids to tidal waters-less than 1% according to the "2009 progress" run of the Phase 5.3 model output. The TSS in secondary effluent primarily consists of biological floc (Tchobanoglous and others, 2002) which is biodegradable and non-persistent in the environment. There are no other scientific reports or data to support the conclusion that point source-derived TSS is a significant cause of impairments to submerged aquatic vegetation (SAV). Therefore, the proposed reductions have no water quality basis.

If EPA cut TSS loads not because it expected a measureable water quality benefit, but simply based on a presumption that these values would be coincident to nutrient reduction, this is not always true. Point sources can vary widely with regard to the treatment technology employed, and not all nutrient removal methods utilize filters that would achieve 4-5 mg/L effluent TSS.

For example, in biological phosphorus removal, the primary means of removing phosphorus are clarification and biosolids wasting.

On a related point, the TSS WLAs represent a serious barrier to nutrient trading and offsets, and thus a barrier to

flexible and cost-effective implementation. For example, some dischargers might choose a nutrient removal technology that does not achieve the extremely low TSS concentrations, and offset a portion of their nutrient loads in some other fashion (e.g., nonpoint source BMPs). The need to install expensive technology anyway (to meet unnecessarily stringent TSS limits) would remove the economic incentives of the offset or trade.

There are many examples of state and EPA-approved TMDLs for sediment that involve permitting point sources at existing TSS levels (secondary treatment or best practicable controls technologies), as proposed in Virginia's Draft WIP. Such an approach would be fully protective of the Chesapeake Bay system while providing the option of flexibility and cost-effectiveness in implementation. EPA should allocate point source TSS WLAs at existing permitted levels.

Response

Please refer to comments # 0288.1.001.027 and 0535.1.001.002.

Comment ID 0288.1.001.027

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

THE TMDL SEDIMENT ALLOCATIONS ARE UNREASONABLE

The "backstop" point source WLAs for TSS were based on a very low technology-based value (4-5 mg/L), which appear to have been derived from the State of Maryland‘s definition of ENR. The WLAs represent very large, costly reductions in currently-permitted loads for no environmental benefit. Point source dischargers (excluding MS4s) represent a de minimis proportion of the total suspended solids to tidal waters-less than 1% according to the "2009 progress" run of the Phase 5.3 model output. The TSS in secondary effluent primarily consists of biological floc (Tchobanoglous and others, 2002) which is biodegradable and non-persistent in the environment. There are no other scientific reports or data to support the conclusion that point source-derived TSS is a significant cause of impairments to submerged aquatic vegetation (SAV). Therefore, the proposed reductions have no water quality basis.

If EPA cut TSS loads not because it expected a measureable water quality benefit, but simply based on a presumption that these values would be coincident to nutrient reduction, this is not always true. Point sources can vary widely with regard to the treatment technology employed, and not all nutrient removal methods utilize filters that would achieve 4-5 mg/L effluent TSS.

For example, in biological phosphorus removal, the primary means of removing phosphorus are clarification and biosolids wasting.

On a related point, the TSS WLAs represent a serious barrier to nutrient trading and offsets, and thus a barrier to flexible and cost-effective implementation. For example, some dischargers might choose a nutrient removal technology that does not achieve the extremely low TSS concentrations, and offset a portion of their nutrient loads in some other fashion (e.g., nonpoint source BMPs). The need to install expensive technology anyway (to meet unnecessarily

stringent TSS limits) would remove the economic incentives of the offset or trade.

There are many examples of state and EPA-approved TMDLs for sediment that involve permitting point sources at existing TSS levels (secondary treatment or best practicable controls technologies), as proposed in Virginia's Draft WIP. Such an approach would be fully protective of the Chesapeake Bay system while providing the option of flexibility and cost-effectiveness in implementation. EPA should allocate point source TSS WLAs at existing permitted levels.

Response

In light of this comment and other related comments, EPA has reconsidered and removed the stringent backstop for TSS on WWTPs. The final TSS allocations for significant WWTPs, which reflect the allocations within Virginia's final Phase I Watershed Implementation Plan can be found in Section 9 of the final Bay TMDL report.

Comment ID 0299.1.001.006

Author Name: Laczynski Michael

Organization: INVISTA - Waynesboro

Total Suspended Solids is Not An Equivalent Measurement for In Stream Sediment

TSS and sediment are not the same; however EPA is using TSS as a surrogate for sediment. TSS from a treated point source is not a significant contributor to the impairment in the Bay. Rather, sediment resulting from stream bank erosion and soil run-off is the parameter that EPA is targeting. Section 4.7.7 Streambank and Tidal Shoreline Erosion of the Draft TMDL indicates that on a watershed-wide basis, the estimate is for about 70 percent of the sediment delivered to the Bay from erosion from land and 30 percent from bank erosion.

Response

This comment suggests that WWTPs are a minor contributor of TSS in the Bay and, therefore, EPA should not apply stringent TSS backstops to these facilities. EPA has modified (relaxed) the TSS WLAs for significant point sources to directly reflect the WLAs recommended in the states' final Phase I Watershed Implementation Plans, thus removing the backstop allocation put in place in response to the draft plans. The final WLAs for these facilities can be found in Section 9 of the final Bay TMDL report.

Comment ID 0299.1.001.007

Author Name: Laczynski Michael

Organization: INVISTA - Waynesboro

Reductions to the INVISTA-Waynesboro Total Suspended Solids Allocation is Inappropriate

EPA states in its proposed Draft TMDL that Virginia's WIP meets, and in fact, is 12% under the target allocations for sediment (See Section 8.2.3 Summary of Results of EPA Evaluation of Draft Phase I). Given this acknowledgment, EPA provides no explanation for the decrease in INVISTA-Waynesboro TSS allocations as reflected in Appendix Q of the Draft TMDL.

The TSS limit for the INVISTA Waynesboro WWTP was established based on the federal Effluent Guideline Limitations for the Organic Chemical Plastics and Synthetic Fibers ("OCPSF") industry (40CFR 414). For OCPSF facilities, the technology-based effluent limitations were developed using TSS concentrations and wastewater treatment flow to calculate the mass limits that are in the site's existing VPDES permit. The TSS concentration was determined based on the Effluent Limitation Guideline Subcategory, which for the INVISTA-Waynesboro site ranges from 36 to 67 mg/l. The effluent guidelines have been developed using modeling exercises, data collection and on-the-ground research. The EPA effluent guidelines have been fully vetted through notice and comment rulemaking. As the EPA has an appropriate, established process to implement mass-based limits on the facility WWTP, it is not clear from the Draft TMDL how and why a 5 mg/l edge of stream (EOS) concentration has been applied to the TSS load for industrial dischargers.

The facility's current TSS permitted annual load is 0.0883 million pounds per year (based on VPDES permit monthly average of 110 kg/day). Appendix Q of the Draft TMDL lists a total sediment load of 0.021928 million pounds per year for the Waynesboro facility. This is a 75% reduction from the facility's current TSS VPDES permit limit. INVISTA-Waynesboro estimates that it would cost approximately $900,000 to install effluent filtration to achieve this significant TSS reduction. If finalized, the Draft TMDL would require INVISTA-Waynesboro to expend significant funds in an instance where the Agency's science inaccurately compares TSS to sediment, the Agency ignores its own technology based effluent guidelines and for which no benefit has been established.

Response

The commenter does not show an understanding of the difference, under the Clean Water Act, between water quality based permit limits and technology based permit limits. Surely, where technology based limits are not sufficient to attain water quality standards, more stringent water quality based limits must be imposed. That aside, EPA has reconsidered the TSS backstop limits that were applied in the draft TMDL and is no longer applying those TSS backstops in the final Bay TMDL.

Comment ID 0353.001.002

Author Name: Klossner L.

Organization:

I am very opposed to the Docket ID No. EPA-R03-OW-2010-0736 implementing the Chesapeake Bay TMDL limits because

--the proposed additional will be an UNFAIR BURDEN on NY agriculture, municipal services, taxpayers, businesses and residents

Response

Please refer to the response to comment 0080-cp.001.002

Comment ID 0376.1.001.010

Author Name: Smith Brooks

Organization: Virginia Manufacturers Association VMA

B. Total Suspended Solids are Not the Same as Sediment, so Addressing TSS from Point Source Industrial Discharges Will Not Result in Sediment Reductions.

TSS and sediment are not the same. The TSS that is discharged by industrial point sources is not a source of or contributor to the impairments being addressed through the TMDL. Rather, sediment resulting from stream bank erosion and soil runoff is the parameter that EPA is or should be targeting. EPA's Chesapeake Bay Program office website points this out, by explaining that the sources of sediment to the Bay are agriculture (60%), natural sources (21 %) and urban/suburban runoff and in-stream sediment (19%). Industrial point sources are properly excluded from this source identification. See http://www.chesapeakebay.net/statut_sedimentsources.aspx?menuitem=20800. See also http://www.chesapeakebay.net/sediments.aspx?menuitem=15221 ("There are two major sources of this sediment: watershed sources and tidal sources. Erosion of the land and stream banks are watershed sources of sediment. Watershed erosion increases when land is cleared of vegetation for agriculture and development. Scientists estimate that the majority of the sediment that flows to the Chesapeake Bay comes from watershed sources. Erosion of shorelines and nearshore areas, as well as the resuspension of previously eroded sediments, are tidal sources of sediment. Tidal erosion increases when shoreline vegetation is removed and there are not enough bay grasses growing in the shallows to soften wave action against the shoreline.").

EPA has acknowledged that the sediment of concern in this particular proceeding is not generated by point sources. See, e.g., Chesapeake Bay Journal, "EPA gives watershed states draft sediment limits for TMDL," http://www.bayjournal.comJarticle.cfm?article=3927 (including explanation from Rich Batiuk that additional on-the-ground actions may be needed to address sediment in tributaries where point sources are the dominant sources of phosphorus, because phosphorus controls in wastewater treatment plants do not reduce the amount of sediment in rivers).

Instead, the sediment of concern is inorganic in nature, and is associated with erosion from upland land surfaces and erosion of stream corridors (banks and channels). USGS, "A Summary Report of Sediment Processes in Chesapeake Bay and Watershed," 2003. By contrast, the sediment found in most industrial wastewater is organic, and does not have the same environmental impact as inorganic sediment. See, e.g., "A Review of the Characteristics and Fate of Suspended Solids Discharged with Biologically Treated Effluents from Pulp and Paper Mills," Dr. William E. Thacker, National Council for Air and Stream Improvement, Inc., October 2010 (concluding that the TSS discharged from pulp and paper mills is organic in nature and has an insignificant nutrient component) (copy attached) [Comment Letter contains additional information in the form of an attachment. see comment 0376.2].

For example, TSS in the effluent discharged from pharmaceutical plants is not similar to sediments generated by storm water runoff, atmospheric or geologic events. Pharmaceutical plants often use large quantities of naturally produced (organic) ingredients and chemicals as raw materials for the manufacture of life saving medicines. A fraction of these raw materials or their derivatives that cannot be converted into products is discharged as wastewater. The majority of such organic wastes (signified by BOD, TN and TP) are treated in the industrial wastewater treatment process; however, a small portion of solids in the submicron to tens of micron size range remain suspended and pass through the sedimentation (clarification) systems as TSS, of which 80% or more is organic matter based on total volatile suspended solids (TVSS) assay. The nitrogen and phosphorus present in this TSS is already accounted for and addressed and is no longer present in the TSS ultimately discharged from the facility.

Similar distinctions apply throughout the industrial point source sector. In short, industrial TSS is unique, cannot be addressed in the same manner as other sources of sediment, and does not have the same environmental impact as sediment runoff.

Response

The draft WLAs for point sources for TSS were based on EPA backstop. This was necessary because the draft state WIP was found to be insufficient. The final WIP is much improved. This has permitted EPA to remove the TSS backstop allocation from WWTPs. These final TSS allocations are now based on the state WIP.

Comment ID 0376.1.001.011

Author Name: Smith Brooks

Organization: Virginia Manufacturers Association VMA

C. The Bay Program's Approach to Addressing Point Source Sediment Contributions through TN and TP Reductions is Technically Justifiable.

EPA led the states to believe that achieving the TN and TP targets would lead to corresponding sediment reductions sufficient to achieve EPA's sediment targets. However, EPA's proposed TMDL flips this around, in effect making sediment the controlling parameter. This is not supported by the record or the process that led to the development of the WIP and TMDL. See, e.g., EPA's Proposed TMDL at page 6-8: "Because of the hierarchy of WQS response, the strategy developed to achieve WQS was to first set the nutrient allocation for achieving all the DO and chlorophyll a WQS in all 92 segments, and then set additional sediment reductions where needed to achieve the SAY/water clarity WQS."; page 6-14: "EPA established the Bay TMDL allocations [for sediment] primarily at levels that were attained as a result of the management controls proposed in the state WIPs for controlling nitrogen and phosphorus."

The Chesapeake Bay model demonstrates that the nitrogen and phosphorus allocations proposed for industrial point sources will be sufficient to achieve the TSS allocations required by EPA without the partial or full backstop allocations proposed by EPA.

D. There is No Evidence in the Record that Point Source Sediment Reductions are Necessary.

The record demonstrates that the point source sediment loadings is de minimis (in 2009, the point source loading was 12,605 tons/year as compared to a total loading of 1,616,028 tons/year). EPA's proposal would essentially ratchet this de minimis contribution down to a level of unachievability without any corresponding benefit. EPA's proposal seems to contradict itself, as EPA states "Modeled sediment loads for those [industrial] facilities are not presented because wastewater discharging facilities represent a de minimis source of sediment (i.e., less than 0.5 percent of the 2009 total sediment load)." EPA Proposed TMDL at page 4-17.

Moreover, in announcing its proposed sediment allocations for the Bay states, EPA's press release noted "[a]n EPA analysis indicates the likelihood that measures to control and reduce nutrient pollution as outlined in these WIPs will also significantly reduce sediment runoff, achieving the annual sediment limits." EPA News Release, 8/l3120 10, "EPA Proposes Sediment Limits for Chesapeake Bay Pollution Diet." The model runs have born out EPA's expectation - the reductions of nitrogen and phosphorus in Virginia's WIP demonstrated that the sediment allocation would be met - in fact, Virginia's WIP would result in reducing sediment 12% beyond what was required by EPA. As a result, EPA's partial and full backstop allocations for TSS are nonsensical, in effect addressing a "problem" that does not exist.

E. EPA's Sediment Allocations are Predicated on Municipal Filtration Technology that is Neither Proven Nor Feasible at Industrial Facilities.

The Virginia WIP set allocations for sediment for all significant municipal and industrial point sources based on a TSS concentration target of 30 mg/I. "Allocations for sediment loads will be set at technology levels since wastewater is an insignificant portion of the sediment load." Virginia WIP at page 11. The Virginia DEQ has now recognized that such an across-the-board determination cannot be made for industrial facilities, because their technology-based guidelines are different than those for municipal plants (and, in fact, different within each industrial sector). Moreover, the technology available to municipal plants is not necessarily proven or available at industrial facilities and, in any event, will not produce the same results (i.e., there are significant cost, feasibility and achievability issues associated with filtration technology at industrial facilities). It is VMA's understanding that Virginia's revised WIP will adjust the TSS allocations for industrial facilities to reflect unique industrial constraints.

While Virginia's WIP requires improvement in this one area, EPA's TMDL is even more dramatically flawed, in effect setting point source allocations based on a TSS concentration target of 5 mg/I. EPA offers no explanation for this approach in the TMDL, and has failed to meaningfully respond to questions about this approach at the public meetings on the draft TMDL. However, EPA has inferred that the 5 mg/l target was derived based on data from an advanced (Enhanced Nutrient Removal) municipal treatment plant in Maryland.

As noted above, municipal filtration technology is not cost-effective or feasible at many industrial facilities, and, in any event, is unlikely to achieve EPA's target concentration (or resulting allocation). This is because the TSS in most industrial discharges is organic in nature, and of a very small size. Accordingly, there is great difficulty in settling the solids through the treatment process. See, e.g., Thacker Study. [Comment Letter contains additional information in the form of an attachment. See comment 0376.2]

The ability of a wastewater treatment plant to meet extremely low effluent TSS limits is based, to a large extent, on the source of wastewater that is being treated. This is why EPA has established effluent guidelines based on categories of

dischargers. As an example, higher TSS limits are provided in the Effluent Limitations Guidelines for certain industrial categories. For example, a paper mill producing 1350 tons per day of paper is allowed by subpart E of 40 CFR Part 430 to discharge 6210 pounds of TSS per day on a 30 day average. If the mill's effluent flow is 6.5 MGD, which is common for a mill of this size, then the TSS concentration in the effluent is permitted to be 114 mg/I. The technology-based guidelines developed by EPA recognize the unique aspects of various industry types. EPA's proposed TMDL does not make such distinctions, instead applying an across-the-board allocation based on a treatment technology achieving 5 mg/I. The filtration technology available would not be capable of achieving a TSS concentration of 5 mg/l in many industrial settings, due to the nature of the TSS generated in that process. Again, a more site-specific determination of appropriate limitations, and an analysis of the need for such limitations, is necessary but missing from EPA's draft TMDL.

Response

Please refer to the responses to comments 0288.1.001.027 and 0535.1.001.002.

Comment ID 0410.1.001.004

Author Name: Pujara Karuna

Organization: Maryland State Highway Administration (SHA)

Page 4-6, paragraph 1, mentions that "stream erosion is. also a significant source of watershed sediment delivered to the bay. Currently, sufficient data do not exist to accurately quantify the portion of the total sediment load specifically from stream erosion." There has been significant research in the mid-Atlantic region concerning historic mill da.rnsa.nd their impact on the strea.ms from colonial times. As these dams fail, tons of legacy sediment trapped behind them are released into the waterways. How can this fact and other stream erosion sources not be included in this TMDL ifrestoration of the Bay is the ultimate goal? If the model is calibrated to monitoring data, but does not allow for the erosion within streams, the allocations to adjacent land uses will be overestimated and unachievable if the source lies within the stream.

Response

So-called 'legacy' sediments and other erosion from the river system are inherently included in the calculation of sediment loads from the watershed in the watershed model. Based on the recommendation of the Sediment Work Group at the Chesapeake Bay Program, jurisdictions can get nutrient and sediment credit in their implementation plans for performing in-stream erosion control practices. The sediment work group is well aware of the research on legacy sediment.

As discussed in the Chesapeake Bay Program Sediment workgroup, the total flux of sediment generally decreases from sources on the landscape to a point downstream in a river of 4th or 5th order. In other words, the stream network is net sink of sediment. Of course, there are localized areas where this is not the case. Stream erosion is implicitly considered in the simulation in that there would be a lot more reduction of edge-of-stream sediment if there were no stream erosion. In simulated rivers (generally greater than 100 cubic feet per second) erosion and scour are explicitly simulated. "legacy" issues are generally on streams smaller than

this, however.

In addition, "legacy" sediment issue can be addressed in the Watershed Implementation Plans which receive nutrient and sediment credit for stream erosion control practices.

Comment ID 0463.1.001.010

Author Name: Sharma Lalit

Organization: City of Alexandria, Virginia

9. Inconsistency of TSS loads allocated to Combined Sewer Systems (CSS)

In the EPA's evaluation of Virginia's WIP, the TSS allocation for the state is determined as 12% under the target load. While the overall TP and TN allocation is consistent with WIP in the TMDL, the TSS WLA(s) is 31% lower than data provided in data provided to DEQ and EPA and included in the WIP. EPA has offered no explanation for reducing the scientifically-based TSS WLAs proposed in the WIP. EPA should use the TSS data provided in WIP when it establishes the final TMDL. The TMDLs are calculated for 92 segments in the Chesapeake Bay and tidal tributaries.

Response

Please see response to comment # 0376.1.001.010.

Comment ID 0535.1.001.002

Author Name: Perkinson Russ

Organization: Virginia Department of Conservation and Recreation

James River Draft Sediment Allocations

EPA indicates that draft sediment allocations were derived in part based on the magnitude of nutrient allocations for watersheds and segments. While this may be a reasonable interim approach for most watersheds, it is not at all appropriate in the James River since it: (1) is a wastewater treatment point source dominated basin that is not representative of most basins in the watershed regarding the mix of nonpoint and point source inputs, and (2) has a nutrient related local impairment. The local chlorophyll-a related impairment is caused by nutrient loads rather than attributable to sediment loads.

Recommendation: If EPA uses similar methodology to derive final sediment allocations as were used to develop draft sediment allocations, Virginia recommends that final sediment allocations for the James River be based on the dissolved oxygen impairment levels of allowable nutrient loads rather than a sediment load based on chlorophyll-a related nutrient reductions. Alternatively, EPA could develop the sediment allocations based on the needed reductions

for sediment to attain only clarity water quality standards in the James.

Response

The EPA methodology for establishing the sediment allocations to the states remains unchanged. It is EPA's professional opinion that the sediment allocations to the states should be based on the phosphorus-based sediment loads, whether the phosphorus-based loads were established to achieve the dissolved oxygen water quality standards of the mainstem Bay or the chlorophyll a water quality standards in the tidal James River. However, EPA has changed the final sediment allocations in the final Bay TMDL based on the states' final Phase I Watershed Implementation Plans as opposed to the states' draft WIPs.

Comment ID 0547.1.001.001

Author Name: McCloskey John

Organization: Merck Sharp & Dohme Corp.

Merck lauds Virginia Department of Environmental Quality's efforts of working closely with the citizens and organizations of the Commonwealth of Virginia in coming up with a fair and equitable waste load allocation for total nitrogen and total phosphorous. Total Suspended Solid (TSS), although considered to have met EPA's allocation, ironically has become an issue for Virginia.

A summary report of the Sediment Processes in Chesapeake Bay and Water Shed (Water-Resources Investigation Report 03-4123 by USGS - http://www.mgs.md.gov/coastallpub/wrir03-4123.pdf) indicates that 1 to 3% of the sediment in the bay is organic in nature. The amount and quality of sediment (size and composition) present in the bay is a result of the geologic, oceanic and atmospheric events as well as the man made changes (deforestation and farming).

The organic content of total suspended solids (TSS) in municipal and industrial wastewater treatment plants that rely on biodegradation of wastes is high. And within such dischargers, the organic content of the TSS in the industrial dischargers that treat waste that has comparatively higher concentration of organic and complex biological material (wood, food, veterinary and microbiological), is considerably higher. Studies carried out on the composition of the TSS from the discharge of treated wastewater from such industries is greater than 80% of organic (based on total volatile suspended solids assay-TVSS) and the TSS contains a large fraction of fine particles much smaller than the typical wastewater treatment plant bacteria, making it very difficult to remove by conventional means of settling and/or filtration.

DEQ is carefully reviewing the historical data for TSS from various sources and will be providing a fair and equitable allocation based on the nature and source of the treated wastewater from point sources; Merck supports DEQ's efforts.

Response

Please see response to comment # 0376.1.001.010.

Comment ID 0681.1.001.009

Author Name: Baxter Russ

Organization: VA Department of Environmental Quality

The backstop sediment allocation for the James River basin is more stringent than the criteria EPA used for other river basins in the Bay watershed. EPA determined that the sediment allocations should be based upon the level of nutrient reductions that are needed to meet the dissolved oxygen criteria. However, in the James basin the sediment allocation is based upon the nutrient reduction EPA believes is needed to meet the chlorophyll criteria, which is a greater nutrient reduction than would be needed to meet the dissolved oxygen criteria. The Commonwealth questions the scientific basis for establishing a sediment allocation in the James basin using an approach that differs from all other basins in the watershed.

Recommendation: Calculate the TMDL load for TSS in the James River based on nutrient reductions necessary to achieve dissolved oxygen standards.

Response

EPA established the sediment allocations for the states based on the nutrient allocations, independent of the basis of those nutrient allocations. However, EPA has modified the sediment allocations for each of the state-basins based on the states' final Phase I Watershed Implementation Plans. Please refer to the response to comment 0535.1.001.002.

Comment ID 0681.1.001.010

Author Name: Baxter Russ

Organization: VA Department of Environmental Quality

The current Virginia TSS load is estimated at 3.229 billion pounds per year; of that amount about 0.8% is estimated from wastewater (approximately 25 Million Pounds per Year).

The EPA backstop sets the TSS WLA for wastewater based on 5 mg/l. This approach results in a significant reduction from the submitted Virginia WLA which is based on 30 mg/l; A number of industrial facilities have demonstrated that even 30 mg/l is too low for their wastewater and current permit limits, and that meeting 5 mg/l concentration is not possible. Applying a backstop for total suspended solids discharged by significant wastewater facilities is unwarranted given their "de minimis" contribution compared to the vastly higher nonpoint source loads of TSS.

In addition, the EPA backstop sets WLAs for facilities below the fall line in four VA river basins using a delivery factor below 1.0, usually around 0.65, whereas the nutrient allocations for these facilities use a delivery factor of 1.0. The exception is in the Rappahannock basin where the TSS WLAs for facilities below the fall like are set using a delivery factor of 1.0. This is an apparent anomaly in the Watershed Model that needs further explanation.

Beside the concern about driving allocations down to a level that is disruptive and/or unattainable for the wastewater facilities, the EPA backstop also undermines the VA trading program since facilities desiring to purchase nutrient credits will then be over their TSS allocation.

Recommendation: Set WLAs for wastewater facilities at a reasonable level that reflects the minimal, if any, relationship between solids discharged from wastewater facilities and attainment of the water clarity/SAV criteria. DEQ is working to identify the specific WLAs that are reasonable for industrial facilities and plans to continue using 30 mg/l for POTWs. Since the EPA backstop TSS allocation for VA is about 222 MPY below the August 15 TSS allocation, it appears there is sufficient allocation available to provide a reasonable TSS allocation to the wastewater sector.

Response

Please refer to the responses to comments 0288.1.001.027 and 0535.1.001.002.

Comment ID 0746.1.001.012

Author Name: Carl Jimmie

Organization: Southern Tier Chesapeake Bay TMDL Commenting Coalition

The New York Nutrient Allocations Is Unfair

1. Allocation Methodology Was Changed Without Notice

In its 2003 document on how reduction allocations would be made, it was stated that the allocated reductions were to be based on the principal that those States which derived the most direct benefit from the Bay (i.e. DC, MD and VA) should have to reduce the most. By the time the draft TMDL was released, this allocation principle had been largely abandoned in favor of calling for "E3 Reductions", that is, "everything must be done by everyone, everywhere". It is the Coalition's understanding that New York and perhaps some of the other Bay States, were not consulted on this major policy change. As such, if EPA approves the draft TMDL without providing serious consideration to the objections voiced to this change by New York, other Bay States, and at least key stakeholders such as our Coalition members, it will have acted outside the scope of the authority delegated to it by the CWA. This is due to both the fact that §303 (d)(1)(C) [FN23] of the Clean Water Act (CWA) reserves to the "States" the authority to construct TMDLs, including their allocations and the CWA's general requirement that the public be allowed to review and provide comment on significant regulatory, permitting and policy issues before they are finalized.

2. Lack of Agreement with Nutrient Allocation Methodology

In its development of the methodology by which nutrient allocations would be distributed, the EPA failed to secure full acceptance of this approach from each affected state. New York State and West Virginia did not believe that EPA's approach would distribute nutrient allocations fairly and accordingly never accepted it. In spite of New York's and West Virginia's rejection of EPA's methodology, EPA ratified its use on the simple basis that the majority (i.e., the states less burdened and most directly benefited) of the Bay States accepted it.

Although the Nutrient Allocation Methodology should be an important foundation on which Chesapeake Bay Restoration program is built, the lack of unanimous acceptance of its use by each of the Bay States which will ultimately have to implement the TMDL weakens this foundation and erodes the credibility of subsequent requirements developed by applying this methodology.

To illustrate how a different allocation methodology can have significantly different results, an alternate allocation methodology was considered. It is termed "the Uniform Delivered Load Basis" approach. The operating premise of this methodology is that each state and jurisdiction shall receive a delivered nutrient load allocation that is proportionate to their respective percentage of the overall Bay watershed area. This approach is arguably fair in concept and straight-forward. Refer to Appendix C for a more detailed description of this approach. As shown in Appendix C, utilizing the "Uniform Delivered Load Basis" approach, New York State's nutrient allocations would be higher than its current nutrient loadings. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0746.1]

3. The Methodology Inappropriately Favors States with Excess Capacity

The allocation methodology applied in the Draft TMDL unfairly benefits states which have excess treatment capacity within their WWTP systems. By arbitrarily basing the allocation on the amount of WWTP design capacity states with municipal systems that have recently been constructed and/or upgraded and are early in their 30 year (or longer) post-construction operational cycle (until the next upgrade will likely be needed) are benefited. The methodology penalizes states that have WWTP's that are 15 or more years into 30-year planning and/or upgraded, and thus which have already consumed much of their excess capacity. Since a number of the municipal systems surrounding the Bay have newer and updated WWTPs, many of which have been federally funded, the ramification on states such as New York is that the allocation is inherently biased against the rural character of the Southern Tier. As these systems also have older infrastructure, it magnifies the cost burden to New York State and Southern Tier municipalities without a commensurate benefit to the watershed.

4. The Lack of Recognition and Favorable Treatment In The Allocation Process Of Nutrient Loading Reductions Between 1985 And 2009 Is Unfair

From 1985 to 2010, the baseline ("No Action") pollutant loadings from New York State have been significantly reduced. From 1985, nitrogen loadings and phosphorus loadings from New York have decreased by 2.44 million lbs per year and 0.08 million lbs per year, respectively. These reductions are largely the result of voluntary State and federal agricultural programs, Clean Water and Clean Air Act related programs, and the loss of population across and the increase in forested land within the New York portion of the Bay watershed.

On the other hand, certain Bay states have increased their baseline ("No Action") nutrient loadings significantly since 1985. For example, Bay modeling results estimate that Maryland increased its baseline phosphorus loading from 1985 to 2010 by over 2 million lbs per year, which is more than twice the entire annual delivered phosphorus loading from New York State. Similarly, it is understood that the increase in Virginia's annual nitrogen loading since 1985 exceeds New York State's entire annual delivered nitrogen loading.

The baseline nutrient loading reduction in New York State since 1985 is not reflected in the USEPA's draft allocations.

As such, New York State would effectively receive no credit for their past work/nutrient reductions. On the other hand, States that have significantly increased their respective baseline nutrient loadings since 1985 have been granted disproportionately larger state-level allocations, per the USEPA's R3 allocation process. This is yet another aspect of EPA's nutrient allocation methodology that is inconsistent, arbitrary, and unfair to New York State.

The effectiveness of the New York's NPS nutrient reduction improvements over the last twenty five years, which has been translated to unfairly low Non-Point Sources allocation. This unfairly low NPS allocation largely will have to be achieved through agricultural or non-regulated stormwater runoff-reductions. One fairer, but unused allocation criteria would be that each State's NPS load should be reduced to get same delivered load (rather than by a percentage of their current loads). This would, in essence, provide credits for those Bay States who have already reduced their NPS loads. The net effect of requiring all States to have similar allowable loads from their various NPS sectors, is that the other Bay States would have to reduce their loads to NY's level to meet the TMDL

[See Table 4 on page 26 of original comment letter 746.1]

D. Allocations Based On Generated Load Rather Than Delivered Load Would Recognize That Both Geographic Proximity and Natural Processes Play an Important Role in Nutrient-Related Impacts on the Bay

For every 100 pounds of Nt released to the Bay Watershed in New York, according it the Bay models only 44 pounds is delivered to the Bay while in the District of Columbia the delivered load is almost 100 pounds for each 100 pounds released. Yet as currently propounded every Bay State must arbitrarily do the same percent reduction. Thus New York must reduce approximately 2.3 times as many pounds to be deemed equivalent to the reductions required in of the District of Columbia. Basing allocations on delivered load is intuitively backwards, as it suggests that a pound of nutrient generated in New York does 2.3 times the water quality damage as a pound generated in Maryland, yet the Bay models project that for every pound of Nitrogen that reach the Bay watershed waters in New York, only 0.44 pounds of it remain in that water by the time it travels to the Bay. All States should get credit for the in-stream nutrient loss nutrient losses between the "edge of stream" and the Bay. Its only fair and logical that natural reductions get as much "credit" as human-induced reductions.

E. New York Already has been Given the Lowest Allocated Unit Area Nutrient Loadings

As shown in Appendix B (entitled Comparison of Unit Area Loadings & Required Removal Percentages), based on the Draft TMDL's nutrient allocations and associated nutrient delivery factors for each Bay State, allocated unit area nutrient loadings were calculated and are summarized in the following table. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0746.1]

As shown in this table, given the Draft TMDL's nutrient allocations, New York would have the lowest allowable edge-of-stream unit area nutrient loadings of any Bay State. As an example, on a per acre basis, New York would only be allowed to discharge about half of the nutrients as Maryland would be allowed (edge-of-stream basis). This is certainly not equitable and is reflective of a common sentiment in New York that the draft TMDL's nutrient allocations would effectively make New York a green space which would then allow even more development in the lower Bay States. Furthermore, with the draft nutrient allocations, New York's allowable delivered nutrient loadings per acre would only be approximately one third of that those allowed for Maryland.

[See Table 4 on page 28 of original comment letter 0746.1]

[FN23] 33 U.S.C. §1313(d)(l)(C).

Response

Please refer to the response to comment 0080-cp.001.002.

16.3 - GENERAL/MISCELLANEOUS

Comment ID 0061.1.001.006

Author Name: Haterius Stephen

Organization: National Association of State Departments of Agriculture (NASDA)

EPA acknowledges that the "Chesapeake Bay TMDL is the largest, most complex TMDL in the country, covering a 64,000-square-mile area in seven jurisdictions." Draft TMDL, at 2-7. As noted above, EPA is proposing two separate sets of load allocations and waste load allocations for three pollutants in 92 water body segments (one set to meet current water quality standards and one set to meet proposed water quality standards that may or may not be approved by the time the TMDL is issued). Thus, the Draft TMDL consists of 552 separate TMDLs.

These TMDLs include allocations for 1006 individual residences, by individually naming the homeowners in Appendix Q. The Draft TMDL also threatens to impose allocations on small entities that raise one or more animals, but are not large enough to require a permit under the Clean Water Act. According to the U.S. Department of Agriculture, in 2002 there were a total of 111,692 livestock operations of all sizes in Virginia, West Virginia, Maryland, Delaware, Pennsylvania, and New York. In 2001, EPA estimated the total number of animal feeding operations with 300 animal units or more in these states to be 4,360. While these are statewide numbers, and the number of operations in the Chesapeake Bay watershed will be smaller, these numbers indicate that a very large number of small livestock operations could be affected by the Draft TMDL. At this point, the potentially affected small farms are not individually listed in the Draft TMDL, but the intent to regulate them is there.

Response

In the 25 years of efforts to restore the Chesapeake Bay, almost the entire Bay remains impaired and much more needs to be done. While there has been some progress in the past in reducing loads, the practices of the past cannot be continued if the Bay is to be restored. Therefore, it will be necessary to reduce loading from more sources and to a greater degree than in the past. While EPA leaves the decision to the states to achieve the needed controls, EPA is prepared to take federal actions where necessary to restore the Bay.

The intent of this TMDL is simply to restore the Bay. In this regard several points are clear:

1) The Bay is impaired.
2) Thousands of sources are contributing to the problem and need to be part of the bay restoration.
3) If the Bay were restored, additional controls would not be needed.

Comment ID 0067.1.001.008

Author Name: Venezia Carmen

Organization: Global Tungsten & Powders Corporation (GTP)

If the process of achieving the objectives for the Bay is going to be at all successful, the allocation of loadings and associated burdens must be fair, reasonably achievable and predictable. Municipalities and industries have been taking concerted actions and making substantial investments based on the allocations that have been developed over the past decade, and incorporated into the Pennsylvania WIP.

While the Pennsylvania WIP is not perfect, we believe it represents a reasonable framework and an attempt to rationally allocate nutrient loading reductions among all sectors who contribute these constituents to the watershed system.

Response

EPA concluded that the draft Pa WIP was insufficient. However, EPA finds the final WIP to be much improved.
For this reason, much of the EPA backstop allocations have been removed and the final TMDL is more closely aligned with the final Pa WIP. See section 8 for more detail.

Comment ID 0080-cp.001.002

Author Name: French T. A.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The proposed additional limitations will be an unfair burden on NY agriculture, municipal services, taxpayers, businesses, and residents.

Response

EPA has received numerous comments that the nutrient allocations to NY are unfair. While the comments and reasons why the

commenter believes the allocation to NY was unfair, this response provides EPA reasoning why the allocation to NY is appropriate.

EPA led a dialogue with all seven watershed jurisdictions, including NY, for over 2 years on the approach that should be used to allocate loadings to all states. While numerous methods were considered, EPA could not arrive at a consensus methodology for all states. The methodology used did enjoy the most agreement of any methodology considered among the seven jurisdictions.

The methodology used was, in part, based on the loadings expected under current land use and design flows from wastewater treatment plant (WWTP) facilities. Current land use and design flow of WWTPs is a common approach used in developing TMDLs, including New York. Of the thousands of TMDLs developed in the Bay watershed, EPA is aware of only a few TMDLs that were based on past land use. The reason for this approach is straightforward. That is, in establishing a TMDL, one allocates to various sources contributing to the problem. When developing an allocation approach it stands to reason that the approach should consider the existence of those sources. So to suggest an approach that 'pretends' that the population and land use is different than the existing levels is inappropriate in EPA's opinion. Consistency with other TMDL practices is one of the reasons why the Bay partner states supported the method for allocating loads to the states that include using existing land use and design flows for WWTPs.

At an October 29, 2009 meeting among all states Principals' Staff Committee members, including New York, the proposed method was accepted by all states except New York. New York abstained from an opinion during that meeting. Subsequent to that meeting New York and West Virginia expressed their disagreement with the method, citing various reasons.

Having no other method by which to allocate loads among the various jurisdictions, EPA used the method, with two significant exceptions, that gained widespread agreement among the states for the target loadings for nitrogen and phosphorus when these loads were provided to the states in a letter of July 1, 2010. Those exceptions were that EPA provided additional loading to both West Virginia and New York above that loading which those states would have received using the allocation methodology. More specifically, EPA 'bumped up' the West Virginia allocation by 200,000 pounds per year of phosphorus and the New York allocation by 750,000 pounds per year of nitrogen. This increase was intended to address the concerns raised but not limited to:
- New York delivers cleaner water to the bay than other states;
- New York is losing in population and farming operations over the years while other states are increasing population; and
- New York's load is attenuated when being 'processed' thru the Susquehanna River on its way to the bay and therefore any reductions in load have less beneficial impact on the Bay.

Some of the comments cited statistics on the low loadings allocated to New York. While these statistics are helpful the more relevant statistics are the amount of reductions expected of New York.

In that regard a few statistics may be helpful:
- On a pound for pound basis, New York nutrient loads have a moderate impact on reducing dissolved oxygen in the bay, falling about in the middle of the various states and basins within the watershed.
- While New York has a moderate impact on the Bay, because of the 'bump up' in nitrogen allocation, the New York nitrogen allocation represents the lowest percent of controllable load of any jurisdiction in the watershed. Controllable load was considered by the Bay partners to be the best metric of load by which to make allocations decisions to the states.
- The 'bump up' in the nitrogen allocation for New York represents a 25% drop in the loading reduction needed in New York.

- The allocation for New York represents the second lowest pounds per acre reduction of all six states and the District of Columbia in the Bay watershed for both phosphorus and nitrogen.
- As of 2009, New York lags far behind all other states and the District in the Bay watershed in upgrading their wastewater treatment plants to control nitrogen and phosphorous.
- The 2009 loading of nitrogen delivered to the Bay from New York is greater than the delivered loading from West Virginia, Delaware, and the District of Columbia and greater than the delivered load of any two of those jurisdictions combined.
- The 2009 loading of phosphorous delivered to the Bay from New York is similar to the delivered loading from West Virginia, and greater than the combined phosphorous loading from Delaware and the District of Columbia.

Some commenters mentioned that EPA removed the allocation guide that said 'States that benefit more from a clean Bay must do more'. It is true that, based on extensive discussions with the Bay partners, this guide was removed. A primary reason why this was removed from the methodology used over 7 years ago was based on our improving science of the Bay. That is, when state allocations were established in 2003, the allocation method included an analysis (similar to today's method) that the more impact a state has on impairing the bay on a pound for pound basis, the more controls would be required of that state. While that same guide applies today there is one critical difference. In 2003, based on less precise available models than today, the states' impacts on the bay were more qualitatively divided into 3 groups; high, medium and low impact. New York was grouped into the high impacting areas that included Pennsylvania in the Susquehanna basin, the western shore of Maryland, and the eastern shore of Virginia. Since there was such a crude qualitative approach to determining state impact, the bay partners used this guide of 'states that benefit from a cleaner bay' to reduce the controls from the upstream states. In contrast, the method used in the Bay TMDL to determine impact is quantitative, providing a measure of impact for each jurisdiction-basin. This allows one to already build into the allocation analysis the lesser impact that an upstream state may have on the bay. As a result the New York measure of impact is squarely in the moderate range as opposed to the previous high impact.

Furthermore, in EPA's opinion there is quite a neutralizing point to be made to counter the point that benefiting state must do more. That is, those bay states have been suffering the economic and other losses for more than a generation from an impaired Chesapeake Bay and that impairment is the result of loadings from all Bay states.

So the point remains that to restore the Chesapeake Bay, all jurisdictions and all pollutant source sectors will need to achieve reductions of nitrogen and phosphorous. EPA used its discretion, based on extensive input from the Bay Program partners, to develop a rational science-based methodology to divide that allowable loading among the bay jurisdictions. To address the concerns raised by the headwater states of New York and West Virginia, EPA provided additional loadings to those states.

Comment ID 0082-cp.001.002

Author Name: Szlucha Terry

Organization: T & D Enterprises

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The proposed additional limitations will be an unfair burden on NY agriculture, municipal services, taxpayers,

businesses, and residents.

Response

Please refer to the response to comment 0080-cp.001.002

Comment ID 0083-cp.001.002

Author Name: Pearson Richard

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The proposed additional limitations will be an unfair burden on NY agriculture, municipal services, taxpayers, businesses, and residents.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0088-cp.001.002

Author Name: Herrala G. W.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The proposed additional limitations will be an unfair burden on NY agriculture, municipal services, taxpayers, businesses, and residents.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0090-cp.001.002

Author Name: Bloomer J.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The proposed additional limitations will be an unfair burden on NY agriculture, municipal services, taxpayers, businesses, and residents.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0092-cp.001.002

Author Name: Herrala K. L.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The proposed additional limitations will be an unfair burden on NY agriculture, municipal services, taxpayers, businesses, and residents.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0096-cp.001.002

Author Name: Morris Brian

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The proposed additional limitations will be an unfair burden on NY agriculture, municipal services, taxpayers, businesses, and residents.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0098-cp.001.002

Author Name: Scott D.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The proposed additional limitations will be an unfair burden on NY agriculture, municipal services, taxpayers, businesses, and residents.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0099-cp.001.002

Author Name: Magargle Richard

Organization:

I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The proposed additional limitations will be an unfair burden on NY agriculture, municipal services, taxpayers, businesses, and residents.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0100-cp.001.002

Author Name: Comment Anonymous

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The proposed additional limitations will be an unfair burden on NY agriculture, municipal services, taxpayers, businesses, and residents.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0103.1.001.001

Author Name: Laudeman Todd

Organization: Tioga County Landowners Group

The EPA mandated TMDL allocation and the determination of whether the state meets the requirements are solely based on the Bay Watershed Model and not on real water quality data.

Response

This is not true. The Chesapeake Bay TMDL was developed using a combination of decades of scientific understanding of the Chesapeake Bay ecosystem and surrounding Bay watershed and Bay airshed, a suite of models from air quality to oyster filtering, a tidal and watershed water quality monitoring data record spanning almost three decades and hundreds of stations, and a concurrent almost three decade record of on-the-ground implementation of conservation practices on agricultural lands, BMPs on developed lands and wastewater treatment technologies. Like almost all TMDLs, the Bay TMDL used models to connect the source and locations of an almost infinite number of pollutant sources across the watershed with water quality responses across the complex Bay estuarine systems.

The suite of Bay models used in development of the Bay TMDL are developed, calibrated and verified using decades of stream and river flow and water quality data, tidal Bay water quality monitoring data, atmospheric deposition data as well as the decades of tracked and reported on the ground implementation data. In fact, the Bay watershed and Bay water quality model results are actually applied as the estimated improvement of water quality on top of actual water quality data. The data used is based on decades and millions of dollars of monitoring data collected mostly by state and federal agencies. A fuller description of the monitoring data and the full suite of models used as the basis of this TMDL can be found in Section 5 of the final Bay TMDL report

Comment ID 0103.1.001.004

Author Name: Laudeman Todd

Organization: Tioga County Landowners Group

The above graph developed with USGS data shows that the N and P concentrations in NY's water (arrow above dark red bar) are below the water quality level needed for a clean Bay. If other states met this level of performance, there would be no need for a TMDL.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0103.1.001.005

Author Name: Laudeman Todd

Organization: Tioga County Landowners Group

Furthermore, EPA's proposed TMDL regulation imposes disproportionately heavier restrictions for water quality in NY in order to help other states meet their overall TMDL goal. Even if the other states achieve their EPA mandated allocations by 2025, their water would still contain more N and P (per unit volume) than NY has at the present. NY water has a very low nutrient content because the watershed is largely forested (70%), has a decreasing population, practices low intensity agriculture with a large land base, and implements progressive natural resource management programs.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0104-cp.001.002

Author Name: Anderson R. N.

Organization:

I oppose adoption of the proposed draft TMDL for the Dhesapeake Bay for the following reasons:

The proposed rule imposes a disproportionate and unfair burden of compliance on New York State, its small farmers, municipalities, residents with septic systems, and taxpayers.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0132-cp.001.001

Author Name: Stoner Kirk

Organization: Cumberland County Planning Department

1. WWTPs have already made substantial reductions in nutrient discharge through PA DEP's Chesapeake Bay Tributary Strategy. These improvements have come at the expense of millions of dollars to WWTP ratepayers despite the majority of the nutrient loadings coming from non-point sources . Further reductions from WWTPs will require expensive upgrades to sewer infrastructure that was just upgraded within the past 5 years to meet the Tributary Strategy. Future nutrient reductions should be directed toward the nonpoint sources that comprise the majority of the Bay's nutrient loading.

Response

EPA has made it clear to the states for well over a year that EPA prefers to have the states decide which sectors to seek additional nutrient and sediment controls. Further, EPA notified the states that if the draft or final WIPs do not meet EPAs expectations for reasonable assurance, then it may be necessary for EPA to apply federal actions including backstop allocations.

While significant improvements in WWTPs nutrient controls have been realized in Pennsylvania, the final Bay TMDL was based on those controls necessary to attain and maintain the Bay water quality standards and documentation of reasonable assurance for the implementation of those controls. In the final Bay TMDL, EPA adopted Pennsylvania’s recommended waste load allocations for its WWTPs as presented in the Commonwealth’s final Phase I Watershed Implementation Plan. Detailed can be found in Sections 8 and 9 of the final Bay TMDL document. EPA did set individual waste load allocations for each significant municipal and industrial wastewater discharging facility to strengthen the reasonable assurance that these controls could and would be implemented.

Comment ID 0133-cp.001.002

Author Name: Foster Pansy

Organization: Triple F Jerseys, LLC

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The proposed additional limitations will be an unfair burden on NY agriculture, municipal services, taxpayers,

businesses, and residents.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0135-cp.001.002

Author Name: Vallese P.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you oppose implementing the proposed Chesapeake Bay TMDL limits because...

--The proposed additional limitations will be an unfair burden on NY agriculture, municipal services, taxpayers, businesses, and residents.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0151.001.004

Author Name: Woodford RC

Organization: Chenango County Board of Supervisors

even if the other states achieve their EPA mandated allocations by 2025, their water would still contain higher nutrient loads per acre than New York's current 2010 load per acre because of progressive natural resource management programs like New York State's Agricultural Environment Management Program

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0159.001.002

Author Name: Farasy Tom

Organization: Maryland State Builders Association

The only way to have any hope of making progress on that enormously expensive effort is to identify the targets that provide the biggest "bang for the buck." Instead of selecting those which are politically easy. We in the development business believe that too many people think we are contributing far more to Bay problems than the science supports.

Response

There are many ways of looking at the question of equity. For this reason, EPA believes that a state-local determination of where to achieve the loading reductions is most appropriate. The states have developed final Watershed Implemenation Plans that provide their best response to this issue. The final allocations for each state and the District can be found in Chapter 9 and Appendix Q

Comment ID 0159.001.007

Author Name: Farasy Tom

Organization: Maryland State Builders Association

Home builders are prepared to play a role and we know we have to do more; but everyone must get in the game, otherwise the past 25 years of deferring the accomplishment of Bay Clean Up will continue. We support:

• Have standards and protocols in place to ensure pollutant reductions are made from ALL sources

Response

EPA believes that the Bay TMDL and the implementation and accountability framework provides the assurance on implementation that the commenter seeks.

Comment ID 0159.001.010

Author Name: Farasy Tom

Organization: Maryland State Builders Association

Home builders are prepared to play a role and we know we have to do more; but everyone must get in the game, otherwise the past 25 years of deferring the accomplishment of Bay Clean Up will continue. We support:

• Private Market programs that create tax credits and program funding;

Response

EPA believes that the TMDL and implementation and accountability framework provides the assurance on implementation that the commenter seeks. With respect to the comment on marketing programs, EPA will give this suggestion consideration as we move more aggressively into the implementation of the Bay TMDL.

Comment ID 0183-cp.001.002

Author Name: Owens James

Organization: Harvey Lindsay Commercial Real Estate

o Any additional pollutant allocations required by EPA should be assigned on the basis of the cost-effectiveness and cost-benefit in pollutant reductions achievable by available Best Management Practices (BMPs). Recommend that they consider the cost-effectiveness and cost-benefit data prepared by Mike Rolband of Wetland Studies and Solutions.

Response

While cost effectiveness is one way to derive allocations, in its draft backstop allocations, EPA had as a prime consideration the criterion of reasonable assurance, or the confidence one had that the controls would be implemented. Often these controls were not the most cost effective. However, since the states dramatically improved their WIPs when going from draft to final, EPA substantially reduced or removed many of these less than cost effective backstop allocations.

Comment ID 0191.1.001.006

Author Name: Smith Robert

Organization: Farm Credit East, ACA

The proposed EPA action on nutrient reductions will fall squarely on family farms that have already made significant advances. It is unreasonable to expect the New York State counties which have made steady, marked improvement since the 1980s to bare the brunt of the new TMDL requirements while other areas downstream have more reasonable allocations.

Response

Please refer to the response to comment 0080-cp.001.002

Comment ID 0192.1.001.003

Author Name: Comment Anonymous

Organization:

Senator Charles E. Schumer said, "The bottom line is there is a way to clean up the Chesapeake and protect our economy, but the EPA's new proposal isn't it. It would unfairly penalize small business owners, family farmers and local governments who would pass the cost on to taxpayers. Protecting New York's water quality and the Chesapeake Bay is important, but should not be done at the expense of local communities. In tough economic times like these we need to do everything we can to create jobs, not drive them away. The EPA needs to go back to the drawing board and come up with a proposal that strikes the right balance."

Senator Kristin Gillibrand, a member of the Senate Environment & Public Works Committee, said, "Under the draft EPA proposal, New York State is bearing the brunt of the regulation and none of the benefits of a clean Chesapeake Bay. In fact, New York communities, farms and businesses have taken enormous steps over the years to improve water quality, but these proposed rules punish New York State. This is simply unfair and needs to change."

Congressman Michael Arcuri said, "If the entire Chesapeake Bay watershed had the same water quality that the New York portion of the watershed currently has, the Bay would not be impaired. But rather than using New York's past successes - especially those with farmers to voluntarily adopt prescribed grazing, precision feeding and nutrient management plans - EPA's TMDL seeks to require additional, unattainable reductions that would be punitive to New York's farmers, taxpayers and communities."

Congressman Maurice Hinchey said, "I strongly support cleaning up the Chesapeake Bay. It has been a priority of mine for many years. However, the EPA's draft regulations are simply unattainable for New York. The EPA needs to take another look at this and establish a more equitable TMDL re-allocation, and the federal government needs to provide assistance to ensure that cash strapped local communities in NY are not adversely impacted by efforts to revitalize the bay."

Congressman Chris Lee said, "The draft EPA regulations will harm local New York economies and our critical agriculture sector. I share my colleagues' commitment to protecting the Chesapeake Bay and echo their concerns with the EPA's policy, which New York State and local officials both say is not feasible."Congressman Daniel Maffei said, "New York has always been progressive in its restoration efforts, and we should not be punished for it. It is tremendously important to proceed with efforts to ensure the health of the Chesapeake Bay ecosystem; but New York's farmers should not be forced to bear a disproportionate burden of these unfair allocations."

Congressman Scott Murphy said, "Perhaps no state has been more committed to protecting its water supply than New York, which is why we have some of the cleanest water in the Chesapeake watershed. While we remain committed to doing our part to clean the Chesapeake, a successful strategy will require EPA to work with us to develop reasonable standards, that are not only fair to New York famers and businesses, but also recognize our history of strong commitment to environmental protection."

Congressman Bill Owens said, "It is critical that the EPA take into account New York's record of success and leadership on water quality issues. We all support the goal of revitalizing the Chesapeake Bay, but we must do so in a way that is fair to local communities and family farmers. It is my hope that the EPA will exercise common sense in the regulatory process."

Congressman Paul Tonko said, "I support the goal of improving and revitalizing the Chesapeake Bay ecosystem, and I commend the EPA for continuing to make that goal a priority. But the recommendations in the draft TDML would place an unfair burden on New York State and the small communities in the watershed. I join my colleagues in asking the EPA to work on a more equitable solution."

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0197.1.001.005

Author Name: Vickers Bradd

Organization: Chenango County Farm Bureau

Further indication of New York's positive work on water quality is demonstrated by New York having responsibility for only six percent of the Bay's current Nitrogen load and five percent of the current Phosphorus load while serving as the caretaker of ten percent of the total Bay Watershed land area. To expect New York to reduce its load beyond these levels (as EPA draft numbers have suggested 5.3% for N and 3.7% for P) is unacceptable. All states should at least be treated equally in assigning future nutrient loads and New York should not be expected to reduce our load by a higher proportion than any other state.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0202.1.001.002

Author Name: Carl Jimmie

Organization: Southern Tier New York WWTP

III. FAIRNESS IN DEVELOPING TMDL ALLOCATIONS

Basic fairness principles should be exercised by the USEPA in their development of TMDL allocations for the states.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0202.1.001.015

Author Name: Carl Jimmie

Organization: Southern Tier New York WWTP

We would like to emphasize that we believe New York State has been a good upstream neighbor to the Bay states. Furthermore, we continue to remain committed to protecting and improving our water quality. That is what we do as WWTP owners and managers. What we are asking of you, our elected federal representatives, is to;

- Ensure that New York State's unique circumstances are recognized and fairness is exercised by the USEPA in the development of TMDLs.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0210.1.001.010

Author Name: Tolbert J.R.

Organization: Virginia Chapter-Sierra Club

Our recommendation to the EPA is to reject Virginia's assertion that we not adopt the allocation put forward by the EPA for nitrogen and phosphorus limits on the James river. Virginia must begin taking the steps to meet EPA's draft allocation.

Response

The TMDL for the Chesapeake Bay contains nitrogen, phosphorous, and sediment loadings necessary to attain current WQS in the Bay and tidal tributaries including the James River. Virginia's final Phase I Watershed Implementation Plan did put forth a credible approach for achieving the 2017 (60%) and the 2025 (100%) allocations for nitrogen, phosphorus and sediment for the James River basin. These allocations will meet Virginia's existing dissolved oxygen, water clarity/SAV, and chlorophyll a water quality standards for the river. Virginia has indicated an interest in evaluating the science behind the chlorophyll a WQS in the James and has proposed a plan of study. EPA is willing to work with Virginia on this effort. If the WQS are changed, the TMDL may be revised to reflect the new standards. Until that time, the current standards are in effect and the TMDL is based on those standards and the provisions of the TMDL will need to be implemented until and unless the TMDL is modified.

Comment ID 0211.1.001.003

Author Name: McCarthy R.

Organization: Town of Erwin, New York

WHEREAS, the TMDL allocations imposed by EPA are inequitable in that New York State represents 4% of the population in the Chesapeake Watershed and 9.7% of the overall land area in the Watershed, 76% of which is forested, and

WHEREAS, New York State discharge is cleaner than any other state in the Watershed, and if all other downstream discharge were of the same quality as New York State's current discharge, the Bay would not have dead zones, and

WHEREAS, New York State is responsible for only 4% of the discharge to the Bay, and the EPA proposal requires New York State to remove 60% of its discharge, and

WHEREAS, only 44% of New York State discharge is deposited in the Bay, and under the proposed EPA limits, New York State must remove two pounds of material to receive credit for one pound,

Response

Please see response to comment #0080-cp.001.002

Comment ID 0211.1.001.006

Author Name: McCarthy R.

Organization: Town of Erwin, New York

the EPA's proposed TMDL regulation imposes disproportionately heavier restrictions for water quality in New York in order to help other states meet their overall TMDL goal, while ignoring New York's excellent record of environmental accomplishments over the past 25 years,

Response

Please see the response to comment 0080-cp.001.002

Comment ID 0211.1.001.008

Author Name: McCarthy R.

Organization: Town of Erwin, New York

even if the other states achieve their EPA mandated allocations by 2025, their water would still contain higher nutrient loads per acre than New York's current 2010 load per acre,

Response

Please see the response to comment 0080-cp.001.002

Comment ID 0211.1.001.013

Author Name: McCarthy R.

Organization: Town of Erwin, New York

even with the elimination of animal agriculture and utilizing every best management practice available in the Watershed area, New York would still not be able to meet EPA's TMDL allocation;

Response

Please see response to comment 0080-cp.001.002

Comment ID 0219.1.001.003

Author Name: Cary Russell

Organization: Madison County, New York

WHEREAS, the best way to achieve the important public benefit of clean water at a regional level is through locally led conservation efforts, rather than a top-down federal, one-size-fits-all regulatory approach such as EPA's TMDL for the Chesapeake Bay watershed; and

WHEREAS, EPA's proposed TMDL regulation imposes disproportionately heavier restrictions for water quality in New York in order to help other states meet their overall TMDL goal, ignores New York's excellent record of environmental accomplishments over the past 25 years using state and local conservation efforts and forces unrealistic costs on the businesses, governments and residents within the watershed area; and

WHEREAS, even if the other states achieve their EPA mandated allocations by 2025, their water would still contain higher nutrient loads per acre than New York's current 2010 load per acre because of progressive natural resource management programs like New York State's Agricultural Environmental Management Program; and

WHEREAS, even with the elimination of animal agriculture and utilizing every best management practice available in the watershed area, New York would still not be able to meet EPA's TMDL allocation; and

Response

Please see response to comment #0080-cp.001.002

Comment ID 0227.1.001.012

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

The calculation/modeling decisions which EPA made in developing the draft TMDL allocations, documented in section 6 of the TMDL report, are sound, reasonable, and well-based on the available information.

Response

EPA acknowledges the comment.

Comment ID 0227.1.001.017

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

We applaud the transparency with which EPA has outlined the allocation "rules" and methodology in section 6.3, and note that the "Principles and Guidelines" are not only sound but reflect the seven years of experience (since the 2003 allocations) which EPA and the state partners have in making allocation decisions together. Including air deposition in the TMDL load allocations, as described, make sense.

Response

EPA acknowledges the comment. (Thank you!)

Comment ID 0256.1.001.013

Author Name: Lisanti Mary

Organization: Local Government Advisory Committee (LGAC) to the Chesapeake Bay Executive Council

In the Draft TMDL and backstop measures, EPA has gone out of its way to point out that the requirements are narrowly focused on clear cut authorities contained in the Clean Water Act. In most cases, those measures are aimed directly at point sources of pollution, and, except in the case of CAFO's, away from non-point sources connected with agricultural lands. EPA expects that states will be more responsible for controlling non-point sources in their own jurisdictions. Our concern is that the total burden of reducing nitrogen, phosphorous, and sediment may fall disproportionately on point sources for which many local governments have prime responsibility. Across the Watershed, states have varying authorities and willingness to enforce reduction measures on agricultural lands. Local governments are more than willing to do their part to meet reduction allocations as long as controls and measures are spread across all sectors equitably.

Response

EPA focused its backstops on those specific sources that are regulated under the Clean Water Act. The reason for this was to provide the best assurance that these controls would be achieved. In the final TMDL based on the significantly improved states' final Phase I Watershed Implementation Plans, EPA has removed or significantly reduced the backstop allocations resulting in more distribution of controls among the sources better reflecting the states' recommendations within their respective Watershed Implementation Plans.

Comment ID 0260.1.001.011

Author Name: Brosious John

Organization: Pennsylvania Municipal Authorities Association (PMAA)

The current strong focus of attention on this situation by many federal, state, and local policy makers should initiate the actions necessary to restore the Bay. EPA must seize the current opportunity, keep all stakeholders engaged, lobby for funding, and spearhead the efforts to achieve results. A fair and equitable approach that involves commitment from all sectors is paramount to that effort.

Response

Please see the response to comment 0282-cp.001.004

Comment ID 0265.1.001.028

Author Name: Clark, Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Hampton, Virginia

In summary, it is incumbent upon EPA to reconsider the basis for the James River allocations considering the magnitude of the costs of attaining levels of load reductions required to produce a difference in modeled chlorophyll-a concentrations so small that they cannot be reliably measured,. At a minimum, EPA should not pass the knee-of-the-curve identified at Point "B" of the above graph. Assuming there is any water quality improvement beyond Point "B", it would not be cost effective, could not be physically measured, and could not be reasonably attained. Therefore, James River basin allocations should be based on the Tributary Strategy allocations.

Response

Please refer to the response to comment 0210.1.001.010.

Comment ID 0267.1.001.001

Author Name: Bowman Cynthia

Organization: Cornell Law School Water Law Clinic

The Clinic supports EPA's goal of restoring the Chesapeake Bay and its network. Having worked with local communities

in the New York portion of the watershed for many years, we observe that these constituencies have consistently demonstrated a sustained strong ethic in favor of good water management. The fact that the greater part of New York's water system already meets its designated water uses [FN 1] reflects this ethic. Even with this record of exceptional stewardship, New York is committed to doing more. Indeed, a number of local communities have already begun pursuing more aggressive measures to decrease nutrient and sediment loading from both point and nonpoint sources feeding the watershed. These enhancements go beyond current EPA regulations and are not necessarily found in other Watershed Partner communities. However, to be fair and practicable, Bay TMDL allocations and the programs required to meet them must account for New York's local conditions, its achievements, and its future commitments.

[FN 1] N.Y.S DEP'T. OF ENVTL. CONSERVATION, NEW YORK DRAFT PHASE I WATERSHED IMPLEMENTATION PLAN 6
(Sept. 1, 2010) [hereinafter WIP I].

Response

Please refer to the response to comment 0080-cp.001.002

Comment ID 0267.1.001.011

Author Name: Bowman Cynthia

Organization: Cornell Law School Water Law Clinic

The draft TMDL does not reflect the spirit of cooperation and collaboration as agreed to by EPA and the other Watershed Partners in creating a plan to restore the Chesapeake Bay. New York's current water quality is the highest of any of the Watershed Partners. If all jurisdictions were at New York's water quality level, the Bay would need no further remedial action. New York has worked for years to achieve these results, implementing programs at the local level to reduce loading. Yet the draft TMDL concludes that New York's Phase I WIP contains "[s]erious deficiencies." The Clinic's work with towns and organizations in New York and our study of the draft TMDL indicate that this conclusion is unsupported by the record. In evaluating WIPs, EPA asked two primary questions: (1) "Did the jurisdiction meet its target allocations . . . ?" and (2) "If not, did the jurisdiction provide 'reasonable assurance' that it would meet these allocations?" EPA found that New York's nitrogen load is 15 percent over its allocation and its phosphorus load is 14 percent over its allocation. But the initial allocations upon which EPA bases this evaluation are flawed and lead to inequitable results. For example, New York holds about 10% of the total Bay watershed but receives less than 5% of the total nitrogen allocation to the states. By contrast, Maryland comprises about 14% of the total watershed but receives more than 20% of the available nitrogen allocation. Therefore, EPA places a disproportionate amount of the burden on New York, a headwater state, and does so without adequately addressing New York's draft Phase 1 WIP.

The Clinic is also concerned that the draft Bay TMDL as applied to New York neither accounts for New York's actual water quality, nor provides an adequate rationale to support its conclusions. Nowhere in the draft Bay TMDL does EPA account for why allocations are not distributed based on the Watershed Partner's actual nitrogen, phosphorus, and sediment discharge into the Bay. For clarity, we can imagine the Chesapeake Bay as a swimming pool into which each Watershed Partner feeds water via pipes of varying sizes with varying water qualities. The draft Bay TMDL examines

the impairment of the swimming pool as a whole and works backwards, requiring each Partner's pipe to decrease its pollutant loading by a certain percentage without due regard for how clean the pipe's water already is or how much water the pipe discharges. The more reasonable approach is to look first at the actual water quality at the source and then determine allocations based on how much pollution the Partner's pipe is adding to the swimming pool. We recognize that EPA may choose its methodology even if alternatives exist. Our assertion is that EPA's chosen method is unsupported by adequate reasoning and will therefore prove ineffective.

Response

Please refer to the response to comment 0080-cp.001.002

Comment ID 0267.1.001.014

Author Name: Bowman Cynthia

Organization: Cornell Law School Water Law Clinic

- Reconsider New York's TMDL allocations for nitrogen and phosphorus in the final TMDL, taking account of New York's actual water quality, and thus raise nitrogen and phosphorus allocations for New York.

- Redistribute TMDL allocations equitably amongst Watershed Partners to reflect the percentage of the watershed contained within each given jurisdiction.

Response

Please refer to the response to comment 0080-cp.001.002

Comment ID 0275.1.001.005

Author Name: LaClair André

Organization: Broome County Environmental Management Council (BCEMC), Binghamton, New York

EPA's proposed TMDL imposes disproportionately heavy restrictions on New York, more so than any other state in the Bay. If other states reached the level of performance achieved in New York over the past decade for nitrogen and phosphorous, there would be no need for a TMDL. Even if other Bay states achieve their mandated allocations, their water will still contain more nitrogen and phosphorus than New York at present.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0275.1.001.007

Author Name: LaClair André

Organization: Broome County Environmental Management Council (BCEMC), Binghamton, New York

The EPA's Chesapeake Bay TMDL allocations for each Bay state must be arrived at transparently based on real water quality data; not just a model. The reductions must be fair, achievable and affordable by all impacted parties. The Bay watershed area of New York is covered largely by forest, has low intensity agriculture and sufficient land base, and a decreasing population that leaves no room and resources for additional source reductions.

The BCEMC respectfully requests that the EPA reconsider the measurable achievements in New York with regard to establishment of a TMDL for the Chesapeake Bay as set forth in NY's draft Watershed Implementation Plan. Furthermore, we urge the EPA to reconsider their methodology for determining state allocations.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0282-cp.001.004

Author Name: Tabb Lyle

Organization: Lyle C. Tabb & Sons, Inc.

I only speak with knowledge of my area, but the accounting and models without actual tests I feel apply for the whole Chesapeake Bay watershed.

I believe I speak for a lot of farmers when I say we will fix any problems we have if there is science to show what the problem is, but at the same time we do not want to be the scapegoat so wastewater plants can pollute just because we do not have as many votes as what is served by the wastewater plants.

Response

EPA and its partner state and federal agencies have collectively invested millions of dollars over the past several decades building the science and monitoring behind this TMDL. The science has been built with ongoing input and direction of partners from all states, numerous universities and nationally recognized scientists. The value of the TMDL is that all sources are assessed and appropriate load controls are identified. With respect to the Bay TMDL we will need reductions from thousands of sources including, but not limited to agriculture, wastewater, and even air sources.

Comment ID 0293.1.001.003

Author Name: Pomeroy Christopher

Organization: Virginia Municipal Stormwater Association, Inc. (VAMSA)

Furthermore, the Draft TMDL also does not consider cost effectiveness, sustainability, or overall environmental benefit. VAMSA is aware of the development of the Best Management Practices Benefit Planner ("BMP-BP") model discussed in VAMWA's comments. This peer reviewed model (reviewed by Virginia Tech) was designed to consider implementation costs, energy requirements, green house gas emissions, and ancillary environmental benefits (e.g. creation of wildlife habitat, flood protection, human health protection) to support environmental decision making.

VAMWA used this model to compare EPA's recommendations for the York River basin with an alternative scenario that would achieve a similar level of nutrient reduction. The alternative scenario consisted of reducing urban stormwater retrofit acreage by 50% from EPA's 50% concept, retaining municipal wastewater treatment plants at their stringent state regulatory levels, and increasing agricultural BMPs by 20%. This demonstrated the following benefits:

• Reduced capital costs by approximately 50% (~$1B)
• Reduced operation and maintenance (O+M) costs by 50% ($32M/yr)
• Increased carbon sequestration by approximately 20%
• Significantly reduced green house gas (GHG) emissions
• Increased ancillary benefits associated with wildlife habitat, flood hazard protection, and base-flow projection.

VAMSA is providing this example not to endorse the specific inputs listed in these bullets (including the still-extremely-expensive stated urban stormwater retrofits), but to make the general point that EPA could have and should have designed the TMDL to achieve greater environmental benefit, at a far lower cost. EPA should correct these lose-lose outcomes prior to finalizing the Bay TMDL. Failure to do so would be arbitrary and unreasonable.

Response

The draft backstop allocations were based on providing the highest assurance that the controls would be achieved, not the most cost effective or efficient controls. The Bay will not be restored if the TMDL assigns load reductions to cost effective sources where there is not a defensible plan for achieving those controls. That said, the states' final Phase I Watershed Implementation Plans are notably improved from the draft plans, allowing EPA to significantly reduce or eliminate most of the backstops and, thereby, relying more heavily on the state WIPS in deriving the final Bay TMDL.

Comment ID 0293.1.001.017

Author Name: Pomeroy Christopher

Organization: Virginia Municipal Stormwater Association, Inc. (VAMSA)

EPA's Approach to James River Chlorophyll-a is Unreasonable

In the Draft TMDL, EPA has proposed drastic cuts to the James River allocations. This is the result of a remarkable confluence of technical and policy problems: an unstable, poorly-calibrated model forcibly applied to a scientifically dubious standard, itself partially based on prior model predictions of attainment under a completely different loading scenario. EPA has failed to offer a reasoned explanation for using the chlorophyll-a criteria as the basis for James River allocations in light of these unresolved issues. EPA's Draft TMDL is also missing evidence that there would be any quantifiable water quality benefit from the billions of dollars that would be required to comply with the allocations. EPA's determinations on this issue are unreasonable and arbitrary and capricious. For a more detailed discussion of VAMSA's concerns with regard to this issue, see Appendix 13.

[Comment letter contains additional information in the form of an attachment. See comment 0575, 0576, 0577, 0578, 0579].

Response

As with all TMDLs the final TMDL for the James needs to be established to achieve applicable water quality standards. The chlorophyll a standards for the James, adopted by Virginia and approved by EPA are the relevant standards.

Since the draft state WIP for the James River was considered deficient, EPA applied significant backstops in the draft TMDL. Fortunately since the final WIP for the James is much improved, EPA is able to substantially reduce or remove those backstops. This allows the final TMDL to be much more aligned with the loading levels in the final WIP. the final allocations for the James can be found in Section 9.

While the TMDL is established with loadings to achieve these standards, EPA recognizes that an assessment of those standards is being planned by Virginia. The final TMDL document includes a description of the process that will be used for the assessment of these standards.

It is possible that this standards assessment will necessitate the revision of the water quality standards. If these standards are modified and approved by EPA, these revisions may further necessitate a change to the TMDL. Until and unless the TMDL changes, the currently established TMDL for the James is the operative TMDL.

Comment ID 0293.1.001.022

Author Name: Pomeroy Christopher

Organization: Virginia Municipal Stormwater Association, Inc. (VAMSA)

Overall, EPA's Draft TMDL appears to put Virginia agriculture at a 48% level of nitrogen control (relative to E3), well below the 55-75% level indicated by the relative-effectiveness allocation methodology and far short of controls called for

in both Virginia's Tributary Strategy and Draft WIP (Figure 1). This is partly driven by the lower levels of effort in the Potomac River Basin (51%), but primarily driven by an extraordinarily low (17%) level of effort for the James River Basin, which is akin to the 2009 progress levels (Figure 2). VAMSA fails to comprehend how EPA can make deep and costly cuts to other allocations in the James River Basin while concluding that agriculture requires no further improvements in this basin.

[Figure 1. Comparison of agricultural controls among model scenarios. See original document 0293.1]

Agricultural management practices include most of the practices that the EPA and others (e.g., Chesapeake Bay Commission, 2004) have identified as the most-cost effective, including nutrient management, conservation tillage, cover crops, and riparian buffers. Relative to many urban and wastewater-based practices, these practices provide high levels of ancillary environmental benefits such as wildlife habitat, stream habitat protection, flood control, and greenhouse gas reduction. To illustrate these points, Appendix 5 presents a case study of alternative nutrient controls for the York River basin using the BMP Benefit Planner ver. 1.1. [FN39]

The case study demonstrates that the D.O.-based overall loading goal can be achieved in a much more cost-effective, environmentally beneficial manner by a different combination of point and nonpoint source controls than reflected in the draft TMDL allocations. VAMSA is providing this example not because we agree with the specific inputs (in particular the urban stormwater aspects), but to make the general point that it is possible to derive a greater environmental benefit at a lower cost if flexibility is allowed in the TMDL. EPA should consider these types of cost issues and options before it finalizes the Bay TMDL. To do otherwise is indefensible.

[Figure 2: Comparison of agricultural nitrogen controls among basins for EPA's proposed TMDL scenario. Please see original document 0293.1]

VAMSA expects EPA to allocate point and nonpoint sources in an equitable manner that requires a high level of effort from both sectors. In particular, EPA must remedy the low level of agricultural controls proposed for the James River basin, consistent with the widespread understanding that the agricultural sector has abundant opportunities for improvement and cost-effective load reductions.

[FN39] Malcolm Pirnie, Inc., working on behalf of VAMWA, has developed a spreadsheet based model to compare implementation scenarios with regard to environmental sustainability and cost effectiveness. More specifically, the BMP Benefit Planner ver. 1.1 considers energy usage, indirect and direct GHG emissions, carbon sequestration, costs (i.e., capital, operations and maintenance, annualized), and other ancillary benefits (i.e., wildlife habitat,

Response

The EPA draft backstop allocations did not consider cost effectiveness but rather sought to impose controls where there was the highest level of assurance that those controls would be achieved. What purpose does it serve to develop a cost effective plan but there isn’t the ability to implement that plan. However since the states’ final Phase I Watershed Implementation Plans are much improved from the draft plans, EPA has significantly reduced or removed most of the backstop allocations. Therefore, the final Bay TMDL’s allocations are more aligned with the intent of this comment than the draft allocations.

Comment ID 0295.001.002

Author Name: Cross J.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL limits because:

- The proposed additional limitations will be an unfair burden on NY agriculture, municipal services, taxpayers, businesses, and residents.

Response

Please see the response to comment 0080-cp.001.002.

Comment ID 0317.001.002

Author Name: Kipp B.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, you should oppose implementing the proposed Chesapeake Bay TMDL limits because:

The proposed additional limitations will be an unfair burden on NY agriculture, municipal services, taxpayers, businesses, and residents.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0318.001.002

Author Name: Cross A.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake Bay TMDL

limits because. . .

The proposed additional limitations will be an unfair burden on NY agriculture, municipal services, taxpayers, businesses, and residents .

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0354.1.001.006

Author Name: Fickbohm Scott

Organization: Otsego County Soil and Water Conservation District

On November X in Owego New York, four hours prior to the Public Comment offered by EPA in Binghamton New York, a meeting was held between representatives of DEC, USC and its member Soil and Water Conservation Districts, Cornell University, New York Farm Bureau and New York Agriculture and Markets and Rich Batiuk and Bob Koroncai representing the EPA. This was a ‘stakeholders' meeting that offered an opportunity for those from New York more familiar with the details of the model and the specific problems, often ‘New York specific' problems, associated with the TMDL in general (economic, political, etc) to speak directly with EPA officials.

Mr. Koroncai described a 2-3 year process of TMDL development with multi-state negotiations and input, but where New York was not regularly represented. Mr. Batiuk described an admiration for the role of the Upper Susquehanna Coalition earned over several years prior, but a true understanding of NY's position was not successfully communicated to those ultimately making the decisions. Neither could describe the level of understanding of those making the final decisions.

I recount this story to you only as an illustration of the problem. There is too much at risk for the possibility of an ill informed decision.

Administrator Jackson, the comments of the Otsego County Soil and Water Conservation District come in the form of two suggestions; we urge you redouble your efforts to establish a vigorous partnership with New York stakeholders in the further development of the TMDL's for New York and accept the WIP as proposed by the State of New York as realistic and achievable plan for our portion of the watershed.

Response

NY regularly attended meetings and conference calls of the Water Quality Goal Implementation Team over the last several years. EPA’s needs with regard to the WIPs have been made clear over the past two years through numerous correspondences at the state agency secretary level. But most prominent among those needs are the WIPs must achieve the state allocation and the WIP must show reasonable assurance that the loadings will be achieved. EPA has taken final actions on all state WIPs based on these same

needs. The final EPA actions can be found in Section 8.

Comment ID 0369-cp.001.001

Author Name: Comment Anonymous

Organization:

Data on which EPA is proposing these new regulations are both inaccurate and obsolete. Regulations to clean up the Chesapeake Bay should be based on current and future science. Caps on application of fertilizers and other so called sources of pollution must be science driven -- not arbitrarily assigned by untrained government employees. No regulation or cap should be imposed unless passed through a panel of scientists attesting to the effectiveness of such regulation

Response

The suite of Bay models have been subjected to review and input from all states, bay scientists, university scientists and others. The models and the Bay TMDL are based on decades of available data, much of it provided by states. EPA has been asking for years for data gaps to be filled but gaps remain. Please see Section 5 of the final Bay TMDL report for detailed documentation. The Bay restoration effort of over a generation has been met with broken deadlines. The time for delay and study is over. In EPA's professional judgment, the existing science is adequate to support the establishment of the Bay TMDL. If data is provided in the future that would alter the TMDL, EPA has publically committed to seeking such modifications of the Bay TMDL as warranted.

Comment ID 0378.1.001.001

Author Name: Warner Floyd

Organization: PA Chamber of Business and Industry

It is essential that any allocation of nutrient and sediment loadings via either the Pennsylvania WIP or any Backstop TMDL be fair, reasonable, and achievable.

As a starting point, and throughout the TMDL process, it is unquestionably essential that any allocations of nutrient loadings - no matter who establishes such loading targets - must be fair, reasonable and achievable. If the agencies or stakeholders lose sight of this loadstar, if efforts are made to shift burdens arbitrarily between sectors or among individual entities, the entire process is doomed to failure.

Response

It is VERY difficult to get agreement among the various stakeholders on what is fair, reasonable, and achievable. The draft EPA

backstops were needed in large part because the states did not demonstrate that the proposed controls were achievable within their draft Phase I Watershed Implementation Plans. EPA has given the states full opportunity to develop WIPS that meet these or any other criteria that are suitable for that state. Fortunately, the states' final Phase I Watershed Implementation Plans are much stronger than the draft plans, allowing EPA to significantly reduce or remove many of the backstop allocations.

Comment ID 0386.001.002

Author Name: Ayers M.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake bay TMDL limits because . . .

>The proposed additional limitations will be an unfair burden on NY agriculture, municipal services, taxpayers, businesses and residents.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0389.1.001.005

Author Name: Iwanowicz Peter

Organization: New York State Department of Environmental Conservation

• EPA's Proposed Allocation Formula is Grossly Unfair to New York
o Rewards significant population growth in MD & VA since 1985 and ignores NY for its population decline in the same time period.
o Rewards significant growth in AFO/CAFOs in ND, PA, & VA since 1985, without recognizing that NY's farming population has declined by 30%.
o Since 1985, the growth of baseline nutrient levels in Bay States exceeds the total levels attributable to NY in the watershed.
o Fails to recognize that since 1985, the baseline "no action" nutrient level in NY has declined by 2.44 million pounds of nitrogen.
o Treats all nutrient discharge technology to the Bay as worth the same, which is a bias against NY. EPA ignores the fact that reductions from NY are much harder to accomplish than reductions from other States given that NY's waters at issue are already clean.
o Establishes the same implementation deadlines for all jurisdictions, yet the Bay states have participated in the Chesapeake Bay Program since 1983.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0389.1.001.015

Author Name: Iwanowicz Peter

Organization: New York State Department of Environmental Conservation

The 700,000 lbs/yr Dispensation to NY Is Not Nearly Enough

The Draft TMDL (at 6-43) allocates "an additional 700,000 pounds per year of nitrogen" above the allocation calculated for New York. While New York appreciates EPA's decision to allocate it additional nitrogen loading, we believe that the amount proposed in the draft is much too small based on the principles that EPA applied. More importantly, the fact that EPA has not incorporated any of these important principals into the mathematical modeling that it performed in creating the allocations in the first place evidences the arbitrariness of EPA's approach.

First, of all, the nitrogen give-back does not actually amount to very much. New York's total nitrogen load into the Bay watershed for 2009 was 10,541,483 pounds. The model applied by EPA allocated to New York a load of 7,532,233 pounds (by 2025), meaning that New York was initially being asked to reduce its nitrogen load by 3,009,250 pounds per year. The 700,000 pound per year give-back thus constitutes only a 23% reduction. Additionally, the nitrogen giveback only puts New York on the equivalent ground as other States. For example, New York is being asked to reduce its nitrogen load (on the flawed design basis) by slightly more than Maryland: The Draft TMDL requires New York to reduce its load by 21.9% (2,309,250/10,541,483) and Maryland to reduce its load by 20.9% (10,335,361/49,421,206). Moreover, Maryland's 2009 edge of stream nitrogen load (on a per acre basis) is significantly higher than New York's -- 11.39 lbs/acre compared to 6 lbs per acre. This should result in it being easier for Maryland to reduce its load than New York. Even with the give-back, New York is being asked to do more and pay more on a per pound basis than other States.

Just as important, EPA cites four principles underlying the nitrogen load give-back: (i) New York contributes a "small portion[] of the overall nutrient delivered to the Bay" -amounting to less than 5%; (ii) "the water quality from the streams and rivers coming from [New York's] headwaters is generally of better quality than that of downstream waters;" (iii) EPA's "allocation methodology accommodates to some extent future growth by providing WLAs for wastewater treatment facilities at design flow rather than actual flow," a methodology that "New York consider[s] ... to be biased against Bay watershed jurisdictions that are growing relatively slowly, like New York;" and (iv) "[a] cleaner Bay provides greater benefit (in terms of commercial and recreational benefits of a cleaner bay) to the tidal jurisdictions than to the nontidal jurisdictions such as New York." Draft TMDL at 6-43 to 44.

All of these "principals" should have been the primary drivers of EPA's allocation methodology, not the basis for a small give-back at the end of the process. For example, the fact that the water quality of New York's streams is superior to the water quality of downstream waters means that it is much more costly on a per pound basis for New York as compared

to the downstream States to reduce nutrients from its streams. EPA's methodology, however, ignores cost-effectiveness, the primary driver of the methodology approved by EPA in the context of the LI Sound TMDL. Similarly, as we have already noted, there is no question that EPA's determination to base the TMDL on "design flow," rather than "actual flow," allows the Bay States to benefit from "paper" nutrient reductions that alone are exponentially greater than New York's actual total nitrogen contribution to the Bay. This means that New York will be required to pay for real reductions, while some State will be able to simply write-off unused capacity for no cost and without any environmental benefit.

EPA's final principal deserves special attention. The fact is that a cleaner Bay does not provide just a "greater benefit ... to the tidal jurisdictions;" it provides virtually all of the benefits to those jurisdictions. Certainly, New York wants the Bay to be restored and is willing to participate voluntarily in the Bay TMDL, consistent with its tradition of being a leader in environmental protection and conservation. Nevertheless, EPA's acknowledgment that the Bay States benefit economically and recreationally, albeit only "greater" than New York, is the precise reason why EPA should not, at the very least, be applying a set of model criteria that treats all States the same. For example, one would expect that Maryland, Virginia, and their municipalities will one day recoup the billions spent now to clean up the Bay through a continued increase in population, property values, and income tax revenues from increased recreational use and a restored fishery. New York's Southem Tier, by contrast, has been losing population for decades and stands to gain little economically from reducing nutrient levels in streams that EPA acknowledges are already clean.

In sum, the model applied by EPA in determining the state-by-state allocations in the Draft TMDL has a resulted in an allocation that will have a disproportionate economic impact on New York. The small give-back proposed in the draft only slightly remedies that impact. EPA needs to reformulate the model in a manner that prioritizes the principals established on pages 643 and 44 of the Draft TMDL.

B. E3

Part of EPA's allocation formula includes the establishment of an upper limit of what is possible for each source sector (e.g., wastewater, agriculture, urban runoff, rural septic systems). EPA is proposing that E3 ("Everything by Everyone Everywhere") applications are uniform throughout the Bay watershed. Uniformity is unfair to New York because virtually all nutrient removal systems rely on biological and biochemical activity for treatment and these processes function more rapidly at warmer temperatures; making achievement of the same removal much harder in New York because the temperatures are colder. Cover cropping is another clear example of a practice less attainable in NY due to a colder climate and shorter growing season. By virtue of climate, New York is already at a treatment disadvantage.

EPA has also embedded within its model the assumption that New York has excess manure in our agricultural sector, which is wholly inaccurate. New York has a land base of about 74,000 available acres to support the number of animals located in our Southern Tier, whereas to meet the strict agronomic and technical requirements, New York would only require about 50,000 acres. It appears as though EPA expects additional nutrient management in New York, which would be an unnecessary increase in costs to New York farmers in an economically depressed region. This requirement is unjustified by EPA.

C. Usage of the 2010 Baseline is Arbitrary & Capricious

The Principals and Guidelines of the Allocation Methodology in Section 6-19 of the Draft TMDL provides that "(3) All

tracked and reported reductions in nutrient loads are credited toward achieving final assigned loads." Part of EPA's allocation formula includes comparison to a "2010 no-action" baseline, which examines what today's loads would be without considering the implementation of any best management practices ("BMPs"). Utilizing 2010 instead of 1985 as the baseline simply rewards those Bay states that experienced population growth over the past 25 years and unfairly penalizes those headwater states like New York with population decreases in the Bay watershed. Since 1985, New York's population in its Southern Tier decreased from about 660,000 people to about 629,000 people. New York's animal population decreased 30% since 1985, as farms have gone out of business or moved out of the Bay watershed. Since 1985, EPA's assessment of New York's tracked and recorded nitrogen loading to the Bay decreased by 2.44 million pounds and NY receives no credit for this reduction. EPA's allocation rewards Bay population growth in the Bay states since 1985.

Maryland and Virginia knew the Chesapeake Bay TMDL was being developed and not only added nutrient removal to some of their wastewater treatment plants, but also greatly expanded the plants' capacities. These wastewater expansions give Maryland and Virginia an advantage in the TMDL offset provisions because these Bay states have vast amounts of available but unused treatment capacity to offset new load sources. This is significant because the implicit margin of safety (MOS) EPA used in developing the TMDL assumed that all dischargers were actually discharging at capacity. Since this is not true for Maryland and Virginia, they will be able to meet a significant portion of their nutrient reduction allocation by merely deferring use of currently un-used capacity. This is a paperwork nutrient reduction, not an actual nutrient reduction, and will have no impact on the Bay. Additionally, Maryland and Virginia will not be penalized for the addition of millions of new residents since 1985 and the significantly increased loading to the Bay delivered via the additional new capacity that they actually do use. The 2010 "no-action" baseline is arbitrary and capricious because it unjustifiably starts the clock now and not in 1985.

D. Measurement Bias for NY

EPA determines the relative effectiveness of Bay improvements from river inputs based on where the river input enters the Bay. The Susquehanna River is the largest tributary to the Chesapeake Bay and therefore poses the highest impact to the Bay. Accordingly, because New York's Chemung and Susquehanna River basins eventually discharge to the Bay, EPA unfairly determined that headwater states, like New York, must do more than the Bay states to reduce loading to the Bay despite having a nutrient level that, if it were the same in the Bay, would cause no impairment in the Bay.

All of New York's load is actual measureable load because it all flows by river gauging and sampling stations that are unaffected by tides. However, much of the Bay's growing load from large urban population centers, such as Washington D.C. and Baltimore, and intense agricultural operations bordering the Bay is not directly measurable. This variance in methodology is because the adjacent Bay river systems are tidal, which means that the runoff load is only estimated by the EPA from ambient monitoring and therefore subject to miscalculation measure tidal systems and should do so in order to develop more accurate and scientifically credible loading calculataions. New Yor is further disadvantaged because of its load is quantifiable.

E. Water Quality Inequities for NY

The primary factor applied by EPA in estimating allocations is the "relative effectiveness" of reductions of the particular pollutant from each source. EPA's application of this factor in determining each State's load allocation, however fails to

account for the fact that it is harder to get clean water even cleaner than it is to get dirty water cleaner. EPA is insisting that New York's waters be returned to pristine conditions. If the water leaving New York were being directly discharged to the Bay, the Bay would not be impaired. At the recent public meetings in New York, representatives of EPA conceded this fact. Overall, the Bay watershed in New York has one of the lowest nutrient loading per acre at about 6 pounds of nitrogen per acre. The Bay watershed in New York has virtually no 303(d) listed waters for nutrients. With the exception of a few ponds or lakes, which are closed ecosystems and do not discharge into the Susquehanna, there are no nutrient impairments in New York's Bay watershed. EPA's focus on "relative effectiveness" ignores the practicability of reducing nutrient loads by State, as well as the consequent inequity of one State having to pay much more than others on a per pound basis for nutrient reduction.

F. In-Basin Benefiters Should Pay for their Fair Share

The Principals and Guidelines of the Allocation Methodology in Section 6-19 of the Draft TMDL provides that "(2) Major river basins that contribute the most to the Bay water quality problems must do the most to resolve those problems on a pound by pound basis." Not only is New York a minor contributor to Bay impairment on a pound by pound basis, but New York is not a benefiter. Specifically, New York discharges approximately 4% of the Bay's Nitrogen,5% of the Bay's Phosphorus, and 4% of the Bay's sediment loading. New York should notbe required to pay for the in-basin benefiters' impairment of the Bay.

As per the New York City Watershed Filtration Avoidance Determination ("FAD"), the City of New York, as the downstream benefiter, pays for the enhanced protections (beyond local in-stream uses) in its watershed which are in the form of necessary infrastructure upgrades, source controls, stormwater capture, erosion and sediment controls, sampling, monitoring, and any other means needed from up-basin areas. It would be inequitable for the State of New York to require all municipalities located within the New York City Watershed to disproportionately fund a system where they reap little benefit. Similarly, it is unfair for New York to pay more than its fair share to address nutrient loading in the Bay when New York reaps no benefit from the Bay.

As a related matter, ifNew York is expected to be an equal partner in the Bay Program, then New York will need to receive equivalent restoration funding in order to further the implementation of BMPs in the Bay watershed. In prior years, federal restoration funding was targeted at Bay states to address the direct nutrient loading. New York, by virtue of its up-basin location, is at disadvantage for receiving implementation funding, but is expected to fund these proposed costly initiatives without the support of restoration funding.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0408-cp.001.002

Author Name: Koon Teresa

Organization: West Virginia Department of Environmental Protection and West Virginia Department Agriculture

Allocation - While West Virginia participated in the meetings and conference calls related to the development of the allocation methodology, our positions were consistently not supported. The result is that the allocation methodology for the cap loads to states and jurisdictions favored states that have been developing and increasing the capacity of their wastewater treatment plants and that have been increasing their developed / urban lands. Rural, largely forested states such as West Virginia were not fairly represented in the model or allocation resulting in a smaller cap load allocation and less of an actionable load with which to work. If the Bay were all loaded like West Virginia, the Chesapeake Bay would meet water quality standards.

Response

During all of those meetings among the states the methodology that consistently received the most support by the most states is the method used by EPA to allocate loads to the states. West Virginia is on record of supporting this method in the Principals' Staff Committee Meeting in October 2009. For further response to this comment, please see the response to comment 0080-cp.001.002.

Comment ID 0419.1.001.011

Author Name: Sharma Lalit

Organization: City of Alexandria, Virginia

In summary, it is incumbent upon EPA to reconsider the basis for the James River allocations considering the magnitude of the costs of attaining levels of load reductions required to produce a difference in modeled chlorophyll-a concentrations so small that they cannot be reliably measured,. At a minimum, EPA should not pass the knee-of-thecurve identified at Point "B" of the above graph. Assuming there is any water quality improvement beyond Point "B", it would not be cost effective, could not be physically measured, and could not be reasonably attained. Therefore, James River basin allocations should be based on the Tributary Strategy allocations.

Response

Please refer to response to comment # 0210.1.001.010.

Comment ID 0431.1.001.002

Author Name: Tolbert James

Organization: City of Charlottesville, Virginia

The City of Charlottesville is located in the James River Watershed which enters the Bay at the most downstream point in the Bay. The EPA model indicates that the impact of the James Watershed on water quality in the Bay is significantly less than the majority of upstream watersheds and areas that drain directly to the Bay. The load allocations by

watershed do not take this into account to the extent that it is equitable. Requiring the City of Charlottesville to implement aggressive and costly urban stormwater retrofits when the result will have little impact on the Bay is unnecessary and unfair.

Response

The James River basin allocations were not based on the impact of the James River basin's loads on Chesapeake Bay water quality but on the impact on tidal James River water quality itself. More specifically, the nitrogen, phosphorous and sediment allocations were based on attaining the chlorophyll a, water quality and submerged aquatic vegetation (SAV) water quality standards regulations adopted for the James River by Virginia.

Comment ID 0436.1.001.028

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Chesapeake, Virginia

In summary, it is incumbent upon EPA to reconsider the basis for the James River allocations considering the magnitude of the costs of attaining levels of load reductions required to produce a difference in modeled chlorophyll-a-concentrations so small that they cannot be reliably measured,. At a minimum, EPA should not pass the knee-of-thecurve identified at Point "B" of the above graph. Assuming there is any water qualityimprovement beyond Point "B", it would not be cost effective, could not be physically measured, and could not be reasonably attained. Therefore, James River basin allocations should be based on the Tributary Strategy allocations.

Response

Please refer to the response to comment 0210.1.001.010.

Comment ID 0439.1.001.003

Author Name: Littrell Judy

Organization: New York Association of Conservation Districts

EPA's proposed TMDL regulation imposes disproportionately heavier restrictions for water quality in New York in order to help other states meet their overall TMDL goal. Even if the other states achieve their EPA mandated allocations by 2025, their water would still contain a higher percentage of nutrients than New York has at the present. Because of the land use in the Upper Susquehanna Basin in New York, the water leaving New York has a very low nutrient content because the land use in that area. The watershed is approximately 70% forested, with a large land base for agriculture. Soil and Water Conservation Districts have worked together with farmers, rural landowners, and municipalities to

implement water quality programs.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0466.1.001.004

Author Name: Suarez Julie

Organization: New York Farm Bureau (NYFB)

We further urge the EPA to revise New York's Chesapeake Bay TMDL allocation to a realistic and attainable standard that does not require the severe actions of drastic loss of farms, businesses and depopulation in order to move New York's currently clean water to pristine quality water. New York's water has a very low nutrient content because the watershed area is largely forested (70%), has a decreasing population, practices low intensity agriculture with a large land base and implements progressive natural resource management programs. Water quality chemistry data for the Susquehanna River from the United State Geological Survey confirms the water leaving New York for the Chesapeake Bay is clean and already meets Bay water quality specifications required by EPA's TMDL.

In effect, EPA is forcing New York to provide nutrient reductions that can only be accomplished by removing farms and population from an area that is already 70% forested. New York's watershed population has already decreased its environmental footprint through attrition and stagnant growth at an estimated 600,000 over the past ten years while the downstream Bay states have grown by 600,000 every four years. The other Bay states are not being required to make such drastic source reductions that will transform their vibrant communities and working landscapes into a green space for the Chesapeake Bay.

Fairness and Parity in New York's TMDL Allocation

While EPA's Chesapeake Bay Program model has determined what the watershed's total "pollution diet" should be, the individual state TMDL allocations have been subjective policy decisions that do not accurately and adequately reflect New York's environmental achievements, existing high water quality and should be more proportionate in accordance with science.

Response

Please refer to the response to comment 0080-cp.001.002

Comment ID 0496.1.001.024

Author Name: Allsbrook Lynn

Organization: City of Hampton, Virginia, Department of Public Works

In summary, it is incumbent upon EPA to reconsider the basis for the James River allocations considering the magnitude of the costs of attaining levels of load reductions required to produce a difference in modeled chlorophyll-a concentrations so small that they cannot be reliably measured. At a minimum, EPA should not pass the knee-of-the-curve identified at Point "B" of the above graph. Assuming there is any water quality improvement beyond Point "B", it would not be cost effective, could not be physically measured, and could not be reasonably attained. Therefore, James River basin allocations should be based on the Tributary Strategy allocations.

Figure 3 Knee-of-the-Curve Analysis for James River Chlorophyll-a WQS [Please see pg 17 of the original letter EPA-R03-OW-2010-0736-0496.1]

Response

Please refer to the response to comment 0210.1.001.010.

Comment ID 0575.1.001.008

Author Name: Pomeroy Christopher

Organization: Virginia Municipal Stormwater Association, Inc. (VAMSA)

B. EPA Should Adequately Document the Small Influence of the Rappahannock River

The TMDL does not adequately document the small influence of the Rappahannock River on the Chesapeake Bay. Figure 10 indicates the percentage of inflow attributable to the major river basins of the Bay from 1978-2009. The Rappahannock River accounts for only 2.7% of total inflow to the Bay. Although this river has a moderate estuarine effect on D.O. on the mainstem Bay on a per pound basis (Figure 8) its actual effect on mainstem Bay D.O. is quite small because of its relatively low inflows and loads.

[Figure 10-Figure taken from Water Quality Steering Committee conference call materials (09-09-09). Please see page 26 of original document 0575.1]

Response

Please refer to the response to comment 0288.1.001.028.

Comment ID 0609.1.001.002

Author Name: Aubertine Darrel

Organization: Senate of the State of New York

New York State is Being Treated Unfairly

New York State has long been a leader in improving water quality. Some of these water quality improvements have been realized by reducing N, P and sediment loads from agricultural sources and municipal wastewater treatment facilities. Such reductions have come as a result of the State's strong regulatory programs coupled with best management practices and other voluntary measures employed by New York farmers. Additionally, New York has experienced a reduction in population and loss of farms in the watershed that has resulted in reduced N, P and sediment loads. Since 1985 New York's baseline for N and P has been decreasing. However, the TMDL does not take this into account and the State is not receiving credit for these improvements in water quality. Given this, and the fact that 70% of the Chesapeake Bay watershed area in New York is forested, there is little opportunity for further reductions of N or P from any sources other than agriculture. Even if reductions could be found, they would come at a cost that is well beyond what is affordable for farmers in the region.

While New York has been making great strides to improve water quality, the other Bay states have experienced population growth and an expansion of high-intensity agricultural operations - which have contributed to increased N and P loading from the down-watershed states. If water from the other Bay states and the District of Columbia had the same water quality as the water that is currently leaving New York State there would be no need for the TMDL.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0609.1.001.007

Author Name: Aubertine Darrel

Organization: Senate of the State of New York

I further urge the agency to redirect their efforts toward establishing a plan that is attainable, takes into account the significant progress New York State has already made in reducing nutrient load to the Bay and requires greater load reductions by the States that will benefit the most from improved water quality in the Bay.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0633-cp.001.002

Author Name: Bertoni John

Organization: Wastewater Treatment Plant, Village of Endicott, New York

New York's water quality has improved dramatically over the last years and is of much better quality than any of the other contributing states that flow into the Chesapeake Watershed. It is a fact that if New York's discharge quality were met by the other contributing States, the Bay would not have the excess nutrient and sediment issues that exist today. In fact, New York is being told to clean up our already clean water which means pound for pound it will cost New York more money to meet the TMDL numbers than other States.

Another issue that should be addressed is the fact that New York's population has decreased over the last few years and the states close to the Bay have seen growth. That growth has contributed to the decreased water quality in the bay. New York should not be expected to shoulder the responsibility for the increase of new growth in other areas.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0634.001.003

Author Name: Bassler Richard

Organization: Town of Fenton, New York

EPA's proposed TMDL imposes disproportionately heavy restrictions on NY. If other states reached the level of performance achieved in New York over the past decade for Nitrogen and Phosphorous, there would be no need for a TMDL. Even if other states in the watershed achieve their mandated allocations, their water would still contain more N and P than New York at present.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0656.001.009

Author Name: Dietrich Fredric

Organization: Town of Danby and Tompkins County, New York

The draft TMDL allocations for New York set unreasonable targets. More than one-third of the land in Tompkins County, where Danby sits, is devoted to agriculture. [FN6] If the draft TMDL allocations remain as currently proposed, the majority of farms in Danby and towns like Danby (of which there are many in New York's portion of the Bay Watershed) would likely be forced to reduce further their nonpoint source contributions, even though the water quality at the point where it leaves the state is very high. The cost of compliance could effectively put these farms out of business, although

they neither play a major role in pollution of the Chesapeake Bay nor derive as much benefit from it as the states actually on the Bay derive.

[FN6] See TOMPKINS COUNTY, COUNTY SUMMARY HIGHLIGHTS: 2007, tbl. 1 (2007).

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0689.1.001.015

Author Name: Hann Steven

Organization: Capital Region Council of Governments TMDL Work Group

25. What justification does EPA have for the statement that wasteload allocations "for point sources are determined, in part, on the basis of the expected contributions to be made to pollutant reductions by non-point sources?" Neither the Clean Water Act nor its implementing regulations contain language giving EPA such authority. The TMDL is based on the sum of the wasteload allocations plus the load allocations plus an adequate margin of safety. EPA's position that a sector's loading reduction requirements are not based on the pollutant contribution of that sector is contrary to the Clean Water Act.

Response

The commenter does not make clear where that quote was obtained, but it seems like there is no disagreement here. That is the TMDL has been correctly characterized as the sum of the WLA, the LA and the MOS. So clearly the TMDL is an interplay of how much controls are expected from point sources and non-point sources. The quote seems to be just describing this interplay.

Comment ID 0690.001.002

Author Name: Crispell C.

Organization:

In regards to the Docket ID No. EPA-R03-OW-2010-0736 I oppose implementing the proposed Chesapeake Bay TMDL limits because, the proposed additional limitations will be an unfair burden on N.Y. agriculture, municipal services, taxpayers, businesses and residents.

Response

Please refer to the response to comment 0080-cp.001.002.

Comment ID 0691.1.001.008

Author Name: Kirk Ken

Organization: National Association of Clean Water Agencies (NACWA)

Improved water quality in the Bay can and must be achieved in a more cost-effective manner by controlling nonpoint sources, particularly agriculture. As stated in the draft TMDL, "agriculture is the largest single source of nitrogen, phosphorus, and sediment loading to the Bay through applying fertilizers, tilling croplands, and applying animal manure. Agricultural activities are responsible for approximately 44 percent of nitrogen and phosphorus loads delivered to the Bay and about 65 percent of sediment loads delivered to the Bay." (p. 4-32) Air sources are also significant sources of nitrogen, contributing "about one-third of the total nitrogen loads delivered to the Chesapeake Bay by depositing directly onto the tidal surface waters of Chesapeake Bay and onto the surrounding Bay watershed." (p. 4-35) Forest lands are also significant contributors of nutrients and sediments. These nonpoint sources must be controlled in proportion to their contributions to pollution in the Bay. Neglecting proportionate controls on nonpoint sources while requiring continued reductions from POTWs and MS4s will place an unfair burden on municipal dischargers and result in a major waste of increasingly limited municipal resources.

Response

Please refer to the response to comment 0282-cp.001.004.

Comment ID 0740.001.004

Author Name: Hanmer R.

Organization:

Specifically regarding section 6 of the TMDL report, the calculation and modeling decisions which EPA made in developing the draft TMDL allocations are well-founded and based upon all the available information. These decisions also reflect full consultation with the watershed states and involvement of stakeholder representatives (Water Quality Goal Implementation Team). EPA's rationale for using the "implicit" Margin of Safety for the nutrient allocations is sound. The allocation rules and- methodology in section 6.3 are reasonable and responsible. These rules also reflect the years of experience, since development of the 2003 allocations, which EPA and the states have had together in formulating nutrient and sediment allocations.

Response

EPA acknowledges receipt of this comment. (Thank you!)

Comment ID 0770.001.002

Author Name: Ayers C.

Organization:

In regards to Docket ID No. EPA-R03-OW-2010-0736, I oppose implementing the proposed Chesapeake bay TMDL limits because...

--The proposed additional limitations will be an unfair burden on NY agriculture, municipal services, taxpayers, businesses and residents.

Response

Please see comment # 0080-cp.001.002.

Comment ID 0771.001.003

Author Name: Bertoni John

Organization: Village of Endicott, New York

EPA's proposed TMDL imposes disproportionately heavy restrictions on NY. If other states reached the level of performance achieved in New York over the past decade for Nitrogen and Phosphorous, there would be no need for a TMDL. Even if other states in the watershed achieve their mandated allocations, their water would still contain more N and P than New York at present.

Response

Please refer to response # 0080-cp.001.002.

Response to Public Comments: Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

Issue Category:
17. Adjustment Agreements

Pages 1219 – 1221

December 29, 2010

Docket #: EPA-R3-OW-2010-0736

17 - ADJUSTMENT AGREEMENTS

Comment ID 0740.001.005

Author Name: Hanmer R.

Organization:

I noted EPA's statement (page 6-34) that all of the watershed states except New York and West Virginia agreed with the methods used to allocate the nutrient loads. It is fair to use policy flexibility to lighten marginally the control burden of these two headwater states, which are located farthest from the benefits of the estuary cleanup, understanding that this means adding slightly to the control responsibility of the other jurisdictions.

Response

EPA acknowledges the receipt of the comment. Please refer to the response to comment 0080-cp.001.002

17.1 - NEW YORK

Comment ID 0151.001.003

Author Name: Woodford RC

Organization: Chenango County Board of Supervisors

EPA's proposed TDML regulation imposes disproportionately heavier restrictions for water quality in New York in order to help other states meet their overall TMDL goal, ignores New York's excellent record of environmental accomplishments over the past 25 years using state and local conservation efforts and forces unrealistic costs on the businesses, governments and residents within the watershed area

Response

Please refer to the response to comment 0080-cp.001.002.

17.2 - WEST VIRGINIA

No Comments are Applicable to this Issue Category, and Thus No Response is Necessary.

17.3 - NITROGEN TO PHOSPHORUS EXCHANGE

Comment ID 0410.1.001.009

Author Name: Pujara Karuna

Organization: Maryland State Highway Administration (SHA)

To what extent can the Nitrogen-Phosphorus Exchanges be employed? To what degree can the nitrogen or phosphorus loads be lowered through this process?

Response

EPA has made this exchange available to the states as part of the WIP/TMDL process. Once the TMDL is final changes can only be accepted thru modification of the TMDL.

Comment ID 0418.1.001.026

Author Name: Devine Jon

Organization: Natural Resources Defense Council (NRDC)

With respect to nitrogen-for-phosphorus trading, EPA indicated that states could propose exchanging phosphorus and nitrogen loads, based on modeled impacts on the Bay.[FN 61] Based on our review of this discussion, there appears to be a wide variability in the nitrogen-for-phosphorus exchange ratio, depending on total phosphorus delivered, and EPA's suggested ratios only account for the expected tradeoffs on both ends of the range. In view of these uncertainties, NRDC believes that EPA should discourage, not encourage, the use of inter-pollutant trades at this juncture.

[FN 61] Draft TMDL at pp. 6-44 to 6-45.

Response

The Bay system responds to reductions in both nitrogen and phosphorous. The exchange ratios that EPA used are conservative ratios that should provide adequate protection of water quality when exchanges are made. EPA provided the opportunity for state exchanges of N and P because it provides the states with flexibility in seeking the most implementable set of controls while still providing the water quality benefits we all seek.

Comment ID 0498.1.001.002

Author Name: Walls Brent

Organization: Potomac Riverkeeper

Nutrient Exchange

Since the Bay Model suggests that West Virginia has achieved its Phosphorus reductions with room to spare; a request to exchange the excess Phosphorus (P) for Nitrogen (N) reductions at a 5/1 ratio is being considered. This exchange should not take place. 193,000 lbs/yr of nitrogen would be taken off the required reductions set by the EPA model. If the model is set up to provide a fair share of the nutrient load reduction between the States, then there should not be any give on the required load reductions. The ecological effects of N and P are very different and N has a higher delivery ratio so more N will get to the Bay; which means there should not be any leniency on the required N reductions for West Virginia.

Response

Please see response to comment #0418.1.001.026. Also, EPA disagrees that these exchanges provide 'give' on the allocations. Obviously, to the extent we lower raise the loading on one pollutant we lower the loading on the other…..and at a ratio that is conservative and therefore protective of water quality. Further, a P to N exchange, thus reducing the P load provides much superior benefits than lower N loadings to the freshwater systems. Since most of the Potomac system is freshwater, EPA would think that this is a reason to support P to N trades.

Response to Public Comments: Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

Issue Category: 18. Reasonable Assurance

Pages 1222 – 1291

December 29, 2010

Docket #: EPA-R3-OW-2010-0736

18 - REASONABLE ASSURANCE

Comment ID 0151.001.005

Author Name: Woodford RC

Organization: Chenango County Board of Supervisors

even within elimination of animal agriculture and utilizing every best management practice available in the watershed area, New York would still not be able to meet EPA's TMDL allocation

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the final TMDL and the response to comment number 0080-cp.001.002. To the extent that the comment refers to New York's Watershed Implementation Plan, EPA also notes, with respect to substantive comments regarding individual jurisdictions' Phase I WIPs, that the WIPs submitted by each jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdiction for consideration as part of its WIP.

Comment ID 0184.1.001.003

Author Name: Hively Christopher

Organization: Town of Culpeper, Virginia

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that operates as if EPA's previously proposed but withdrawn reasonable assurance regulation had actually been put into effect.

Response

While the term "reasonable assurance" does not expressly appear in the CWA or EPA's TMDL regulations it has consistently appeared in EPA TMDL guidance since 1991. As explained further in the response to comment number 0230.1.011.026, this guidance is legal. The implicit requirement for reasonable assurance in TMDLs flows legally and logically from the following two

statutory and regulatory provisions: Section 303(d)(1)(C) of the Clean Water Act and 40 C.F.R. section 122.44(d)(1)(vii)(A)&(B).

The requirement for TMDLs to be supported by reasonable assurance is fundamental to their design and purpose. The most basic TMDL requirement is that they be "established at a level necessary to implement the applicable water quality standards." This requirement applies not just to the total load constituting the water body's assimilative capacity, but also to the components (individually and collectively) of the TMDL equation: TMDL = wasteload allocations (WLAs) + load allocations (LAs) + margin of safety. A WLA cannot be established at a level necessary for the TMDL to meet applicable water quality standards unless the TMDL's LAs and other WLAs are also established at water quality standard-implementing levels. It is the implied requirement for "reasonable assurance" that those WLA and LA levels will be met that (1) keeps the TMDL equation "honest" and (2) gives TMDLs their value and legitimacy as water quality planning and implementation tools.

To the extent that the comment refers to Virginia's Watershed Implementation Plan, EPA also notes, with respect to substantive comments regarding individual jurisdictions' Phase I WIPs, that the WIPs submitted by each jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdiction for consideration as part of its WIP. Finally, EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please refer to Section 8 of the TMDL.

Comment ID 0196.1.001.002

Author Name: Moffett Jesse

Organization: Frederick-Winchester Service Authority

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that operates as if EPA's previously proposed but withdrawn reasonable assurance regulation had actually been put into effect.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0198.1.001.002

Author Name: Covington Roy

Organization: Chesterfield County, Virginia

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that operates as if EPA's previously proposed but withdraw reasonable assurance regulation had actually been put into effect.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0199.1.001.002

Author Name: Frederick Thomas

Organization: Rivanna Water & Sewer Authority

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that operates as if EPA's previously proposed but withdraw reasonable assurance regulation had actually been put into effect.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0203.1.001.003

Author Name: Weindel Uwe

Organization: Frederick County Sanitation Authority

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that operates as if EPA's previously proposed but withdrawn reasonable assurance regulation had actually been put into effect.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0206.1.001.003

Author Name: Vass Evan

Organization: Town of New Market, Virginia

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that operates as if EPA's previously proposed but withdrawn reasonable assurance had actually been put into effect.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0209.1.001.003

Author Name: Saunders Thomas

Organization: Town of Kilmarnock, Virginia

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that it operates as if EPA's previously proposed but withdrawn reasonable assurance regulation had actually been put into effect.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0214.1.001.002

Author Name: Cuffee-Glenn Selena

Organization: City of Suffolk, Virginia

With those concerns in mind, the City of Suffolk agrees with the comments provided by the Hampton Roads Planning District Commission, of which Suffolk is a member, and reiterates the points raised by the commission:

--The EPA has not provided reasonable assurance that the urban runoff sector allocations can be achieved by 2025.

Response

Thank you for your comment. Please see the response to comment number 0265.1.001.010.

Comment ID 0215.1.001.002

Author Name: Milo J.

Organization: Maury Service Authority (MSA)

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that it operates as if EPA's previously proposed but withdrawn reasonable assurance regulation had actually been put into effect.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0217.1.001.005

Author Name: Pozgar David

Organization: Logan Township

EPA cannot provide "Reasonable Assurance" that placing significantly lower limits on point sources (with many industrial point sources below the limit of technology) will be implemented and successful.

Just because EPA has placed severely low nitrogen and phosphorus limits for point sources into the model and the model results show that Pennsylvania's allocations for nutrients can be met, does not provide "Reasonable Assurance" that this approach will be successful. Just because EPA can place these low limits in NPDES permits, does not mean

that there is "Reasonable Assurance" that this approach will be successful.

Response

EPA's NPDES permitting regulations at 40 C.F.R. section 122.44(d)(1)(vii)(A)&(B) require two things from permit effluent limits. First, they must be "derived from, and compl[y] with" applicable water quality standards. Second, they must be "consistent with" the assumptions and requirements of a TMDL's wasteload allocation (WLA). The only way an effluent limit can meet both requirements is for the WLA to be set at a level (in combination with the other WLAs and load allocations (LAs) in the TMDL) that implements applicable water quality standards. Without "reasonable assurance" to ensure that a TMDL's LA(s) will be achieved, the permit writer would have little basis to assume that an effluent limit based on a TMDL's WLA(s) (individually or collectively) would be set at a level derived from, and complying with applicable water quality standards.

The accountability framework, which is a key component of the reasonable assurance for the Bay TMDL, requires that the jurisdictions include a schedule for implementing the practices and programs identified by the jurisdictions in their WIPs, a set of milestones for tracking progress in their implementation and a process that determines if and when federal actions may have to be employed if the initial allocations are not being achieved. EPA assessed each jurisdiction's WIP to determine whether it is supported by adequate reasonable assurance that the practices and programs identified will be implemented as proposed, and that applicable water quality standards will be attained and maintained. EPA is confident that this comprehensive, iterative process for determining allocations and making any needed adjustments based on sound science and tracking results will be successful.

While EPA is confident that the WIPs will provide this degree of reasonable assurance, it is clear that EPA is committed to using any necessary enforcement action at its disposal to assure that the states successfully implement the Bay TMDL. Those measures that EPA may invoke should they be necessary include:

--Expand NPDES permit coverage to currently unregulated sources utilizing the ""Residual Designation Authority"" to increase the number of sources, operations and/or communities regulated under the NPDES permit program;
--Object to NPDES permits for both major and minor facilities and to increase program oversight These measures would include, but not be limited to NPDES effluent limits that are not consistent with the Bay TMDL's wasteload allocations; .
--Require net improvement offsets for new or expanded discharges that do more than merely replace the new or expanding source's anticipated new or increased loadings;
--Establish finer scale wasteload and load allocations than those proposed by the States and the District in the Bay TMDL - Increase and target federal enforcement and compliance assurance in the watershed This could include both air and water sources of nutrients and sediment;
--Condition or redirect EPA grants based on demonstrated progress in meeting Watershed Implementation Plans and/or in an effort to yield higher nutrient or sediment load reductions; and
--Federal promulgation of local nutrient water quality standards -Initiating promulgation of federal standards where the State or the District water quality standards do not contain criteria that protect designated uses locally or downstream.

To the extent that the comment refers to Pennsylvania's Watershed Implementation Plan, EPA also notes, with respect to substantive comments regarding individual jurisdictions' Phase I WIPs, that the WIPs submitted by each jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help

ensure implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdiction for consideration as part of its WIP.

Comment ID 0218.1.001.004

Author Name: Wright Ronald

Organization: Borough of Everett Area Municipal Authority, Bedford County, Pennsylvania

EPA cannot provide "Reasonable Assurance" that placing significantly lower limits on point sources (with many industrial point sources below the limit of technology) will be implemented and successful.

Just because EPA has placed severely low nitrogen and phosphorus limits for point sources into the model and the model results show that Pennsylvania's allocations for nutrients can be met, does not provide "Reasonable Assurance" that this approach will be successful. Just because EPA can place these low limits in NPDES permits, does not mean that there is "Reasonable Assurance" that this approach will be successful.

Response

Thank you for your comment. Please see the response to comment number 0217.1.001.005.

Comment ID 0226.1.001.011

Author Name: Harris, Jr. Cecil

Organization: Hanover Courthouse, Hanover County, Virginia

We believe there are fundamental flaws in the application of the un-promulgated reasonable assurance provisions described by EPA.

Response

Thank you for your comment. Please see the response to comment number 0230.1.001.026.

Comment ID 0228.1.001.013

Author Name: Rolband Michael

Organization: Wetland Studies and Solutions, Inc.

A. Reasonable Assurance and Safety Factor

The sectors are not equal in their ability to provide reasonable assurance of nutrient removal both because some technologies are older and more well-established than others and because some sectors physically require fewer management practices and less maintenance. The following list ranks the sectors by their ability to provide reasonable assurance in meeting their nutrient reduction goals (from highest safety factor to lowest):

1. Major WWTPs

Major WWTP upgrades will require upgrading relatively few point sources (as opposed to thousands of urban BMPs). Upgrades utilize well-established technology and can be performed at the lowest cost overall, thereby providing the highest level of reasonable assurance. However, it will be difficult, if not impossible, to obtain perpetual nutrient trading credits due to legal considerations preventing public boards from obligating future elected or appointed boards to financial commitments in perpetuity.

2. Minor WWTPs

Minor WWTP upgrades will require upgrading relatively few point sources (as opposed to thousands of urban BMPs). Upgrades utilize well-established technology, although minor WWTPs are more expensive to upgrade than major plants. Also, because more Minor WWTPs are in operation, it is more difficult to implement improvements in them than in Major WWTPs. However, if the Commonwealth is not on track to meet the TMDL goals at the 2017 mid-course correction point, upgrading Minor WWTPs is a logical next step.

3. Agriculture

Agricultural BMPs are more cost effective than urban retrofits, but upgrades will require many facilities on the ground and considerable technical assistance (Soil and Water Conservation Districts will need financial support and considerable manpower) making it difficult to implement, therefore providing a lower level of reasonable assurance than compared with major WWTP upgrades. For most of these practices the technology required is well-established and relatively inexpensive, but they require ongoing follow-up to ensure that the practices continue to be implemented (i.e. cover crops need to be planted and monitored on an annual basis). The Agriculture sector will need considerable technical assistance to implement BMPs; however, that extensive VT Cooperative Extension funding cuts are planned, which will significantly hinder the ability for the Agriculture sector to put BMPs in place. As compared to WWTPs, it is considerably easier to obtain perpetual nutrient trading credits from the Agriculture sector through agricultural land conversion (i.e. permanent stream buffer fencing and reforestation).

Historically, approximately half of the nutrient load decreases from agricultural land are the result of land conversion (i.e. removing agricultural land from production and converting it to another land use, typically forest or urban), while the other half results from BMPs. For example, 39% of the agricultural TN load decrease in Virginia from 1985 to 2009 resulted from land conversion (Chart 3) [FN20]; 72% of Virginia's agricultural TP load decrease resulted from land conversion (Chart 4); and 46% of Virginia's agricultural sediment load decrease resulted from land conversion (Chart 5).

4. Urban stormwater

Retrofits of impervious urban surfaces will require a significant number of facilities on the ground; however, it is impossible obtain an accurate number of the facilities needed until the urban acreages in the Bay Model are finalized in 2011. Low-impact development technology is relatively new; therefore, nutrient removal efficiencies for each practice are not well-established, and long-term maintenance requirements have not yet been determined. Additionally, retrofitting impervious surfaces is an extremely expensive means of pollutant removal on a cost-per-pound basis. These uncertainties give urban stormwater retrofits a very low level of reasonable assurance that they will be effective in meeting EPA's TMDL nutrient allocations and the Commonwealth's goals.

[FN 20]To understand the effects of land conversion on agricultural loadings for TN, TP, and TSS in Virginia, WSSI converted the percent decrease in total agricultural land between 1985 and 2009 (11.7%) to a percent decrease in nutrient and sediment load (also 11.7%, since the two are directly proportional). WSSI then subtracted that from the total percent change in load between 1985 and 2009. The resulting value equates to the load associated with BMP implementation (based on the Phase 5.3 Model, released 6/14/10).

Response

EPA believes that adequate reasonable assurance for the Bay TMDL can take many forms; the certainty and the ability to control various pollutant sectors is not uniform. In assessing the adequacy of reasonable assurance, it is important to assess the probability and certainty of implementing the technologies and practices. EPA expected the jurisdictions to document that the proposed point and nonpoint source technologies and practices are enforceable and achievable. As the comment notes, certain point source approaches are well-established, cost-effective and likely to be applied.

The accountability framework requires that the jurisdictions include a schedule for implementing these practices and programs, a set of milestones for tracking progress in their implementation and a process that determines if and when federal actions may have to be employed if the initial allocations are not being achieved. EPA assessed each jurisdiction’s WIP to determine whether it is supported by reasonable assurance that the practices and programs identified by the jurisdiction in its WIP will be implemented as proposed, and that applicable water quality standards will be attained and maintained. EPA is confident that this comprehensive, iterative process for determining allocations and making any needed adjustments based on sound science and tracking results will be successful.

The challenge to both EPA and the jurisdictions is to identify and employ approaches for providing adequate reasonable assurance. Funding can be a significant vehicle for assuring that the allocations established in the Bay TMDL are implemented.

Comment ID 0230.1.001.003

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

EPA proposes to cut our nutrient waste load allocations ("WLAs") currently set forth in the EPA-approved Virginia

Regulations. EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unprornulgated reasonable assurance guidance is even legal given that operates as if EPA's previously proposed, but withdrawn, reasonable assurance regulation had actually been put into effect.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0230.1.001.014

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

EPA's Unpromulgated "Reasonable Assurance" Regulation Does Not Support EPA's Proposed Disapproval of the WIP and Imposition of "Backstop" Allocations

As noted above, EPA's proposal to reduce POTW wasteload allocations is based upon its view that Virginia's Draft WIP provided less than adequate "reasonable assurance" that its plan would achieve the nonpoint source load allocations. EPA's position on "reasonable assurance" is unreasonable and unlawful for many reasons.

First, EPA has no authority pursuant to the CWA to review and/or approve or disapprove Virginia's WIP. EPA's decision to do so, and its decision to reject Virginia's allocations - especially after having provided on many occasions that EPA would defer to State allocations as part of a Bay Program collaborative effort to develop a multistate Bay TMDL -thus unlawfully usurps State primacy and in particular the State's role in TMDL implementation decisions.

Second, EPA's action is inconsistent with thousands of prior EPA actions. EPA has issued and/or approved thousands of TMDLs for impaired waters across the United States. Given the tremendous pre-TMDL implementation and assurance of continuing progress under existing and reasonably anticipated additional programs - a combination that far exceeds the level of assurance of most TMDLs - Virginia's WIP is easily approvable on EPA's own precedents. EPA's proposed negative finding and associated backstops are uneven and discriminatory against Virginia and its point sources, and obviously arbitrary and capricious under the standards that EPA has defined by its own prior acts.

Third, EPA should give more consideration to the temporal aspect of the implementation process and the opportunity that the next 15 years of planned implementation brings for lawmakers and regulators to support implementation. It is unreasonable for a federal agency to announce TMDL caps and just a couple months later expect a state administrative agency (i.e., no lawmaking or taxing authority) to clearly document what the future laws and taxes will be to support implementation of the EPA mandate. This simply takes time that EPA's rushed TMDL development schedule has not provided. HRSD recommends that EPA build into its expectations an appreciation for the time constraints involved in 2010 as well as the ability of Virginia and others to build programs over a reasonable period of time. To this end, HRSD

notes approvingly the general concept of milestones and encourages EPA to consider how the two-year milestone process could be used by all Bay States to demonstrate reasonable further progress.

Fourth, EPA's "reasonable assurance" proposal and related backstops unreasonably shift responsibility of various nonpoint sources to different people who will then pay more to make up for the now-sanctioned inactivity of other sources. This is fundamentally unfair and unjustifiable.

Fifth, EPA has inappropriately rejected Virginia's recommended expansion of the existing nutrient trading system to include additional source sectors. Given Virginia's exceptional track record of establishing large-scale trading program with high accountability, EPA's quick rejection of Virginia's concept is unwarranted.

Response

Thank you for your comment. Please see the response to comment number 0230.1.001.026.

Comment ID 0230.1.001.026

Author Name: Henifin Edward

Organization: Hampton Roads Sanitation District (HRSD)

III. EPA's UNPROMULGATED "REASONABLE ASSURANCE" REGULATION DOES NOT SUPPORT EPA'S PROPOSED DISAPPROVAL OF THE WIP AND IMPOSITION OF "BACKSTOP" ALLOCATIONS

As noted above, EPA's decision to reduce POTW WLAs is based upon its view that Virginia's Draft WIP provided less than adequate reasonable assurance that its plan would achieve desired reductions. EPA's position on reasonable assurance is untenable for four reasons.

First, EPA's view of reasonable assurance in this TMDL is unprecedented at the federal or state level. EPA has written and/or approved thousands of TMDLs for impaired waters across the United States. Because the phrase "reasonable assurance" is undefined in either the Clean Water Act or in regulations or in guidance,[FN23] EPA's approach to reasonable assurance has ranged from liberal to more conservative.[FN24]

As examples, EPA's Paxton Creek Watershed TMDL (nutrients, sediment), Goose Creek Watershed TMDL (nutrients), Sawmill Run TMDL (nutrients), and Southampton Creek Watershed TMDL (nutrients and sediment) all contain weak reasonable assurance provisions that fail to link the identified BMPs to implementation programs. In addition, these TMDLs suggest that BMP implementation should only "eventually" meet load allocation reductions goals.[FN25] EPA has approved many TMDLs, including the Anacostia River Basin Watershed TMDL (sediment, TSS), the Anacostia River Basin Watershed TMDL (BOD, nutrients) and the Tidal Potomac River TMDL (PCBs), which lack schedules for reductions and consequences for failure to meet load allocations. To suggest that EPA's Draft TMDL, with its state WIPs, and implementation schedule and consequences, provides less reasonable assurance than these TMDLs is nonsensical.[FN26]

Furthermore, what EPA has done in its Draft TMDL is really to promulgate a new rule—i.e., a new regulatory definition of "reasonable assurance"—without following proper regulatory procedure. EPA appears to be attempting a "do-over" of its previously unsuccessful rulemaking in the early part of the decade. On July 13, 2000, EPA published a final rule, which would have incorporated a definition of reasonable assurance into 40 C.F.R. Part 130.[FN27] However, Congress, states, industrial and agricultural groups, and environmental organizations opposed the rule; and, EPA withdrew it in 2003.[FN28] Although EPA may be frustrated by an inability to define "reasonable assurance" in its regulations, there is no justification for defining as it as a part of this TMDL without allowing for public participation and comment.

EPA's Draft TMDL is inconsistent with earlier statements it has made on this subject. For example, in September, 2008, Region III responded to a letter from Maryland's Secretary of Natural Resources John Griffin.[FN29] In response to a question regarding reasonable assurance, EPA stated that:

EPA Regions II and III, our partner states and the District are committed to accelerating restoration of the Chesapeake Bay and its tributaries, and EPA Region III believes that reasonable assurance provisions in the Bay TMDL will provide one mechanism to increase the likelihood that actions are taken to reduce nutrient and sediment loads. However, EPA Region III does not believe that implementation of the Bay TMDL depends solely on reasonable assurance or any other single TMDL element. Rather, EPA Region III is committed to working with the States and the District to develop and execute a broader implementation framework that draws on elements in the TMDL itself (including reasonable assurance), as well as additional implementation-related information that will accompany the TMDL.[FN30]

As the discussion above makes clear, EPA's "new" strict definition of "reasonable assurance" in the Draft TMDL is unjustified based upon prior practice. Virginia's Draft WIP is more than adequate to establish "reasonable assurance" pursuant to years of EPA prior practice. EPA's proposed negative finding and associated backstops are uneven and discriminatory against Virginia and its point sources, and obviously arbitrary and capricious under the standards that EPA has defined by its own prior acts.

Second, it is not clear that EPA has adequately factored in the Bay States' two-year milestones into its reasonable assurance determination. This is directly contrary to EPA's statements in 2008 that the two-year milestones would be part of the criteria considered by EPA "as part of its reasonable assurance and implementation framework…"[FN31] These two-year milestones should be a sufficient backstop to the WIPs to establish adequate reasonable assurance. The Chesapeake Bay Executive Council decided in 2008 that each of the Bay States would provide a set of target reductions and associated management efforts by which EPA could judge progress towards ultimate clean-up goals every two years.[FN32] EPA followed up on the Executive Council's actions by issuing a letter in December, 2009 promising "consequences" for those Bay States who fall short of those two-year milestones. Although HRSD disagrees with the concept of "consequences," EPA has not explained in its Draft TMDL why this additional accountability is inadequate for "reasonable assurance" purposes.

In a larger sense, the two-year milestones are also pieces of a larger 15 year plan (based upon an implementation period that runs from 2011 to 2025). The two-year milestones provide EPA with an opportunity to perform a regular "check-up" to determine whether the Bay States are accomplishing the goals they have set. The program itself also allows for adjustments over the full implementation period. EPA's reasonable assurance is assured by the process. Simply put, we will have the opportunity to manage this program as time goes by. EPA's view that reasonable assurance must established in absolute terms today is short-sighted and unreasonable.

Third, as a result of EPA's "reasonable assurance" decision, POTWs are bearing the weight of additional pounds of nutrients unrelated to their facilities or discharges. This shifting of responsibility onto the shoulders of point sources from non-point sources is fundamentally unfair and unjustifiable.[FN33] Increasing the burden on point sources is unreasonable given that EPA has acknowledged "the large scale public investments (estimated at over $4 billion) that are now being carried out throughout the watershed to upgrade and reduce nutrient discharge from point sources" such as POTWs.[FN34] Requiring POTWs and other point sources to make additional costly upgrades to compensate for non-point source pollution contravenes EPA's earlier assertion that "EPA considers requiring further point source upgrades to the limits of technology as an option of last resort." [FN35]

Fourth, and lastly, EPA has inappropriately rejected Virginia's approach to reasonable assurance—i.e., expansion of the existing nutrient trading system to include additional source sectors. As a general matter, EPA should have provided due deference to Virginia's Draft WIP. And, with regard to this issue, EPA should have allowed Virginia to move forward with its plan to develop an expanded trading program. As explained below, Virginia has a stellar track-record with regard to market-based trading, having established a very successful PS trading program. Virginia has earned the right to show how it could expand that program in a way that would provide reasonable assurance of needed reductions.

For these reasons above, HRSD objects to EPA's determination to reject Virginia's Draft WIP and develop a "backstop" based upon reasonable assurance grounds. This error must be corrected before EPA issues its final TMDL. For the above reasons, EPA's position on "reasonable assurance" is unreasonable and arbitrary and capricious.

HRSD's position is further supported by the fact that EPA has no authority pursuant to the Clean Water Act to review and/or approve or disapprove Virginia's Draft WIP. EPA's decision to do so, and its proposal to override Virginia's WIP is unlawful. HRSD does not dispute that TMDL implementation planning is important for moving clean-up programs ahead after TMDL adoption and for illustrating its NPS reduction plans. However, because WIPs are not derived from CWA section 303(d) authority, [FN36] the details of these plans are not subject to EPA approval or control. EPA's decision in its Draft TMDL to create "backstops"—requirements that in effect revise the Virginia's Draft WIP—are not supported by federal law.

In addition to acting without specific authorization from federal law, EPA's actions are also inconsistent with state primacy granted by Section 510 of the Act:

Except as expressly provided in this Act, nothing in this Act shall (1) preclude or deny the right of any state or political subdivision thereof or interstate agency to adopt or enforce (A) any standard or limitation respecting discharges of pollutants, or (B) any requirement respecting control or abatement of pollution; except that if an effluent limitation, or other limitation, effluent standard, prohibition, pretreatment standard, or standard of performance is in effect under this Act, such State or political subdivision or interstate agency may not adopt or enforce any effluent limitation, or other limitation, effluent standard, prohibition, pretreatment standard, or standard of performance which is less stringent than the effluent limitation, or other limitation, effluent standard, prohibition, pretreatment standard, or standard of performance under this Act; or (2) be construed as impairing or in any manner affecting any right or jurisdiction of the States with respect to the waters (including boundary waters) of such States.") [FN37]

Federal law clearly gives Virginia the authority to develop its own requirements and programs, so long as they are not less stringent than those established under the Act. [FN38] Because EPA has no statutory authority to establish WIPs, it

is impossible for Virginia's Draft WIP to be less stringent.

For these reasons, Virginia should have the discretion to establish its own WIP, without EPA passing judgment and usurping what is rightfully the state's role in this process.

[FN23] EPA guidance merely "define[s] when reasonable assurance must be demonstrated but not really what it is." Reasonable Assurance Workgroup Findings and Options, Principals' Staff Committee Meeting, Washington, D.C., at 13 (Sept. 22, 2008) (attached hereto as Appendix 14).

[FN24] In 2008, EPA's CBPO's Principal's Staff Committee established the "Reasonable Assurance Workgroup." Part of the Workgroup's charge was to develop recommendations for how "reasonable assurance" would be used for purposes of developing the Bay TMDL. Some of the materials prepared by this Workgroup (attached hereto as Appendix 14) confirm that not only is "reasonable assurance" undefined in federal law, but that EPA has previously based TMDLs on a number of different views on reasonable assurance (e.g., EPA has approved a "[b]road spectrum of acceptable reasonable assurance demonstrations in 30,000 TMDLs approved by EPA.").

[FN25] See Chesapeake Bay Program Principals' Staff Committee's Reasonable Assurance Workgroup, July 23, 2008 Conference Call, Attachment B, Appendix 1, Examples of Reasonable Assurance: Best Practices from EPA-Approved and Published TMDLs and Suggestions from other Sources, at 9-10.

[FN26] VAMWA hereby incorporates by reference all of the TMDLs EPA has written or approved and all supporting materials. These materials should be publicly available and located in EPA's files. A list of those TMDLs, although not entirely complete, is available at the following link: http://mail.aqualaw.com/exchweb/bin/redir.asp?URL=http://iaspub.epa.gov/waters10/text_search.tmdl_search_form

[FN27] Revisions to the Water Quality Planning and Management Regulation and Revisions to the National Pollutant Discharge Elimination System Program in Support of Revisions to the Water Quality Planning and Management Regulation, 65 Fed. Reg. 43,586 (July 13, 2000) (attached as Appendix 15).

[FN28] Withdrawal of Revisions to the Water Quality Planning and Management Regulation and Revisions to the National Pollutant Discharge Elimination System Program in Support of Revisions to the Water Quality Planning and Management Regulation 68 Fed. Reg. 13,608, 13,609 (March 19, 2003) (attached as Appendix 16).

[FN29] This letter is referenced in Section II above, and is attached as Appendix 11.
[FN30] Letter from EPA Region III to Secretary John Griffin, Enc. A at p. 2. EPA's decision to reduce wastewater allocations because of their perceived lack of reasonable assurance is also inconsistent with statements made by EPA's CBPO last spring. See April 20-21, 2009 Presentation from B. Koroncai to PSC (Chesapeake Bay Water Quality Big Picture) at slide 13 ("Wastewater discharge load requirements will continue to be set at the discretion of states.") (attached hereto as Appendix 17).

[FN31] Letter from EPA Region III to Secretary John Griffin, Enc. A at p. 2.

[FN32] The first set of two-year milestones are attached hereto as Appendix 18.

[FN33] VAMWA agrees with statements made on this point by Virginia Governor Bob McDonnell. In a June 15, 2010 letter to EPA Administrator Lisa P. Jackson (attached hereto as Appendix 19), Governor McDonnell states that "Any regulatory consequences need to be targeted to the source sector lagging behind, and not on others that are working diligently to keep in compliance with state and federal mandates."

[FN34] Letter from EPA Region III to Secretary John Griffin, Enc. A at p. 4.

[FN35] Id.

[FN36] Section 303(d) of the Clean Water Act mandates that states must prepare TMDLs for impaired waters, and authorizes EPA to approve or disapprove the loadings. If EPA chooses to disapprove, it has the authority to develop loadings on its own accord ("If the Administrator disapproves such identification and load, he shall not later than thirty days after the date of such disapproval identify such waters in such state and establish such loads for such waters as he determines necessary to implement the water quality standards applicable to such waters and upon such identification and establishment the State shall incorporate them into its current plan under subsection (e) of this section.") 33 U.S.C. §1313. Section 303(e) specifically gives the State the authority and responsibility to develop a "continuing planning process" for addressing navigable waters. A part of this planning process is TMDLs (again, TMDL implementation plans are not mentioned). Nowhere in the text of Section 303(d) or (e) is EPA permitted to pass judgment on state implementation plans.

[FN37] 33 U.S.C. 1370.

[FN38] Virginia law (Chesapeake Bay and Virginia Waters Clean-Up and Oversight Act) includes a provision for the development of a Bay clean-up plan. Va. Code 62.1-44.117.

Response

EPA respectfully disagrees each of the comment's main points.

First, EPA believes that its position on reasonable assurance is neither unreasonable nor arbitrary and capricious. As was expressed in EPA's letter to Secretary John Griffin of Maryland's Department of Natural Resources, EPA believes that the successful implementation of the Bay TMDL depends not only on proposed pollutant reduction measures supported by reasonable assurance, but also on a broader implementation framework that draws on elements in the TMDL itself (including reasonable assurance), as well as additional implementation-related information that will accompany the TMDL. Neither the TMDL, nor the reasonable assurance component thereof, is a federal rule or regulation.

While the term "reasonable assurance" does not expressly appear in the Clean Water Act or in EPA's TMDL regulations, it has consistently appeared in EPA's TMDL guidance since 1991. Furthermore, EPA believes that the requirement that the Bay TMDL include reasonable assurance is consistent with EPA's guidance document entitled "New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs) -1997." In that document, it was stated that "in watersheds impaired by a blend of point and nonpoint sources, and where any wasteload load allocation to a point source is increased based on an assumption

that loads from nonpoint sources will be reduced, the State must provide "reasonable assurances" that the nonpoint source load allocations will in fact be achieved." Chesapeake Bay water quality has been, and continues to be, impaired by both point and nonpoint sources of nitrogen, phosphorus, and sediment.

The implicit requirement for reasonable assurance in TMDLs flows legally and logically from the following two statutory and regulatory provisions: Section 303(d)(1)(C) of the Clean Water Act and 40 C.F.R. section 122.44(d)(1)(vii)(A)&(B). The requirement for TMDLs to be supported by reasonable assurance is fundamental to their design and purpose. The most basic TMDL requirement is that they be "established at a level necessary to implement the applicable water quality standards." This requirement applies not just to the total load constituting the water body's assimilative capacity, but also to the components (individually and collectively) of the TMDL equation: TMDL = wasteload allocations (WLAs) + load allocations (LAs) + margin of safety. A WLA cannot be established at a level necessary for the TMDL to meet applicable water quality standards unless the TMDL's LAs and other WLAs are also established at water quality standard-implementing levels. It is the implied requirement for "reasonable assurance" that those WLA and LA levels will be met that (1) keeps the TMDL equation "honest" and (2) gives TMDLs their value and legitimacy as water quality planning and implementation tools.

To the extent that the comment includes a substantive comment on a jurisdiction's draft Phase I Watershed Implementation Plan, EPA notes that the WIPs submitted by each jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdiction for consideration as part of its WIP. For information on the results of EPA's evaluation of the jurisdictions' final Phase I WIPs, see Section 8 of the final TMDL.

Second, the comment also raises a concern regarding the role of the two-year milestones and how this process could "provide EPA with an opportunity to perform a regular "check-up" to determine whether the Bay States are accomplishing the goals they have set. EPA has considered the Bay jurisdictions' proposed two-year milestones, as well as the overall accountability framework of which the two-year milestones are one part, into its assessments of the Bay jurisdictions' respective Phase I Watershed Implementation Plans. EPA agrees that "the two-year milestones are also pieces of a larger 15 year plan (based upon an implementation period that runs from 2011 to 2025). The two-year milestones provide EPA with an opportunity to perform a regular 'check-up' to determine whether the Bay States are accomplishing the goals they have set." EPA is not requiring that reasonable assurance be established in absolute (i.e., rigid or inflexible) terms, and disagrees with the commenter's assertion to the contrary. Instead, EPA understands the reasonable assurance for the Bay TMDL as being flexible and adaptive, with the potential for adjustments in the allocations based on the jurisdictions' success (or lack thereof) in implementing their WIPs. EPA also has explained, in Section 7 of the Chesapeake Bay TMDL, why federal actions, which are part of the accountability framework, are a key component of reasonable assurance for the Bay TMDL.

Third, the comment argues that the TMDL places an unfair burden on point sources. EPA understands the concern for the reductions that point sources will need to make. EPA believes that adequate reasonable assurance for the Bay TMDL can take many forms; the certainty and the ability to control various pollutant sectors is not uniform. EPA endorses, where possible, an equitable sharing of the responsibility for cleanup that applies to all sectors, and a realistic recognition that this effort will require unprecedented levels of federal, state, and local resources to be successful. In assessing the adequacy of reasonable assurance,

however, it is important to assess the probability and certainty of implementing the technologies and practices. EPA expected the jurisdictions to document in their WIPs that the proposed point and nonpoint source technologies and practices are enforceable and achievable; certain point source approaches are well-established, cost-effective, and likely to be applied. For further response to this issue, see the response to comment number 0067.1.001.009. For a description of the reductions being required from point sources in each jurisdiction, see Section 8 of the Bay TMDL.

Fourth, the comment states that, "EPA has inappropriately rejected Virginia's approach to reasonable assurance—i.e., expansion of the existing nutrient trading system to include additional source sectors" and argues that the TMDL is inconsistent with the concept of state primacy as included in section 501 of the Clean Water Act. Related to this is the comment's statement that EPA has no authority under the Clean Water Act to review and/or approve the draft Phase I Watershed Implementation Plans. EPA respectfully disagrees with the implication that it is usurping the state's role; EPA has been working in a cooperative and collaborative manner with all seven of the Bay jurisdictions to establish the Bay TMDL. EPA agrees that the Clean Water Act does not require or authorize EPA to "approve" or "disapprove" the jurisdictions' WIPs. EPA has not done so here; instead, EPA identified expectations and a guide for the contours of the WIPs and asked the jurisdictions to submit WIPs to support their recommendations for EPA's TMDL allocation decisions for various pollutant loading sectors. EPA reviewed the WIPs to determine if they provided adequate reasonable assurance to support the jurisdictions' recommended allocation scenario. Where EPA determined that those WIPs provided adequate reasonable assurance and met the jurisdictions' respective pollutant cap loadings, EPA used all (or those parts found adequate) as the basis for its TMDL allocations for that jurisdiction.

Comment ID 0249.1.001.004

Author Name: Mixell John

Organization: Fort Littleton Wastewater

EPA cannot provide "Reasonable Assurance" that placing significantly lower limits on point sources (with many industrial point sources below the limit of technology) will be implemented and successful.

Just because EPA has placed severely low nitrogen and phosphorus limits for point sources into the model and the model results show that Pennsylvania's allocations for nutrients can be met, does not provide "Reasonable Assurance" that this approach will be successful. Just because EPA can place these low limits in NPDES permits, does not mean that there is "Reasonable Assurance" that this approach will be successful.

Response

Thank you for your comment. Please see the response to comment numbers 0217.1.001.005 and 0230.1.001.026.

Comment ID 0253.1.001.012

Author Name: Hazelett Virgil

Organization: County of Henrico, Virginia

EPA decided to reject Virginia's approach to implementing the TMDL and instead impose stringent "backstops" or cuts. EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving point-source reductions. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that it operates as if EPA's previously proposed (but withdrawn) reasonable assurance regulation had actually been put into effect. As previsouly explained, EPA also does not have any CWA authority to reject Virginia's proposed WIP.

Response

In response to the last sentence of this comment, please see the response to comment number 0230.1.001.026. In response to the remainder of the comment, please see the response to comment number 0184.1.001.003.

Comment ID 0263.1.001.003

Author Name: Foley Sharon

Organization: Harrisonburg-Rockingham Regional Sewer Authority (HRRSA)

HRRSA understands that EPA is considering these punitive "backstop" actions under a new EPA guidance letter on "reasonable assurance" and that EPA's initial position is that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. HRRSA questions the legality of EPA's reasonable assurance guidance given the fact that this guidance has not been promulgated through rulemaking. More importantly, HRRSA strongly objects to EPA's complete disregard for the primacy of Virginia to make decisions and to structure its WIP based on established nutrient control strategies and regulations well understood and supported by Virginia stakeholders.

Response

Thank you for your comment. Please see the response to comment number 0230.1.001.026.

Comment ID 0265.1.001.003

Author Name: Clark, Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Hampton, Virginia

At the Commission meeting on October 20, 2010, the HRPDC acted to endorse the following position and attached

comments.

--The EPA has not provided reasonable assurance that the urban runoff sector allocations can be achieved by 2025.

Response

Thank you for your comment. Please see the response to comment number 0265.1.001.010.

Comment ID 0265.1.001.010

Author Name: Clark, Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Hampton, Virginia

II. EPA HAS NOT PROVIDED REASONABLE ASSURANCE THAT THE URBAN RUNOFF SECTOR ALLOCATIONS CAN BE ACHIEVED BY 2025

Virginia's September 2010 draft Phase I Watershed Implementation Plan (WIP) proposed allocations for the urban runoff sectors in the James and York river basins that would have required the Localities to reduce TP loads from their MS4s in the James River and York River basins by an average of 77 and 79 percent, respectively, from current loads. [FN 1] The TMDL rejects the basin sector allocations proposed in the WIP, and in their place proposes backstop allocations that reduce the overall James and York basin allocations proposed in the WIP and transfers portions of the point source allocations to the agriculture, onsite septic system, and urban runoff sectors.[FN 2] The backstop allocations offer some relief for the urban runoff sector (54 and 59 percent TP reductions in the James River and York River basins, respectively), but not nearly enough to provide reasonable assurance that the allocations can be attained by 2025. In fact, the following analysis of the controls that would have to be implemented to attain the backstop allocations for the James and York basin urban runoff sectors show that they are not achievable by that date.

[FN 1] The WIP allocations for TN and sediment would have required significant urban runoff source sector load reductions as well, but load reductions that would have been required by the TP allocations were the greatest of the three allocations.

[FN 2] The backstop allocations are based on EPA's finding that the WIP failed to (1) contain sufficient commitments to provide reasonable assurance that Virginia would achieve the allocations for the agriculture and onsite septic system source sectors, and (2), in the James River, provide for compliance with the chlorophyll-a criteria.

Response

EPA notes that the TMDL allocations have been significantly revised based in part on the submission of the final Phase I WIP by the jurisdictions, and upon consideration of comments including this one. Please see Section 8 of the TMDL for an evaluation of the final WIP and discussion of EPA’s allocations. The accountability framework, which is a key component of the reasonable assurance for the Bay TMDL, requires that the jurisdictions include a schedule for implementing the practices and programs

identified by the jurisdictions in their WIPs, a set of milestones for tracking progress in their implementation and a process that determines if and when federal actions may have to be employed if the initial allocations are not being achieved. EPA assessed each jurisdiction's final Phase I WIP to determine whether it meets the target allocations and whether it is supported by adequate reasonable assurance that the practices and programs identified by the jurisdictions in their WIPs will be implemented as proposed, and that applicable water quality standards will be attained and maintained. For a discussion of the results of EPA's evaluation of the jurisdictions' final Phase I WIPs, please see Section 8 of the final TMDL. EPA is confident that this comprehensive, iterative process for determining allocations and making any needed adjustments based on sound science and tracking results will be successful.

A key part of this accountability framework is the identification of actions that EPA may take to ensure that the Bay jurisdictions successfully implement the Bay TMDL. In a December 29, 2009 letter to the jurisdictions, EPA identified how jurisdictions' progress toward achieving nutrient and sediment allocations will be tracked, what jurisdictions' shortfalls may trigger EPA action, and what actions are currently available to EPA. One of those potential actions includes EPA's potential objection to permits for new and expanded discharges if jurisdictions have not provided adequate documentation that they are on course to meet the TMDL targets and schedules.

EPA also is prepared to take other federal actions if necessary. These measures include:

--Expand NPDES permit coverage to currently unregulated sources utilizing EPA's residual designation authority to increase the number of sources, operations and/or communities regulated under the NPDES permit program;
--Object to NPDES permits for both major and minor facilities and to increase program oversight. These measures would include, but not be limited to, NPDES effluent limits that are not consistent with the Bay TMDL's wasteload allocations;
--Require net improvement offsets for new or expanded discharges that do more than merely replace the new or expanding source's anticipated new or increased loadings;
--Increase and target federal enforcement and compliance assurance in the watershed -This could include both air and water sources of nitrogen, phosphorus, and sediment;
--Condition or redirect EPA grants based on demonstrated progress in meeting Watershed Implementation Plans and/or in an effort to yield higher nitrogen, phosphorus, or sediment load reductions; and
--Federal promulgation of local nutrient water quality standards -Initiating promulgation of federal standards where the jurisdiction's applicable water quality standards do not contain criteria that protect designated uses locally or downstream.

To the extent that the comment refers to Virginia's draft Phase I Watershed Implementation Plan, EPA notes that with respect to substantive comments regarding individual jurisdictions' Phase I WIPs, that the WIPs submitted by each jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Bay TMDL but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdiction for consideration as part of its WIP.

Comment ID 0269.1.001.004

Author Name: Mixell John

Organization: Forbes Road School District

EPA cannot provide "Reasonable Assurance" that placing significantly lower limits on point sources (with many industrial point sources below the limit of technology) will be implemented and successful.

Just because EPA has placed severely low nitrogen and phosphorus limits for point sources into the model and the model results show that Pennsylvania's allocations for nutrients can be met, does not provide "Reasonable Assurance" that this approach will be successful. Just because EPA can place these low limits in NPDES permits, does not mean that there is "Reasonable Assurance" that this approach will be successful.

Response

Thank you for your comment. Please see the response to comment numbers 0217.1.001.005 and 0230.1.001.026.

Comment ID 0269.1.001.006

Author Name: Mixell John

Organization: Forbes Road School District

More Draconian is that many of the industrial point sources are listed as having nutrient limits that appear to be arbitrary and are well below the limit of technology.

Response

Please refer to response to comment 0218.1.001.006.

Comment ID 0271.1.001.003

Author Name: Harrison L.

Organization: South Central Wastewater Authority, Petersburg, Virginia

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that operates as if EPA's previously proposed but withdrawn reasonable assurance regulation had actually been put into effect.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0281.1.001.003

Author Name: Hammes Dale

Organization: Loudoun Water

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that it operates as if EPA's previously proposed but withdrawn reasonable assurance regulation had actually been put into effect.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0285.1.001.007

Author Name: Rebecca Sutton and Craig Cox

Organization: Environmental Working Group

We advise EPA to establish as a criterion for "sufficient reasonable assurance" for each state WIP the adoption of a program to restrict phosphorus application on lands already overloaded with the nutrient. At a minimum, EPA should require that all states implement the agency's own recommendations for federal land management, which ban phosphorus additions to lands with saturation percentages above 20 percent (EPA 2010). However, a more conservative and scientifically defensible approach would be to apply only the levels of phosphorus needed for plants to thrive, as determined by soil test phosphorus measurements.

Response

Thank you for your comment. Your suggestion regarding the application of phosphorus at the agronomic rates may have merit, as it could provide a significant degree of reasonable assurance that fertilizer rates on agricultural lands would be consistent with the allocations established in the TMDL, and not exceed what is necessary for plant growth. Efficient nutrient management practices are, and will continue to be, a key component in managing nutrient pollution. While EPA does not plan to mandate that this approach be required by the jurisdictions, EPA can share this suggestion and approach with the jurisdictions as they draft their Phase II Watershed Implementation Plans.

Comment ID 0288.1.001.007

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

As discussed below, EPA‘s application of its reasonable assurance "regulation" is unlawful, unprecedented and certainly unwarranted under the circumstances. EPA has no justifiable basis (or legal authority) for setting any backstops in Virginia, much less "full" backstops as suggested by the Draft TMDL and Appendix Q-2.

Response

Thank you for your comment. Please see the response to comment number 0230.1.001.026.

Comment ID 0288.1.001.011

Author Name: Pomeroy Christopher

Organization: Virginia Association of Municipal Wastewater Agencies, Inc. (VAMWA)

EPA's UNPROMULGATED "REASONABLE ASSURANCE" REGULATION DOES NOT SUPPORT EPA'S PROPOSED DISAPPROVAL OF THE WIP AND IMPOSITION OF "BACKSTOP" ALLOCATIONS

As noted above, EPA‘s decision to reduce POTW WLAs is based upon its view that Virginia‘s Draft WIP provided less than adequate reasonable assurance that its plan would achieve desired reductions. EPA‘s position on reasonable assurance is untenable for four reasons.

First, EPA‘s view of reasonable assurance in this TMDL is unprecedented at the federal or state level. EPA has written and/or approved thousands of TMDLs for impaired waters across the United States. Because the phrase "reasonable assurance" is undefined in either the Clean Water Act or in regulations or in guidance,[FN23] EPA‘s approach to reasonable assurance has ranged from liberal to more conservative.[FN24]

As examples, EPA‘s Paxton Creek Watershed TMDL (nutrients, sediment), Goose Creek Watershed TMDL (nutrients), Sawmill Run TMDL (nutrients), and Southampton Creek Watershed TMDL (nutrients and sediment) all contain weak reasonable assurance provisions that fail to link the identified BMPs to implementation programs. In addition, these TMDLs suggest that BMP implementation should only "eventually" meet load allocation reductions goals. [FN25] EPA has approved many TMDLs, including the Anacostia River Basin Watershed TMDL (sediment, TSS), the Anacostia River Basin Watershed TMDL (BOD, nutrients) and the Tidal Potomac River TMDL (PCBs), which lack schedules for reductions and consequences for failure to meet load allocations. To suggest that EPA‘s Draft TMDL, with its state WIPs, and implementation schedule and consequences, provides less reasonable assurance than these TMDLs is nonsensical.[FN26]

Furthermore, what EPA has done in its Draft TMDL is really to promulgate a new rule "i.e., a new regulatory definition of

"reasonable assurance" "without following proper regulatory procedure. EPA appears to be attempting a "do-over" of its previously unsuccessful rulemaking in the early part of the decade. On July 13, 2000, EPA published a final rule, which would have incorporated a definition of reasonable assurance into 40 C.F.R. Part 130.[FN27] However, Congress, states, industrial and agricultural groups, and environmental organizations opposed the rule; and, EPA withdrew it in 2003.[FN28] Although EPA may be frustrated by an inability to define "reasonable assurance" in its regulations, there is no justification for defining as it as a part of this TMDL without allowing for public participation and comment.

EPA‘s Draft TMDL is inconsistent with earlier statements it has made on this subject. For example, in September, 2008, Region III responded to a letter from Maryland‘s Secretary of Natural Resources John Griffin.[FN29] In response to a question regarding reasonable assurance, EPA stated that:

EPA Regions II and III, our partner states and the District are committed to accelerating restoration of the Chesapeake Bay and its tributaries, and EPA Region III believes that reasonable assurance provisions in the Bay TMDL will provide one mechanism to increase the likelihood that actions are taken to reduce nutrient and sediment loads. However, EPA Region III does not believe that implementation of the Bay TMDL depends solely on reasonable assurance or any other single TMDL element. Rather, EPA Region III is committed to working with the States and the District to develop and execute a broader implementation framework that draws on elements in the TMDL itself (including reasonable assurance), as well as additional implementation-related information that will accompany the TMDL.[FN30]

As the discussion above makes clear, EPA‘s "new" strict definition of "reasonable assurance" in the Draft TMDL is unjustified based upon prior practice. Virginia‘s Draft WIP is more than adequate to establish "reasonable assurance" pursuant to years of EPA prior practice. EPA‘s proposed negative finding and associated backstops are uneven and discriminatory against Virginia and its point sources, and obviously arbitrary and capricious under the standards that EPA has defined by its own prior acts.

Second, it is not clear that EPA has adequately factored in the Bay States‘ two-year milestones into its reasonable assurance determination. This is directly contrary to EPA‘s statements in 2008 that the two-year milestones would be part of the criteria considered by EPA "as part of its reasonable assurance and implementation framework…"[FN31] These two-year milestones should be a sufficient backstop to the WIPs to establish adequate reasonable assurance. The Chesapeake Bay Executive Council decided in 2008 that each of the Bay States would provide a set of target reductions and associated management efforts by which EPA could judge progress towards ultimate clean-up goals every two years.[FN32] EPA followed up on the Executive Council‘s actions by issuing a letter in December, 2009 promising "consequences" for those Bay States who fall short of those two-year milestones. Although VAMWA disagrees with the concept of "consequences", EPA has not explained in its Draft TMDL why this additional accountability is inadequate for "reasonable assurance" purposes.

In a larger sense, the two-year milestones are also pieces of a larger 15 year plan (based upon an implementation period that runs from 2011 to 2025). The two-year milestones provide EPA with an opportunity to perform a regular "check-up" to determine whether the Bay States are accomplishing the goals they have set. The program itself also allows for adjustments over the full implementation period. EPA‘s reasonable assurance is assured by the process. Simply put, we will have the opportunity to manage this program as time goes by. EPA‘s view that reasonable assurance must established in absolute terms today is short-sighted and unreasonable.

Third, as a result of EPA‘s "reasonable assurance" decision, POTWs are bearing the weight of additional pounds of

nutrients unrelated to their facilities or discharges. This shifting of responsibility onto the shoulders of point sources from non-point sources is fundamentally unfair and unjustifiable.[FN33] Increasing the burden on point sources is unreasonable given that EPA has acknowledged "the large scale public investments (estimated at over $4 billion) that are now being carried out throughout the watershed to upgrade and reduce nutrient discharge from point sources" such as POTWs.[FN34] Requiring POTWs and other point sources to make additional costly upgrades to compensate for non-point source pollution contravenes EPA's earlier assertion that "EPA considers requiring further point source upgrades to the limits of technology as an option of last resort."[FN35]

Fourth, and lastly, EPA has inappropriately rejected Virginia's approach to reasonable assurance i.e., expansion of the existing nutrient trading system to include additional source sectors. As a general matter, EPA should have provided due deference to Virginia's Draft WIP. And, with regard to this issue, EPA should have allowed Virginia to move forward with its plan to develop an expanded trading program. As explained below, Virginia has a stellar track-record with regard to market-based trading, having established a very successful PS trading program. Virginia has earned the right to show how it could expand that program in a way that would provide reasonable assurance of needed reductions.

For these reasons above, VAMWA objects to EPA's determination to reject Virginia's Draft WIP and develop a "backstop" based upon reasonable assurance grounds. This error must be corrected before EPA issues its final TMDL. For the above reasons, EPA's position on "reasonable assurance" is unreasonable and arbitrary and capricious.

VAMWA's position is further supported by the fact that EPA has no authority pursuant to the Clean Water Act to review and/or approve or disapprove Virginia's Draft WIP. EPA's decision to do so, and its proposal to override Virginia's WIP is unlawful.

VAMWA does not dispute that TMDL implementation planning is important for moving clean-up programs ahead after TMDL adoption and for illustrating its NPS reduction plans. However, because WIPs are not derived from CWA section 303(d) authority,[FN36] the details of these plans are not subject to EPA approval or control. EPA's decision in its Draft TMDL to create "backstops" "requirements that in effect revise the Virginia's Draft WIP" are not supported by federal law.

In addition to acting without specific authorization from federal law, EPA's actions are also inconsistent with state primacy granted by Section 510 of the Act:

Except as expressly provided in this Act, nothing in this Act shall (1) preclude or deny the right of any state or political subdivision thereof or interstate agency to adopt or enforce (A) any standard or limitation respecting discharges of pollutants, or (B) any requirement respecting control or abatement of pollution; except that if an effluent limitation, or other limitation, effluent standard, prohibition, pretreatment standard, or standard of performance is in effect under this Act, such State or political subdivision or interstate agency may not adopt or enforce any effluent limitation, or other limitation, effluent standard, prohibition, pretreatment standard, or standard of performance which is less stringent than the effluent limitation, or other limitation, effluent standard, prohibition, pretreatment standard, or standard of performance under this Act; or (2) be construed as impairing or in any manner affecting any right or jurisdiction of the States with respect to the waters (including boundary waters) of such States.") [FN37]

Federal law clearly gives Virginia the authority to develop its own requirements and programs, so long as they are not less stringent than those established under the Act.[FN38] Because EPA has no statutory authority to establish WIPs, it

is impossible for Virginia‘s Draft WIP to be less stringent.

For these reasons, Virginia should have the discretion to establish its own WIP, without EPA passing judgment and usurping what is rightfully the state‘s role in this process.

[FN23] EPA guidance merely "define[s] when reasonable assurance must be demonstrated but not really what it is." Reasonable Assurance Workgroup Findings and Options, Principals‘ Staff Committee Meeting, Washington, D.C., at 13 (Sept. 22, 2008) (attached hereto as Appendix 14). [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A14]

[FN24] In 2008, EPA‘s CBPO‘s Principal‘s Staff Committee established the "Reasonable Assurance Workgroup." Part of the Workgroup‘s charge was to develop recommendations for how "reasonable assurance" would be used for purposes of developing the Bay TMDL. Some of the materials prepared by this Workgroup (attached hereto as Appendix 14) confirm that not only is "reasonable assurance" undefined in federal law, but that EPA has previously based TMDLs on a number of different views on reasonable assurance (e.g., EPA has approved a "[b]road spectrum of acceptable reasonable assurance demonstrations in 30,000 TMDLs approved by EPA.").

[FN25] See Chesapeake Bay Program Principals‘ Staff Committee‘s Reasonable Assurance Workgroup, July 23, 2008 Conference Call, Attachment B, Appendix 1, Examples of Reasonable Assurance: Best Practices from EPA-Approved and Published TMDLs and Suggestions from other Sources, at 9-10.

[FN26] VAMWA hereby incorporates by reference all of the TMDLs EPA has written or approved and all supporting materials. These materials should be publicly available and located in EPA‘s files. A list of those TMDLs, although not entirely complete, is available at the following link: http://mail.aqualaw.com/exchweb/bin/redir.asp?URL=http://iaspub.epa.gov/waters10/text_search.tmdl_search_form

[FN27] Revisions to the Water Quality Planning and Management Regulation and Revisions to the National Pollutant Discharge Elimination System Program in Support of Revisions to the Water Quality Planning and Management Regulation, 65 Fed. Reg. 43,586 (July 13, 2000) (attached as Appendix 15). [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A15]

[FN28] Withdrawal of Revisions to the Water Quality Planning and Management Regulation and Revisions to the National Pollutant Discharge Elimination System Program in Support of Revisions to the Water Quality Planning and Management Regulation 68 Fed. Reg. 13,608, 13,609 (March 19, 2003) (attached as Appendix 16). [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A16]

[FN29] This letter is referenced in Section II above, and is attached as Appendix 11. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A11]

[FN30] Letter from EPA Region III to Secretary John Griffin, Enc. A at p. 2.

EPA‘s decision to reduce wastewater allocations because of their perceived lack of reasonable assurance is also

inconsistent with statements made by EPA's CBPO last spring. See April 20-21, 2009 Presentation from B. Koroncai to PSC (Chesapeake Bay Water Quality Big Picture) at slide 13 ("Wastewater discharge load requirements will continue to be set at the discretion of states.") (attached hereto as Appendix 17). [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A17]

[FN31] Letter from EPA Region III to Secretary John Griffin, Enc. A at p. 2.

[FN32] The first set of two-year milestones are attached hereto as Appendix 18. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A18]

[FN33] VAMWA agrees with statements made on this point by Virginia Governor Bob McDonnell. In a June 15, 2010 letter to EPA Administrator Lisa P. Jackson (attached hereto as Appendix 19) [Comment Letter contains additional information in the form of an attachment. See original comment letter 0288.A19], Governor McDonnell states that "Any regulatory consequences need to be targeted to the source sector lagging behind, and not on others that are working diligently to keep in compliance with state and federal mandates."

[FN34] Letter from EPA Region III to Secretary John Griffin, Enc. A at p. 4.

[FN35] Id.

[FN36] Section 303(d) of the Clean Water Act mandates that states must prepare TMDLs for impaired waters, and authorizes EPA to approve or disapprove the loadings. If EPA chooses to disapprove, it has the authority to develop loadings on its own accord ("If the Administrator disapproves such identification and load, he shall not later than thirty days after the date of such disapproval identify such waters in such state and establish such loads for such waters as he determines necessary to implement the water quality standards applicable to such waters and upon such identification and establishment the State shall incorporate them into its current plan under subsection (e) of this section.") 33 U.S.C. §1313. Section 303(e) specifically gives the State the authority and responsibility to develop a "continuing planning process" for addressing navigable waters. A part of this planning process is TMDLs (again, TMDL implementation plans are not mentioned). Nowhere in the text of Section 303(d) or (e) is EPA permitted to pass judgment on state implementation plans.

[FN37] 33 U.S.C. 1370.

[FN38] Virginia law (Chesapeake Bay and Virginia Waters Clean-Up and Oversight Act) includes a provision for the development of a Bay clean-up plan. Va. Code 62.1-44.117.

Response

This comment is duplicative of comment number 0230.1.001.026. Please see the response to comment number 0230.1.001.026.

Comment ID 0291-cp.001.004

Author Name: Koch E.

Organization: North Middleton Authority

EPA cannot provide "Reasonable Assurance" that placing significantly lower limits on point sources (with many industrial point sources below the limit of technology) will be implemented and successful.

Just because EPA has placed severely low nitrogen and phosphorus limits for point sources into the model and the model results show that Pennsylvania's allocations for nutrients can be met, does not provide "Reasonable Assurance" that this approach will be successful. Just because EPA can place these low limits in NPDES permits, does not mean that there is "Reasonable Assurance" that this approach will be successful.

Response

Thank you for your comment. EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please refer to Section 8 of the final TMDL for the new allocations and see also the response to comment number 0217.1.001.005.

Comment ID 0291-cp.001.006

Author Name: Koch E.

Organization: North Middleton Authority

More Draconian is that many of the industrial point sources are listed as having nutrient limits that appear to be arbitrary and are well below the limit of technology.

Response

EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please see Section 8 of the TMDL and response to comment 0218.1.001.006.

Comment ID 0293.1.001.005

Author Name: Pomeroy Christopher

Organization: Virginia Municipal Stormwater Association, Inc. (VAMSA)

EPA's Unpromulgated "Reasonable Assurance" Regulation Does Not Support EPA's Proposed Disapproval of the WIP and Imposition of "Backstop" Allocations

In its Draft TMDL, EPA proposed backstops based upon its view that Virginia's Draft WIP provided less than adequate

"reasonable assurance" that its plan would achieve the nonpoint source load allocations. EPA's position on "reasonable assurance" is unreasonable and unlawful for many reasons.

First, EPA has no authority pursuant to the Clean Water Act ("CWA") to review and/or approve or disapprove Virginia's WIP.

Second, EPA's action is inconsistent with thousands of prior EPA actions.

Third, it is unreasonable for a federal agency to announce TMDL caps and just a couple months later expect a state administrative agency (i.e., no lawmaking or taxing authority) to clearly document what the future laws and taxes will be to support implementation of the EPA mandate.

Fourth, EPA's "reasonable assurance" proposal and related backstops unreasonably increases the already heavy burden on urban stormwater.

Response

With respect to the comment's third point, EPA respectfully disagrees with the characterization of the timeframe involved for the draft Phase I Watershed Implementation Plans. EPA notes that EPA has been working in a cooperative and collaborative manner with all seven of the Bay jurisdictions for a number of years to establish the Chesapeake Bay TMDL. Further, EPA had communicated its expectations for the Phase I Watershed Implementation Plans on numerous occasions, including the letter to the jurisdictions dated November 4, 2009 and EPA's April 2, 2010 A Guide for EPA's Evaluation of Phase I Watershed Implementation Plans, and had been in regular contact with each of the jurisdictions. With respect to the remainder of the comment, please see the response to comment number 0230.1.001.026.

Comment ID 0293.1.001.010

Author Name: Pomeroy Christopher

Organization: Virginia Municipal Stormwater Association, Inc. (VAMSA)

EPA'S UNPROMULGATED "REASONABLE ASSURANCE" REGULATION DOES NOT SUPPORT EPA'S PROPOSED DISAPPROVAL OF THE WIP AND IMPOSITION OF "BACKSTOP" ALLOCATIONS

EPA has concluded that Virginia's WIP fails to comply with EPA's July 1, 2010 and August 13, 2010 nutrient and sediment allocations [FN14] and does not adequately establish reasonable assurance. EPA has established what it is calling a "backstop allocation" in response. This backstop is meant to "…reduce the point source loadings as necessary to compensate for the deficiencies EPA identified in the reasonable assurance components of the jurisdictions' draft Phase I WIPs addressing nonpoint source reductions."[FN15]

Each of the Bay States received a "minor," "moderate," or "high" backstop depending upon EPA's view of how severely the state had missed the allocation targets and reasonable assurance mandate. Virginia received a "moderate" backstop to bridge the gap between EPA's expectations and the Virginia Draft WIP. [FN16] The "moderate" backstop

addresses MS4s as follows:

MS4s: 50 percent of urban MS4 lands meet aggressive performance standard through retrofit/redevelopment; 50 percent of unregulated land treated as regulated, so that 25 percent of unregulated land meets aggressive performance standard; designation as necessary.[FN17]

VAMSA strongly opposes the use of backstops in Virginia. EPA's application of its reasonable assurance "regulation" is unlawful, unprecedented and certainly unwarranted under the circumstances. EPA has no justifiable basis (or legal authority) for setting any backstops in Virginia.

This approach to urban stormwater differs from the approach taken by Virginia in its Draft WIP. Virginia's Draft WIP does not mandate retrofits/restoration of impervious area.[FN18] Furthermore, Virginia's Draft WIP includes a plan for allowing municipalities to participate in an expanded version of the Virginia Nutrient Credit Exchange:

When the Chesapeake Bay TMDL is issued, about half the land area of the Commonwealth will be under nutrient and sediment load allocations that cap the discharge of these pollutants from point source and non-point sources. Unless changed, these pollutant allocations will become permanent pollutant caps on each of the major Virginia river basins that all the source sectors, added together, cannot exceed. In order to help meet the challenging pollution reduction requirements imposed by the Bay TMDL, this Phase 1 WIP recommends the Commonwealth expand the nutrient credit exchange program to better ensure that future nutrient and sediment reduction actions are as equitable and as cost-effective as possible among all of the source sectors. An expanded program also allows local decision-makers to consider nutrient and sediment generating potential as they face development, land use, and capital planning challenges.[FN19]

VAMSA submits that EPA's position on reasonable assurance, and in turn its treatment of stormwater, is untenable for three reasons.

First, EPA's view of reasonable assurance in this TMDL is unprecedented at the federal or state level. EPA has written and/or approved thousands of TMDLs for impaired waters across the United States. Because the phrase "reasonable assurance" is undefined in either the CWA or in regulations or in guidance, [FN20] EPA's approach to reasonable assurance has ranged from liberal to more conservative.[FN21]

As examples, EPA's Paxton Creek Watershed TMDL (nutrients, sediment), Goose Creek Watershed TMDL (nutrients), Sawmill Run TMDL (nutrients), and Southampton Creek Watershed TMDL (nutrients and sediment) all contain weak reasonable assurance provisions that fail to link the identified BMPs to implementation programs. In addition, these TMDLs suggest that BMP implementation should only "eventually" meet load allocation reductions goals.[FN22] EPA has approved many TMDLs, including the Anacostia River Basin Watershed TMDL (sediment, TSS), the Anacostia River Basin Watershed TMDL (BOD, nutrients) and the Tidal Potomac River TMDL (PCBs), which lack schedules for reductions and consequences for failure to meet load allocations. If EPA had a basis for approving these TMDLs, VAMSA cannot understand how it could now argue that reasonable assurance is so lacking in the Bay TMDL that backstops are necessary.[FN23]

Furthermore, what EPA has done in its Draft TMDL is really to promulgate a new rule-i.e., a new regulatory definition of "reasonable assurance"-without following proper regulatory procedure. EPA appears to be attempting a "do-over" of its

previously unsuccessful rulemaking in the early part of the decade. On July 13, 2000, EPA published a final rule, which would have incorporated a definition of reasonable assurance into 40 C.F.R. Part 130. [FN24] However, Congress, states, industrial and agricultural groups, and environmental organizations opposed the rule; and, EPA withdrew it in 2003. [FN25] Although EPA may be frustrated by an inability to define "reasonable assurance" in its regulations, there is no justification for defining as it as a part of this TMDL without allowing for public participation and comment.

EPA's Draft TMDL is inconsistent with earlier statements it has made on this subject. For example, in September, 2008, Region III responded to a letter from Maryland's Secretary of Natural Resources John Griffin.[FN26] In response to a question regarding reasonable assurance, EPA stated that:

EPA Regions II and III, our partner states and the District are committed to accelerating restoration of the Chesapeake Bay and its tributaries, and EPA Region III believes that reasonable assurance provisions in the Bay TMDL will provide one mechanism to increase the likelihood that actions are taken to reduce nutrient and sediment loads. However, EPA Region III does not believe that implementation of the Bay TMDL depends solely on reasonable assurance or any other single TMDL element. Rather, EPA Region III is committed to working with the States and the District to develop and execute a broader implementation framework that draws on elements in the TMDL itself (including reasonable assurance), as well as additional implementation-related information that will accompany the TMDL.[FN27]

As the discussion above makes clear, EPA's "new" strict definition of "reasonable assurance" in the Draft TMDL is unjustified based upon prior practice.

[FN14] EPA's letters to Virginia Secretary of Natural Resources Doug Domenech establishing nutrient and sediment allocations are attached hereto as Appendix 6 [Comment Letter refers to additional information in the form of an attachment. See comment 0574.1.001.001].

[FN15] Draft TMDL at 8-9.

[FN16] Draft TMDL at 8-19.

[FN17] Draft TMDL ES-9.

[FN18] Draft WIP at 14.

[FN19] Draft WIP at 4-5. This does not mean that VAMSA fully supports Virginia's Draft WIP, as it suffers from many of the cost-related problems noted above with regard to EPA's Draft TMDL. However, VAMSA does support the flexibility Virginia has given the urban stormwater sector in the WIP vis-à-vis expanding Virginia's existing trading program.

[FN20] EPA guidance merely "define[s] when reasonable assurance must be demonstrated but not really what it is." Reasonable Assurance Workgroup Findings and Options, Principals' Staff Committee Meeting, Washington, D.C., at 13 (Sept. 22, 2008) (attached hereto as Appendix 7 [Comment Letter refers to additional information in the form of an attachment. See comment 0574.1.001.001]).

[FN21] In 2008, EPA's CBPO's Principal's Staff Committee established the "Reasonable Assurance Workgroup." Part of

the Workgroup's charge was to develop recommendations for how "reasonable assurance" would be used for purposes of developing the Bay TMDL. Some of the materials prepared by this Workgroup (attached hereto as Appendix 7) confirm that not only is "reasonable assurance" undefined in federal law, but that EPA has previously based TMDLs on a number of different views on reasonable assurance (e.g., EPA has approved a "[b]road spectrum of acceptable reasonable assurance demonstrations in 30,000 TMDLs approved by EPA.").

[FN22] See Chesapeake Bay Program Principals' Staff Committee's Reasonable Assurance Workgroup, July 23, 2008 Conference Call, Attachment B, Appendix 1, Examples of Reasonable Assurance: Best Practices from EPA-Approved and Published TMDLs and Suggestions from other Sources, at 9-10.

[FN23] VAMSA hereby incorporates by reference all of the TMDLs EPA has written or approved and all supporting materials. These materials should be publicly available and located in EPA's files. A list of those TMDLs, although not entirely complete, is available at the following link: http://mail.aqualaw.com/exchweb/bin/redir.asp?URL=http://iaspub.epa.gov/waters10/text_search.tmdl_search_form

[FN24] Revisions to the Water Quality Planning and Management Regulation and Revisions to the National Pollutant Discharge Elimination System Program in Support of Revisions to the Water Quality Planning and Management Regulation, 65 Fed. Reg. 43,586 (July 13, 2000) (attached as Appendix 8 [Comment Letter refers to additional information in the form of an attachment. See comment 0574.1.001.001]).

[FN25] Withdrawal of Revisions to the Water Quality Planning and Management Regulation and Revisions to the National Pollutant Discharge Elimination System Program in Support of Revisions to the Water Quality Planning and Management Regulation 68 Fed. Reg. 13,608, 13,609 (March 19, 2003) (attached as Appendix 9 [Comment Letter refers to additional information in the form of an attachment. See comment 0574.1.001.001]). EPA followed up on the Executive Council's actions by issuing a letter in December, 2009 promising "consequences" for those Bay States who fall short of those two-year milestones. Although VAMSA disagrees with the concept of

[FN26] This letter is attached as Appendix 10 [Comment Letter refers to additional information in the form of an attachment. See comment 0574.1.001.001].

[FN27] Letter from EPA Region III to Secretary John Griffin, Enc. A at p. 2.

Response

Thank you for your comment. Please see the response to comment number 0230.1.001.026.

Comment ID 0293.1.001.011

Author Name: Pomeroy Christopher

Organization: Virginia Municipal Stormwater Association, Inc. (VAMSA)

it is not clear that EPA has adequately factored in the Bay States' two-year milestones into its reasonable assurance

determination. This is directly contrary to EPA's statements in 2008 that the two-year milestones would be part of the criteria considered by EPA "as part of its reasonable assurance and implementation framework…"[FN28] These two-year milestones should be a sufficient backstop to the WIPs to establish adequate reasonable assurance. The Chesapeake Bay Executive Council decided in 2008 that each of the Bay States would provide a set of target reductions and associated management efforts by which EPA could judge progress towards ultimate clean-up goals every two years.[FN29] EPA followed up on the Executive Council's actions by issuing a letter in December, 2009 promising "consequences" for those Bay States who fall short of those two-year milestones. Although VAMSA disagrees with the concept of "consequences," EPA has not explained in its Draft TMDL why this additional accountability is inadequate for "reasonable assurance" purposes.

In a larger sense, the two-year milestones are also pieces of a larger 15 year plan (based upon an implementation period that runs from 2011 to 2025). The two-year milestones provide EPA with an opportunity to perform a regular "check-up" to determine whether the Bay States are accomplishing the goals they have set. But, the program itself also allows for adjustments over the full implementation period. EPA's reasonable assurance is assured by the process. Simply put, we will have the opportunity to manage this program as time goes by. EPA's view that reasonable assurance must established in absolute terms today is short-sighted and unreasonable.

[FN28] Letter from EPA Region III to Secretary John Griffin, Enc. A at p. 2.

[FN29] The first set of two-year milestones are attached hereto as Appendix 11 [Comment Letter refers to additional information in the form of an attachment. See comment 0574.1.001.001].

Response

Thank you for your comment. Please see the response to comment number 0230.1.001.026.

Comment ID 0297.1.001.005

Author Name: Swailes Anna

Organization: Metal Township Municipal Authority

Just because EPA has placed severely low nitrogen and phosphorus limits for point sources into the model and the model results show that Pennsylvania's allocations for nutrients can be met, does not provide "Reasonable Assurance" that this approach will be successful.

Response

Thank you for your comment. EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please refer to Section 8 of the final TMDL and the response to comment number 0217.1.001.005.

Comment ID 0300.1.001.012

Author Name: Whirley Gregory

Organization: Virginia Department of Transportation (VDOT)

VDOT agrees with EPA's assertion on page 8-6 of the draft TMDL that the Virginia WIP does not meet the Reasonable Assurance "standard" because it does not adequately address gaps in funding, staff resources, and legislative authority. In particular, VDOT requests that adequate funding be made an integral part of the reasonable assurance test and that comprehensive state and federal funding be made available to cover the costs of implementation.

Response

Acceptable reasonable assurance for the Bay TMDL can take many forms; adequate and comprehensive state and federal funding can be a significant vehicle for assuring that implementation of the allocations established in the TMDL are undertaken. For further information on the availability of funding, please see the response to comment number 0038.1.001.024.

Comment ID 0301.1.001.004

Author Name: Pappas Peter

Organization: Middletown Borough Authority

EPA cannot provide "Reasonable Assurance" that placing significantly lower limits on point sources (with many industrial point sources below the limit of technology) will be implemented and successful.

Just because EPA has placed severely low nitrogen and phosphorus limits for point sources into the model and the model results show that Pennsylvania's allocations for nutrients can be met, does not provide "Reasonable Assurance" that this approach will be successful. Just because EPA can place these low limits in NPDES permits, does not mean that there is "Reasonable Assurance" that this approach will be successful.

Response

Thank you for your comment. Please see the response to comment number 0217.1.001.005.

Comment ID 0301.1.001.006

Author Name: Pappas Peter

Organization: Middletown Borough Authority

More Draconian is that many of the industrial point sources are listed as having nutrient limits that appear to be arbitrary

and are well below the limit of technology.

Response

Please refer to response to comment 0218.1.001.006.

Comment ID 0303.1.001.002

Author Name: Pattie Dudley

Organization: Rapidan Service Authority (RSA)

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that it operates as if EPA's previously proposed but withdrawn reasonable assurance regulation had actually been put into effect.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0313-cp.001.004

Author Name: Opalisky Larry

Organization: Curwensville Municipal Authority

EPA cannot provide "Reasonable Assurance" that placing significantly lower limits on point sources (with many industrial point sources below the limit of technology) will be implemented and successful.
Just because EPA has placed severely low nitrogen and phosphorus limits for point sources into the model and the model results show that Pennsylvania's allocations for nutrients can be met, does not provide "Reasonable Assurance" that this approach will be successful. Just because EPA can place these low limits in NPDES permits, does not mean that there is "Reasonable Assurance" that this approach will be successful.

Response

Thank you for your comment. Please see the response to comment number 0217.1.001.005.

Comment ID 0313-cp.001.006

Author Name: Opalisky Larry

Organization: Curwensville Municipal Authority

More Draconian is that many of the industrial point sources are listed as having nutrient limits that appear to be arbitrary and are well below the limit of technology.

Response

Please refer to response to comment 0218.1.001.006.

Comment ID 0321.1.001.004

Author Name: Fanfoni Kenneth

Organization: Augusta County Service Authority, Verona, Virginia

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that operates as if EPA's previously proposed but withdrawn reasonable assurance regulation had actually been put into effect.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0324.1.001.003

Author Name: Pattie Dudley

Organization: Rapidan Service Authority (RSA)

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that it operates as if EPA's previously proposed but withdrawn reasonable assurance regulation had actually been put into effect.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0330.1.001.004

Author Name: Krasnoff Alan

Organization: City of Chesapeake, Virginia

The City is a member of the Hampton Roads Planning District Commission (HRPDC) and the Virginia Municipal Stormwater Association (VAMSA), both of which organizations have analyzed the Draft TMDL with the assistance of scientific and environmental experts. The City fully endorses the position adopted by the member localities at the HRPDC meeting on October 20, 2010, and the position of the VAMSA, which jointly include:

--The EPA has not provided reasonable assurance that the urban runoff sector allocations can be achieved by the arbitrary deadline of 2025.

Response

Thank you for your comment. Please see the response to comment number 0265.1.001.010.

Comment ID 0337-cp.001.002

Author Name: Rollins V.

Organization:

I question the "the reasonable assurance" offered by EPA's backstops. Instead of forcing states to regulate their way out of "backstops," I urge EPA to allow Virginia to implement its own plans for achieving clean water goals - without costly, burdensome regulations.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0368-cp.001.004

Author Name: Myers Kenneth

Organization: Borough of Huntingdon

EPA cannot provide "Reasonable Assurance" that placing significantly lower limits on point sources (with many industrial point sources below the limit of technology) will be implemented and successful.

Just because EPA has placed severely low nitrogen and phosphorus limits for point sources into the model and the model results show that Pennsylvania's allocations for nutrients can be met, does not provide "Reasonable Assurance" that this approach will be successful. Just because EPA can place these low limits in NPDES permits, does not mean that there is "Reasonable Assurance" that this approach will be successful.

Response

Thank you for your comment. Please see the response to comment number 0217.1.001.005.

Comment ID 0368-cp.001.006

Author Name: Myers Kenneth

Organization: Borough of Huntingdon

More Draconian is that many of the industrial point sources are listed as having nutrient limits that appear to be arbitrary and are well below the limit of technology.

Response

Please refer to response to comment 0218.1.001.006.

Comment ID 0376.1.001.006

Author Name: Smith Brooks

Organization: Virginia Manufacturers Association VMA

III. EPA's Basis for Finding the Virginia WIP Deficient is Unlawful.

A. EPA Cannot Compel Virginia to Provide "Reasonable Assurance" Without First Defining How this Standard Must be Met.

EPA's primary basis for rejecting the allocation scheme in Virginia's WIP is an unfounded concern that the load allocation ("LA") will not be achieved and, as a result, the WLA must be further reduced below existing regulatory levels. EPA couches this concern in terms of "reasonable assurance" -- specifically, that Virginia has not provided adequate reasonable assurance that the LA assigned to nonpoint sources will in fact be realized. EPA ignores the fact that its

own guidance provide that reasonable assurance is only required in those TMDLs that are dominated by point sources. See, e.g., EPA, New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs), August 1997. It is widely recognized that, because of the point source reductions achieved to date, the sources needing further attention in the Chesapeake Bay are predominantly nonpoint sources. Where waters are impaired by a blend of point and nonpoint sources and nonpoint sources dominate, as is the case in the Bay watershed, the reasonable assurance concept does not apply. Id.

Even if the reasonable assurance concept did apply here, it cannot be used as the primary basis for rejecting Virginia's WIP because it has not been adequately defined. EPA has never explained how much reasonable assurance is enough, or, alternatively, how much assurance is reasonable. See, e.g., Enclosure A of EPA Region III Letter to Maryland Secretary of the Department of Natural Resources, September 11, 2008, "Neither the Clean Water Act nor EPA's regulations provide a definition of 'reasonable assurance. '" Absent such an explanation, Virginia has no guideposts by which to measure its nonpoint source reduction strategies.

Recognizing the need for a clear answer to these "how much is enough" questions, EPA added a definition of reasonable assurance to its TMDL rule revisions in July 2000. Under that definition, reasonable assurance of nonpoint source reductions hinged on a test that focused, among other factors, on whether the proposed control actions would be "implemented as expeditiously as practicable" and "accomplished through reliable and effective delivery mechanisms." [FN1]

After more than four years in the making, EPA's 2000 definition of "reasonable assurance" never took effect. Before the final rule was even published in the Federal Register, Congress used a spending prohibition to bar EPA from implementing it due to significant concerns about many aspects of the rule. Subsequent lawsuits, review by the National Research Council, and further deliberations by the Agency eventually led to withdrawal of the rule in 2003.

Around this same time, EPA proposed a replacement Watershed Rule. [FN2] In this replacement rule, EPA abandoned its 2000 definition of reasonable assurance, opting instead for the following:

EPA is proposing ... to require that a jurisdiction submit as part of its TMDL supporting analysis and documentation a demonstration that the load allocation is "practicable" (i.e., that it can be accomplished using available and achievable methods).

***

In requiring jurisdictions to submit supporting analysis and documentation that the load allocations are practicable, EPA is intending that jurisdictions would show that they have considered whether the TMDL's load allocation to nonpoint sources are achievable based on currently available information regarding both the technical feasibility of the practice or management measures but also the likelihood that they would be implemented based on economic, social and cultural considerations." [FN3]

This renewed focus on practicability (already a component of the existing TMDL rules) marked a dramatic change in EPA's approach to reasonable assurance, which was in part a reaction to the lawsuits over the 2000 rule and in part the result of significant additional outreach to the public between October and December 2001. (EPA hosted five listening sessions around the country during this period.)

The Watershed Rule reflects the latest official position taken by EPA on reasonable assurance; but, like the 2000 rule, the Watershed Rule never took effect.[FN4] As a result, states continue to lack any guideposts from EPA by which to measure their nonpoint source reduction strategies.

EPA's reliance on the undefined "reasonable assurance" concept to reject Virginia's WIP is essentially the application of an unpromulgated rule. Imposition of the backstop consequences against Virginia for failure to provide "reasonable assurance" is an abuse of EPA's authority. Before EPA can compel states to provide reasonable assurance that their proposed nonpoint source reductions will be achieved, EPA first must go through a notice-and-comment rulemaking process (as it has attempted twice before) to define how this standard must be met.

[FN1] "For nonpoint sources ... the demonstration of reasonable assurance must show that management measures or other control actions to implement the load allocations contained in each TMDL meet the following four-part test: they specifically apply to the pollutant(s) and the waterbody for which the TMDL is being established; they will be implemented as expeditiously as practicable; they will be accomplished through reliable and effective delivery mechanisms; and they will be supported by adequate water quality funding." 65 Fed. Reg. 43,586,43,663 (July 13,2000) (to be codified at 40 C.F.R. §130.2(p)).
[FN2] EPA released a deliberative draft of this rule on January 10,2003.
[FN3] Watershed Rule at pp. 90-91 (emphasis added).
[FN4] In April 2005, EPA officially abandoned this rulemaking.

Response

Thank you for your comment. Please see the response to comment number 0230.1.001.026.

Comment ID 0379.1.001.005

Author Name: Shields Wyatt

Organization: City of Falls Church, Virginia

The EPA's view of reasonable assurance in this TMDL is unprecedented at the federal or state level. EPA has written and/or approved thousands of TMDLs for impaired waters across the United States. Because the phrase "reasonable assurance" is undefined in either the Clean Water Act or in regulations or in guidance, EPA's approach to reasonable assurance has ranged from liberal to more conservative. For this reason, we question the EPA's determination to reject Virginia's Draft WIP and develop a "backstop" based upon reasonable assurance grounds. This issue must be addressed before EPA issues its final TMDL.

Response

Thank you for your comment. Please see the response to comment number 0230.1.001.026.

Comment ID 0390-cp.001.004

Author Name: Fultz Fred

Organization: Municipal Authority of the Township of Union, Pennysylvania

EPA cannot provide "Reasonable Assurance" that placing significantly lower limits on point sources (with many industrial point sources below the limit of technology) will be implemented and successful.
Just because EPA has placed severely low nitrogen and phosphorus limits for point sources into the model and the model results show that Pennsylvania's allocations for nutrients can be met, does not provide "Reasonable Assurance" that this approach will be successful. Just because EPA can place these low limits in NPDES permits, does not mean that there is "Reasonable Assurance" that this approach will be successful.

Response

Thank you for your comment. Please see the response to comment number 0217.1.001.005.

Comment ID 0390-cp.001.006

Author Name: Fultz Fred

Organization: Municipal Authority of the Township of Union, Pennysylvania

More Draconian is that many of the industrial point sources are listed as having nutrient limits that appear to be arbitrary and are well below the limit of technology.

Response

Please refer to response to comment 0218.1.001.006.

Comment ID 0405.001.004

Author Name: Lagowski Paul

Organization: BAE Systems

EPA cannot provide "Reasonable Assurance" that placing significantly lower limits on point sources (with many industrial point sources below the limit of technology) will be implemented and successful. Just because EPA has placed severely low nitrogen and phosphorus limits for point sources into the model and the model results show that Pennsylvania's allocations for nutrients can be met, does not provide "Reasonable Assurance" that this approach will be

successful. Just because EPA can place these low limits in NPDES permits, does not mean that there is "Reasonable Assurance" that this approach will be successful.

Response

Thank you for your comment. Please see the response to comment number 0217.1.001.005.

Comment ID 0418.1.001.010

Author Name: Devine Jon

Organization: Natural Resources Defense Council (NRDC)

a. Gap Filling Strategies and "Reasonable Assurance" Proffered by the States Are Inadequate.

Ultimately, the success of the Bay TMDL depends in large measure on EPA's ability to ensure that Bay jurisdictions provide "reasonable assurance" that their WLAs and LAs are properly allocated and achieved. As EPA indicates, "reasonable assurance" that WLAs are achieved will be provided by NPDES permit terms that reflect the load reduction needs of the TMDL.[FN 23] Providing "reasonable assurance" that nonpoint source LAs "will in fact be achieved" requires considerably more, and more complicated effort. While the TMDL goes some way toward satisfying this requirement, there is considerable room for firmer, more protective stances with regard to both point and nonpoint sources.

[FN 23] Draft TMDL at p. 7-2.

Response

EPA agrees that the ultimate success of the Bay TMDL depends in large measure on EPA's ability to ensure that Bay jurisdictions provide adequate “reasonable assurance” that their wasteload allocations (WLAs) and load allocations (LAs) are properly allocated and achieved. The accountability framework, which is a key component of the reasonable assurance for the Bay TMDL, requires that the jurisdictions include a schedule for implementing the practices and programs identified by the jurisdictions in their Watershed Implementation Plans, a set of milestones for tracking progress in their implementation and a process that determines if and when federal actions may have to be employed if the initial allocations are not being achieved. EPA assessed each jurisdiction’s WIP to determine whether it is supported by adequate reasonable assurance that the practices and programs identified by the jurisdiction in its WIP will be implemented as proposed, and that applicable water quality standards will be attained and maintained. EPA is confident that this comprehensive, iterative process for determining allocations and making any needed adjustments based on sound science and tracking results will be successful.

Comment ID 0418.1.001.028

Author Name: Devine Jon

Organization: Natural Resources Defense Council (NRDC)

vii. Over-Reliance on Trading and Offsets Does Not Provide Reasonable Assurance.

EPA's approach to reasonable assurance highlighted another important programmatic element discussed in pages 6-7 in Section 8. In finding that the draft state WIPs failed to provide reasonable assurance that programs would achieve reduction targets, EPA included concerns about overreliance on insufficiently developed trading programs. NRDC supports EPA's view that it can, in the name of reasonable assurance, adjust allocations where state WIPs are too speculative in one of several ways, including "[h]eavy reliance on trading to finance reductions and offset growth, but no commitment to adopt critical trading components such as clear baselines, liability, enforceability, tracking, and regulatory drivers." [FN 70]

[FN 70] TMDL at p. 8-7.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL.

Comment ID 0429-cp.001.004

Author Name: Reeves J.

Organization:

US EPA & its senior staff on this initiative: 6- should continue persistent and objective push for "reasonable assurance" that State plans will meet goals.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. For further information on the reasonable assurance for the Bay TMDL and the accountability framework that is a key component of that reasonable assurance, please see Section 7 of the Bay TMDL.

Comment ID 0432.1.001.011

Author Name: William Neilson John Bell and

Organization: Pennsylvania Farm Bureau

5. EPA's expectation that states must provide "reasonable assurance" today that they will fully and timely meet every phase of their WIP's goals and objectives is unreasonable.

EPA has also failed to provide any expressed guidance or criteria that EPA is applying or that states should apply in assessing whether a state's WIP is providing "reasonable assurance" that the nutrient and sediment reductions goals will be attained through actions and programs proposed in the WIP or that the state has the capability of carrying out the actions and programs proposed. In addition to our concern of whether EPA has legal authority to mandate "reasonable assurance" in state WIPs, we strongly believe the absence of any measured guidance or criteria makes EPA's determinations largely arbitrary.

In addition, actions that have been taken so far by EPA in response to the question suggests that EPA has the bar of "reasonable assurance" unreasonably and unworkably high. By its actions so far, we believe EPA has equated "reasonable assurance" to a virtual guarantee by the state that it will enact all future legislation and will commit all economic resources to fully accomplish every facet of actions and programs proposed in the state's WIP. Such an interpretation is wholly out of touch with the political realities that arise in the course of normal governmental function and with the economic and fiscal uncertainties that normally exist in the normal course of national and local economies and are particularly prevalent in today's economic downturn.

In its effort to "save the Bay", EPA must also strive to preserve the livelihoods of those who work and reside in the Bay watershed. "Reasonable" assurance does not, and should not, mean "absolute" assurance, and EPA should apply a standard that is much more pragmatic and realistic of political and economic uncertainties than it appears to be applying.

Response

EPA respectfully disagrees with the three assertions in this comment – that EPA does not have the legal authority to require the Watershed Implementation Plans to demonstrate adequate reasonable assurance, that "the absence of any measured guidance or criteria makes EPA's determinations largely arbitrary," and that "EPA has the bar of 'reasonable assurance' unreasonably and unworkably high."

First, EPA does have the legal authority to require the jurisdictions to provide adequate reasonable assurance in their WIPs. While the term "reasonable assurance" does not expressly appear in the CWA or EPA's TMDL regulations, it has consistently appeared in EPA TMDL guidance since 1991. The implicit requirement for reasonable assurance in TMDLs flows legally and logically from the following two statutory and regulatory provisions: Section 303(d)(1)(C) of the Clean Water Act and 40 C.F.R. section 122.44(d)(1)(vii)(A)&(B). The requirement for TMDLs to be supported by reasonable assurance is fundamental to their design and purpose. The most basic requirement of a TMDL is that it be "established at a level necessary to implement the applicable water quality standards." This requirement applies not just to the total load constituting the water body's assimilative capacity, but also to the components (individually and collectively) of the TMDL equation: TMDL = wasteload allocations (WLAs) + load allocations (LAs) + margin of safety. A WLA cannot be established at a level necessary for the TMDL to meet applicable water quality standards unless the TMDL's LAs and other WLAs are also established at water quality standard-implementing levels. It is the implied requirement for reasonable assurance that those WLA and LA levels will be met that (1) keeps the TMDL equation "honest" and (2) gives TMDLs their value and legitimacy as water quality planning and implementation tools.

Equally important, EPA's NPDES permitting regulations at 40 C.F.R. section 122.44(d)(1)(vii)(A)&(B) require two things from permit effluent limits. First, they must be "derived from, and compl[y] with" applicable water quality standards. Second, they must be "consistent with" the assumptions and requirements of a TMDL's WLA. The only way an effluent limit can meet both requirements is for the WLA to be set at a level that (in combination with the other WLAs and LAs in the TMDL) implements applicable water quality standards. Without reasonable assurance to ensure that a TMDL's LAs will be achieved, the permit writer would have little basis to assume that an effluent limit based on a TMDL's WLAs (individually or collectively) would be set at a level derived from, and complying with the applicable water quality standards.

Second, EPA's determination is not arbitrary. EPA notes that EPA has been working in a cooperative and collaborative manner with all seven of the Bay jurisdictions for a number of years to establish the Chesapeake Bay TMDL. Further, EPA had communicated its expectations for the Phase I Watershed Implementation Plans on numerous occasions, including the letter to the jurisdictions dated November 4, 2009 and EPA's April 2, 2010 A Guide for EPA's Evaluation of Phase I Watershed Implementation Plans, and had been in regular contact with each of the jurisdictions.

Third, EPA is not requiring an unreasonable or unworkable level of reasonable assurance. EPA requires that the jurisdictions provide adequate reasonable assurance that if those allocations are fully implemented in the future, they will fully and timely meet every phase of their WIP's goals.

Comment ID 0434.1.001.013

Author Name: Pryor Wayne

Organization: Virginia Farm Bureau Federation

IV. Even if EPA Had Approval Authority over Implementation Plans, the Reasonable Assurance Standard Has Not Been Defined or Promulgated by EPA and Thus Cannot be Used as a Basis to Impose Backstop Allocations.

EPA asserts that one of its primary concerns about the Virginia WIP is lack of "reasonable assurance." "Reasonable assurance" is a concept that does not exist in either the CWA or EPA regulations. EPA created this concept in its 1997 TMDL guidance. Under that guidance, EPA states that TMDLs should provide "reasonable assurances" that load allocations will be met if relied upon to establish point source wasteload allocations, and encourages submission of implementation plans to EPA. But the 1997 Guidance does not define reasonable assurance, nor does it give EPA authority to require reasonable assurance.[FN6]

The "reasonable assurance" concept cannot be used as the primary basis for rejecting Virginia's WIP because it has not been adequately defined. EPA has never explained how much reasonable assurance is enough, or, alternatively, how much assurance is reasonable. See, e.g., Enclosure A of EPA Region III Letter to Maryland Secretary of the Department of Natural Resources, September 11, 2008, "Neither the Clean Water Act nor EPA's regulations provide a definition of 'reasonable assurance.'" Absent such an explanation, Virginia has no guideposts by which to measure its nonpoint source reduction strategies.

Recognizing the need for a clear answer to these "how much is enough" questions, EPA added a definition of reasonable assurance to its TMDL rule revisions in July 2000. Under that definition, reasonable assurance of nonpoint source reductions hinged on a test that focused, among other factors, on whether the proposed control actions would be "implemented as expeditiously as practicable" and "accomplished through reliable and effective delivery mechanisms."[FN7]

After more than four years in the making, EPA's 2000 definition of "reasonable assurance" never took effect. Before the final rule was even published in the Federal Register, Congress used a spending prohibition to bar EPA from implementing it due to significant concerns about many aspects of the rule. Subsequent lawsuits, review by the National Research Council, and further deliberations by the Agency eventually led to withdrawal of the rule in 2003.

Around this same time, EPA proposed a replacement Watershed Rule.[FN8] In this replacement rule, EPA abandoned its 2000 definition of reasonable assurance, opting instead for the following:

EPA is proposing ... to require that a jurisdiction submit as part of its TMDL supporting analysis and documentation a demonstration that the load allocation is "practicable" (i.e., that it can be accomplished using available and achievable methods).

***

In requiring jurisdictions to submit supporting analysis and documentation that the load allocations are practicable, EPA is intending that jurisdictions would show that they have considered whether the TMDL's load allocation to nonpoint sources are achievable based on currently available information regarding both the technical feasibility of the practice or management measures but also the likelihood that they would be implemented based on economic, social and cultural considerations."[FN9]

This renewed focus on practicability (already a component of the existing TMDL rules) marked a dramatic change in EPA's approach to reasonable assurance, which was in part a reaction to the lawsuits over the 2000 rule and in part the result of significant additional outreach to the public between October and December 2001. (EPA hosted five listening sessions around the country during this period.)

The Watershed Rule reflects the latest official position taken by EPA on reasonable assurance; but, like the 2000 rule, the Watershed Rule never took effect.[FN10] As a result, Virginia does not have any guideposts from EPA by which to measure their nonpoint source reduction strategies.

EPA's reliance on the undefined "reasonable assurance" concept to reject Virginia's WIP is essentially the application of an unpromulgated rule. Imposition of the backstop consequences against Virginia for failure to provide "reasonable assurance" is an abuse of EPA's authority. Before EPA can compel states to provide reasonable assurance that their proposed nonpoint source reductions will be achieved, then EPA first must go through a notice-and-comment rulemaking process (as it has attempted twice before) to define how this standard may be met.

A TMDL is merely the sum of the load allocation and the wasteload allocation for a pollutant. The statute requires that the TMDL be set at a "lever necessary to meet water quality standards. A level is a number. Nothing in the statute gives EPA the authority to judge how that level is to be met. How a TMDL is to be met is an implementation issue, which is outside of EPA's authority.

[FN6] "New Policies for Establishing and Implementing Total Maximum Daily Loads" (1997) (noting that "Section 303(d) does not establish any new implementation authorities beyond those that exist elsewhere in State, local, Tribal, or Federal law").

[FN7] "For nonpoint sources ... the demonstration of reasonable assurance must show that management measures or other control actions to implement the load allocations contained in each TMDL meet the following four-part test: they specifically apply to the pollutant(s) and the water body for which the TMDL is being established; they will be implemented as expeditiously as practicable; they will be accomplished through reliable and effective delivery mechanisms; and they will be supported by adequate water quality funding." 65 Fed. Reg. 43,586, 43,663 (July 13, 2000) (to be codified at 40 C.F.R. §130.2(p)).

[FN8] EPA released a deliberative draft of this rule on January 10, 2003.

[FN9] Watershed Rule at pp. 90-91 (emphasis added).

[FN10] In April 2005, EPA officially abandoned this rulemaking

Response

Thank you for your comment. Please see the response to comment number 0230.1.001.026.

Comment ID 0436.1.001.003

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Chesapeake, Virginia

At the Commission meeting on October 20, 2010, the HRPDC acted to endorse the following position and attached comments.

--The EPA has not provided reasonable assurance that the urban runoff sector allocations can be achieved by 2025.

Response

This comment is duplicative of comment number 0265.1.001.003. Please see the response to comment number 0265.1.001.003.

Comment ID 0436.1.001.010

Author Name: Clark Stan

Organization: Hampton Roads Planning District Commission (HRPDC), Chesapeake, Virginia

II. EPA HAS NOT PROVIDED REASONABLE ASSURANCE THAT THE URBAN RUNOFF SECTOR ALLOCATIONS CAN BE ACHIEVED BY 2025

Virginia's September 2010 draft Phase I Watershed Implementation Plan (WIP) proposed allocations for the urban runoff sectors in the James and York river basins that would have required the Localities to reduce TP loads from their MS4s in the James River and York River basins by an average of 77 and 79 percent, respectively, from current loads.[FN 1] The TMDL rejects the basin sector allocations proposed in the WIP, and in their place proposes backstop allocations that reduce the overall James and York basin allocations proposed in the WIP and transfers portions of the point source allocations to the agriculture, onsite septic system, and urban runoff sectors.[FN 2] The backstop allocations offer some relief for the urban runoff sector (54 and 59 percent TP reductions in the James River and York River basins, respectively), but not nearly enough to provide reasonable assurance that the allocations can be attained by 2025. In fact, the following analysis of the controls that would have to be implemented to attain the backstop allocations for the James and York basin urban runoff sectors show that they are not achievable by that date.

[FN 1] The WIP allocations for TN and sediment would have required significant urban runoff source sector load reductions as well, but load reductions that would have been required by the TP allocations were the greatest of the three allocations.

[FN 2] The backstop allocations are based on EPA's finding that the WIP failed to (1) contain sufficient commitments to provide reasonable assurance that Virginia would achieve the allocations for the agriculture and onsite septic system source sectors, and (2), in the James River, provide for compliance with the chlorophyll-a criteria.

Response

This comment is duplicative of comment number 0265.1.001.010. Please see the response to comment number 0265.1.001.010.

Comment ID 0440.1.001.005

Author Name: Land Larry

Organization: Virginia Association of Counties (VACo)

--"Reasonable Assurance:" Comments express concern about "reasonable assurance" as a standard used by EPA to evaluate adequacy of state Watershed Implementation Plans (WIPs). Many stakeholders have expressed concern that the standard is vague and can be applied too arbitrarily.

Response

Thank you for your comment. Please see the response to comment number 0230.1.001.026.

Comment ID 0440.1.001.011

Author Name: Land Larry

Organization: Virginia Association of Counties (VACo)

5.) Governance: "Accountability" and "Reasonable Assurance", and the time frame for issuing the TMDL

Section 7 of the DRAFT document provides a narrative relating to the "reasonable assurance and the accountability framework." Because the meaning of "reasonable assurance" remains vague, the term has generated much discussion in Virginia. Because EPA has provided little information to help states understand when the requirement relating to "reasonable assurance" is satisfied in each state's Phase I Draft Watershed Implementation Plan (WIP), VACo is concerned that the "reasonable assurance" standard will be applied arbitrarily based upon the subjective judgments by reviewers at EPA.

It is VACo's understanding that there is no regulatory definition of "reasonable assurance," although one was proposed, and subsequently withdrawn in 2000 following a public comment process that generated considerable opposition from diverse stakeholders. (Withdrawal of Revisions to the Water Quality Planning and Management Regulation and Revisions to the National Pollutant Discharge Elimination System Program in Support of Revisions t the Water Quality Planning and Management Regulation 68 Fed. Reg. 13,608, 13,609 [March 19, 2003]). Without a regulatory definition of "reasonable assurance" that has been incorporated into the Federal Code of Regulations, VACo questions the authority of EPA to establish "reasonable assurance" in the TMDL process as a standard for approving each WIP submitted by states in the Chesapeake Bay watershed.

Response

Thank you for your comment. Please see the response to comment number 0230.1.001.026.

Comment ID 0442.1.001.009

Author Name: Drzyzgula Cathy

Organization: Metropolitan Washington Council of Governments (COG)

7. EPA and States Should Avoid Locking Extensive Stormwater Retrofits into Place at this Point in the Process

For all the reasons cited above -- lack of cost-benefit analysis; lack of viable funding mechanisms; uncertainties regarding the accuracy of local loading assumptions (ref. Section 5.8 Phase 5 Chesapeake Bay WSM), and the existence of timing, physical feasibility and other constraints -- it is premature and possibly self-defeating for the TMDL/Phase I WIP documents to propose specific levels of stormwater retrofits. Doing so would violate EPA's reasonable assurance standard since implementation levels cannot be assured at this time. It may or may not be possible to do so in the Phase II WIPs, depending on the extent to which these questions have been answered and the various issues addressed (ref. Section 7.1 Reasonable Assurance, & 7.2 Accountability Framework). Also, there are still many questions regarding the accuracy of loads attributed to the stormwater sector; in particular, whether loads outside of the MS4 areas contribute loads to those sectors.

Response

Thank you for your comment. Please see the response to comment number 0463.1.001.005.

Comment ID 0443.2.001.001

Author Name: Moore Shannon

Organization: Frederick County Government

The County provides the following comments on the Executive Summary of the TMDL: p.6: "When EPA establishes or approves a TMDL that allocates pollutant loads to both point and nonpoint sources, it determines whether there is a "reasonable assurance" that the nonpoint source load allocations will be achieved and water quality standards will be attained. Reasonable assurance for the Chesapeake Bay TMDL is provided by the numerous federal, state and local regulatory and non-regulatory programs identified in the accountability framework that EPA believes will result in the necessary point and nonpoint source controls and pollutant reduction programs."

--MDE is not in a position to guarantee reasonable assurance that it can meet the goals of the TMDL as it has passed through most stormwater and wastewater requirements to municipalities that have not yet had chance to comment. Frederick County believes that based on the extensiveness of requirements passed on to municipalities through the Maryland WIP makes Frederick County believe that municipalities will not be able to provide this assurance.

Response

EPA understands your concern with the County's ability and responsibility to implement the stormwater measures contained in Maryland's Phase I Watershed Implementation Plan developed by MDE. The Bay TMDL is employing an adaptive implementation approach that will provide an opportunity to assess at specific milestones the ability of the various sectors to achieve their targeted pollutant reductions. The results of the progress documented at these milestones will allow the Bay jurisdictions to reassess their strategies, to reassess their proposed allocations, identify alternative reasonable assurance options and to potentially identify viable funding sources for stormwater measures. However, it must be clear that EPA is committed to using any necessary enforcement action at its disposal to assure that the Bay jurisdictions successfully implement the Bay TMDL, as described in Section 7 of the Bay TMDL.

EPA also notes, with respect to substantive comments regarding individual jurisdictions' Phase I WIPs, that the WIPs submitted by each jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdiction for consideration as part of its WIP.

Comment ID 0463.1.001.001

Author Name: Sharma Lalit

Organization: City of Alexandria, Virginia

1. Consideration of Financial and Economic Issues

The TMDL must consider financial and economic issues associated with implementing the measures at the local level in order for there to be Reasonable Assurance (Section 7.2, #3). There is currently no legal authority or funding for many of the measures in the WIP or the Backstop (Section 8) and no additional funding available to implement additional measures during this time of fiscal constraints. Cost effectiveness and impacts to local water quality must be considered. Diversion of financial resources will impact our already strained school system, emergency and medical response equipment and personnel, and basic services for residents.

Response

To the extent the comment relates to questions on funding, please refer to response to comment 0038.1.001.024. To the extent the comment relates to the need for a cost analysis, please refer to response to comment 0139.1.001.017.

Comment ID 0467.1.001.006

Author Name: Williams Shannon

Organization: The Harrisburg Authority, Harrisburg, Pennsylvania

C. EPA cannot require either or both the Bay TMDL or state submitted Watershed Implementation Plans ("WIPs") to meet a "reasonable assurance" standard given that the term "reasonable assurance" is neither defined in the Clean Water Act nor its implementing regulations. EPA has also not provided guidance on how such standard is to be evaluated.

Response

Thank you for your comment. Please see the response to comment number 0230.1.001.026.

Comment ID 0473.1.001.009

Author Name: Pechart Michael

Organization: Pennsylvania Department of Environmental Protection and Department of Agriculture

--Reasonable assurance is further supported by recent regulatory initiatives, including:

- Chapter 102, Erosion and Sediment Control regulations to regulate animal heavy use areas and establish requirements for greater than 25 percent cover within 100 feet of a stream;
- Increased environmental requirements in the Manure Management Manual;
- A Water Quality Initiative to provide regional compliance and inspection actions for CAFO, stormwater, and agricultural regulatory programs.

Response

EPA agrees that these recent regulatory initiatives help support reasonable assurance. Please refer to Section 8 of the final TMDL regarding EPA's evaluation of each jurisdictions' WIPs and backstops for Pennsylvania.

Comment ID 0496.1.001.001

Author Name: Allsbrook Lynn

Organization: City of Hampton, Virginia, Department of Public Works

--The EPA has not provided reasonable assurance that the urban runoff sector allocations can be achieved by 2025.

Response

Thank you for your comment. Please see the response to comment number 0265.1.001.010.

Comment ID 0496.1.001.007

Author Name: Allsbrook Lynn

Organization: City of Hampton, Virginia, Department of Public Works

II. EPA HAS NOT PROVIDED REASONABLE ASSURANCE THAT THE URBAN RUNOFF SECTOR ALLOCATIONS CAN BE ACHIEVED BY 2025

Virginia's September 2010 draft Phase I Watershed Implementation Plan (WIP) proposed allocations for the urban runoff sectors in the James and York river basins that would have required the Localities to reduce TP loads from their MS4s in the James River and York River basins by an average of 77 and 79 percent, respectively, from current loads. [FN1] The TMDL rejects the basin sector allocations proposed in the WIP, and in their place proposes backstop allocations that reduce the overall James and York basin allocations proposed in the WIP and transfers portions of the point source allocations to the agriculture, onsite septic system, and urban runoff sectors.[FN2] The backstop allocations offer some relief for the urban runoff sector (54 and 59 percent TP reductions in the James River and York River basins, respectively), but not nearly enough to provide reasonable assurance that the allocations can be attained by 2025. In fact, the following analysis of the controls that would have to be implemented to attain the backstop

allocations for the James and York basin urban runoff sectors show that they are not achievable by that date.

[FN1] The WIP allocations for TN and sediment would have required significant urban runoff source sector load reductions as well, but load reductions that would have been required by the TP allocations were the greatest of the three allocations.

[FN2] The backstop allocations are based on EPA's finding that the WIP failed to (1) contain sufficient commitments to provide reasonable assurance that Virginia would achieve the allocations for the agriculture and onsite septic system source sectors, and (2), in the James River, provide for compliance with the chlorophyll-a criteria.

Response

This comment is duplicative of comment number 0265.1.001.010. Please see the response to comment number 0265.1.001.010.

Comment ID 0497.1.001.003

Author Name: Hobbs Jack

Organization: Town of Amherst, Virginia

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that operates as if EPA's previously proposed but withdrawn reasonable assurance regulation had actually been put into effect.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0504.1.001.003

Author Name: Elliott James

Organization: Citizens Advisory Committee to the Chesapeake Executive Council

EPA may consider using Clean Water Act 319 grant funds to match state funds for contracting third party verifications and technical support to the agriculture community. EPA may consider this type of enforcement reporting and verification mechanisms as levels of reasonable assurance and these types of reporting activities would be excellent avenues for citizen engagement and accountability.

Response

Thank you for your comment. EPA believes that using Clean Water Act section 319 grant funds to assist in tracking progress in nonpoint source reductions is a potentially viable approach to provide technical support to the agriculture community. EPA also agrees that this process for tracking and reporting progress in nonpoint source reductions could be potentially positive vehicle for citizen engagement.

Comment ID 0515.1.001.006

Author Name: Crumb Edward

Organization: Binghamton-Johnson City Joint Sewage Board

E. The EPA Provides No "Reasonable Assurance" that the TMDL Will Lead to Attainment of WQ Goals

The EPA gives no "reasonable assurance" that meeting the TMDL's standards will lead to attainment of any particular level of WQ standards or promote the goals of Bay restoration within any of the 92 individual Bay segments covered by the TMDL. To be complete, the TMDL must specifically address and expressly state the applicable WQ standard and restoration goals for each of the 92 Bay segments covered by the TMDL. To the extent it does not do so, the allocations to New York and other jurisdictions are arbitrary because the specific standards and goals are undefined. A TMDL that cannot meet its intended goals, or does not clearly state its specific goals, serves no one. The TMDL provides no data or explanation indicating that the EPA has run CBWM scenarios sequentially removing the allocated loadings from identified source sectors (i.e., aerial deposition, WWTPs, MS4s/CSOs/stormwater, agriculture, rural/septic tanks, and open land/water) to demonstrate the extent to which the proposed WLAs and load allocations ("LAs") to each source identified in the TMDL are sufficient to meet "end goal" WQ. Additionally, if the cumulative effect of removal of nutrients, sediment, and other pollutants is a change in the extent to which Bay tributary rivers and streams can metabolize and/or neutralize remaining contaminants and "self-clean", the CBWM modeling does not reflect changing (i.e., reducing) Delivery Coefficients over time. (There may be unintended consequences, as well: for example, if major reductions are made in sediment loadings and resuspension, one might expect that the Bay and its tributaries may thereafter have a reduced ability to bind and settle-out phosphorus).

The EPA's approach under the TMDL is somewhat inconsistent and paradoxical. On one hand, the EPA looks to the Bay watershed jurisdictions to develop WIPs to carry-out compliance with overall allocations the EPA has determined for each jurisdiction. On the other hand, the EPA assigns specific WLAs to point sources in Section 9 of the TMDL - to be effective even in the absence of EPA-determined deficiencies in the WIPs that would trigger a given menu of "backstop allocations" as described in TMDL Section 8. Moreover, the EPA condemns the draft WIP-Is of most of the jurisdictions on the basis that they fail to provide adequate or reasonable assurance of timely accomplishment, yet the EPA provides no such assurance as to the TMDL itself.

Response

EPA respectfully disagrees with your comment implying that implementation of the Chesapeake Bay TMDL will not result in the

attainment of all applicable water quality standards in the 92 segments impaired by nitrogen, phosphorus, and sediment. EPA agrees that "the TMDL must specifically address and expressly state the applicable WQ standard and restoration goals for each of the 92 Bay segments covered by the TMDL." As described in the TMDL, that is exactly the process that EPA followed in the establishment of the Bay TMDL. The suite of models applied throughout the watershed evaluated a wide range of management scenarios that reduced pollutant loadings from a variety of point and nonpoint sources. These models evaluated in great detail the specific sources of these pollutants, their fate and transport throughout the watershed, and their relative contribution to the water quality conditions of the 92 impaired segments in the tidal segments. Working with the Bay jurisdictions, EPA provided pollutant allocations by jurisdiction, major basin and impaired segment-shed necessary to meet applicable water quality standards. EPA does not agree that it is necessary to run the CBWM sequentially reducing each sector in order to determine the relative effect of each. Each source is tracked separately through every CBWM scenario. Contrary to your comment, the delivery factors do change due to reductions in loads and this change makes the response non-linear meaning that the series of runs you suggest would not provide the relative effect of each source sector.

The Bay jurisdictions have used these pollutant allocations to guide the development of their Phase I Watershed Implementation Plans (WIPs). EPA worked with each jurisdiction to fill reasonable assurance gaps if necessary, and where appropriate applied backstop allocations to meet these goals. The Bay TMDL is employing an adaptive implementation approach that will provide an opportunity to assess at specific milestones the ability of the various sectors to achieve their targeted pollutant reductions. The results of the progress documented at these milestones will allow the jurisdictions to reassess their strategies, to refine as needed their proposed allocations, and identify alternative reasonable assurance options if necessary. Finally, EPA notes that the TMDL allocations have been significantly revised based in part of the submission of the Final Phase I WIPs by the States and consideration of comments including this one. Please refer to Section 8 of the final TMDL.

Comment ID 0516.1.001.020

Author Name: Winegrad Gerald

Organization: Senior Bay Scientists and Policy Makers for the Bay

We all firmly believe that the 25 items [see comment 0516 for all 25 items] outlined above are essential if there is to be any reasonable assurance that the nutrient and sediment reductions necessary to restore the Chesapeake Bay will be achieved under the current planned timelines. It will never be easier or less expensive than now. We are hopeful that the EPA will adhere to its TMDL deadlines and those for state WIPs and that you will require each state to adopt the above measures in their Phase I Watershed Implementation Plans and begin a new period where the Chesapeake Bay and its living resources are not subjected to the continuing death by a thousand cuts and are sacrificed on the altar of political expediency.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL.

Comment ID 0523.1.001.003

Author Name: Steidel Robert

Organization: City of Richmond, Virginia

We have significant concerns with EPA's Draft TMDL and object to EPA's proposed "backstop" actions against the Commonwealth of Virginia and our facility. EPA proposes to cut our facility's stringent nutrient wasteload allocations ("WLAs") currently set forth in Virginia's EPA-approved Water Quality Management Planning Regulation, 9VAC25-720, and Chesapeake Bay Watershed General Permit Regulation, 9VAC25-820 (collectively, the "Virginia Regulations").

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that EPA previously proposed, but withdrew reasonable assurance regulation.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0538.2.001.001

Author Name: Charles Mark

Organization: City of Rockville, Maryland

U.S. EPA should induce the States to expand their nonpoint source regulatory programs.

Section 7, Reasonable Assurance and Accountability Framework, states: "without a demonstration of reasonable assurance that nonpoint source allocations will be met, a TMDL would have to assign all necessary reductions to the point sources." Rockville believes the opposite should also hold true, if the States' cannot demonstrate that reductions from point sources are feasible, the States should consider further reductions from the nonpoint sources. While EPA lacks the ability to directly regulate nonpoint sources such as agriculture, non-urban stormwater, and forestry activities, EPA still has a responsibility to offer reasonable assurances that a TMDL is implementable. Therefore, where further reductions of point sources are infeasible, EPA should direct States to consider further options to obtain greater load reductions from the nonpoint sources.

Included with these comments are the City of Rockville's comments made to the State of Maryland on their Draft Watershed Implementation Plan. These comments raise several concerns about the administrative, financial, and technical shortcomings associated with relying predominantly on increased point source controls to implement this TMDL. Considering these concerns, EPA should request that Maryland and the other states reconsider implementation strategies to strike a more appropriate balance between point and nonpoint sources.

Response

With respect to substantive comments made to the State of Maryland, EPA notes that the WIPs submitted by each jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdiction for consideration as part of its WIP. With respect to the remainder of the comment, EPA has been working in a cooperative and collaborative manner with all seven of the Bay jurisdictions for a number of years to establish the Chesapeake Bay TMDL. Further, EPA had communicated its expectations for the Phase I Watershed Implementation Plans on numerous occasions, including the letter to the jurisdictions dated November 4, 2009 and EPA's April 2, 2010 A Guide for EPA's Evaluation of Phase I Watershed Implementation Plans, and had been in regular contact with each of the jurisdictions.

Comment ID 0546.1.001.003

Author Name: Cameron Beverly

Organization: City of Fredericksburg, Virginia

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that operates as if EPA's previously proposed but withdrawn reasonable assurance regulation had actually been put into effect.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0548.1.001.005

Author Name: Smith Brooks

Organization: Utility Water Act Group

4. UWAG opposes EPA's mandate of reasonable assurance and EPA's threat of backstop allocations for states with insufficient reasonable assurance.

As part of the Bay TMDL proceeding, EPA has demanded that states demonstrate "reasonable assurance" that nonpoint source loading reductions will be achieved. Without such a demonstration, EPA has threatened "to assign all necessary reductions to the point sources." See Bay TMDL at 7-2. This threat is born out by the partial and full backstop

allocations set forth in the draft TMDL.

Because of significant deficiencies in plans presented to resolve gaps in authority, staff, funding and accountability systems, and on the basis of the criteria discussed below and EPA's best professional judgment, EPA determined that none of the seven watershed jurisdictions' draft [implementation plans] provided adequate reasonable assurance that programs would be implemented to achieve reduction targets.

Bay TMDL at 8-6.

As a result of these alleged deficiencies, EPA rejected the allocation schemes presented by the states in their watershed implementation plans ("WIPs") and established alternative, more stringent allocation schemes in their place. "Although a number of backstop options existed, EPA primarily relied on decreasing the WLAs to the point sources." Bay TMDL at 8-9. In addition to proposing these more stringent allocations to account for alleged deficiencies in the states' plans, EPA also threatened "full backstop allocations" - specifically reserving the option to apply these allocations "if EPA determines that a jurisdiction's final Phase I WIP is weaker than its draft Phase I WIP and requires additional backstop actions to ensure that point and nonpoint source reductions sufficient to meet WLAs and LAs are achieved and maintained." Bay TMDL at 8-17.

The inherent problem with EPA's approach is that the Agency failed to articulate an objective standard by which to assess "reasonable assurance." Absent such a standard, states cannot meaningfully "shoot for success." Worse, EPA is left with virtually unfettered and subjective discretion to decide "how much is enough."

By way of example, Virginia's point source contribution of TSS is less than 1% of the total loading. Moreover, as EPA acknowledged, Virginia's allocation scheme for achieving EPA's target loads for sediment was 12% better than necessary. However, instead of leaving this aspect of Virginia's WIP in place, EPA proposed an alternative scheme that significantly reduced the allocations assigned to point sources. Since these sources comprise less than 1% of the total loading, the reductions make no appreciable difference on EPA's modeling outputs. In other words, EPA's alternative scheme would force additional reductions from point sources without any corresponding environmental benefits (and without any consideration of the cost or feasibility of the reductions that EPA proposed). Such an outcome should not be allowed to stand, either as a matter of sound science or good public policy.

EPA is correct that the concept of reasonable assurance has been in place for many years, but the fundamental problem with the concept is that it has never officially been defined. More specifically, EPA has never explained how much reasonable assurance is enough, or, alternatively, how much assurance is reasonable. Absent such an explanation, the states in the Bay watershed that are subject to the TMDL have no guideposts by which to measure their nonpoint source reduction strategies.

Consider, for example, a state that provides incentive funding for nonpoint source best management practices through legislative budget allocations that are revisited every 2 years. Are the reductions from these best management practices "reasonably assured" even though long-term funding for these practices is not guaranteed? [FN 3]

Recognizing the need for a clear answer to these "how much is enough" questions, EPA added a definition of reasonable assurance to its TMDL rule revisions in July 2000. Under that definition, reasonable assurance of nonpoint source reductions hinged on a test that focused, among other factors, on whether the proposed control actions would

be "implemented as expeditiously as practicable" and "accomplished through reliable and effective delivery mechanisms." [FN 4]

After more than four years in the making, EPA's 2000 definition of "reasonable assurance" never took effect. Before the final rule was even published in the Federal Register, Congress used a spending prohibition to bar EPA from implementing it due to significant concerns about many aspects of the rule. Subsequent lawsuits, review by the National Research Council, and further deliberations by the Agency eventually led to withdrawal of the rule in 2003.

Around this same time, EPA proposed a replacement Watershed Rule. [FN 5] In this replacement rule, EPA abandoned its 2000 definition of reasonable assurance, opting instead for the following:

EPA is proposing … to require that a jurisdiction submit as part of its TMDL supporting analysis and documentation a demonstration that the load allocation is "practicable" (i.e., that it can be accomplished using available and achievable methods).

***

In requiring jurisdictions to submit supporting analysis and documentation that the load allocations are practicable, EPA is intending that jurisdictions would show that they have considered whether the TMDL's load allocation to nonpoint sources is achievable based on currently available information regarding both the technical feasibility of the practice or management measures but also the likelihood that they would be implemented based on economic, social and cultural considerations." [FN 6]

This renewed focus on practicability (already a component of the existing TMDL rules) marked a dramatic change in EPA's approach to reasonable assurance, which was in part a reaction to the lawsuits over the 2000 rule and in part the result of significant additional outreach to the public between October and December 2001 (EPA hosted five listening sessions around the country during this period).

The Watershed Rule reflects the latest official position taken by EPA on reasonable assurance; but, like the 2000 rule, the Watershed Rule never took effect.[FN 7] As a result, states continue to lack any guideposts from EPA by which to measure their nonpoint source reduction strategies.

If EPA intends to use the threat of backstop allocations in the Bay TMDL to compel states to provide reasonable assurance that their proposed nonpoint source reductions will be achieved, then EPA first must go through a notice-and-comment rulemaking process (as it has attempted twice before) to define how this standard may be met. Unless and until EPA does so, it would be an abuse of authority to impose the partial or full backstop allocations against states for failing to provide reasonable assurance, as EPA has threatened in the draft TMDL.

[FN 3] This precise question was posed by the Virginia Assistant Secretary of Natural Resources to EPA on December 17, 2009, as part of the first Virginia Stakeholder Advisory Group meeting convened to address the forthcoming Bay TMDL. EPA confessed that it had no answer to this question.
[FN 4] "For nonpoint sources … the demonstration of reasonable assurance must show that management measures or other control actions to implement the load allocations contained in each TMDL meet the following four-part test: they

specifically apply to the pollutant(s) and the waterbody for which the TMDL is being established; they will be implemented as expeditiously as practicable; they will be accomplished through reliable and effective delivery mechanisms; and they will be supported by adequate water quality funding." 65 Fed. Reg. 43,586, 43,663 (July 13, 2000) (to be codified at 40 C.F.R. §130.2(p)).
[FN 5] EPA released a deliberative draft of this rule on January 10, 2003.
[FN 6] Watershed Rule at pp. 90-91 (emphasis added).
[FN 7] In April 2005, EPA officially abandoned this rulemaking.

Response

Thank you for your comment. Please see the response to comment number 0230.1.001.026.

Comment ID 0565.1.001.002

Author Name: Faggert Pamela

Organization: Dominion Resources Services, Inc.

C. Reasonable Assurances

We understand that the EPA has some outstanding questions regarding the provision of "reasonable assurances" in the state WIPs. We appreciate the complicated nature of determining what may constitute reasonable assurances. It is our belief that the success of the Chesapeake Bay restoration will depend on having policies in place that maintain the assigned cap loadings over time. Therefore, we urge the EPA to forego inequitable actions that may result in short-term, yet unsustainable progress. Instead we encourage the development of a long-term, equitable solution that allows the Chesapeake Bay jurisdictions not only to meet the cap allocations, but to maintain those allocations over time.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. EPA intends the Chesapeake Bay TMDL to have a significant impact on the health of the Bay.

Comment ID 0586.1.001.002

Author Name: Fischer Micaela

Organization: The Pew Environment Group

Overview
The Pew Environment Group offers these comments on one specific aspect of the Chesapeake Bay TMDL-that dealing with the control of nutrients from animal agriculture. As such, these comments are not meant to offer a judgment on the overall adequacy of the draft TMDL or the individual state WIPs. They do, however, suggest policy options that we

believe all the Bay states as well as EPA should utilize to achieve the necessary reductions in release of key pollutants.

The purpose of the overall Chesapeake Bay TMDL and each state WIP is to lay out a specific strategy for achieving reductions in nitrogen, phosphorus and sediment sufficient to meet standards for the Bay and its tributaries. Though a number of commenters have argued otherwise, this "pollution diet," as the Agency is calling it, is flexible. Each state may achieve the necessary reductions in the manner it sees fit, curbing releases from the myriad of sources that range from municipal wastewater treatment plants and urban runoff to combined sewer overflows and agricultural sources. Under the authorities of the Clean Water Act and the mandate of the President's Executive Order on the Chesapeake Bay, EPA's duty is to determine whether these plans offer "reasonable assurances" that reduction goals will be met. Where such assurances are lacking, the Agency itself must step in, supplementing state regulation with appropriate and effective "backstops."

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. EPA intends the Chesapeake Bay TMDL to have a significant impact on the health of the Bay.

Comment ID 0590.1.001.003

Author Name: Chavez Jennifer

Organization: Earthjustice et al.

2. Reasonable Assurances: EPA's proposal to rely on voluntary as well as mandatory programs to provide "reasonable assurance" that nonpoint source load allocations will be achieved is unlawful and arbitrary. The Act requires TMDLs to be adequate to implement all applicable water quality standards. It does not allow EPA to make such implementation optional via reliance on voluntary programs. Further, it is arbitrary and irrational for EPA to find that voluntary programs provide any assurance at all - much less reasonable assurance - that nonpoint load allocations will be achieved. EPA and the Chesapeake Bay states have relied on voluntary nonpoint source control programs for decades, and the result - as the proposed TMDL document itself concedes - is failure to achieve anything close to the nonpoint load reductions needed to implement water quality standards.

EPA also incorrectly asserts (at 7-1) that the existence of the NPDES regulatory program and issuance of NPDES permits provides the requisite reasonable assurance that the WLAs in the TMDL will be achieved. The mere existence of the NPDES program and issuance of permits has already proven ineffective because of the states' failure in practice to include enforceable limits that implement existing TMDLs. Moreover, the existence of these programs will not provide reasonable assurances unless EPA commits to rigorous oversight and implementation of the program and permits to ensure that each permit contains enforceable limits that implement the TMDLs. EPA itself has refused to include strong, enforceable language for TMDL implementation in EPA-issued NPDES permits for MS4 systems, and absent such language there is no assurance that WLAs for such systems will be achieved.

Response

Thank you for your comment. Please see the response to comment numbers 0217.1.001.005, 0230.1.001.026 and 0432.1.001.011.

Comment ID 0591.1.001.011

Author Name: Shields M.

Organization:

Before EPA establishes or approves a TMDL that allocates pollutant loads to both point and nonpoint sources, it must determine whether there is reasonable assurance that the nonpoint source LAs will, in fact, be achieved and WQS will be attained (USEPA 1991a). If the reductions embodied in LAs are not fully achieved, the collective reductions from point and nonpoint sources will not result in attainment of the WQS. Where are the assurances in this plan?

Response

Thank you for your comment. Section 7 of the Chesapeake Bay TMDL describes in detail EPA's determination that adequate reasonable assurance exists for the Chesapeake Bay TMDL.

Comment ID 0605.2.001.002

Author Name: Payne L.

Organization: City of Lynchburg, Virginia

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that operates as if EPA's previously proposed but withdrawn reasonable assurance regulation had actually been put into effect.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0608.1.001.003

Author Name: Pallansch Karen

Organization: Virginia Sanitation Authority, City of Alexandria

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that it operates as if EPA's previously proposed, but withdrawn, reasonable assurance regulation had actually been put into effect.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0614.1.001.011

Author Name: Street William

Organization: James River Association (JRA)

Wastewater - In the Draft WIP, wastewater discharge limits were maintained at current permitted levels despite the need for additional reductions to achieve water quality standards. Additional nitrogen and phosphorus pollution

reductions are needed from wastewater discharges in the James River basin to meet the James River allocations in a cost effective, reliable manner. The following points demonstrate the need for lower pollution limits for wastewater discharges in the James River basin:

--The level of treatment being implemented for many wastewater discharges in the James River basin is significantly less than in other basins. As stated in the Draft WIP, wastewater effluent concentrations for the Lower James River are 3-4 times higher than those in the Potomac and Rappahannock basins.

--Wastewater discharges comprise 50% of total James River pollution loads, making it practically impossible to achieve the goals for the James River without additional reductions from wastewater discharges.

--Although wastewater discharges have installed much pollution treatment over the past 25 years, additional wastewater treatment is still among the most cost effective approaches and is the most reliable means to achieving nitrogen and phosphorus reductions.

--Wastewater provides the greatest opportunity to harness new technologies that can turn a pollution streams into a revenue streams, such as the algae biofuel project at Hopewell and the fertilizer production at the Nansemond plant in Suffolk.

JRA supports the following actions related to wastewater pollution control in the Draft WIP:

--Require wastewater effluent concentrations for municipal wastewater discharges in the Lower and Tidal Fresh James River at the same level as those for the Rappahannock, Potomac and Eastern Shore. Set comparable pollution treatment levels for industrial wastewater discharges in the Lower and Tidal Fresh James River.

--Require offsets for new non-significant municipal or industrial discharges.

Response

Please refer to response to comment 0034-cp.001.001. Please refer to Section 8 of the final TMDL for information on each jurisdictions' WIPs.

Comment ID 0618-cp.001.001

Author Name: Reese Jodi

Organization: CET Engineering Services

EPA cannot provide "Reasonable Assurance" that placing significantly lower limits on point sources (with many industrial point sources below the limit of technology) will be implemented and successful. Just because EPA has placed severely low nitrogen and phosphorus limits for point sources into the model and the model results show that Pennsylvania's allocations for nutrients can be met, does not provide "Reasonable Assurance" that this approach will be successful. Just because EPA can place these low limits in NPDES permits, does not mean that there is "Reasonable

Assurance" that this approach will be successful.

Response

Thank you for your comment. Please see the response to comment number 0217.1.001.005.

Comment ID 0691.1.001.005

Author Name: Kirk Ken

Organization: National Association of Clean Water Agencies (NACWA)

Reasonable Assurance Requirements
The Agency is on tenuous legal footing with its approach to ensuring the TMDL is implemented. Implementation plans associated with a TMDL are not part of the TMDL itself and, thus, are not subject to EPA approval. Pursuant to EPA's own regulations, a TMDL is the sum of the wasteload and load allocations that allow a body of water to meet water quality standards. 40 C.F.R. § 130.2(i). Section 303(d)(2) of the Clean Water Act (CWA) requires states to incorporate approved TMDLs into the water quality management plans that the states maintain under section 303(e). This framework is carried through in EPA's existing TMDL regulations as well as its 1997 guidance document on TMDL implementation. See 40 C.F.R. § 130.7(a) and "New Policies for Establishing and Implementing Total Maximum Daily Loads" (1997 Guidance). The 1997 Guidance does not suggest that implementation plans are subject to EPA approval or that the Agency has authority to require reasonable assurance. The courts have consistently held that, under current CWA authority, the states have primary responsibility for implementing TMDLs, not EPA.

EPA seems to rely on CWA Section 117(g) (from the "Chesapeake Bay Restoration Act of 2000,"enacted as Title II of the Estuaries and Clean Waters Act of 2000 (P.L. 106-457)) to claim authority over implementation plans. In the case of the Bay, EPA is asserting authority over the Watershed Implementation Plans (WIPs) that EPA has required each Bay state to submit to the Agency, outlining how the necessary load reductions will be achieved. These WIPs were required to provide "reasonable assurance" that nonpoint source loading reductions will be achieved to meet the TMDL. EPA bootstraps "reasonable assurance," a concept created by EPA in its 1997 Guidance, into a legal rationale for judging states' WIPs.

"Reasonable assurance" is a concept that does not exist in either the CWA or EPA regulations. Under its 1997 guidance EPA wanted "reasonable assurances" that load allocations will be met if relied upon to establish point source wasteload allocations, and encouraged submission of implementation plans to EPA. The 1997 Guidance does not purport to make implementation plans subject to EPA approval or to give EPA authority to require reasonable assurance. Despite these limits, in the draft Bay TMDL, EPA goes even further than its 1997 Guidance and asserts that a TMDL must provide "reasonable assurance that the TMDL's LAs will be achieved," which "depends on whether practices capable of reducing the specified pollutant load (1) exist; (2) are technically feasible at a level required to meet allocations; and (3) have a high likelihood of implementation within a given period."

NACWA believes that EPA must acknowledge that the states, under current CWA authority, have the lead on TMDL implementation and that EPA's expectations for "reasonable assurance" must better reflect the legal and political

realities of the Bay states. The states must have sufficient time to develop the programs and legislation necessary to put the needed controls in place. Further, the Bay TMDL is using two year "milestones" for each state to track progress; this should be sufficient reasonable assurance that the states will not significantly deviate from their plans and goals. The backstop measures imposed by EPA on the states also ignore local conditions and requirements and, in some cases, may lead to degradation of local waters. This contradicts the restoration goals of the TMDL, and therefore EPA backstops should not override the states' implementation of the TMDL that more appropriately considers local conditions.

Response

Thank you for your comment. Please see the response to comment number 0230.1.001.026.

Comment ID 0705.001.002

Author Name: Cuffee-Glenn Selena

Organization: City of Suffolk, Virginia

The EPA has not provided reasonable assurance that the urban runoff sector allocations can be achieved by 2025.

Response

Thank you for your comment. Please see the response to comment number 0265.1.001.010.

Comment ID 0726.001.003

Author Name: Belfield G.

Organization: Town of Tappahannock, Virginia

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions . We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that operates as if EPA's previously proposed but withdrawn reasonable assurance regulation had actually been put into effect .

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0732.001.005

Author Name: Hoagland Roy

Organization: Chesapeake Bay Foundation (CBF)

Voluntary Measures Do Not Provide Reasonable Assurance And Do Not Satisfy the Requirements of the CWA

The intent of the CWA is to actually clean the waters of the nation. The provisions dealing with the development and implementation of TMDLs are meant to accomplish the removal of waterways from the CWA impaired waters list. It is not the intent of the CWA that the TMDL provisions are to merely create mounds of paperwork explaining the condition and needs of waterways with no way to restore clean water.

The legislative history of the CWA, passed in 1972, demonstrates that the TMDL program was created as a means to correct the shortcomings of the Water Quality Act of 1965 - an Act that failed to provide any "reasonable assurances" that water quality standards would, in fact, be achieved. A TMDL is a tool to ensure the achievement and attainment of water quality standards. See Environmental Defense Fund Inc. v. Costle, 657 F.2d 275, 279 (D.C. Cir. 1981). The very futility of a voluntary program was the reason behind the enactment of the CWA. As the House committee stated, "America's waters are in serious trouble, thanks to years of neglect, ignorance, and public indifference." H. Rep. No. 92-911, at 66 (1972). In fact, the evidence suggesting that "purely voluntary" plans generally do not work is overwhelming. [FN17] Additionally, the futility of exclusively voluntary measures is routinely recognized by courts in the context: of a number of environmental statutes. For example, in Sierra Club v. EPA, 99 F.3d 1551 (10`' Cir. 1996), the Court held that before EPA could redesignate an area from non attainment to attainment under the Clean Air Act, it must "determine that the improvement in air quality is due to permanent and enforceable reductions in emissions" and not to voluntary compliance measures. Id. at 1557; See also Environmental Defense Fund v. EPA, 167 F.3d 641, 656 (D.C. Cir. 1999) (citing CAA requirement that state implementation plans contain "enforceable control measures.").

Distrust of voluntary compliance is also evident in cases involving the National Environmental Policy Act, 42 U.S.C. §§ 4321-4370e. To avoid having to prepare an environmental impact statement, agencies often outline future mitigation measures to be undertaken to lessen the impact of a particular project. To ensure that these proposed mitigation measures actually occur, courts routinely require more than mere voluntary compliance. There must be a guarantee that the proposed mitigation measures will be utilized. See Cabinet Mountain Wilderness v. Peterson, 685 F.2d 678 (D.C. Cir.1982) (Forest Service ensured that affirmative mitigation measures would occur); Sierra Club v. Peterson, 717 F.2d 1409, 1411 (D .C. Cir. 1983) (Stipulations attached to oil and gas leases were not adequate because while the Department of the Interior could impose conditions, they could not preclude the proposed activity.).

Further, in the context of the Endangered Species Act ("ESA"), 16 U.S.C. §§ 1531-1544 (1973), numerous courts have held "purely voluntary" programs to be inadequate because they offer no assurances that species protection will occur. See Bennett v. Spear, 520 U.S. 154 (1997) (ESA decisions may not be based on "speculation or surmise"); Biodiversity Legal Foundation v. Babbitt, 943 F. Supp. 23 (D.D.C . 1996) (Agency cannot use "promises of proposed future action" as an excuse); (National Wildlife Federation v. Coleman, 529 F.2d 359, 374 (5th Cir. 1976) (Reliance on proposed, unenforceable actions insufficient); Sierra Club v. Marsh, 816 F.2d 1376 (9th Cir. 1987) (Corps violated ESA by relying on speculation that activities will occur); Oregon Natural Resources Council v. Daley, 6F. Supp. 2d 1139 (D. Or. 1998) (Future, voluntary, and untested habitat measures are inadequate) (citing Save Our Springs Legal Defense Fund, Inc.

v. Babbitt, Civ No. 96-168-CA (W.D. Tex. 1997) (Voluntary
actions provide "no assurances that measures will be carried out."); Natural Resources Defense Council v. U.S. Dept. of the
Interior, 113 F.3d 1121 (9th Cir.1997) (California's "purely voluntary program" offered "no substantive protection.").

In all of the above-mentioned cases, the courts have rightly been concerned that voluntary measures do not result in appreciable changes in environmental quality and do not reflect the intent of the scope of laws passed to protect and restore our environment. The same principles apply to the CWA, and specifically to TMDLs. The Bay TMDL must include the reasonable assurances that it will be achieved in order to meet the goals and requirements of the CWA.

[FN17] See Putting the Pieces Together: State Nonpoint Source Enforceable Mechanisms in Context, ELI Project No. 970302 (June, 2000).

Response

Thank you for your comment. For responses regarding reasonable assurance please see response to comment numbers 0217.1.001.005. and 0230.1.001.026.

Comment ID 0735.001.002

Author Name: Smiley Don

Organization: Utilities, Inc.

EPA is considering these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions. We also question whether EPA's unpromulgated reasonable assurance: guidance is even legal given that it operates as if EPA's previously proposed but withdrawn reasonable assurance regulation had actually been put into effect.

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Comment ID 0740.001.007

Author Name: Hanmer R.

Organization:

Finally, I would like to comment on EPA's backstop policy. The legal rationale for proposing backstop wasteload

allocations (WLA) and load allocations (LA) is well-stated by EPA. Certainly, there has to be "reasonable assurance" that the load allocations will be met. Generally, the most cost-efficient nutrient and sediment controls (based on dollar per pound or ton of pollutant removed) are best management practices (BMPs) in agriculture and land use which are also - understandably- the most difficult to regulate under the Clean Water Act. Sufficient implementation of such cost-effective practices is difficult to achieve voluntarily because farmers and other land owners-may lack the financial resources to implement them and/or have no market to recoup their costs.

Many of the agricultural nutrient problems are associated with one thing - manure production from animal production and associated overuse on crop land. Surely population growth in the Chesapeake Bay watershed will only increase the demand for concentrated animal production. Digesters are apparently a technologically good method for turning a problem into a product, albeit with a weak market. Therefore, the economics need to be addressed.

Rather than provide "reasonable assurance" through extended regulatory requirements which are extremely costly compared with agriculture and other land use-related BMPs (such as riparian forest buffers and other green infrastructure) or that are not affordable by individual agricultural producers (like digesters), EPA and its partners should become even more innovative in assuring that the agricultural and other land owners have the correct incentives and assistance to achieve the necessary controls. Generally speaking, preserving agricultural land use will. be good for the Bay, and its citizens, and preserving/encouraging forest land is the best land use for the Bay.

EPA and the states could look at their historical experience with wastewater treatment, where a natural market for pollution control was also lacking. Such experience in the 70s and 80s offers ideas about how to design (in cooperation with the U.S. Department of Agriculture, state agricultural agencies and agriculture industry stakeholders) a comprehensive and concerted program of economic incentives, sometimes regulatory incentives, accountability (perhaps through third-party verification), technical assistance and research/development of more cost-effective technologies. What will it take to have "reasonable assurance" that cost-effective agricultural and land use BMPs are being implemented and working? In the context of TMDL implementation and the President's Executive Order, take the next step and put in place a systematic, coherent agricultural strategy that utilizes creatively the tension between regulatory requirements, voluntary actions and assistance. One that is accountable and works.

Response

Please see EPA’s comprehensive responses to comment ID 0288.1.001.016.

Comment ID 0741.001.003

Author Name: Caskey W.

Organization: Isle of Wight County

The EPA has not provided reasonable assurance that the urban runoff sector allocations can be achieved by 2025.

Response

Thank you for your comment. Please see the response to comment number 0265.1.001.003.

Comment ID 0742.001.006

Author Name: Wells John

Organization: Town of Leesburg, Virginia

EPA is considering the potential WIP these potential cuts under a new EPA guidance letter on "reasonable assurance" and EPA's initial view that Virginia has given inadequate assurance that nonpoint sources (e.g., agricultural sources) will reduce their nutrient loads according to plan. We disagree with EPA's initial view given Virginia's good track record of achieving nonpoint reductions . We also question whether EPA's unpromulgated reasonable assurance guidance is even legal given that it operates as if EPA's previously proposed but withdrawn reasonable assurance regulation, had actually been put into effect .

Response

Thank you for your comment. Please see the response to comment number 0184.1.001.003.

Response to Public Comments: Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment

Issue Category:
19. Accountability Framework

Pages 1292 – 1384

December 29, 2010

Docket #: EPA-R3-OW-2010-0736

19 - ACCOUNTABILITY FRAMEWORK

Comment ID 0219.1.001.005

Author Name: Cary Russell

Organization: Madison County, New York

WHEREAS, we oppose EPA increasing its federal regulatory control and usurping state and local jurisdiction and authority in order to impose their TMDL, instead of working collaboratively with State agriculture and environmental protection agencies, Soil and Water Conservation Districts and local communities to address Bay watershed water quality concerns; and

WHEREAS, we object to the fact that in order to satisfy EPA's regulatory goals without confirmation of water quality improvement, EPA has not ensured realistic delivery of needed funding and technical assistance and has not provided regulatory flexibility to allow for implementation of continually improving on-farm practices in response to site-specific environmental variables;

Response

In response to the first paragraph of the comment, EPA has not usurped state or local jurisdiction or authority. To the contrary, EPA has been working with all seven Chesapeake Bay watershed jurisdictions – Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia, and the District of Columbia – in a cooperative and collaborative manner to restore the Chesapeake Bay. In response to the second paragraph of the comment, the Chesapeake Bay TMDL will enable the jurisdictions to attain and maintain applicable water quality standards, and employs a flexible, realistic, cooperative, and collaborative implementation approach to doing so.

Comment ID 0227.1.001.027

Author Name: Strauss Sandra

Organization: Pennsylvania Council of Churches

There were a variety of reasons for prior failures, including inadequate data, failure to update plans when progress lagged, and most especially, the failure to connect to a real and enforceable, approved implementation plan. We expect that a well implemented TMDL will provide what we have been lacking: strong science and implementation plans built on principles of adaptive management that can and will be enforced.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL.

Comment ID 0270-cp.001.005

Author Name: Wardrop Denice

Organization: Chesapeake Bay Program's Scientific and Technical Advisory Committee (STAC)

Comment: Does USEPA have reasonable assurance that its future budget will permit such a programmatic review?

Response

Please refer to response to comment 0038.1.001.024.

Comment ID 0393.001.002

Author Name: Campaign Mass

Organization: Environment America and Environment Virginia

Second, EPA must impose tough consequences if the state is not making polluters do their fair share to clean up the Bay. Most children are taught not to make a new mess until they've cleaned up the one they've already made; polluters should be held to the same standard. EPA must not allow any new pollution permits until the states have compelled current polluters to clean up their acts.

I know that you have made the Bay an unprecedented priority at EPA thus far. But all your hard work ultimately comes down to this point, where EPA must ensure that the states hold Bay polluters accountable. I urge you to stick to your guns."

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. As described more fully in response to comment number 0394.001.013, EPA has committed to take a number of federal actions should it determine that expectations have not been met and that such federal actions are necessary.

Comment ID 0394.001.002

Author Name: Heavner Brad

Organization: Environment America et al.

The ultimate success of this historic effort will rely on the EPA's ability to hold states accountable to the clear goals laid

out for them.

We offer the following recommendations to the EPA as it prepares and implements the final Chesapeake Bay TMDL due December 31, 2010.

States Must Demonstrate That Their Plans Will Achieve the TMDL's Numeric Pollution Reduction Goals. The nutrient and sediment load allocations set forth in the draft TMDL are essential for restoring the Chesapeake Bay. But assigning each state the responsibility to reduce specific amounts of pollution will not ensure that the reductions will take place. The EPA must insist that each state demonstrate that the measures set forth in its final Watershed Implementation Plan (WIP) will achieve the TMDL's numerical pollution reduction goals for that state.

Response

EPA agrees that it is imperative that jurisdictions demonstrate that their WIPs will meet the jurisdictions' target allocations for the Bay TMDL. EPA evaluated the WIPs to determine whether they met these target allocations and whether they provided adequate reasonable assurance that the required load reductions could be achieved. In this evaluation, if EPA determined that certain pollution reduction measures were not adequate, EPA adjusted the Bay TMDL allocations and identified other federal actions that it would be prepared to take to ensure that pollution reductions occur to meet applicable water quality standards in all tidal segments of the Bay. EPA will track pollution reduction progress over time and take additional federal actions as necessary. EPA believes that this tracking and the commitment by the jurisdictions to fill the gaps in current programs to assure that reductions are met are key aspects of the accountability framework created to meet the goals of the TMDL.

Comment ID 0394.001.013

Author Name: Heavner Brad

Organization: Environment America et al.

Furthermore, the EPA should remain committed to using any enforcement action at its disposal to make sure the TMDL is successful. For instance, the EPA should also be ready to object to permits for new dischargers if states have not sufficiently reduced pollution from current sources.

Enforcement
Enforcement of our water pollution laws should be improved by increasing maximum fine levels, doing more audits, and providing more information to the public about the inspections and audits that are done. Higher fines are needed, mostly as a deterrent. For instance, in Maryland, when the standard fine for violating Nutrient Management Plans is $300, it is cheaper for a farmer to avoid performing measures in the plan and pay a fine than to follow the law.

The state also needs more inspections to assure compliance and should make more information from those inspections public. Researchers and policy advocates need to make sure they are focused on the most important problems. Lack of adequate information creates a risk that advocates will assume the worst and not be coordinated in their efforts to build support for the best solutions. More information helps ensure that everyone is working together effectively.

The only way to reliably enforce how agribusinesses and farmers handle their animal manure is to establish cradle-to-grave tracking of that manure. With industrial chicken alone, we have a 1 billion pound pollution problem. It's hard to imagine how any restriction on manure application could be enforced unless agribusiness operators are required to show what happened to every ton of manure that comes into their possession. For instance, suppose a chicken operation produces 10 tons of manure. The operation should have to account for the whereabouts and usages of all 10 tons. If they say 5 tons went to a particular farmer, then that farmer has to disclose what she did with the 5 tons. If she claims she didn't apply it to her fields-in violation of P-sat results, let's say-then she must explain what she did with it.

Response

EPA is committed to using any necessary enforcement action at its disposal to assure that the Bay watershed jurisdictions successfully implement the Bay TMDL. In a December 29, 2009 letter to the jurisdictions, EPA identified how jurisdictions' progress toward achieving nutrient and sediment allocations will be tracked, what jurisdictions' shortfalls may trigger EPA action, and what actions are currently available to EPA. One of those potential actions includes EPA's potential objection to permits for new and expanded discharges if jurisdictions have not provided adequate documentation that they are on course to meet the TMDL targets and schedules.

EPA also is prepared to take other federal actions if necessary. These measures include:

• Expand NPDES permit coverage to currently unregulated sources utilizing EPA's residual designation authority to increase the number of sources, operations and/or communities regulated under the NPDES permit program;
• Object to NPDES permits for both major and minor facilities and to increase program oversight. These measures would include, but not be limited to, NPDES effluent limits that are not consistent with the Bay TMDL's wasteload allocations;
• Require net improvement offsets for new or expanded discharges that do more than merely replace the new or expanding source's anticipated new or increased loadings;
• Increase and target federal enforcement and compliance assurance in the watershed -This could include both air and water sources of nitrogen, phosphorus, and sediment;
• Condition or redirect EPA grants based on demonstrated progress in meeting Watershed Implementation Plans and/or in an effort to yield higher nitrogen, phosphorus, or sediment load reductions; and
• Federal promulgation of local nutrient water quality standards -Initiating promulgation of federal standards where the jurisdiction's applicable water quality standards do not contain criteria that protect designated uses locally or downstream.

Comment ID 0410.1.001.010

Author Name: Pujara Karuna

Organization: Maryland State Highway Administration (SHA)

What is the timeframe for implementation of BayTAS and who will be responsible for the data uploads?

Response

The Bay Tracking and Accountability System (TAS) will formally become operational and begin documenting progress in achieving the Bay TMDLs WLAs and LAs after January 31, 2011. At that time, the Bay TAS O&M Team will begin inputting information into the tracking system from the Bay partners (federal agencies and jurisdictions). All Bay restoration partners recognize the importance of an effective and efficient data acquisition and accountability system to demonstrate progress in achieving pollutant reductions. It is also apparent that all of these partners face resource limitations in performing primary functions and view tracking and reporting as a secondary priority. The Chesapeake Bay Regulatory and Accountability Program (CBRAP) grant is providing resources to enhance state programs. For example, in Maryland, a portion of the CBRAP funding is being directed toward the tracking and reporting function, notably for urban stormwater management, Concentrated Animal Feeding Operations (CAFOs) and nutrient management planning.

Comment ID 0418.1.001.003

Author Name: Devine Jon

Organization: Natural Resources Defense Council (NRDC)

In addition, NRDC agrees that section 117 and the Agency's TMDL authority provide authority for EPA's "accountability framework," which includes submission of WIPs, biennial milestones for progress, and federal actions as a consequence of state failures. First, section 117 directs EPA to "ensure that management plans are developed and implementation is begun by signatories to the Chesapeake Bay Agreement to achieve and maintain," among other things, "the nutrient goals of the Chesapeake Bay Agreement for the quantity of nitrogen and phosphorus entering the Chesapeake Bay and its watershed [and] the water quality requirements necessary to restore living resources in the Chesapeake Bay ecosystem. . . ."[FN 3] Second, as EPA's TMDL guidance discusses:

When a TMDL is developed for waters impaired by both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur, EPA's 1991 TMDL Guidance states that the TMDL should provide reasonable assurances that nonpoint source control measures will achieve expected load reductions in order for the TMDL to be approvable. This information is necessary for EPA to determine that the TMDL, including the load and wasteload allocations, has been established at a level necessary to implement water quality standards. [FN 4]

This position is consistent with EPA's TMDL regulations, which provide for flexibility in allocating the loads between point and nonpoint sources, something that is appropriate only if EPA can be equally confident that the more stringent load allocations will in fact be realized as EPA can be that wasteload allocations (typically embodied in NPDES permits) will be met.[FN 5] Accordingly, EPA can insist that state WIPs' reflect actions that are sufficient to provide "reasonable assurance" that nonpoint source reductions will actually occur. Finally, with respect to the signatories to the Chesapeake 2000 agreement, section 117's direction to EPA to "ensure" that states not only plan to make needed reductions, but also implement such reductions, empowers the Agency to demand that Maryland, Virginia, Pennsylvania, and the District of Columbia provide even more of a guarantee that WLAs and LAs will be met. Accordingly, we support EPA's expectation that the signatory states will "develop Plans to achieve needed nutrient and sediment reductions whose control actions are based on regulations, permits or otherwise enforceable agreements that apply to all major sources of these pollutants, including non-point sources." [FN 6]

EPA also has significant authority to secure reductions in nutrients and sediment directly through regulations it promulgates or through improved oversight and enforcement of state CWA programs. For example, the Agency can expand the universe of sources of stormwater pollution for which it develops NPDES permit requirements under its "residual designation" authority. [FN 7] We appreciate EPA's willingness to implement residual designation and other "consequences" in the event that states do not make expected progress in meeting their reduction milestones.[FN 8] However, we note that some of these initiatives are things that EPA should be doing in any event, such as objecting to unlawful permits, promulgating local nutrient water quality standards, and establishing finer-scale wasteload and load allocations for the TMDL (as discussed in the next section). Some other actions may need to be implemented in order to meet other water quality goals, or may be folded into other Clean Water Act programs.[FN 9]

[FN 3] 33 U.S.C. §§ 1267(g)(1)(A) & (B).

[FN 4] U.S. EPA, "Guidelines for Reviewing TMDLs Under Existing Regulations Issued in 1992," available at http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/final52002.cfm.

[FN 5] See generally 40 C.F.R. § 130.2(i) ("If Best Management Practices (BMPs) or other nonpoint source pollution controls make more stringent load allocations practicable, then wasteload allocations can be made less stringent.")

[FN 6] Letter from William C. Early, Acting EPA Region III Administrator, to L. Preston Bryant, Jr., Virginia Secretary of Natural Resources, at 16 (Nov. 4, 2009).

[FN 7] See 33 U.S.C. § 1342(p)(2)(E).

[FN 8] Letter from Shawn M. Garvin, EPA Region III Administrator, to L. Preston Bryant, Jr., Virginia Secretary of Natural Resources, at 3-4 (Dec. 29, 2009).

[FN 9] See, e.g., 74 Fed. Reg. 68,617 (Dec. 28, 2009) (seeking comment on regulatory options for adequately controlling stormwater in national rulemaking).

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. EPA is committed to using the full scope of its authority to implement the TMDL.

Comment ID 0418.1.001.011

Author Name: Devine Jon

Organization: Natural Resources Defense Council (NRDC)

Because the entire Bay TMDL process is dependent upon an unfolding mechanism driven by improved accountability

and adaptive response to successes and shortcomings, EPA must ensure that the initial accountability foundation is based on a frank critique of state efforts to date. This is particularly appropriate given the role that progress toward meeting 2 Year Milestones plays in meeting both the criteria of each WIP and in providing reasonable assurance of progress toward meeting allocations. Bay States have been working to identify and implement 2 Year Milestones since May 2009, with plans to meet these commitments by December 2011. As the Chesapeake Bay Foundation (CBF) identified in a series of letters to Region 3 Administrator Shawn Garvin and the state environmental secretaries, every Bay State has fallen significantly short of many of the metrics that would demonstrate reasonable progress toward meeting Milestones by this date.[FN 24] CBF found that, in Virginia, "little new was being done to restore the Chesapeake Bay and its tidal tributaries," and that indeed, actions that had been pledged or actually initiated were being cut back. Maryland "fell considerably short" of implementing the most significant nitrogen reducing milestone projects to which it had committed. Pennsylvania is substantially behind schedule in bringing its agricultural operations under nutrient management plans.[FN 25]

The backlog of NPDES permits in most states is one further example of the failure to take basic steps toward accountability and progress. States with significant numbers of expired permits typically lack the capacity to administer and oversee an effective permitting system. Failure to maintain up-to-date permits should be seen as a major red flag in reasonable assurance reviews as state agencies will need to rewrite all permits in a timely fashion to meet TMDL allocations. Compliance with permits is a powerful, effective means of meeting pollutant discharge reduction goals, yet most of the states are operating with large numbers of dischargers operating under expired permits. EPA must ensure that states are adequately writing, renewing and monitoring permit programs to ensure that they incorporate wasteload allocations under the TMDL.

Most troublingly, the draft WIPs submitted by the states generally fail to address these shortcomings or provide clear, definite measures to address them by accelerating achievement rates over the remainder of the 2 Year Milestone period. Maryland's draft WIP is illustrative of this weakness, though by no means unique. In many respects, Maryland, like its sister Bay States, has fallen behind the implementation rates necessary to meet the goals of the first of its 2 year Milestones. For instance, among the gap closing strategies outlined in its WIP, Maryland plans to dramatically increase the planting of cover crops to reduce nitrogen flows from agricultural fields. However by the spring of 2010 it had only met 16% of its 2 Year Milestone goal. Yet, Maryland's WIP provides absolutely no discussion of actions it will take to correct this shortfall or ensure reasonable progress toward its 2 Year Milestones. CBF and others have pointed to specific projects that Maryland and other Bay States must successfully implement if the 2 Year Milestones are to be achieved with sufficient rigor to provide "reasonable assurance" that TMDL WLAs and LAs will be achieved.

[FN 24] See Letter from Roy Hoagland, Chesapeake Bay Foundation to Shawn Garvin, EPA Region 3 Administrator, Aug. 10, 2010, with enclosures.

[FN 25] Id.

Response

Thank you for your comment. EPA agrees that a thorough evaluation and assessment of the Bay jurisdictions' Phase I Watershed Implementation Plans is necessary to establishing an effective Chesapeake Bay TMDL. EPA conducted such assessment of the

draft and final Phase I WIPs, which is reflected in Section 8 of the draft and final TMDL, respectively. EPA also notes, with respect to substantive comments regarding individual jurisdictions' Phase I WIPs, that the WIPs submitted by each jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdiction for consideration as part of its WIP.

Comment ID 0443.2.001.002

Author Name: Moore Shannon

Organization: Frederick County Government

The County provides the following comments on the Executive Summary of the TMDL: p.6: "Beginning in 2012, jurisdictions (including the federal government) are expected to develop two-year milestones to track progress toward reaching the TMDL's goals."

• Based on the available funding and orgaltizational framework both inside the County and outside, these milestones seem impossibly aggressive.

Response

EPA recognizes that the full and successful implementation of the Bay TMDL will not be easy. However, EPA believes that the implementation of the pollutant control programs identified by the jurisdictions in their Phase I WIPs and the allocations in the Bay TMDL are achievable. The adaptive implementation approach being employed in the Chesapeake Bay will provide a mechanism to track the rate, timing and success of the jurisdictions' WIPs, and will allow for mid-course adjustments if the need arises.

Comment ID 0463.1.001.005

Author Name: Sharma Lalit

Organization: City of Alexandria, Virginia

Lack of funding, timing, inequity, and physical constraints are barriers to implementing these retrofits. Therefore, there is no reasonable assurance associated with this backstop measure.

Response

EPA disagrees with your assertion that federal backstop actions are not supported by reasonable assurance. In blended waters such as the MS4s you reference in your comment, EPA regulations require a demonstration of reasonable assurance if a WLA is

allocated to any regulated point source. Additionally, EPA's NPDES permitting regulations at 122.44(d)(1)(vii)(A)&(B) require two things from permit effluent limits. First, they must be "derived from, and compl[y] with" applicable water quality standards. Second, they must be "consistent with" the assumptions and requirements of a TMDL's WLA. The only way an effluent limit can meet both requirements is for the WLA to be set at a level that (in combination with the other WLAs and LAs in the TMDL) implements applicable water quality standards. An NPDES permit that reflects these regulatory requirements embodies the principles of reasonable assurance. With respect to the comment that lack of funding, timing, inequity, and physical constraints are barriers to implementing retrofits, please see the response to comment number 0232.1.001.004. Please refer to Section 8 of the final TMDL for further information regarding EPA's evaluation of the WIPs and Backstops.

Comment ID 0517.1.001.001

Author Name: Miller Christopher

Organization: Piedmont Environmental Council

The Piedmont Environmental Council acknowledges the prominent Federal role in the future success of achieving the Chesapeake Bay TMDL, as a coordinator, a collaborator, and as providing oversight and enforcement as authorized.

The Federal government needs to hold the partners to the Chesapeake Bay agreement accountable for achieving water quality goals and TMDL allocations for all the tributaries, as well as Chesapeake Bay itself.

Response

Thank you for your comment. EPA has been working with the Chesapeake Bay jurisdictions to establish and implement the Chesapeake Bay TMDL. EPA intends to continue these collaborative efforts and to use the full scope of its authority to ensure that the Bay jurisdictions meet their Chesapeake Bay allocations and that applicable water quality standards are attained and maintained.

Comment ID 0711.001.002

Author Name: Schwartz Laurie

Organization: Waterfront Partnership of Baltimore, Inc.

The establishment of the Bay TMDL [Total Maximum Daily Load] marks a tremendous turning point in restoring the Chesapeake Bay by capping the total amount of discharged pollutants. To ensure that state allocations and the overall Bay TMDL are met, EPA has established a new accountability framework that represents the first real opportunity to hold the Bay jurisdictions accountable for their promises to reduce pollution and clean up the Bay.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL.

19.1 - TWO YEAR MILESTONES

Comment ID 0050-cp.001.003

Author Name: Simonds Shelly

Organization:

Please place more stringent, concrete goals for cleaning up the Bay, for the sake of our children and for the vitality of the economy they will inherit.

Response

Thank you for your comment. EPA believes that the Chesapeake Bay TMDL will have a significant impact on the health of the Chesapeake Bay. The Chesapeake Bay TMDL contains concrete goals. As described more fully in response to comment number 0394.001.013, EPA may take federal actions if EPA determines that would be necessary.

Comment ID 0146.1.001.006

Author Name: Isenberg W.

Organization: Virginia Commonwealth University Center for Environmental Studies. Class: ENVS 601, Professor: P.L. deFur

In the executive summary it addressed the 2-year milestones. My feeling is that while they may provide insight into goal attainment, there is no mention as to how nonpoint source non-attainment will be addressed. Many agricultural areas are managed under BMPs, but sourcing areas that need more attention is not addressed. In other words, there is no proposed way to source the nonpoint source problem areas.

Response

Thank you for your comment. Please see response to comment number 0388.1.001.002.

Comment ID 0302.1.001.005

Author Name: Williams Nat

Organization: The Nature Conservancy

We commend EPA for incorporating the following elements into the TMDL and accountability framework:

2. Providing for continuous accountability through the two-year milestones. Previous Bay cleanup efforts have suffered from deadlines that were often too distant to spur the immediate actions that were required. The two-year milestones will guard against complacency and assure that reductions are achieved in a predictable fashion. If early milestones are not met, all interested parties will know what additional actions will be required to "catch up" by the next milestone. This transparency is an essential element of the accountability framework.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL.

Comment ID 0388.1.001.002

Author Name: Legg Peter

Organization: Advocates for Herring Bay (AHB)

5. Measure and Verify Results

EPA and the State must be able to accurately track and verify implementation of the many nutrient reduction measures outlined in theWIP. The two-year milestones and the interim 2017 plan should include clear benchmarks, such as a list the individual wastewater treatment plants slated for enhanced nutrient removal, the planning and implementation dates, the pre- and post-implementation effluent flows, and the nutrient concentrations and loadings. Similar data should be provided by geographic area (for example, by county or model segment) for agricultural and other nutrient reduction programs. Good intentions simply are not enough anymore. The EPA and the citizens of Maryland need assurances that the state has the capability to effectively measure progress toward our common goals.

Response

EPA concurs with your comment and suggestion regarding the need to accurately track and verify implementation of the many nutrient reduction measures outlined in the WIPs and incorporated as assumptions of the Bay TMDL. In a letter to the Bay jurisdictions dated November 4, 2009, EPA outlined its expectations for the jurisdictions in meeting water quality goals in the Chesapeake Bay watershed. In order for EPA to determine if the jurisdictions are on schedule to meet their goals and milestones, the jurisdictions are required to monitor, track and report their progress. To this end, the jurisdictions must continue to report annually to EPA on the implementation of the Best Management Practices (BMPs) and other pollution controls within their respective jurisdiction. EPA will use the reported tracking data and the Bay models along with Chesapeake Bay tidal and watershed water quality monitoring data to assess progress towards the milestones commitments. EPA will work with the jurisdictions and local governments to design and implement a process to credit only that portion of pollutant removals for which the jurisdictions can provide verification that reported practices and/or controls are being appropriately installed and maintained. If a jurisdiction is unable to meet its goals or milestones based on verified BMPs and controls, EPA expects to take appropriate action.

Further, the final TMDL establishes allocations for wastewater treatment plants that will set future permit limits. Finally,

allocations for regulated and unregulated urban runoff, agriculture, onsite systems, and forest lands are provided for the portion of the watershed draining to each of the 92 segments of the Bay and its tidal tributaries.

Comment ID 0467.1.001.011

Author Name: Williams Shannon

Organization: The Harrisburg Authority, Harrisburg, Pennsylvania

c. Even if EPA does not include backstop limits with the initial issuance of the TMDL, what guarantees will EPA make that backstop limits will not be "mandated" at any of the two year milestone reviews or at the end of the current NPDES permit term?

Response

The purpose of the EPA backstop provisions of the Chesapeake Bay TMDL is to fill any significant allocation and/or reasonable assurance gaps in the jurisdictions' Phase I WIPs. The Phase II WIPs provide the jurisdictions with another opportunity to enhance their respective suites of implementation actions. However, EPA does not "guarantee" that it will not take additional federal actions at some future time, as described in Section 7 of the final Chesapeake Bay TMDL.

Comment ID 0467.1.001.031

Author Name: Williams Shannon

Organization: The Harrisburg Authority, Harrisburg, Pennsylvania

Page 19 Two-year Milestones

The WIP indicates that every two years EPA will assess the milestone commitments and evaluate whether the proposed actions, control, and practices would result in estimated loads that are equal to or below the target loading reduction. If EPA determines that targets will not be met, EPA will determine what additional action is required. To the extent that EPA will require implementation of existing practices at additional sites seems to be workable; however, the notion that EPA will require the implementation of new or revised practices at locations where practices have already been implemented is unworkable. For example, for point sources, the implementation of tighter controls on nutrients at point sources that have already implemented controls is either grossly expensive or impossible. For EPA or the Department to instruct a POTW to first install technology or plan to trade to meet annual cap loads as set forth in the Department's Chesapeake Bay Tributary Strategy (for example, standard BNR), then to mandate additional technology to meet tighter cap loads (for example, ENR with a denite filter), or to abandon trading because a sector is not meeting its targets, and then again, two years later force the installation of even more treatment (for example, membranes to achieve extremely low nitrogen and phosphorus limits or polishing filters to remove phosphorus), to meet even lower cap loads is unthinkable relative to expense and uncertainty. EPA has studied the Bay for at least 30 years and should be able to assess with certainty what activities will be required to meet applicable water quality standards.

In the case of the Harrisburg Authority, should cap loads be reduced from the current levels based on design capacity and 6 mg/l total nitrogen and 0.8 mg/l total phosphorus to limit of technology because other sectors fail to meet their targets, it is likely that the Authority will face increased capital expenses of over $50 million and increased operations and maintenance costs of $4 million per year. In addition, it is likely that additional lands would need to be purchased to site the required additional treatment units.

Page 24 Interim and Final Nutrient and Sediment Load Targets

Watershed model data has been unavailable for review or has been available only in extremely complex and large data sets that are unusable to the public. Beginning in midsummer, numerous requests have been made to DEP to release the delivery ratios in the 5.3 Chesapeake Bay Watershed Model. DEP never provided that data, indicating that it could not obtain it from EPA. Only recently, and at the end of the public comment period, has EPA furnished the delivery ratios, first in a file that contained over 1.4 million lines of data, then in tables which included all Pennsylvania NPDES permits. However, the data was not sorted for significant point sources and did not identify the phase 1, 2, and 3 POTW's or provide the facility names. Delivery ratios are critical to evaluating compliance paths and to assessing EPA's backstop limits for POTW's.

Response

EPA recognizes that restoring the Bay is neither easy nor inexpensive, or else necessary actions to achieve applicable water quality standards would be complete. Regardless of the technology employed at individual facilities, water quality standards must be met and additional treatment technologies may sometimes be necessary to achieve WQS. Each Jurisdiction's WIPs provide a strategy for meeting WQS and the technologies that may need to be deployed to meet those goals. Section 8 of the final Chesapeake Bay TMDL describes the results of EPA's evaluation of the jurisdictions' final Phase I WIPs. Regarding the Chesapeake Bay Watershed model, please refer to response to comment 0265.1.001.020.

Comment ID 0614.1.001.008

Author Name: Street William

Organization: James River Association (JRA)

The Draft WIP Does Not Set 2-year Milestones - The plan does not identify two year milestones for actions and pollution reductions that are needed to meet the longer term 2017 goals. The Chesapeake Bay states and EPA recognized that the past policies that set only long term pollution reduction goals were insufficient to ensure accountability and continuous progress and agreed to set two-year milestones to correct this shortcoming. The Virginia Draft WIP only includes goals for 2017 and 2025.

Response

EPA notes, with respect to substantive comments regarding individual jurisdictions' Phase I WIPs, that the WIPs submitted by each

jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdiction for consideration as part of its WIP.

19.2 - FEDERAL ACTIONS/CONSEQUENCES

Comment ID 0038.1.001.034

Author Name: Eisen Professor Joel

Organization: University of Richmond Environmental Law and Policy

What will be the consequences for those who are not meeting their required standard to decrease pollution? Surely reserving the "option of revising this projection" (26) is not the most lucrative answer. Just as incentives are given to reduce pollution, consequences need to be clearly laid out when directives given by the state are not followed. Without penalties, what is to prevent parties from ignoring their impact? The condition of the Bay speaks to the results of ignorance.

Response

Thank you for your comment. Please see the response to comment number 0394.001.013.

Comment ID 0055-cp.001.002

Author Name: Bernard David

Organization: Coastal Canoeists

If Virginia does not enact strong measures to stop non-point pollution from the above sources we want EPA to immediately take steps to tighten regulated point sources so as to not let water cleanup get behind schedule.

We know the American Canoe Association sued EPA 11 years ago to force a water cleanup in Virginia. That case was won by ACA and failure to clean Virginia waters is not an option. Let us get on with the job.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0057-cp.001.003

Author Name: Abel Katie

Organization:

An ounce of prevention is worth a pound of cure. Citizens must realize that it is far more inexpensive to prevent nutrient and sediment pollution entering the water than to clean up the water. Unfortunately "tragedy of the commons" is occurring in the Chesapeake Bay Watershed and citizens need a push to reverse the trend. The WIP's must hold each stakeholder accountable with clearly defined and specific actions to be implemented with deadlines and enforcements.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0072-cp.001.004

Author Name: Isenberg W.

Organization: Virginia Commonwealth University Center for Environmental Studies. Class: ENVS 601, Professor: P.L. deFur

The 2-year milestones may provide insight into goal attainment, but there is no mention as to how nonpoint source non-attainment will be addressed. There is no proposed way to source the nonpoint source problem areas. Monitoring 3rd order stream sub basins, normalizing to discharge*average nutrient/sediment load would allow problem area sourcing in the non-tidal drainages.

Response

EPA views the completion and implementation of the Tracking and Accountability System (TAS) as a pivotal component of the Bay TMDL implementation and the accountability framework that is a key part of the reasonable assurance for the Bay TMDL. This system will be populated with information about the rate and magnitude of the installation of nonpoint source best management practices on a regular and frequent basis by all state and federal partners involved in the Bay restoration effort. This information will be entered into Scenario Builder and ultimately be used as input into the Bay watershed and water quality models to evaluate progress toward the attainment of applicable water quality standards. Additionally, “real world” monitoring will provide a means to verify such progress. The analytical approach proposed by the comment is one of the types of data collection and interpretation that also will be considered.

Comment ID 0087-cp.001.005

Author Name: Phillips D. H.

Organization:

The EPA must employ strong means to enforce the pollution reductions in the watershed of the Bay.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0107-cp.001.002

Author Name: Bernard David

Organization: Coastal Canoeists

If Virginia does not enact strong measures to stop non-point pollution from the above sources we want EPA to take steps to not let water cleanup get behind schedule. We know the American Canoe Association sued EPA 11 years ago to force a water cleanup in Virginia. That case was won by ACA and failure to clean Virginia waters is not an option.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0109.001.002

Author Name: Bennhold C.

Organization:

If VA does not meet its requirements for clean up plan EPA needs to

--improve pollution standard from point sources
--rewrite pollution discharge permit
--assume responsibility for VA water

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0110.001.005

Author Name: Siewick C.

Organization:

I think that Virginia should help clean up the Chesapeake Bay, at least a little bit. Please use the Environmental Protection Agency to help clean the Bay.

Response

Thank you for your comment. EPA has been working with Virginia and with the other Bay jurisdictions to establish and implement the Chesapeake Bay TMDL. EPA intends to continue these collaborative efforts and to use the full scope of its authority to ensure that the Bay jurisdictions meet their Chesapeake Bay TMDL allocations and that applicable water quality standards are attained and maintained.

EPA notes that the Bay jurisdictions, not EPA, drafted and will implement the Watershed Implementation Plans. With respect to substantive comments regarding individual jurisdictions' Phase I WIPs, the WIPs submitted by each jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdiction for consideration as part of its WIP.

EPA is committed to using any necessary enforcement action at its disposal to assure that the Bay watershed jurisdictions successfully implement the Bay TMDL. In a December 29, 2009 letter to the jurisdictions, EPA identified how jurisdictions' progress toward achieving nutrient and sediment allocations will be tracked, what jurisdictions' shortfalls may trigger EPA action, and what actions are currently available to EPA. One of those potential actions includes EPA's potential objection to permits for new and expanded discharges if jurisdictions have not provided adequate documentation that they are on course to meet the TMDL targets and schedules.

In addition, EPA is prepared to take other federal actions if necessary. These measures include:

• Expand NPDES permit coverage to currently unregulated sources utilizing EPA's residual designation authority to increase the number of sources, operations and/or communities regulated under the NPDES permit program;
• Object to NPDES permits for both major and minor facilities and to increase program oversight. These measures would include, but not be limited to, NPDES effluent limits that are not consistent with the Bay TMDL's wasteload allocations;
• Require net improvement offsets for new or expanded discharges that do more than merely replace the new or expanding source's anticipated new or increased loadings;
• Increase and target federal enforcement and compliance assurance in the watershed -This could include both air and water sources of nitrogen, phosphorus, and sediment;
• Condition or redirect EPA grants based on demonstrated progress in meeting Watershed Implementation Plans and/or in an effort to yield higher nitrogen, phosphorus, or sediment load reductions; and

• Federal promulgation of local nutrient water quality standards -Initiating promulgation of federal standards where the jurisdiction's applicable water quality standards do not contain criteria that protect designated uses locally or downstream.

Comment ID 0111.001.002

Author Name: Haideri S.

Organization:

[P]articularly VA, held accountable for the standards that are being set.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0112.001.002

Author Name: Keats J.

Organization:

If Virginia does not meet its requirements for a clean-up plan, EPA should take the following actions:

--Improve pollution standards from point sources
--Rewrite or deny pollution discharge permits
--Own responsibility for Virginia water

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0112.001.003

Author Name: Keats J.

Organization:

Virginia needs to play their part in the clean-up. Please use EPA to help make this happen.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0113.001.002

Author Name: Morgan K.

Organization:

If any state does not meet its requirement for a clean-up plan, EPA should take the following actions:

--Improve pollution standards from point sources
--Rewrite or deny pollution discharge permits and/or
--Assume responsibility for Virginia's water.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0115.001.001

Author Name: Gulbronsen N.

Organization:

Enforce the Clean Water Act. If Virginia doesn't meet its requirements for a clean-up plan, EPA should take action!

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0116.001.002

Author Name: Houser T.

Organization:

If Virginia does not meet its requirement for a clean-up plan, the EPA should take the following actions:

--Improve pollution standards from point sources
--Rewrite or deny pollution discharge permits and/or
--Assume responsibility for Virginia's water

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0117.001.002

Author Name: Erwin L.

Organization:

If my state does not meet its requirement for a clean-up plan, EPA should take the following actions: improve pollution standards from point sources; rewrite or deny pollution discharge permits; and/or assume responsibility for Virginia's water.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0117.001.004

Author Name: Erwin L.

Organization:

While it is our state's responsibility to act, the federal government must keep the pressure on and hold Virginia accountable for its pollution. Virginia needs to do their part in cleaning up the Bay. Please use EPA to help make that happen.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0118.001.001

Author Name: Becker J.

Organization:

I urge you to convince Virginia state officials to fulfill their responsibility to clean up the Chesapeake Bay, in cooperation with neighboring states and the federal government. Please use the powers you have as EPA Administrator to get

Virginia's support for a healthy Bay.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0120.001.002

Author Name: Murek L.

Organization:

If it does not meet its requirements for a clean-up plan, I urge EPA to take the following actions to help make this happen:

--improve pollution standards from point sources
--rewrite or deny pollution discharge permits
--assume responsibility for Virginia's water

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0120.001.003

Author Name: Murek L.

Organization:

Thank you for whatever EPA may need to do if Virginia does not cooperate.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. For further information on action(s) EPA may take, please see response to comment number 0110.001.005.

Comment ID 0123.001.002

Author Name: K.M. Aughenbaugh M.A. Melin

Organization:

If my state does not meet its obligations for a credible clean-up plan, EPA should take the following actions:

--improve pollution standards from point sources
--rewrite or deny pollution discharge permits and/or assume responsibility for Virginia's water.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0123.001.003

Author Name: K.M. Aughenbaugh M.A. Melin

Organization:

Given current state leadership, efforts to protect the Bay may be resisted or only weakly supported. We support strong federal action to counter the weakness that states have exhibited.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. For further information on action(s) EPA may take, please see response to comment number 0110.001.005.

Comment ID 0124.001.002

Author Name: Logan B.

Organization:

If my state does not meet its requirement for a clean-up plan, EPA should take the following actions:

--improve pollution standards from point sources
--rewrite or deny discharge permits
--assume responsibility for Virginia's water

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0124.001.003

Author Name: Logan B.

Organization:

States like Virginia need to play their part in cleaning up the Bay. Please use EPA to help that happen.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0126.1.001.015

Author Name: Craun Ed

Organization: Augusta County Farm Bureau

The agricultural portion of the plan relies heavily on the development and implementation of a farm conservation plan. There needs to be an assurance of certainty that if said conservation plan is implemented that the producer will not be subject to additional BMPS or more stringent standards if the milestone values are not attained.

Response

The Chesapeake Bay Program partnership and the agricultural community, have made significant past progress towards addressing the loss of nutrients and sediments to the tidal Chesapeake Bay. The agriculture and point source sectors, including municipal waste water treatment plants, have achieved the majority of the pollution reductions to date. As you may know agriculture represents the largest managed land use within the Chesapeake Bay watershed, as well as the largest single source of nutrients and sediment entering the Bay. Consequently, the Jurisdictions' WIPs are seeking additional nutrient and sediment reductions from the agricultural sector to assist with achieving the water quality requirements of the Chesapeake Bay TMDL. Reduction strategies from the agricultural sources might rely on developing more stringent nutrient management plans and innovative technical practices, new policies and regulations that reduce nutrient runoff and improving the tracking and reporting of both cost-shared and non-cost shared agricultural practices to more clearly document implementation of conservation practices by the agricultural community.

Comment ID 0155.001.001

Author Name: Bennhold L.

Organization:

I urge you to enforce Clean Water Act standards and hold Virginia accountable for cleaning up the Cheseapeake Bay.

The EPA needs to:

-Improve pollution standards

-Rewrite or deny pollution discharge permits

-assume responsibility for Virginia's water.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0156.001.001

Author Name: Wall S.

Organization:

I urge you to enforce Clean Water Act standards and hold Virginia accountable for cleaning up the Cheseapeake Bay. If Virginia does not meet its requirement for a clean-up plan, then I think EPA should do the following:

-Improve pollution standards
-Rewrite or deny pollution discharge permits or assume responsibility for Virginia's water.

All states need to do their part in cleaning up the Bay. EPA should make that happen

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0212.1.001.002

Author Name: Greenland Victoria

Organization: Arlington County, Department of Environmental Services, Virginia

As we believe EPA and DCR are both well aware, there are significant questions about the feasibility of meeting the TMDL load reductions in all sectors, particularly for urban stormwater. We therefore wish to express our strong concerns about the future enforcement implications for MS4 permittees like Arlington County when local pollutant reductions almost inevitably fall short of Bay TMDL requirements.

Response

Thank you for your comment. Please see the response to comment number 0212.1.001.007.

Comment ID 0212.1.001.007

Author Name: Greenland Victoria

Organization: Arlington County, Department of Environmental Services, Virginia

The consequences of EPA's interpretation of TMDL requirements for MS4 permits are real. It appears likely that the TMDL requirements will eventually result in enforcement actions by EPA against MS4 permittees in 2025, if not sooner, and trigger legal actions by permittees and the advocacy community or both.

Together with other jurisdictions and organizations, as reflected in the comments submitted by VAMSA and MWCOG, we strongly urge EPA and DCR to consider an MS4 permitting and enforcement approach for the Bay TMDL that supports municipal stormwater programs going farther than they have to date, but does not set up each MS4 permittee for failure. The focus of the Bay cleanup effort should be on tangible, substantial, and sustained work to restore the Bay, an equitable sharing of the responsibility for cleanup that applies to all sectors, and a realistic recognition that this effort will require an unprecedented level of federal, State, and local resources to be successful.

Response

EPA understands your concern regarding the significant challenge of reducing MS4 loadings. EPA also understands your suggestion that, “the focus of the Bay cleanup effort should be on tangible, substantial, and sustained work to restore the Bay.” EPA endorses, where possible, an equitable sharing of the responsibility for cleanup that applies to all sectors, and a realistic recognition that this effort will require an unprecedented level of federal, state, and local resources to be successful.

The Bay TMDL is employing an adaptive implementation approach to achieve applicable water quality standards in each of the segments impaired by nitrogen, phosphorus, and sediment. EPA is confident that this comprehensive, iterative process for determining allocations to all sources, including MS4s, and making any needed adjustments based on sound science and tracking results will be successful.

Comment ID 0220-cp.001.002

Author Name: Emory B.

Organization: billemory.com

Should Governor McDonnell not fulfill his obligation to protect Virginia's waters, I respectfully request that the EPA, pursuant to the CWA, take the following actions:

a) Rewrite the TMDL to maximize reductions from point sources;
b) Rewrite or deny pollution discharge permits; and/or
c) Assume responsibility for Virginia's waters.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0233-cp.001.002

Author Name: Tanger B.

Organization:

FORVA encourages the EPA to proceed full strength to force Virginia to respond to the needs of our citizens for clean water. Whatever sticks and carrots the EPA can muster, use them to best advantage to get our calculating governor to get with the program.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0334.1.001.010

Author Name: Troutman John

Organization: Buchart Horn, Inc.

EPA has stated there is no reasonable assurance goals will be met. Current loads are based on estimations and model inputs. The model is continually modified and does not account for reductions outside the scope of the model. EPA should allow states an opportunity to adjust responses through the phase III WIP as a final action prior to implementation of backstop measures.

Response

EPA disagrees with the comment that "EPA has stated there is no reasonable assurance goals will be met." To the contrary, EPA is confident that the Bay TMDL and the adaptive implementation of the TMDL established by the accountability framework, including the Watershed Implementation Plan process, provide adequate reasonable assurance that applicable Bay water quality standards will be attained and maintained. The accountability framework contemplates three phases of WIPs, in which the jurisdictions will have a continuing opportunity to provide additional or revised information.

Comment ID 0349.001.001

Author Name: Comment Anonymous

Organization:

Administrator Jackson-

The EPA needs to follow through on its promise to care for the Chesapeake Bay watershed. Please hold Virginia and other states accountable.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0377-cp.001.005

Author Name: Martin Larry

Organization: Sustainable Community Initiatives

SCI observes that voluntary agreements struck by the Chesapeake Bay Commission, between the jurisdictions included in the TMDL, have been consistently reset following failure by the jurisdictions to meet their own goals for cleaning up the Chesapeake. That the Watershed Implementation Plans (WIPs) submitted by the seven jurisdictions were found by EPA to show insufficient reasonable assurance that pollution controls identified could actually be implemented underscores these jurisdictions' inability to enter into a binding agreement to clean the Chesapeake. EPA should enact a strict timeline with clear penalties for non-compliance to enforce the TMDL.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0383-cp.001.003

Author Name: Alderson G.

Organization:

US EPA should scrutinize the states' pollution-control plans to make sure they make these important changes by deadlines EPA establishes.

We ask EPA to set tough standards for TMDL, because the states won't do the work without them.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0395.001.002

Author Name: Campaign Mass

Organization: Environment Maryland

If a state is not making polluters do their fair share of clean-up, you should impose significant consequences. All children are taught not to make a new mess until cleaning up one they already made. Likewise, the EPA should not allow any new permits for pollution until the states have compelled current polluters to clean up their acts."

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0398-cp.001.001

Author Name: Hession Sherry

Organization:

Mattawoman creek has had an approved TMDL since 2005, and the TMDL clearly isn't working with present voluntary policies. Strong enforcement policies are justified.

We have been waiting a long time to clean up the bay with voluntary efforts. It is past time for a new mandatory approach to enforcing pollution limits.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0410.1.001.006

Author Name: Pujara Karuna

Organization: Maryland State Highway Administration (SHA)

NEPA/Cumulative impact assessments should include the impact to meeting the annual Chesapeake Bay TMDL (and local TMDLs) for new development. Will ajurisdiction's inability to adequately demonstrate no-load increases result in refusal of federal permits and funding?

Response

EPA is confident that all allocation requirements, including those to accommodate new development, will be met and supported by reasonable assurance.
With regard to the need for a NEPA/Cumulative impact assessment, it is true that EPA is legally required to comply with the procedural requirements of NEPA for its research and development activities, facilities construction, wastewater treatment construction grants under Title II of the Clean Water Act (CWA), EPA-issued National Pollutant Discharge Elimination System (NPDES) permits for new sources, and for certain projects funded through EPA annual Appropriations Acts. However, Section 511(c) of the CWA exempts other EPA actions under the CWA from the requirements of NEPA. Courts also consistently have recognized that EPA procedures or environmental reviews under enabling legislation are functionally equivalent to the NEPA process and thus exempt from the procedural requirements in NEPA. Functional Equivalent exemptions apply where compliance with other environmental laws requires environmental analysis similar to NEPA.
The Chesapeake Bay TMDL is a federal action whose focus is to restore the ecological integrity of the environment as opposed to minimizing the environmental degradation of the action. The Bay TMDL has made every effort (by utilizing the capabilities of the suite of Bay models) to assess the impact on the environment resulting from the incremental impact of the action when added to past, present, and reasonably foreseeable future actions regardless of what agency. Specifically, progress in the restoration and protection will be tracked by the 2 year milestones and the interim (2017) and final (2025) goal dates.

Comment ID 0418.1.001.007

Author Name: Devine Jon

Organization: Natural Resources Defense Council (NRDC)

As outlined above, in order to ensure that states meet their TMDL allocations EPA must be prepared to invoke the discretionary responses it outlined in the Agency's December 29, 2009 "Consequences Letter."[FN 14] In particular, EPA's authority to object to NPDES permits that fail to incorporate sufficiently stringent WQBELs will be crucial to maintaining consistent attainment of WLAs across the watershed.

We are especially supportive of EPA's insistence that reductions can be accomplished through significant commitment to urban stormwater retrofit efforts; in general, Bay States failed to appreciate and plan for meaningful improvements in the category of pollution control

[FN 14] See Letter from Shawn Garvin, EPARegion 3 Administrator to Hon. L. Preston Bryant, Virginia Secretary of Natural Resources, December 29, 2009.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0432.1.001.015

Author Name: William Neilson John Bell and

Organization: Pennsylvania Farm Bureau

We also believe that both EPA and DEP are overly focused on regulatory compliance activities, relative to DEP's proposed "targeted watershed approach." If a targeted watershed or similar approach is to be utilized, there must be a thorough and quantified analysis of nutrient and sediment loadings that are actually occurring from individual farms within the watershed. Regulatory actions that merely focus on legal compliance of individual farms within a local watershed may not be nearly as cost-efficient or environmentally effective as more holistic measures to coordinate conservation practices among groups of farmers in the targeted watershed.

Response

EPA agrees that regardless of the actual approach utilized to control nonpoint source agricultural runoff, it is imperative to implement a thorough and quantified analysis of nitrogen, phosphorus, and sediment loadings being generated. Furthermore, EPA agrees that this accounting and tracking should include both regulatory and voluntary actions. EPA also supports the suggestion that there may be spatial scales for tracking agricultural reductions that more effectively demonstrate cost-efficiencies than others.

Comment ID 0470.1.001.001

Author Name: Collins Richard

Organization: Positive Growth Alliance

This document contains the comments of the Positive Growth Alliance on the U.S. Environmental Protection Agency's (EPA) proposed Total Maximum Daily Load (TMDL) for the Chesapeake Bay, the availability of which was announced in the Federal Register on September 22, 2010. Our hope is that major modifications can be made by EPA to make their goals achievable and rational.

The Positive Growth Alliance is a non-profit corporation with approximately 250 members, mostly in the state of Delaware. We defend property rights and promote the benefits of private enterprise.

This will not be a lengthy comment. It appears that EPA has designed a TMDL that is not achievable. EPA makes it clear that states that don't meet their goals will be punished. This could include takeover of issuance of NPDES permits by EPA. Thus, a realistic assessment of EPA's actions would have to conclude that EPA's strategy is to make failure inevitable, thus allowing takeover of state authority as a deliberate outcome.

In fact, our technical experts tell us that even converting all developed land in the Delaware portion of the Chesapeake

Bay drainage basin to forest would not be enough to satisfy the requirements of the Chesapeake Bay TMDL. This is despite the fact that the Nanticoke Watershed Alliance just released a report on the Nanticoke River indicating it is one of the cleanest rivers emptying into the Bay.

The Positive Growth Alliance supports the comments of the National Association of Homebuilders in regards to the flaws in the regulatory process. Again, it seems Delaware is being deliberately [See Comment 0736-0066.1] set up for failure.

The Positive Growth Alliance urges the EPA to do some "soul searching" in regards to their motives. If these unachievable requirements are simply a mistake, correction is in order. If they are not, then remedies will have to be sought through the courts and/or the political process.

Response

EPA respectfully disagrees with your assertion that “a realistic assessment of EPA’s actions would have to conclude that EPA's strategy is to make failure inevitable, thus allowing takeover of state authority as a deliberate outcome.” EPA recognizes that the full and successful implementation of the Bay TMDL will not be easy. However, EPA believes that the implementation of the pollutant control programs identified by the jurisdictions in their Phase I WIPs and the allocations in the Bay TMDL are achievable. The adaptive implementation approach being employed in the Chesapeake Bay will provide a mechanism to track the rate, timing and success of the jurisdictions’ WIPs, and will allow for mid-course adjustments if the need arises.

Comment ID 0473.1.001.011

Author Name: Pechart Michael

Organization: Pennsylvania Department of Environmental Protection and Department of Agriculture

• Pennsylvania also has concerns regarding the designation of all unregulated stormwater to be covered by an NPDES permit. For Pennsylvania, expansion of the Municipal Separate Storm Sewer System (MS4) permitting area would mean over 900 new MS4 NPDES permits. The administrative workload for this far exceeds the federal resources currently allocated to Pennsylvania for MS4 stormwater.

Response

EPA is not considering cost in the TMDL for reasons discussed in the response to comment 0139.1.001.017. Further, EPA is required to establish a TMDL that meets applicable water quality standards. This requires EPA to establish the loadings necessary to meet applicable water quality standards given reasonable assurance that standards will be achieved. Please see the response to 0038.1.001.024 outlining the federal effort towards the Bay.

Comment ID 0473.1.001.013

Author Name: Pechart Michael

Organization: Pennsylvania Department of Environmental Protection and Department of Agriculture

• Pennsylvania does not agree with the designation of large numbers of animal feeding operations (AFOs) as CAFOs. There are sufficient regulations in place now; what is needed is federal funding and compliance efforts.

Response

Thank you for your comment. Please see the response to comment number 0038.1.001.024 outlining the federal effort toward the Bay. It is EPA's preference that the jurisdictions' WIPs are used to meet the TMDL allocations. However, the WIPs need to meet the expectations outlined in EPA's November 4, 2009 letter sent to each jurisdiction, and need to meet all of the eight elements outlined in EPA's April 2, 2010, Guide for Evaluation of the Phase I WIPs. Where WIPs do not meet these expectations and criteria, EPA may need to apply backstop allocations. EPA's evaluation of the final Phase I WIPs can be found in Section 8 of the final TMDL report.

Comment ID 0481.1.001.004

Author Name: Andes Fredric

Organization: Federal Water Quality Coalition

We do not think it is appropriate for EPA to threaten consequences against the states as a means of coercing or compelling them to take EPA's preferred implementation approach. In other words, having conceded that it lacks authority to approve state implementation plans, EPA cannot dictate what states put into their plans. In the Draft TMDL, EPA cautions that unless states "[d]evelop and submit Phase I, II, and III WIPs consistent with the expectations and schedule described in EPA's letter of November 4, 2009, and the amended schedule described in EPA's letter of June 11, 2010," EPA will take one or more punitive actions as outlined in a December 29, 2009, letter to watershed jurisdictions. Draft TMDL, at 7-11 to 7-12. We are concerned that this type of threat will undermine the concept of cooperative federalism that is the hallmark of the CWA.

Under the CWA, authorized states carry out CWA programs in that state. EPA does not dictate the terms of how water quality standards are to be met. With respect to point sources, if EPA believes that a state is not administering the CWA permitting program properly, EPA may withdraw approval of the state program. 33 U.S.C. § 1342(c)(3). With respect to nonpoint sources, as noted by the Ninth Circuit in Pronsolino, the only leverage EPA has over states is the threat to withhold federal funding. Pronsolino, 291 F.3d at 1140.

Notwithstanding the limits of its authority under the nature and structure of the CWA, EPA is threatening a wide variety of actions to seek to coerce states to adopt EPA's TMDL implementation approach. Each of these proposed actions is discussed below.

1. EPA threatens to withhold federal grant funding from states. EPA gives grants to states pursuant to an authorization by Congress. Congress generally spells out the purpose and terms of the grant. EPA has no authority to redirect or

withhold certain grants, particularly those that are allocated based on a statutory or regulatory formula such as title VI state revolving loan fund grants and section 106 program implementation grants. Even for other grant monies, EPA cannot arbitrarily choose to withhold state funding because it does not like a state's WIP. Congress appropriates money for specific purposes. For example, funding for nonpoint source management programs under section 319 of the CWA is conditioned on a state's development of a nonpoint source management program, not a WIP to implement a federal TMDL.[FN 5] EPA must implement Congressional appropriations as Congress intends and lacks the authority to redirect appropriated monies to carry out its own agenda.

2. EPA threatens to regulate unregulated stormwater sources under its residual designation authority (33 U.S.C. § 1342(p)(2)(E)) if it disagrees with a state's WIP. This interpretation turns the CWA's stormwater regulatory structure on its head. Congress established a general rule that EPA could not require permits for stormwater discharges. 33 U.S.C. § 1342(p)(1). Congress then created exceptions to the general rule for certain types of stormwater discharges. 33 U.S.C. § 1342(p)(2). In contrast to the statutory framework, EPA's approach in the TMDL flips the statutory presumption against regulation and assumes all stormwater is regulated.

EPA has some authority to designate additional stormwater point sources and require them to obtain permits, but that authority is limited by the statute. Specifically, that authority is predicated upon a finding that controls are needed for a specific discharge based on the wasteload allocations of a TMDL, or based on a determination that a specific discharge or category of discharges in a specific geographic area contributes to the violation of a water quality standard or is a significant discharge that is contributing pollutants to waters of the United States. 40 C.F.R. 122.26(a)(9)(i)(C)-(D). In short, using residual designation authority requires a site-specific determination. EPA will not be able to rely on its Watershed Model to make these determinations, because (as discussed below) the model cannot predict water quality impacts at the individual facility or local level. Thus, EPA will have to develop site-specific data before it can designate additional stormwater sources for regulation, beyond those identified by Congress as appropriate for regulation in CWA § 402(p)(2)(A)-(D). EPA has no authority to designate stormwater runoff for regulation because EPA does not agree with a state's WIP.

3. EPA claims that it will object to point source permits in a state if it disagrees with a state's WIP. For sources that are already subject to the CWA permitting program, and that require a new permit or a permit renewal, EPA does have the authority to object to a permit "as being outside the guidelines and requirements of this Act." 33 U.S.C. 1342(d)(2). Grounds for objecting to a state permit are found in 40 C.F.R. 123.44. Disagreeing with a state WIP is not one of the specified grounds. While a permit must be consistent with the wasteload allocations of a TMDL, states have exclusive authority to make permitting decisions based on those allocations. EPA may review these decisions but may not object without evidence that they fail to assure compliance with the TMDL and water quality standards.

4. EPA claims the authority to require net improvement offsets for new or increasing discharges if it disagrees with a state WIP. We agree with EPA that offsets are a tool that is available to demonstrate compliance with the WLAs and LAs of a TMDL. However, states have primary authority to determine offset requirements and that once offsets are applied through permits, EPA has no authority to disapprove of the offset absent a showing that the permit is inconsistent with the CWA. The CWA requires effluent limitations to ensure that discharges do not cause or contribute to the violation of water quality standards. A net improvement requires a source to over-control, beyond what is needed to avoid causing or contributing to a violation. We agree that a source may voluntarily over-control, to create an offset. However, nothing in the CWA allows EPA to object to a permit in order to compel a source to control discharges beyond what is necessary to ensure that the specific discharge does not cause or contribute to a violation of a water quality

standard.

5. EPA threatens to impose "finer-scale" allocations in the final TMDL. "EPA is … replacing some allocations proposed by jurisdictions; EPA is also providing finer level of detail for allocations in headwater jurisdictions….." Draft TMDL, at 8-2. In fact, EPA has proposed allocations for 1006 individual residences. Draft TMDL, Appendix Q. As discussed above, a TMDL is merely the sum of the load allocations and the wasteload allocations. In 2002, the Ninth Circuit upheld EPA's authority to issue a TMDL for a water body impaired only by nonpoint sources because the Court considered the TMDL to be merely "an informational tool." Pronsolino, 291 F.3d at 1140. The Court also recognized that specifying pollutant allocations at a fine scale is tantamount to TMDL implementation. According to the Ninth Circuit, the TMDL at issue in Pronsolino was within EPA's authority because:

[It] does not specify the load of pollutants that may be received from particular parcels of land or describe what measures the state should take to implement the TMDL. Instead, the TMDL expressly recognizes that 'implementation and monitoring' 'are state responsibilities' and notes that, for this reason, the EPA did not include implementation or monitoring plans within the TMDL. Id. (emphasis added).

To the extent that the Draft TMDL goes beyond an "informational tool" by including implementation measures and specifying pollutant loadings at a fine scale (such as at individual sites), it goes beyond EPA's authority under the CWA.

6. EPA threatens to require additional reductions from point sources if it does not agree with a state's WIP. The CWA requires that a TMDL be set at a level necessary to achieve applicable water quality standards. 33 U.S.C. 1313(d); see also 33 U.S.C. § 1313(b)(1)(C) (requiring effluent limitations "necessary to meet water quality standards"). The statute does not limit a state's discretion to calculate and assign wasteload and load allocations within the TMDL. However, it does not follow that EPA has the same discretion as states. If a water body is impaired by both point sources and nonpoint sources and water quality standards cannot be met through reductions from point sources alone, then EPA cannot claim that more stringent wasteload allocations are "necessary" to achieve water quality standards. As noted in EPA's 1997 Guidance, in a watershed like the Chesapeake Bay, where a significant amount of the impairment may be from nonpoint sources:

TMDL implementation may involve individual landowners and public or private enterprises engaged in agriculture, forestry, or urban development. The primary implementation mechanism will generally be the State section 319 nonpoint source management program coupled with State, local, and Federal land management programs and authorities. 1997 Guidance.

Further reductions from point sources are not required under the CWA when they will not achieve attainment of water quality standards. It is inappropriate for EPA to threaten such reductions rather than following its own guidance and working with states to achieve nonpoint source reductions through section 319 nonpoint source management plans and "State, local, and Federal land management programs and authorities."

7. EPA threatens to establish numeric nutrient criteria in a state if EPA disagrees with a state WIP. However, EPA's authority to issue federal numeric nutrient standards is limited. CWA section 303(c)(4) authorizes EPA to issue a new or revised water quality standard in a state only if EPA determines that a new or revised state standard is not consistent with the applicable requirements of the Act, or if EPA determines that a new or revised standard is necessary to meet

the requirements of the Act. 33 U.S.C. 1313(c)(4). EPA has approved the water quality standards in the Chesapeake Bay states (some modifications are pending). In fact, the currently applicable water quality criteria for the Chesapeake Bay are based in substantial part on EPA's own recommended criteria. "Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries" (EPA, Apr. 2003). EPA has no basis to determine that federal standards are necessary because it does not agree with a jurisdiction's WIP. Thus, it cannot use this threat to coerce a state into changing its WIP.

8. Finally, EPA is threatening to increase enforcement activity in states that do not submit a WIP that garners EPA's support. While we appreciate that the federal government enjoys and exercises broad enforcement discretion, we do not believe that it is appropriate for EPA to threaten states (or regulated communities and entities) with increased enforcement for reasons not directly connected to compliance with applicable laws.

[FN 5]Congress gave EPA authority to withhold section 319 funding under specific conditions identified under section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990. Those conditions relate to coastal zone management programs which are distinct from the state WIPs at issue here.

Response

In developing the Bay TMDL, EPA has not "coerced" or "compelled" the jurisdictions to take particular approaches or "dictated" what jurisdictions must put in their WIPs. EPA has made it clear throughout the process that it is the jurisdictions' responsibility in the first instance to subdivide the jurisdiction allocations among the different source sectors and explain in their WIPs how those subdivided allocations will be met. As the party establishing the TMDL, however, EPA has a responsibility under the CWA to ensure that the final allocations in the TMDL are set at a level to meet WQS. It is that responsibility that has informed EPA's communications with the jurisdictions and its allocation decisions. Moreover, EPA has a responsibility under various provisions of the CWA to oversee a variety of jurisdiction programs designed to implement WQS. These include both permit-based and non-permit-based programs. In addition, CWA 117(g) places on EPA the responsibility to "ensure" that appropriate Bay "management plans" are developed and implemented for the Bay. EPA's communications to the jurisdictions regarding development and implementation of their WIPs, and EPA's expression of its commitment to exercise its lawful authorities under CWA 303, 319, 402 and other sections, as necessary and appropriate to ensure that those plans are carried out and that Bay WQS are met, are fully consistent with EPA's responsibilities under the Act and notions of "cooperative federalism."

Regarding the eight specifically numbered items in this comment, EPA responds as follows:

1. In its December 29, 2009 letter to the jurisdictions, EPA carefully explained the circumstances under which EPA might condition or redirect grants to aid implementation of the TMDL. Should it take any action related to a jurisdiction's grants, EPA would be mindful of any statutory or regulatory requirements and act appropriately and not in an "arbitrary" manner.

2. EPA's mention of the possibility that, under appropriate circumstances, it may exercise its statutory and regulatory authority to "designate" additional stormwater sources does not "flip" the statutory presumption against stormwater regulation and "assume that all stormwater is regulated." As with grants, EPA would be mindful of any statutory or regulatory requirements regarding any such "designation" and act appropriately and not in an "arbitrary" manner.

3. EPA did not "claim that it will object to point source permits in a state if it disagrees with a state's WIP." Any exercise by EPA of its statutory and regulatory authority to object to permits would be based on the facts pertaining to those permits and fully consistent with CWA statutory or regulatory requirements.

4. EPA agrees with the commenter that offsets are a tool that is available to demonstrate compliance with the WLAs and LAs of a TMDL. As the commeter concedes, EPA does have authority in its oversight of jurisdiction permits to disapprove a permit if the permit (including any offset provision) is inconsistent with the CWA. Whether the circumstances of a particular permit might cause a permitting agency to include an offset greater than 1-1, or whether EPA would object to a permit if did or did not include such an offset, are issues best left for investigation in the context of particular fact situations. Any exercise by EPA of its statutory and regulatory authority to review and object to permits would be fully consistent with CWA statutory or regulatory requirements.

5. EPA disagrees that, in establishing the Bay TMDL, EPA has exceeded its authority under CWA section 303(d) and its implementing regulations to establish appropriately specific and scaled allocations for both point and nonpoint sources, or that the TMDL is inconsistent with the Ninth Circuit's understanding of a TMDL as discussed in Pronsolino . The commenter will note that the final TMDL does not contain allocations for individual residences. EPA believes that the number, focus, and scale of the Bay TMDL's allocations to both point and nonpoint sources are consistent with its purpose as an "informational tool" designed to set pollutant allocations at a level necessary to implement applicable water quality standards. Moreover, the TMDL's scale of allocations is consistent with notions of the primacy of state implementation supported by appropriate federal oversight.

6. EPA disagrees with the commenter's suggestion that, when it establishes a TMDL, EPA does not have the same responsibility or authority as a state to determine an allocation mix (between point and nonpoint sources) that is calibrated at a level necessary to implement applicable WQS. To the extent setting this mix requires that EPA assign more stringent WLAs to point sources because the record does not support assumptions about nonpoint source reductions, this is well within EPA's authority. EPA recognizes that a TMDL is not self-executing, and that implementation of the TMDL's allocations depends on variety of CWA and other authorities and mechanisms, includinf section 319, some of which are appropriatelt led by the States and others of which may be "backstopped" by appropriate federal oversight and action.

7. In its December 29, 2009 letter to the jurisdictions, EPA carefully explained the circumstances under which EPA might review and promulgate numeric WQS. Should it take any action related to a jurisdiction's WQS, EPA would be mindful of any statutory or regulatory constraints and act accordingly and not in an "arbitrary" manner.

8. Regarding enforcement, EPA is also mindful of applicable statutory and regulatory requirements and intends to act approriately and consistent with those requirements.

Comment ID 0501.1.001.002

Author Name: Stainman S.

Organization:

2. EPA lists a number of consequences under existing EPA program authority it can impose if pollution targets are not met. However, the greatest source of pollution is from the agricultural sector where EPA currently has limited authority and responsibilities. EPA must expand its authority over agricultural sources and work with USDA to develop appropriate "carrots and sticks" to obtain substantial reductions in nutrient emissions from agricultural sources.

3. As states allocate pollution loads to different sectors, EPA should apply backstop measures and consequences to those sectors if the target measures are not met. If a state is not meeting its target reductions from point sources, federal sanctions should not be applied to agricultural sources. Conversely, if agricultural sector reductions are not met, urban point and nonpoint sources should not suffer backstop measures.

Response

Please see the response to comment number 0394.001.013. EPA endorses, where possible, an equitable sharing of the responsibility for pollutant reductions from all sources.

Comment ID 0516.1.001.002

Author Name: Winegrad Gerald

Organization: Senior Bay Scientists and Policy Makers for the Bay

We are concerned over resistance by the states, some elected officials, and members of the regulated community to EPA actions to establish meaningful TMDLs by the end of this year to and to adopt comprehensive Phase I Watershed Implementation Plans (WIPs) to achieve these TMDLs. Clearly, enhanced regulatory measures for nutrient loading from CAFOs, AFOs, and nutrient and sediment loading from new and existing development are needed. Better controls of other nutrient and sediment flows from farms and the retrofitting of existing developed lands also are essential to remove the Bay's waters from the Clean Water Act's Section 303(d) list of impaired waters.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL.

Comment ID 0516.1.001.004

Author Name: Winegrad Gerald

Organization: Senior Bay Scientists and Policy Makers for the Bay

Together, the 56 individuals signing onto this statement represent an extraordinary assemblage of Bay leaders from Maryland and Virginia, many of whom were instrumental in initiating the Bay restoration in 1983 that led to the first Bay agreement and the development of the EPA Chesapeake Bay Program.

We all have concluded that aggressive enforcement of current laws with new enforcement strategies to improve water quality in the Chesapeake Bay are necessary to meet the TMDL and weaknesses in the TMDL process and state WIPs are especially glaring in specifying how the significant and necessary reductions in nonpoint source loads will be achieved. The EPA has pointedly suggested this to the states. Missing in the TMDL process and the state WIPs are the requisite new approaches, regulations, penalties, and funding tools to achieve these nonpoint source pollution reductions.

We all have joined together in submitting 25 detailed suggestions to meet the deficiencies and are quite concerned that without these suggested changes, the draft plan for restoring the Bay will fail to achieve the necessary reductions in nutrients, sediment, and toxic chemicals to remove the Bay's waters from the Clean Water Act's Section 303(d) list of impaired waters. This would mean the Bay's living resources will continue their decline. The federal government, especially the EPA, must take aggressive regulatory and legal actions and use mandatory deadlines with the certainty of enforcement to assure compliance. Voluntary, collaborative efforts have failed and the time for action is NOW.

We are particularly concerned over the failure to meet nonpoint source pollutant caps and urge aggressive actions in nutrient and sediment loading from agriculture and development. Without these the Bay is doomed.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005. EPA understands your concern regarding the significant challenge posed by nonpoint sources and agrees that aggressive actions are needed to reduce pollutant loadings from agriculture and development. EPA endorses, where possible, an equitable sharing of the responsibility for pollutant reductions from all sources, and a realistic recognition that this effort will require an unprecedented level of federal, state, and local resources to be successful.

Comment ID 0516.1.001.007

Author Name: Winegrad Gerald

Organization: Senior Bay Scientists and Policy Makers for the Bay

The TMDL and the restoration plan under Executive Order 13508 do not add sufficient new and different tools, regulations, penalties, and enforcement strategies to improve water quality in the Chesapeake Bay. Additional plans must include requirements for implementation and accountability. These documents do recognize that voluntary programs have not resulted in the needed reductions in nutrient loading. To succeed, the TMDL and the WIPs to implement the reductions under it must include strengthened measures to address agricultural and development pollutants. We suggest enforcing current options in the CWA that do not allow downstream impacts and coupling these with related regulations (e.g. Coastal Zone Management), and under the recent Federal Court decision that does not allow additional loads to CWA impaired waters. More tools to control nonpoint source loads are necessary.

EPA and other agencies need to look at the ability to apply other authorities or more rigorously pursue other CWA/TMDL authorities to reduce nonpoint source loads from agricultural operations, including new regulations and

enforcement. Requiring readily enforceable mechanisms as part of the required "reasonable assurance" for nonpoint sources in the watershed is necessary for the federal government and the states.

Response

EPA respectfully disagrees with your characterization of the Bay TMDL and the federal strategy, as EPA considers both to be new tools and enforcement strategies to improve water quality in the Chesapeake Bay. In response to the remainder of your comment, please see the response to comment number 0394.001.013. EPA endorses, where possible, an equitable sharing of the responsibility for pollutant reductions from all sources.

Comment ID 0516.1.001.009

Author Name: Winegrad Gerald

Organization: Senior Bay Scientists and Policy Makers for the Bay

The primary proposed punitive measure to address failure to achieve the TMDL and two-year milestones appears to be a further reduction in the waste load allocation for point sources. Point source controls are expected to achieve their allotted nutrient reductions by about 2012. It appears illogical and unfair to punish this sector if it meets the targeted caps while leaving nonpoint sources without any realistic and certain sanctions. It would be much more effective to seek regulatory sanctions against nonpoint sources, and to identify larger funding sources that are of greater importance to the non-attaining sectors, such as the federal transportation act (or other sources of stormwater funding) or federal agricultural cost share and subsidy payments. We suggest it is more reasonable to identify funding sources that are important to nonpoint sources and reduce them as a consequence for non-performance.

Response

Thank you for your comment; EPA appreciates your suggestion. As described in Section 7 of the TMDL and the response to comment number 0131.001.001, EPA may take various federal actions, including changing the availability of certain sources of funding. But EPA is left with the regulatory authorities under the Clean Water Act. Those (federal) authorities do not extend to non-point sources.

Comment ID 0516.1.001.011

Author Name: Winegrad Gerald

Organization: Senior Bay Scientists and Policy Makers for the Bay

4) A significant expansion of the CAFO designation to include most all but the smallest AFOs should be implemented and EPA should include all agricultural lands receiving manures from any AFO as part of the regulated entity/activity subject to CWA permits. It is equally important that assessment and accountability of CAFOs be increased. Current

state programs do not provide adequate assurance that the CAFO permits, particularly related to land application, are being enforced. Enforcement must be assured.

5) The EPA should adopt requirements for all land disposal of animal waste/manure that parallel Maryland's regulations under the Maryland Department of Environment for the land disposal of human sludge from advanced wastewater treatment facilities. These requirements should include the provisions already extant for human sludge that require the incorporation of all animal waste/manure into soils within 24 hours of application on land, soil tests to assure the land is not phosphorus saturated, and that prohibit application on steep slopes, highly erodible soils, frozen ground, and in riparian buffers of up to 200'. See the Maryland human sludge disposal regulations at COMAR 26.04.06.09. State WIPs should reflect these changes.

Response

EPA concurs with your comment regarding the importance of CAFOs to the successful implementation of the Bay TMDL. EPA is committed to using any necessary enforcement action at its disposal to assure that the jurisdictions successfully implement the Bay TMDL. As you suggest, one of those potential actions includes EPA's expansion of the NPDES permit coverage to currently unregulated sources, including CAFOs, utilizing EPA's residual designation authority to increase the number of sources, operations and/or communities regulated under the NPDES permit program. EPA is aware of Maryland's regulations under the Maryland Department of Environment for the land disposal of human sludge from advanced wastewater treatment facilities, and we support Maryland in implementing that approach and in sharing information documenting the progress they experience with that technique.

Comment ID 0564-cp.001.002

Author Name: Morrow William

Organization: Whitmore Farm

All of the state and federal efforts to clean up the Bay will be meaningless without enforceable "reasonable assurances" for non-point sources. The last 26 years of education, outreach and financial assistance for reducing loads from nonpoint sources has brought in all the farmers that want to do the right thing and that care about the environment. Unfortunately, there are some farmers that simply don't care and will never do the right thing unless they are forced to. These sources of nutrient loadings to the Bay can only be reined in with enforceable BMPs.

Case in point, a farm right down the road from me farms over 150 acres. He grows hay, which is an environmentally good crop because it is a perennial cover crop. But, he also raises cows. An intermittent/emphemeral creek runs right thru his 1 acre concentrated animal feedlot and drains into the mainstem of Tom's Creek less than 100 yards away. He could locate those animals anywhere on that 150 acres but he chose to locate them in the low lying wet corner of his property so as not to give up 1 acre of crop land. There are countless examples of such behavior by farms. We need enforceable BMPs!

Response

EPA understands your concern and frustration regarding the behavior of individuals that negatively impact the Chesapeake Bay. The restoration of the Bay will require action by all sources of nitrogen, phosphorus, and sediment, including major dischargers and large agricultural operations, to reduce their pollutant loadings. EPA endorses, where possible, an equitable sharing of the responsibility for pollutant reductions for all sectors, and a realistic recognition that this effort will require an unprecedented level of federal, state, and local resources to be successful. We encourage you to report violations of state or federal laws or permits to EPA online (www.epa.gov/tips/ or www.epa.gov/compliance/complaints/moreinfo.html) and to the appropriate state regulatory agency.

Comment ID 0583.001.006

Author Name: Campaign Mass

Organization: Virginia League of Conservation Voters

If Virginia's leadership at the executive and legislative levels do not take action to develop and fully implement a meaningful clean up plan, EPA should not hesitate in its duty to provide the oversight necessary to ensure Virginia has a strong viable plan.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0584.001.002

Author Name: Campaign Mass

Organization: Sierra Club

Administrator Jackson, if Governor McDonnell does not fulfill his obligation to protect our drinking water, jobs on the water, and public health, I demand that EPA does its job under the Clean Water Act by taking the following actions:

a) Rewrite the TMDL to maximize reductions from point sources;
b) Rewrite or deny pollution discharge permits; and/or
c) Assume responsibility for Virginia's waters.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0588.1.001.002

Author Name: Merrifield Ed

Organization: Potomac Riverkeeper, Shenandoah Riverkeeper

Enforcement

History shows us that the Bay states have not created or implemented their TMDLs on a timely basis until legally forced. It is important that all parts of the Watershed Implementation Plans - including backstops where necessary - contain timely, enforceable, implementation. Enforcement in this sense means using all available means, including economic and court related when necessary, to achieve this most important outcome.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0590.1.001.006

Author Name: Chavez Jennifer

Organization: Earthjustice et al.

Furthermore, EPA needs to make crystal clear to the states that it will formally object to any NPDES permits that do not fully implement the Bay TDMLs and related WIP provisions through enforceable pollution limits within the required time frames, and that it will withdraw NPDES permitting authority from any state that fails to timely implement these requirements. EPA must make clear in the TMDL that milestones are binding, enforceable requirements of the Clean Water Act that must be adhered to in all permitting decisions.

Response

Thank you for your comment. Please see the response to comment number 0394.001.013.

Comment ID 0592.001.002

Author Name: Campaign Mass

Organization: Sierra Club

If Virginia fails to fulfill its obligation to provide reasonable assurance to clean the Chesapeake Bay, protect our drinking water, public health, jobs on the water then the EPA should take the following actions: .

- Rewrite the Total Maximum Daily Load to maximize reductions from point sources;
- Expand Concentrated Animal Feeding Operations to include all Animal Feeding Operations; and

- Assume responsibility for Virginia's waters.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0594.001.002

Author Name: Campaign Mass

Organization: Sierra Club

If Virginia fails to fulfill its obligation to provide reasonable assurance to clean the Chesapeake Bay, protect our drinking water, our public health, and our fishermen, tourism industry and other water-related jobs, then the EPA should take the following actions:

- Rewrite the Total Maximum Daily Load to maximize reductions from point sources, such as sewage treatment plants and factories;
- Expand Concentrated Animal Feeding Operations to include all Animal Feeding Operations; and
- Assume responsibility for Virginia's waters.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0595.001.002

Author Name: Campaign Mass

Organization: Chesapeake Bay Program

Administrator Jackson, if Governor McDonnell does not fulfill his obligation to protect our drinking water, jobs on the water, and public health, I demand that EPA does its job under the Clean Water Act by taking the following actions:

a) Rewrite the TMDL to maximize reductions from point sources;
b) Rewrite or deny pollution discharge permits; and/or
c) Assume responsibility for Virginia's waters.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0596.001.002

Author Name: Campaign Mass

Organization: Virginia League of Conservation Voters

If we don't do our job in Virginia, Administrator Jackson, I urge you to step in and protect our rivers, streams, and the Bay.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0697.001.002

Author Name: Wass J.

Organization:

If Virginia fails to fulfill its obligation to provide reasonable assurance to clean the Chesapeake Bay, protect our drinking water, our public health, and our fishermen, tourism industry and other water-related jobs, then the EPA should take the following actions:

-Rewrite the Total Maximum Daily Load to maximize reductions from point sources, such as sewage treatment plants and factories;
-Expand Concentrated Animal Feeding Operations to include all Animal Feeding Operations; and
-Assume responsibility for Virginia's waters.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0698.001.002

Author Name: Smith K.

Organization:

If Virginia fails to fulfill its obligation to provide reasonable assurance to clean the Chesapeake Bay, protect our drinking water, our public health, and our fishermen, tourism industry and other water-related jobs, then the EPA should take the

following actions:
-Rewrite the Total Maximum Daily Load to maximize reductions from point sources, such as sewage treatment plants and factories;
-Expand Concentrated Animal Feeding Operations to include all Animal Feeding Operations; and
-Assume responsibility for Virginia's waters.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0703.001.002

Author Name: Merica P.

Organization:

If Virginia fails to fulfill its obligation to provide reasonable assurance to clean the Chesapeake Bay, protect our drinking water, our public health, and our fishermen, tourism industry and other water-related jobs, then the EPA should take the following actions:

- Rewrite the Total Maximum Daily Load to maximize reductions from point sources, such as sewage treatment plants and factories;
- Expand Concentrated Animal Feeding Operations to include all Animal Feeding Operations; and
- Assume responsibility for Virginia's waters.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0704.001.002

Author Name: Sawyer C.

Organization:

If Virginia fails to fulfill its obligation to provide reasonable assurance to clean the Chesapeake Bay, protect our drinking water, our public health, and our fishermen, tourism industry and other water-related jobs, then the EPA should take the following actions:

- Rewrite the Total Maximum Daily load to maximize reductions from point sources, such as sewage treatment plants and factories;
- Expand Concentrated Animal Feeding Operations to include all Animal Feeding Operations; and
- Assume responsibility for Virginia's waters.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0707.001.002

Author Name: Larkin R.

Organization:

If Virginia fails to fulfill its obligation to provide reasonable assurance to clean the Chesapeake Bay, protect our drinking water, our public health, and our fishermen, tourism industry and other water-related jobs, then the EPA should take the following actions:

-Rewrite the Total Maximum Daily Load to maximize reductions from point sources, such as sewage treatment plants and factories;

-Expand Concentrated Animal Feeding Operations to include all Animal Feeding Operations; and

-Assume responsibility for Virginia's waters.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0732.001.007

Author Name: Hoagland Roy

Organization: Chesapeake Bay Foundation (CBF)

EPA Has the Obligation to Enact Consequences For Inadequate WIPs that Fail to Provide Reasonable Assurance

Unfortunately, none of the WIPs as originally submitted by the Bay jurisdictions provide reasonable assurance. In spite of the clear directives provided by EPA, EPA has concluded that all of the WIPs, to one degree or another, have failed to meet the test of reasonable assurances. [FN18] Others have reached the same conclusion. See Chesapeake Bay Foundation letters to EPA on the jurisdictional WIPs (for New York, Pennsylvania, Delaware, Maryland, Virginia, West Virginia, and the District of Columbia), attached hereto and incorporated herein by reference. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0732.1, pages 107, 113, 204, 207, 219, 288 and, 293 of the pdf]

If the TMDL is to accomplish its goal of clean water and removal of the Chesapeake Bay, and its waters from the impaired waters list, and if the WIPs are insufficient implementation tools to do so, EPA has no alternative but to invoke consequences. EPA has identified these consequences in its letters of November 4, 2009, and December 29, 2009, both addressed to the members of the Principals' Staff Committee. The need for EPA action is similarly noted in the attached Settlement Agreement (see Section III. A. 4 and III. B.7). [Comment Letter contains additional information in the form of an attachment. See original comment letter 0732.1, page 79 of the pdf]

Among the potential consequences is the withdrawal of delegation of a state's CWA permit program. Federal regulations provide the Administrator the authority to begin the process of withdrawal on her own initiative. 40 C.F.R. 123.64. An insufficient WIP, lacking reasonable assurances - that is, operating a delegated CWA program designed to

maintain, not correct, the impairment of the Bay and its waters - is solid ground for withdrawal. See 40 C.F.R. 123.63 (Withdrawal may be based upon failure to promulgate or enact new authorities when necessary.).

[FN18] It is important to note that any ambiguities as to the EPA Administrator's powers under the Clean Water Act are to be resolved in his favor. E.I. DuPont de Nemours & Co. v. Train, 430 U.S. 112, 128-29, 97 S. Ct. 965, 975, 51 L. Ed. 2d 204 (1977); Inland Steel Corp. v. EPA, 574 F.2d 367, 373 (7th Cir. 1978).

Response

Thank you for your comment. Please see the response to comment number 0394.001.013. The results of EPA's evaluation of the jurisdictions' final Phase I WIPs can be found in Section 8 of the TMDL document.

Comment ID 0554.1.001.018

Author Name: Murphy James

Organization: National Wildlife Federation (NWF)

It is imperative that EPA protect these waters if it plans to achieve water quality in the Bay. A chief strategy in the Draft TMDL for restoring the health of the Bay is to expand the use of NPDES permitting to allow for stronger controls on pollution sources. One tool for doing this, for instance, is the use of Residual Designation Authority under Section 402(p) of the CWA to require permits for currently unpermitted stormwater point source discharges.[FN73] NWF supports this approach, but the reality of the current legal situation is that enforcement and implementation of the CWA permitting programs has been made more difficult and resource intensive as a result of Rapanos and SWANCC. For instance, an internal EPA memo in March of 2008 indicated that approximately 500 enforcement cases had been dropped, lowered in priority, or faced challenges by defendants due to SWANCC and Rapanos.[FN74] The New York Times reported in February of 2010 that number had ballooned to 1,500 cases.[FN75] An April, 2009, EPA Office of Inspector General Report confirmed that enforcement of CWA permit violations has decreased since Rapanos.[FN76]

It is thus naïve for EPA to believe it can expand the number of permitted sources throughout the basin without facing resistance from the regulated community and encountering delays due to the difficulties presented by the current case-by-case jurisdictional determination process for many waters within the basin. EPA's own data indicates that Bay basin states have many waters that are at-risk of not being protected due to the current legal confusion. This includes, for source water protection areas alone, 58 percent of streams in Pennsylvania, 55 percent of streams in Maryland, 57 percent of streams in Virginia, 57 percent of streams in West Virginia, 53 percent in Delaware, and 55 percent in New York.[FN77]

Much of the pollution entering the Bay comes from areas far from the Bay. For instance, Pennsylvania, which does not even border the Bay, is responsible for 44 percent of the nitrogen entering the Bay.[FN78] The Susquehanna River, which has headwaters in New York, contributes 33 percent of sediment entering the Bay.[FN79] Virginia, which contributes water to the Bay from as far away as the small streams of its Western mountains, is responsible for 43 percent of the phosphorous entering the Bay and 41 percent of the sediment.[FN80] Currently unregulated stormwater sources, which the Draft TMDL plans to expand permitting of, accounts for 33 percent of the nitrogen coming from both

Pennsylvania and Virginia.[FN81] It accounts for 50 percent of the phosphorous entering the Bay from Virginia.[FN82]

The current legal chaos may present difficulties in regulating these sources. It may also present difficulty in enforcing permitting limits for many of the 483 existing significant NPDES permitted facilities, and the 4,236 nonsignificant NPDES permitted facilities. These facilities are all to be counted among the WLA for the TMDL, but uncertainty over jurisdiction could hinder the enforcement of those limits. Leaving jurisdiction over a substantial portion the Bay's waters to be hashed out over the years on a case-by-case basis is a recipe for failure. The Draft TMDL simply fails to even mention this major concern, and does nothing to address it. This is not permissible legally, and is a major flaw in the Draft TMDL.

[FN73] Draft TMDL §7.1 at 7-4.

[FN74] Memorandum from Granta Y. Nakayama, Assistant Administrator, to Benjamin Grumbles, Ass't Administrator for Water (March 4, 2008).

[FN75] Charles Duhigg and Janet Roberts, Rulings Restrict Clean Water Act, Hampering E.P.A., NEW YORK TIMES A1 (Mar. 1, 2010).

[FN76] U.S. EPA Office of Inspector General, Congressionally Requested Report on Comments Related to Effects of Jurisdictional Uncertainty on Clean Water Act Implementation, Report No. 09-N-0149, 1 (April 2009).

[FN77] Analysis of the Surface Water Drinking Water Provided By Intermittent, Ephemeral, and Headwater Streams in the U.S. Completed by U.S. EPA, July 2009.

[FN78] Draft TMDL § 4.1, 4-1.

[FN79] Draft TMDL § 4.2, 4-5.

[FN80] Draft TMDL § 4.1, 4-2-4-3.

[FN81] Draft TMDL § 4.3, 4-6.

[FN82] Id.

Response

Thank you for your comment. Section 7 of the Bay TMDL discusses reasonable assurance and the accountability framework for the Bay TMDL, which EPA believes is sufficiently detailed. Although implementation of the Bay TMDL is not expected to be easy, EPA has put in place the mechanisms to ensure that the TMDL allocations are achieved and applicable water quality standards are attained and maintained.

19.3 - GENERAL/MISCELLANEOUS

Comment ID 0038.1.001.025

Author Name: Eisen Professor Joel

Organization: University of Richmond Environmental Law and Policy

I think that the "pollution diet" that is implemented needs to have enough backup plans and reassurances so that there is no room for failure. In the past, the WIPs have not lived up to their reasonable assurances and actual achievement of pollution targets. Without accountability, how can a 60% reduction by 2017 and 100% reduction by 2025 be successful?

The TMDL has proven that it needs to be drastic.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. EPA agrees that a strong accountability framework is needed to ensure that the 2017 and 2025 reductions are achieved and that applicable water quality standards are attained and maintained.

Comment ID 0038.1.001.031

Author Name: Eisen Professor Joel

Organization: University of Richmond Environmental Law and Policy

I think it is good that the Virginian Watershed Implementation Plan has some deadlines (such as Phase II WIPs due to EPA in draft by June 1, 2011 and final by November 1, 2011), but I worry what will actually happen if these deadlines are missed. How is the EPA going to enforce these?

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0039-cp.001.004

Author Name: Austin John

Organization:

EPA needs to take responsibility to insure that the Chesapeake Bay and Inland Bay TMDLs are attained and that realistic plans are put in place. DNREC has failed to hold Sussex County accountable for its lack of land use planning. Now, EPA must act to hold both Sussex County and the State of Delaware accountable through the withholding of federal funding until achievable plans are put into place.

Response

EPA has been working with all seven Chesapeake Bay jurisdictions in a cooperative and collaborative manner to restore the health of the Chesapeake Bay. Federal funding may be needed to implement jurisdictions' Watershed Implementation Plans; as such, withholding all federal funding may not be the most prudent step to take.

Comment ID 0042-cp.001.001

Author Name: Vonohlen Patricia

Organization:

I was very disappointed that Governor McDonnell of Virginia does not want to take the opportunity to take meaningful action to improve water quality in Virginia and related waterways. The recently submitted WIP was vague and does not give any specific ways to achieve clean water. I hope that the EPA will use it's powers to require Virginia's leaders to take meaningful action. Clean water is important for quality of life. The health and condition of our waterways has enormous environmental and economic impacts for all citizens. Please require Virginia to strengthen their efforts to reverse pollution and poor quality water.

Response

Please see response to comment number 0110.001.005. EPA agrees that clean water and the health of the nation's waterways are important and impact all citizens. EPA also notes, with respect to substantive comments regarding individual jurisdictions' Phase I WIPs, that the WIPs submitted by each jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdiction for consideration as part of its WIP.

Comment ID 0070.1.001.009

Author Name: Hughes Robert

Organization: Eastern PA Coalition for Abandoned Mine Reclamation (EPCAMR)

Possibly the PA DEP could fund an AMD BMP tracking pilot projects to explore the possibility of doing county "sweeps" for BMP information. It is widely known that there are over 285 AMD Treatment Systems state-wide that have been funded in part, by the Federal Office of Surface Mining and the PA DEP. What are not known collectively for the Susquehanna River Basin is the impacts and load reductions to the Chesapeake Bay from these completed systems. Each one of them is retaining metal loadings in their designed ponds that aren't reaching the streams and in some

cases is being harvested and recycled by groups such as Hedin Environmental and EPCAMR. Perhaps a BMP repository can be accessed on the EPCAMR and WPCAMR websites for community groups and watershed organizations to add their projects in addition to the State and Federally funded projects. EPCAMR is well aware of the West Branch AMD Remediation Strategy developed by the SRBC and its partners, but there is no comprehensive Strategy completed as of yet to look at the AMD pollution loads to the Susquehanna River and the Chesapeake Bay on a whole. There is also the West Branch Task Force, under the direction and leadership of Amy Wolfe-Abandoned Mine Lands Program Director for National Trout Unlimited that could also provide additional insight, data, loadings, and numbers to assist with improving the overall Chesapeake Bay Model.

Response

Your suggestion of implementing an AMD BMP tracking pilot project to provide additional insight, data, loadings, and numbers to assist with improving the overall Chesapeake Bay Model has merit. While the CBPO has compiled a significant amount of information regarding BMP effectiveness, including AMD BMPs, the suggestion to maintain a series of websites that would allow community groups and watershed organizations to add their projects for broader use is an excellent suggestion. EPA will encourage the Bay jurisdictions to consider this approach as they develop their Phase II WIPs. Furthermore, jurisdictions are encouraged to propose to the Water Quality Goal Implementation Team and its workgroups nutrient and sediment control effectiveness estimates. The Chesapeake Bay Program has an approved protocol for reviewing and approving these practices for use in the annual tracking and reporting of BMP implementation and subsequent estimation of nutrient and sediment reductions.

Comment ID 0070.1.001.020

Author Name: Hughes Robert

Organization: Eastern PA Coalition for Abandoned Mine Reclamation (EPCAMR)

EPCAMR's RAMLIS GIS Tool (http://epcamr.org/index.php?name=Content&pa=showpage&pid=81) can also provide reports that can be developed that present data about the number of active mining permits and the overall disturbed area associated with these permits. EPCAMR uses (lat/long) coordinates to locate projects, however, the projections of our data are not tied to the NHD on the larger national scale, it is very localized and layered based on much smaller watershed units within the Chesapeake Bay Watershed, that we believe gives it a more accurate reflection of the data and leaves less room for error. AML is also tracked in our RAMLIS GIS Tool and is updated by EPCAMR and its community partners, in addition to information provided by the Commonwealth's Bureau of Abandoned Mine Reclamation. EPCAMR has the ability to statistically summarize the percentage of problem areas reclaimed in a watershed area, municipal boundary, legislative district, and the PA portion of the Chesapeake Bay. Stream miles restored can also be provided as well as water quality analyses. Much of our current work right now is in developing the Anthracite Region AMD Remediation Strategy with the SRBC.

Response

Thank you for your comment. Please see the response to comment number 0070.1.001.009.

Comment ID 0076-cp.001.001

Author Name: Kelly Fred

Organization: Severn Riverkeeper

The goals of the Draft TMDL are doomed to failure just as the goals of the Chesapeake Bay Agreement were never met. EPA has again failed to include an effective interface with the municipal and county governments who actually decide whether a new development pollutes or not. EPA and the States do not decide if new development, the major increasing source of pollution, are permitted. It is the municipal and county governments who will stop or continue the pollution of the Bay and its tributaries. Until your draft includes an effective procedure for requiring the local permitting agencies to comply with the TMDLs, EPA will continue to fail in its effort to "save the Bay".

Response

EPA and the Bay watershed jurisdictions recognize the important role that the municipal and county governments play in controlling pollutant inputs into the Bay and its tributaries. The Phase II WIPs are expected to build on the Phase I WIPs and the Final TMDL to further subdivide allocations by sector down to the county or "small watershed" scale. In addition, the Phase II WIPs expected to build on the lessons learned from the Local Phase II Pilot projects. It is the focus of the Phase II WIPs to refine the allocations at the local government and county level and among sectors in order to conduct more explicit loading reduction analyses for the 2017 interim target. We look forward to working with the states, the local communities and your organization to build the link to local governments.

Comment ID 0086-cp.001.005

Author Name: Strait Craig

Organization:

I am very disheartened to see properties that are continually contributing to pollution of the Bay. One particular property I pass every week is a small half-acre lot containing a mobile home dwelling, a fenced area for cattle and/or horses, and a stream that is classified as a high quality cold water fishery. This has a multitude of transgressions against trying to clean up the Bay; the animal lot has never had any grass, trash is thrown in large piles between the trailer and the stream, and I question whether they even have an on-lot septic system. Regardless, this is a prime example of both nutrient and sediment pollution. When something like this is so blatantly obvious, why can't something be done to correct the problem? Why is this allowed to continue at a time when major wastewater treatment facility upgrades are being required to meet stricter discharge requirements, increasing the rate customers are forced to pay? This is unfair to those who try to do the right thing and be good stewards to the environment.

Response

EPA understands your concern and frustration regarding the behavior of individuals that negatively impact the Chesapeake Bay.

The restoration of the Bay will require action by all major dischargers and large agricultural operations to significantly reduce their pollutant loadings; EPA endorses, where possible, an equitable sharing of the responsibility for pollutant reductions for all sectors, and a realistic recognition that this effort will require an unprecedented level of federal, state, and local resources to be successful. We encourage you to report violations of state or federal laws or permits to EPA online (www.epa.gov/tips/ or www.epa.gov/compliance/complaints/moreinfo.html) and to the appropriate state regulatory agency.

Comment ID 0114-cp.001.002

Author Name: Harrison T.

Organization:

EPA has unwritten deal with PA DEP///this should stop.

DEP can not, does not enforce law at local levels.....see proof in attached files. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0114.1 through -0114.6]

Response

Please refer to response to comment 0130.001.001.

Comment ID 0131.001.001

Author Name: Dean C.M.

Organization:

Great job yesterday. After living on the Little Magothy River for 32 years, I, as you have, witnessed the steady decline in the Bay's health to the point that neither I or my family (15 of us) don't even go into it unless we accidentally fall overboard from our boats or go under the clean our props. My one suggestion as I wrote on my card yesterday is that severe penalties for polluting the Bay must be incorporated into the final plan. Perhaps even going so far as to criminally charging those who demonstrate a continued pattern of pollution under the federal RICO statutes. Now that will get their attention and perhaps send a clear message to other polluters that you guys mean business this time.

Response

Thank you for your comment. EPA intends for the Chesapeake Bay TMDL to have a significant impact on the health of the Bay. The Bay TMDL is employing an adaptive implementation approach that will provide an opportunity to assess at specific milestones the ability of the various sectors to achieve their targeted pollutant reductions. The results of the progress documented at these milestones will allow the jurisdictions to reassess their strategies, to reassess their proposed allocations, identify alternative reasonable assurance options and to identify viable funding sources. However, EPA is committed to using any necessary

enforcement action at its disposal to assure that the jurisdictions successfully implement the Bay TMDL.

Those measures that EPA may invoke should they be necessary include:

--Expand NPDES permit coverage to currently unregulated sources utilizing the residual designation authority to increase the number of sources, operations and/or communities regulated under the NPDES permit program;
--Object to NPDES permits for both major and minor facilities and to increase program oversight. These measures would include, but not be limited to, NPDES effluent limits that are not consistent with the Bay TMDL's wasteload allocations;
--Require net improvement offsets for new or expanded discharges that do more than merely replace the new or expanding source's anticipated new or increased loadings;
--Establish finer scale wasteload and load allocations than those proposed by the jurisdictions in the Bay TMDL - Increase and target federal enforcement and compliance assurance in the watershed. This could include both air and water sources of nitrogen, phosphorus, and sediment;
--Condition or redirect EPA grants based on demonstrated progress in meeting Watershed Implementation Plans and/or in an effort to yield higher nitrogen, phosphorus, or sediment load reductions; and
--Federal promulgation of local nutrient water quality standards -Initiating promulgation of federal standards where the jurisdiction's Bay water quality standards do not contain criteria that protect designated uses locally or downstream.

Comment ID 0139.1.001.003

Author Name: Horn Charles

Organization: Headwaters Soil and Water Conservation District

Conservation Districts can provide EPA the accountability that they seek through Virginia's new tracking program and USDA's Progress Reporting System. As an example, we have the following to report for the Headwaters District in Augusta County from our 2010 program year:

Number of approved state applications: 188
Number of state conservation contracts: 200
BMPs included in contracts: 563
Number of new federal contracts:
CREP: 33
EQIP: 5
CBWI: 43
Total Active Farm Bill Contracts as of 9/30/10: 508
Stream banks Protected: 40.7 miles (Includes state and federal combined)
Riparian Buffers Installed: 245 acres
Cropland converted to hay: 367 acres
Cover crop: 8216 acres
Nutrient Management Plans approved: 39
The installation of these BMPS resulted in the following toward the Chesapeake Bay TMDL Goals:
Sediment reduced 31,200 lbs

Nitrogen reduced 168,863 lbs
Phosphorus reduced 33,634 lbs
Waste treated 6,794 tons

These reductions were achieved through landowners' voluntary participation in programs provided by Virginia's Agricultural Best Management Practice Cost-Share Program (VACS) and the USDA's Natural Resources Conservation Service and Farm Service Agency. In the Headwaters District, the various state and federal programs paid out approximately 2 million dollars of incentives in 2010. These programs cover between 50% and 90% of the cost of implementation. The farmer provides the remaining cost out-of-pocket to establish and then maintain the practices.

Response

Thank you for this valuable information. We agree that an effective tracking and accountability system is a key component in the strategy to restore the Bay. EPA is designing two tracking and reporting systems to facilitate the exchange of information between jurisdictions' databases and the partnerships' Chesapeake Bay Watershed Model: the National Environmental Information Exchange Network (NEIEN), and Scenario Builder. Both of these tools will allow EPA to use the Chesapeake Bay Watershed Model to assess the impact of management actions on nutrient and sediment loads delivered to the Chesapeake Bay. EPA has provided funding to the Commonwealth of Virginia through its Chesapeake Bay Implementation Grant and Chesapeake Bay Regulatory and Accountability Program Grant to develop and improve mechanisms for tracking, reporting and verifying nutrient and sediment controls that are implemented within the watershed each year.

Comment ID 0139.1.001.012

Author Name: Horn Charles

Organization: Headwaters Soil and Water Conservation District

3. Conservation Districts can provide EPA the compliance assurance that they seek through Virginia's new tracking program and USDA's Progress Reporting System.

Response

Thank you for your comment. Please see the response to comment number 0139.1.001.003.

Comment ID 0169.1.001.030

Author Name: Crim Martin

Organization: Town of Occoquan, Virginia

If EPA is truly committed to an adaptive management approach to the TMDLs, it would adopt them based upon the

allocations in the Tributary Strategies and then update the TMDLs when the Phase 5.3 CBWM is fully transparent, developed and calibrated to within an acceptable margin of uncertainty. No time would be lost if EPA's accountability framework remains in place to ensure that progress toward achieving the Tributary Strategy allocations continues while work on the Phase 5.3 CBWM and model inputs are underway. In fact, the approach we recommend likely would achieve our mutual water quality goals for the Bay more efficiently, cost-effectively, and quickly by fostering the federal, state, and local partnership that is so critical to an undertaking of this magnitude.

Response

The Bay TMDL allocations, while not identical to the Tributary Strategies, were established with a similar approach. We understand your recommendation regarding the initial use of those allocations, but EPA believes that the use of the CBWM 5.3 provides the most accurate representation of the watershed, the current loadings and the most effective pollutant reduction allocations necessary to achieve the current and proposed water quality standards. The CBWM 5.3 is not a static model but will continue to be refined and improved as additional data and technology allows. Additional information on CBWM Phase 5.3 and Scenario Builder are available at response to comment 0265.1.001.020. EPA believes that the adaptive approach to implementing the allocations provides for an opportunity for all interested parties to track the early pollutant reduction initiatives, evaluate their effectiveness and refine future actions when the jurisdictions develop their Phase II WIPs.

Comment ID 0200.1.001.008

Author Name: Devilbiss Thomas

Organization: Carroll County Government, Maryland

• The Bay TMDL notice states, "EPA intends to work with federal partners, the six watershed states, the District of Columbia, local governments, and other parties to put in place a comprehensive, transparent, and accountable set of commitments and actions…" It is not clear from either the Bay TMDL documents or the State of Maryland WIP what the specifics of the commitments and actions are, especially related to local jurisdictions.

Response

In many ways, the success of restoring the Bay will depend on the implementation of the pollutant reduction strategy and the tracking of its implementation at the local government level. In a December 29, 2009 letter to the Bay watershed jurisdictions, EPA committed to work with the jurisdictions to build a transparent accountability system. This system will allow EPA, the jurisdictions, local government and the public to have a clear understanding of how wasteload allocations (WLAs) and load allocations (LAs) are being implemented and attained through appropriate point and nonpoint source controls in order to meet the basin-jurisdiction loading targets identified in jurisdictions' two-year milestones. This accountability system was initiated in 2010. A status report was provided by EPA in July 2010 that included the proposed framework and major design components so that the partners in the Bay restoration may provide input to this system design.

EPA also notes, with respect to substantive comments regarding individual jurisdictions' Phase I WIPs, that the WIPs submitted by

each jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdiction for consideration as part of its WIP.

Comment ID 0237-cp.001.001

Author Name: Comment Anonymous

Organization: Natural Resources Defense Council (NRDC)

The Chesapeake Bay will continue to deteriorate into a putrid pool as long as EPA allows agribusiness and developers to trash the surrounding landscape and use the Bay as an open sewer. EPA has spent the past 30 years dodging the conflict and inventing contorted bureaucracies to create the appearance of action, while the destruction of Chesapeake Bay continues. The steps EPA must make to halt its destruction, let alone restore it, are plainly clear. Developers must be stopped from stripping away the forests and wetlands surrounding it, and agribusiness must be stopped from dumping pig and chicken manure into it.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0241-cp.001.001

Author Name: Chase Matthew

Organization:

My name is Matthew Chase, and I live in the Cameron Mills area, near the Canisteo river valley. Located in our area is the Dicksons Corp. they are the largest bio solids land applicator in NYS. They have not been in compliance with state laws or regulations. We have brought the issues to the attention of the NYS DEC for years and nothing has ever been done. Tickets are dismissed when money is exchanged. They make so much money it means nothing to them.

I have watch bio waste run off their fields in RIVERS of sludge into area wet lands, creeks and streams, which all flow in to the Canisteo river, which eventually leads to the Chesapeake bay area. I have seen the algea growth explode, once clear creaks are now red with algea or slick with green algea. I have seen fish floating in the streams, chocked to death in their own habitat.

Why can't something be done about this? Why can the DEC just simply look the otherway no matter what we do. Why can they not provide documenation about the actual wastes being dumped on their fields? Their trucks are overloaded and come directly from their waste sites without getting any treatment. They haul at all hours of the night to avoid

detection, they haul on weekends and holidays. Millions of gallons of unaccounted wastes are being used!

If they aren't stopped they will continue expanding and the runoff and pollution to the watershed and area watersupply will be completely contaminated.

Response

EPA understands your concern and frustration regarding the behavior of individuals that negatively impact the Chesapeake Bay. The restoration of the Bay will require action by all major point and nonpoint sources to reduce their pollutant loadings; EPA endorses, where possible, an equitable sharing of the responsibility for pollutant reductions for all sectors, and a realistic recognition that this effort will require an unprecedented level of federal, state, and local resources to be successful. We encourage you to report violations of state or federal laws or permits to EPA online (www.epa.gov/tips/ or www.epa.gov/compliance/complaints/moreinfo.html) and to the appropriate state regulatory agency.

Comment ID 0242-cp.001.001

Author Name: Hebert C.

Organization:

We have been waiting a long time to clean up the bay with voluntary efforts. What we need is a mandatory approach to enforcing pollution limits that levels the playing field across states.

A perfect example is of Mattawoman Creek, which mirrors the plight of the Bay at large. Since 2005, Mattawoman has had an approved TMDL, but it has not been enforced and has not stopped harmful sprawl development from threatening the Matawoman watershed and the Bay. Therefore, Mattawoman presents a case study on why a change of approach is needed. Warnings about Mattawoman's vulnerability to development have been issued for at least twenty years. Now, the Maryland Department of Natural Resources is reporting that the warnings are coming true: a decline in the abundance of fish and number of fish species has been detected in the last few years.

Response

Please see the response to comment number 0110.001.005. A successful Bay restoration strategy will require that all partners in the entire watershed do their fair and equitable share. The Bay TMDL was developed with this in mind. Basically, while all geographic regions in the watershed are expected to do their share, the responsibility to control pollutant inputs will be proportional to the relative contribution of pollutants. The Mattawoman Creek currently has an approved TMDL for phosphorus and nitrogen to address its local aquatic life use impairment. The Chesapeake Bay TMDL provides new allocations for the Mattawoman Creek to address the aquatic life use impairment of the Chesapeake Bay. Of the two TMDLs, the more stringent TMDL will apply. Maryland’s WIPs provide plans for how and when the State will meet the pollution reductions in each its watersheds. For information regarding the WIPs, please refer to response to comment 0213.1.001.002.

Comment ID 0252.1.001.014

Author Name: Bond Arthur

Organization: City of Frostburg, Maryland

The third specific comment is that EPA must be active in requiring the neighboring States to comply so that a more or less level playing field can exist within the Bay watershed to avoid further damage to our fragile economy. Revenue needed to pay for these items will likely come from property tax and income tax sources, and if development ceases and local incomes become further taxed, the burden will be disproportionate in our area, which would occur in a region where water quality with regard to nutrients especially is better than other areas that due to past development are more equipped to pay for the measures needed.

Response

Thank you for your comment; please see the response to comment number 0110.001.005. A successful Bay restoration strategy will require that all partners in the entire watershed do their fair and equitable share. The Bay TMDL was developed with this in mind. Basically, while all geographic regions in the watershed are expected to do their share, the responsibility to control pollutant inputs will be proportional to the relative contribution of pollutants.

Comment ID 0300.1.001.005

Author Name: Whirley Gregory

Organization: Virginia Department of Transportation (VDOT)

VDOT is concerned that the TMDL and draft Virginia WIP relies upon incentive-based initiatives for several source sectors, especially to reduce pollutant loading from non-point sources. If the incentive-based programs are not backed with substantial and reliable financial incentives, then the target allocation for that source sector is not likely to be achieved. If that occurs, then "regulated or permitted" entities that have point sources, such as VDOT and local governments, will likely have their target allocations reduced and their WLAs tightened. In fact, EPA has already stated that would be their intention. The draft TMDL states "Without a demonstration o/reasonable assurance that non-point source allocations will be met, a TMDL would have to assign all necessary reductions to the point sources." (Page 7-1 of the draft Chesapeake Bay TMDL). It is an unfair and unreasonable burden on point source dominated sectors to expect that they will be required to meet their target allocations and then be required to reduce their pollutant loadings further to compensate for other source sectors that do not meet their allocations. Therefore, VDOT requests that the EPA work closely with the states to develop a detailed series of initiatives, a detailed tracking system, an accountability system, and comprehensive funding mechanisms for each source sector that provides reasonable assurance for all source sectors to achieve their target allocations and removes the burden of point source sectors having to, potentially, shoulder the non-point source sector's responsibility.

Response

Thank you for your comment; please see the response to comment number 0110.001.005. A successful Bay restoration strategy will require that all partners in the entire watershed do their fair and equitable share. The Bay TMDL was developed with this in mind. Basically, while all geographic regions in the watershed are expected to do their share, the responsibility to control pollutant inputs will be proportional to the relative contribution of pollutants.

EPA agrees with your suggestion that, "the EPA work closely with the states to develop a detailed series of initiatives, a detailed tracking system, an accountability system, and comprehensive funding mechanisms for each source sector that provides reasonable assurance for all source sectors to achieve their target allocations." Indeed, EPA is developing a detailed tracking and accountability system as part of the accountability framework providing reasonable assurance for the Bay TMDL.

EPA also notes, with respect to substantive comments regarding individual jurisdictions' Phase I WIPs, that the WIPs submitted by each jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdiction for consideration as part of its WIP.

Comment ID 0300.1.001.010

Author Name: Whirley Gregory

Organization: Virginia Department of Transportation (VDOT)

Page 7-11 under Section 7.2.4 of the draft TMDL requires additional reductions of loadings from point sources and calls for revising the final December 2010 Chesapeake Bay TMDL to reallocate additional load reductions from non-point to point sources of nutrient and sediment pollution. As stated in Item 3, VDOT is concerned that point source dominated sectors will unduly experience continued reductions in their allocations at the same time that relief is granted to non-point source dominated sectors.

Response

Thank you for your comment. Please see the response to comment number 0300.1.001.005.

Comment ID 0302.1.001.004

Author Name: Williams Nat

Organization: The Nature Conservancy

We commend EPA for incorporating the following elements into the TMDL and accountability framework:

1. Setting a hard cap while providing flexibility for achieving the cap. In setting clear pollution limits and allowing Bay jurisdictions, through Watershed Implementation Plans, to determine how they are going to achieve those limits, EPA is establishing an appropriate balance between assuring accountability and providing an opportunity for jurisdictions to innovate and tailor their efforts to local conditions. Particularly with regard to nonpoint sources of pollution, the states are in the best position to determine how to achieve the reductions that are needed. States are also best able to decide how to allocate reductions among different source sectors.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL.

Comment ID 0302.1.001.006

Author Name: Williams Nat

Organization: The Nature Conservancy

We commend EPA for incorporating the following elements into the TMDL and accountability framework:

3. Tracking and assessment of restoration progress. It is important to not only track the actions being taken by governments and source sectors to reduce pollution, but also to monitor the effects of these actions on water quality. For the Conservancy, the protection and enhancement of living resources in the Bay, its tributaries, and embayments are the measures by which we will determine whether Bay restoration efforts have been successful. We applaud EPA for ensuring that pollution reductions both occur and have the intended effect on water quality, the human populations that depend on the Bay for their livelihoods and quality of life, and the plants, animals and natural communities that live in the water.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL.

Comment ID 0334.1.001.002

Author Name: Troutman John

Organization: Buchart Horn, Inc.

Municipal sources have already committed $1.4 billion in capital and added $63 million to operation and maintenance costs (Legislative Budget and Finance Committee Report 2008) to meet the approximate 20% reduction from their sector. A backstop provision to require treatment technology to 3.0 N and 0.1 P will net a minimal reduction to the pollutant loan. While technology is available to municipal sources the reductions available will not satisfy a bay water quality need. Additional capital expenditures could be further assigned to provide real reductions.

Response

EPA recognizes that restoring the Bay is neither easy nor inexpensive, or else necessary actions to achieve applicable water quality standards would be complete. Where jurisdictions did not demonstrate in their final Phase I Watershed Implementation Plans adequate reasonable assurance that they can achieve and maintain necessary reductions from the agriculture sector and other nonpoint sources, which may be more cost-effective, EPA applied in the Bay TMDL backstop allocations that place more stringent limits on point sources. EPA has made it clear to all Bay jurisdictions that it would prefer to establish allocations for point and nonpoint sources based upon allocations in the jurisdictions' WIPs. From September through November, EPA had frequent communications with the Bay jurisdictions in which EPA specifically identified what improvements jurisdictions must make in their final Phase I WIPs in order for EPA to relax or remove these backstop allocations in the final TMDL.

Comment ID 0389.1.001.018

Author Name: Iwanowicz Peter

Organization: New York State Department of Environmental Conservation

EPA's Proposed Accountability Framework is Unfair to NY

New York was only brought into the Bay program in 2000 upon signing the multi-state MOU and committing to voluntary measures to help clean up the Bay. Conversely, the States of Maryland, Virginia, and the District of Columbia were brought into the Bay program as early as 1983 as signatories to the original Chesapeake Bay Agreement and as members of the Chesapeake Executive Council. New York completed and began to implement its Tributary Strategy in 2006 and this effort is ongoing today. EPA proposes to levy the same sanctions on all states, regardless of length of time in the Bay program, for the failure to meet the most recent loading allocations. EPA fails to take into account that New York has only been an active participant in the Bay program since its Tributary Strategy was finalized in 2006. New York is also not a party of the various Government Accountability Office and the EPA Inspector General's criticisms of stalled progress involving Bay restoration. EPA should tailor its accountability measure to fit particular circumstances and not throw its accountability "blanket" over the entire Chesapeake Bay watershed.

Response

Please see the response to comment number 0080-cp.001.002.

Comment ID 0396-cp.001.001

Author Name: Bruce M.

Organization:

We need strong limits on pollution, which is why I support TMDL legislation that is NOT "watered down" -- pun intended. Dilution is not the solution to pollution, less pollution is.

In our house, if you mess it up you must clean it up. Not just walk away. Not blame someone else. Not dump the mess in the neighbor's yard. Not expect someone else to take care of it. If my kid can understand that this is the right thing to do, we adults should too -- businesses, government, farmers, homeowners, everyone.

It's time to hold everyone accountable, by law. Voluntary compliance hasn't worked, so it's time to put it into law and then enforce it.

Response

Thank you for your comment. Please see the response to comment number 0217.1.001.005. EPA notes, however, that the Chesapeake Bay TMDL is not a federal law or regulation

Comment ID 0414.1.001.011

Author Name: Myers George

Organization: Milton Regional Sewer Authority

EPA Has Not Considered the Difference Between Reality vs. Promises in the State's WIP's

The WIP's prepared by New York, Pennsylvania, Delaware, and West Virginia may represent what those states are actually capable of doing and not promises that more can be achieved.

1. Has EPA considered that the WIP's from the various states may have been written from different points of view and that a WIP provides no assurance that the actions promised will be achieved?
2. If the states do not have sufficient regulatory authority to satisfy EPA, what regulatory authority can EPA assert to assure that the WIP's, as written, can be implemented?
3. If the states do not have sufficient resources, financial or other, what resources can EPA provide to assure that the WIP's as written can be implemented?

Response

EPA is using a common framework to evaluate each of the final Phase I WIPs and to determine whether they demonstrate attainment of the jurisdictions' target allocations and adequate reasonable assurance that pollutant reductions can be achieved and maintained. The results of EPA's evaluations of the jurisdictions' final Phase I WIPs can be found in Section 8 of the final TMDL. Regarding the first and third portions of the comment, please see the response to comment number 0394.001.013.

EPA also notes, with respect to substantive comments regarding individual jurisdictions' Phase I WIPs, that the WIPs submitted by

each jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdictions for consideration as part of their WIPs.

Comment ID 0418.1.001.009

Author Name: Devine Jon

Organization: Natural Resources Defense Council (NRDC)

In order to ensure consistency in the approaches identified by the states, EPA must clearly set forth baseline standards expressing the Agency's expectations for threshold levels of performance.

For example, between the six Bay States (excepting the District of Columbia), there is a wide range of standards relating to nutrient management planning and fertilizer application for agriculture operations. Some, but not all, states rely on USDA NRCS conservation practice standards to inform nutrient management planning and application. There is considerable variation in the states' approaches to addressing soil phosphorus levels and restricting the application of excess fertilizer to areas of high phosphorus concentration. It is reasonable to assume that this inconsistency will continue to frustrate uniform responses to nutrient loadings throughout the Bay watershed. In its review of revised Phase I WIPs, EPA can reasonably insist on reasonable assurances that agricultural loadings will be reduced through practices that achieve specific, minimum standards of performance. When EPA's expectations for such reasonable assurances are not met, EPA may premise its backstop load allocations on the implementation of specific practices that will be sufficient to meet these targets. In this regard, the recently issued Guidance for Federal Land Management Activities in the Chesapeake Bay Watershed contains a suite of Implementation Measures to reduce nutrient and sediment pollution from agricultural operations.[FN 17] This document, reflecting an array of widely accepted and adopted practices, may serve as a foundation for an explicit set of baseline standards for all agricultural operations in the Bay watershed.

Likewise, reducing the impacts associated with stormwater flows from existing areas of development is crucial to improving Bay water quality.[FN 18] In its backstop allocations, EPA is poised to establish wasteload allocations that would effectively push municipal separate stormwater systems to address pollution from existing urban stormwater flows. While this requirement is a significant and forward step, the improvements in water quality expected from such retrofit efforts may be undermined by the absence of a readily applicable definition or standard that embodies acceptable best practices for urban stormwater retrofits. Again, EPA has demonstrated leadership in this regard through the approaches detailed in the Land Management Guidance. However, even that document lacked objective, measureable baselines for retrofit performance

Earlier this year, EPA released a memorandum outlining an approach to urban stormwater permitting that clarified EPA's expectations for MS4 permits that contain clear and enforceable measures, consistent with federal regulations and protective of water quality. [FN 19] The findings of the National Research Committee report on urban stormwater contained a preference for stormwater management practices that preserved or restored hydrologic balance to areas of

development. [FN 20] This memorandum presents a positive opportunity for EPA and state and local stormwater managers to adopt approaches to urban stormwater management that will result in meaningful protections of Bay waters and reductions of pollutants, including excess volume, from stormwater discharges. In order to have this effect, however, the memorandum needs to be effectively integrated into EPA review of Bay state MS4 permits and Watershed Implementation Plans. EPA should rely upon the memorandum in evaluating WIP goals and milestones relating to controlling urban stormwater and the standards and regulatory measures it describes should form the basis of EPA's backstop allocations for MS4s.

On-site wastewater treatment systems are among the more significant non-point sources of nutrient loadings in the Bay watershed. Maryland estimates that loadings from households served by on-site septic systems are five times greater than those served by centralized sewers.[FN 21] However, reducing nutrient loads from septics can be challenging owing to their wide dispersion and private ownership. Not surprisingly, the Bay states' septic programs reflect a range of commitments and goals. Maryland and Delaware both describe responsive septic upgrade and management programs, with regulatory reforms and funding streams.[FN 22] Virginia, Pennsylvania, and New York have less well-defined efforts devoted to improving septic performance. As with agriculture and urban runoff, the lack of specificity, consistency and common levels of commitment will undermine effective efforts to address this source of pollution across the entire Bay watershed. In order to effectively cure this problem, EPA's review of state WIPs should take into consideration the importance of baseline standards and explicit programs for both new on-site treatment systems and the rehabilitation or management of existing systems. State programs including detailed programs to address septics through such standards provide considerably greater "reasonable assurance" that loadings from this sector will be reduced. Again, in the Land Management Guidance the Agency has made an initial effort at describing a set of standards standard practices or approaches that lend themselves to universal application across the watershed; these standards should inform EPA's calculation of backstop allocations and can be stressed as models for the various activities covered by the guidance.

[FN 17] US EPA, Guidance for Federal Land Management in the Chesapeake Bay Watershed, May 12, 2010. Available at http://www.epa.gov/owow_keep/NPS/chesbay502/.

[FN 18] See Draft TMDL at p. 4-6.

[FN 19] US EPA, Urban Stormwater Approach for the Mid-Atlantic Region and Chesapeake Bay Watershed, July 2010.

[FN 20] National Research Council, Urban Stormwater Management in the United States, National Academies Press, Washington, DC (2009)

[FN 21] MD WIP at ES-9

[FN 22] See, e.g, DE WIP at 42-49, MD WIP at 2-7 to 2-8

Response

EPA is using a common framework to evaluate each of the final Phase I WIPs and to determine whether they demonstrate

attainment of the jurisdictions' target allocations and adequate reasonable assurance that pollutant reductions can be achieved and maintained. Please see the response to comment number 0394.001.013.

EPA also notes, with respect to substantive comments regarding individual jurisdictions' Phase I WIPs, that the WIPs submitted by each jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdiction for consideration as part of its WIP.

Comment ID 0422-cp.001.001

Author Name: Redding L.

Organization:

TMDL's must be made MANDATORY! Mattawoman Creek in Charles County, MD has had an approved TMDL since 2005 which has been completely ignored, as if it didn't exist. The only way the Bay is going to be saved is if we get serious about saving the tributaries. We have been warned about Mattawoman Creek being in jeopardy for many years - why wait until it becomes a "restoration" project? Enforce TMDL's and Mattawoman Creek would be the poster child to lead the way to saving the Bay. Instead of costing millions of taxpayer dollars to restore, Mattawoman would continue to provide millions of recreation dollars and ecosystem services to the community. Time to commit to saving the Bay the only way possible - by saving its tributaries!

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0431.1.001.006

Author Name: Tolbert James

Organization: City of Charlottesville, Virginia

It is not clear how non-MS4 communities and agricultural land owners will be held accountable for meeting the necessary nutrient load reductions spelled out in the Bay TMDL. How can 60% of the Bay TMDL measures be in place by 2017 if such a large enforcement gap exists? It would be very unfair to the regulated MS4 communities to shoulder the reduction load merely due to the presence of existing enforcement programs. Competition for economic development needs to be considered between MS4 and neighboring non-MS4 communities. It is unfair to regulate one without the other.

Response

EPA understands your concern regarding the significant challenge of reducing MS4 loadings. EPA endorses, where possible, an equitable sharing of the responsibility for cleanup that applies to all sectors, and a realistic recognition that this effort will require an unprecedented level of federal, state, and local resources to be successful. It should be clarified that the 60% target does not apply equally to all source sectors. EPA expects 60% of the controls in place by 2017, statewide. So some sectors will likely be less than that and others sectors more than that.

The Bay TMDL is employing an adaptive implementation approach to achieve applicable water quality standards in each of the segments impaired by nitrogen, phosphorus, and sediment. EPA is confident that this comprehensive, iterative process for determining allocations to all sources, including MS4s, and making any needed adjustments based on sound science and tracking results will be successful.

Comment ID 0437.1.001.001

Author Name: Morrow William

Organization: Whitmore Farm

The Farm Bureau would have you believe that the farming community is a unified body acting as one. The reality is that farming is just as diverse a group as any other industry. You have some good actors and some not so good actors. It doesn't matter if you are talking about doctors, mechanics or farmers, some will go the extra mile voluntarily, others will only do the bare minimum. Anyone that disputes the role of agriculture in the continued decline of the health of the Chesapeake Bay has their head stuck in the sand. The last 26 years has relied on voluntary, incentive based approaches. That approach has educated and assisted many farmers in implementing best management practices (BMPs) to reduce their nutrient loadings to the Bay. The problem is that that approach has stalled. After 26 years, it has reached the point of diminishing returns yet we still need greater reductions in nutrient loadings to the Bay.

I am a farmer in Frederick County, Maryland. Our farm is in the Monacacy watershed that feeds into the Potomac river which feeds into the Chesapeake Bay. Our watershed is one of many in the region that are exceeding water quality standards for nutrients. We have been implementing all the voluntary BMPs recommended by the Maryland Department of Environment. Although there is some financial and technical assistance from the state, implementing these BMPs still cost us in time, money and some land, adjacent to creeks and drainage swales, is taken out of production. It is frustrating to do all of that voluntarily and then drive through the county and still see some farmers cropping up to the bank of creeks, still see some cows standing in creeks, still see some barren fields without cover crops in the winter and still see some farmers spreading manure on frozen ground. These are all no-brainers, low hanging fruit, common sense ways to reduce nutrient loadings.

Twenty six years is a long time to try to get someone to do the right thing voluntarily. At what point do we up the ante? The reality is mandatory, enforceable BMPs will not affect farmers already implementing them but it will get the attention of farmers who are not. Nonpoint source load reductions in TMDLs must be enforceable. I am a farmer and I support enforceable BMPs in TMDLs.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005. EPA understands your frustration and concern for the Chesapeake Bay, and agrees that nonpoint-source load reductions must be enforceable.

Comment ID 0440.1.001.012

Author Name: Land Larry

Organization: Virginia Association of Counties (VACo)

VACo is also concerned about the punitive nature of Section 7 of the TMDL because it threatens to deny federal resources to states and localities failing to meet EPA expectations. Most often, the failure to meet these expectations will, more than likely be due to a shortage of local resources to begin with. This is not characteristic of a fair partnership.

For many nonpoint source pollution problems, local governments are being held responsible for certain forms of pollution that are beyond the ability of many communities' ability to control, either due to a lack of financial resources, or a lack of statutory authority. For example, during the discussions about the DRAFT TMDL by Virginia's Stakeholders Advisory Group (SAG), suggestions were made that localities should regulate the retail sale and consumer use of fertilizers and other lawn care products. Requirements like these could impose a tremendous burden on localities and affect their ability to perform other law enforcement responsibilities. Furthermore, there is no specific statutory authority for Virginia's local governments to undertake these kinds of responsibilities. Mandates like these also bring to the forefront several a complicated legal issues, such as right-of-entry to private property and vested rights

Response

The TMDL is not a new mandate, regulation or law. Please refer to response comment 0110.001.005. EPA understands that each jurisdictions' government has competing and important priorities including providing for schools, fire protection, police protection, road repair, reliable infrastructure or feeding the poor. The TMDL is not aimed at punishing jurisdictions for not obtaining sufficient funds. With that said, this TMDL and its associated WIPs established by the jurisdictions should be considered as one of the many priorities of jurisdiction and should also be part of a jurisdiction's budget consideration, where and if needed.

Comment ID 0442.1.001.016

Author Name: Drzyzgula Cathy

Organization: Metropolitan Washington Council of Governments (COG)

14. EPA and the States Should Clearly Distinguish Between Achieving Water Quality Standards and Achieving Implementation' Goals

It has been known for many years that actual water quality improvements lag behind BMP implementation. This is due in part to the gap in time between implementation of many land-based practices and their impact on surface water quality. The current TMDL language fails to make these distinctions clear, so that expectations of progress may not be realistic and or may be misunderstood by citizens.

Recommendation #14: State that Implementation Progress Will Be Measured by Implementation Rates
The TMDL documentation should clearly state that progress toward attainment will be measured by progress toward the implementation levels EPA and the states estimate is necessary to eventually achieve water quality standards and that progress in improving actual water quality may lag behind this implementation progress (ref. Section 6.4 Assessing Attainment of Proposed Amended Chesapeake Bay WQS, and Section 7.2. Accountability Framework).

Response

EPA agrees that the ultimate objective of the Chesapeake Bay TMDL is to attain and maintain all applicable water quality standards. You are also correct that progress in improving actual water quality may lag behind this implementation progress. While the partners involved in the Bay TMDL are committed to closely tracking implementation of the various point and non point pollutant reduction measures, it is even more important to document how the aquatic ecosystem of the Chesapeake is responding to these measures. We are fortunate that one of the more comprehensive ecosystem assessment efforts in the United States is located in the Chesapeake Bay watershed. This assessment program focuses on quantifying pollutant inputs from a variety of sources (atmospheric, point, non-point, Fall-line) as well as on documenting the ecosystem responses - to those inputs, from a biological (phytoplankton, zooplankton, fish populations, benthic assemblages) and physical (dissolved oxygen, pH, water quality metabolism, water clarity) perspective. This comprehensive information will provide resource managers and scientists with the necessary data to revise, if and when necessary, the pollutant allocations included in the Bay TMDL.

Comment ID 0447-cp.001.003

Author Name: Gaag Halle

Organization: Baltimore Water Alliance

Essential to a well implemented TMDL will be a willingness to demand and enforce strong Watershed Implementation Plans that are based on sound and accurate science based on real time watershed conditions. In Baltimore, we hope this will translate to effective oversight by the Maryland Department of the Environment (MDE) of things like the new MS4 permit, sediment and erosion control, and innovative ‘green infrastructure'.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005. EPA also notes, with respect to substantive comments regarding individual jurisdictions’ Phase I WIPs, that the WIPs submitted by each jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) but are not an approvable part of the TMDL.

Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdiction for consideration as part of its WIP.

Comment ID 0447.1.001.004

Author Name: Gaag Halle

Organization: Baltimore Water Alliance

There can be no doubt that the creation of the Phase I and II WIP's is a complex and complicated process. We hope that MDE and its partner at EPA will continue to push forward with a comprehensive set of new rules and ensure sufficient oversight and funding is available. Additionally, we hope that there will be continued openness and collaboration with local governments and the many non-profit organizations, business groups and academic institutions dedicated to improving water quality in our streams, rivers and the Chesapeake Bay itself.

Response

Please see the response to comment number 0110.001.005. EPA also notes, with respect to substantive comments regarding individual jurisdictions' Phase I WIPs, that the WIPs submitted by each jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration.

Comment ID 0452-cp.001.002

Author Name: Atkinson Dick

Organization: Virginia Soybean Association

BMP practices to date have resulted in a 52% reduction in Nitrogen, a 50 % reduction in Phosphorus and Sediment but with a cost. The state has spent $80 million to go towards BMP's and producers in this state have contributed 60 cts on every dollar from the state. Even with these funds spent, we find that many acres have had best management practices performed to them but aren't being reported for Bay Model purposes. This lack of reporting is critical to agriculture as it makes our job to reach goals imposed that much harder.

Response

Please refer to response to comment 0452-cp.001.001.

Comment ID 0468.1.001.005

Author Name: Harry Jennifer

Organization: PennAg Industries Association

4. We support the Department of Environmental Protection plans to provide greater detail in the WIP that will ensure all farming operations within the State meet baseline compliance with current rules and regulations. This is a size neutral/species neutral issue. In recent months, various revisions have occurred to Chapter 102 - Erosion and Sedimentation for agriculture; the Manure Management Manual; Nutrient Trading. All will have a major role to play in cleaning the waters of the Chesapeake.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. EPA also notes, with respect to substantive comments regarding individual jurisdictions' Phase I WIPs, that the WIPs submitted by each jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdiction for consideration as part of its WIP.

Comment ID 0468.1.001.007

Author Name: Harry Jennifer

Organization: PennAg Industries Association

6. We support DEP in its efforts to account for the non cost shared best management practices occurring. This will be outlined in greater detail in the revised WIP however it will include issues such as Legacy Sediment and the pilot project in Bradford County and Lancaster County. In the past, there have been a hesitation by EPA in accepting this data as verifiable and creditable. If EPA is serious about Bay restoration - EPA must include non-traditional methods of data collection and data source providers. EPA must also understand that 100% verification is not feasible. EPA needs to relay on a methodology that is reliable, defendable and provides reasonable assurance.

Response

Please see the response to comment number 0452-cp.001.002.

Comment ID 0477.1.001.002

Author Name: Friedrich Tony

Organization: Coastal Conservation Association Maryland

Our organization supports and echoes the general concerns and comments of the Clean Water Coalition submitted in response to the Draft TMDL. While the state of Maryland has historically led the Bay states in its efforts to address the problems facing the Bay, certain action and inaction by other watershed states has often frustrated that underlying purpose. We applaud the EPA's efforts to ensure that all watershed states take the necessary steps in their own jurisdictions that are required to meet the Clean Water Act's mandates. The simple fact that approximately 40% of the Bay's freshwater flow comes from Pennsylvania and New York necessitates strong federal involvement. The Final TMDL issued for the Bay should ensure that all states undertake those efforts necessary to meet the CWA's requirements.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. EPA intends that the Chesapeake Bay TMDL and subsequent federal actions as needed will cause the Bay jurisdictions to take the steps needed to implement the Chesapeake Bay TMDL and to attain and maintain applicable water quality standards.

Comment ID 0479.1.001.005

Author Name: Gansler Douglas

Organization: Maryland Office of the Attorney General

I also encourage EPA to take every step needed to ensure allocations are met in the future, including: increasing targeted federal enforcement actions against water and air pollution violators in the Bay watershed; exercising strict oversight of NPDES permits if they fall short of protecting the water quality standards of downstream states; exercising residual designation authority to extend NPDES permitting requirements to additional sources, especially sources within the agricultural sector; and seeking all appropriate remedies available within EPA authority to achieve Bay cleanup.

If the Chesapeake Bay is to be restored to health, and the water quality standards of receiving states are to be met, EPA will need to fully exercise its authority under the Clean Water Act. Because states rarely have any economic or political incentives to protect more than their own state's natural resources, federal action is needed to ensure this protection, and to hold each state accountable for lax enforcement and permissive pollutant standards that disproportionately affect other states in the watershed. No state should be prevented from attaining its water quality standards because of the inadequacy of environmental policies and enforcement in upstream states.

EPA has the unique ability to enforce pollution limits across state boundaries to ensure a fair environmental playing field. I urge EPA to exercise this authority actively and consistently throughout the watershed, so that the downstream states like Maryland can face fewer cross-boundary impediments to improving water quality in the Chesapeake Bay in effective, lasting ways and prevent the ultimate tragedy of the commons.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0479.2.001.005

Author Name: Gansler Douglas

Organization: Maryland Office of the Attorney General

EPA has articulated a legal framework to reduce Bay pollution with clear support in statute, regulation, and case law. EPA also afforded each Bay state the opportunity to create a plan that would best suit its own ecological, economic, and political needs. Pennsylvania, New York, Virginia, West Virginia, and Delaware may not avoid their legal obligations to ensure that pollution in their state does not contribute to the violation of downstream water quality standards by refusing to engage in the WIP process or by offering facially inadequate plans. I applaud EPA for identifying the inadequate plans and for creating backstop allocations for point sources that will ensure the reductions outlined in the Bay TMDL will be met within a reasonable time period. I also encourage EPA to take every step needed, including: exercising strict oversight of NPDES permits if they fall short of protecting the water quality standards of downstream states; increasing targeted federal enforcement actions against water and air pollution violators in the watershed; exercising residual designation authority to extend NPDES permitting requirements to additional sources, especially within the agricultural sector; and seeking all appropriate remedies available within EPA authority to achieve Bay cleanup.

The Bay will not be restored to health without planning, action, accountability, and enforcement of previous commitments. EPA has articulated a framework and provided technical expertise to allow the Bay States to make good on over thirty years of commitments to Bay restoration. Each state has the obligation to engage fully in this process and to enhance their draft phase I WIPs to meet EPA expectations. Only by fully participating in good faith can the Bay States achieve the requirements and pollution allocations set forth by EPA in the TMDL, collectively restore the health of the Chesapeake Bay and avoid the ultimate tragedy of the commons.

Response

Thank you for your comment. Please see the response to comment number 0110.001.005.

Comment ID 0482.1.001.017

Author Name: Bodine Susan

Organization: Agricultural Retailers Association et al.

E. EPA's "Consequences" Overstate EPA's Authority.

In the Draft TMDL, EPA expressly states that unless states "[d]evelop and submit Phase I, II, and III WIPs consistent with the expectations and schedule described in EPA's letter of November 4, 2009, and the amended schedule described in EPA's letter of June 11, 2010," EPA will take one or more punitive actions that were outlined in a Dec. 29, 2009, letter to watershed jurisdictions. Draft TMDL, at 7-11. This remarkably heavy-handed statement is a complete departure from the cooperative federalism that is the hallmark of the CWA. Congress sought in the CWA, "to recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources, and to consult with the Administrator in the exercise of his authority under this Act." 33 U.S.C. § 1251(b). In furtherance of this policy, Congress gave the states, not EPA, primary authority over the establishment and implementation of water quality standards under CWA section 303. See, e.g., 33 U.S.C. §§ 1313(c)-(e). Even the federal permitting program for point source pollutant discharges limits EPA's control over the manner in which authorized states carry out that program. Under the CWA, authorized states carry out CWA programs in that state. EPA does not dictate the terms of how water quality standards are to be met. If EPA finds that a state is not administering the CWA permitting program properly, EPA may withdraw state authorization to administer the CWA permitting program. 33 U.S.C. 1342(c)(3). EPA has some authorities, short of program withdrawal. However, as discussed below, these authorities address specific fact patterns, not EPA disagreement with a state WIP. Each of EPA's threats listed on pages 7-11 to 7-12 of the Draft TMDL is discussed below.

1. Use of Residual Designation Authority to Require Unregulated Sources to Obtain Permits.

If EPA does not agree with a state WIP, EPA claims the authority to use residual designation authority to regulate unregulated sources in that state. As noted above, one of the assumptions EPA is making in its backstop allocations is that all AFOs are regulated sources. Presumably, EPA intends to impose this assumption on watershed jurisdictions by designating AFOs as regulated CAFOs.

EPA's authority to designate AFOs as CAFOs is governed by 40 C.F.R. 122.23(c). However, that authority is limited. First, the AFO must actually discharge pollutants.[FN26] Second, either the state or the EPA Regional Administrator must first make a determination that the particular AFO "is a significant contributor of pollutants to waters of the United States." Third, if a state is authorized to carry out the CWA permitting program (which includes every watershed jurisdiction except for the District of Columbia) then the Regional Administrator may designate an AFO as a CAFO only if "the Regional Administrator has determined that one or more pollutants in the AFO's discharge contributes to an impairment of a downstream or adjacent State or Indian Country water that is impaired for that pollutant." 40 C.F.R. 122.23(c)(1). EPA will not be able to rely on its Watershed Model to make these determinations, because the model cannot predict water quality impacts at the individual facility level. Thus, EPA will have to develop site-specific data before it can make such a determination.

Notably absent from the regulation is the authority to designate an AFO as a CAFO because EPA does not agree with a state's WIP. Accordingly, EPA's claim (in both its backstop allocation and in its evaluation of state WIPs) to able to broadly use residual designation authority against AFOs is invalid.

2. Object to State Permits That Do Not Meet the Requirements of the CWA, Including Permits With Effluent Limitations That Are Not Consistent With the Chesapeake Bay TMDL WLAs.

For sources that are already subject to the CWA permitting program, and that require a new permit or a permit renewal, EPA does have the authority to object to a permit "as being outside the guidelines and requirements of this Act." 33 U.S.C. 1342(d)(2). Grounds for objecting to a state permit are found in 40 C.F.R. 123.44. Disagreeing with a state WIP is not one of the specified grounds. However, one of the bases for objecting to a state permit is: "The effluent limits of a permit fail to satisfy the requirements of 40 C.F.R 122.44(d)." As EPA notes, one of the requirements of 40 C.F.R. 122.44(d) is the requirement that a permit be consistent with a wasteload allocation in a TMDL prepared by a state and approved by EPA. 40 C.F.R 122.44(d)(1)(vii)(B). Thus, if a point source receives an individual wasteload allocation in a state TMDL that is approved by EPA and the state issues a permit with effluent limitations that are inconsistent with that allocation, then EPA may object to that permit.

Thus, the question of whether or not EPA can object to a state permit on the grounds that the permit does not match a wasteload allocation given to that point source by EPA in the final Chesapeake Bay TMDL will depend on whether or not the final Chesapeake Bay TMDL is lawfully established. That will be an open question because this TMDL is not being prepared by a state and approved by EPA under 40 C.F.R. 130.7. As discussed below, in the Draft TMDL EPA is stretching its authority to issue a TMDL far beyond what it has previously asserted and beyond what courts have approved.

EPA also has claimed the authority to object to state permits if a state has failed to subject nonpoint sources to all cost-effective and reasonable best management practices, based on the requirements of an anti-degradation review under 40 C.F.R. 131.12(a)(2). However, EPA's reliance on this regulation is misplaced. This anti-degradation review is required for Tier II waters that exceed water quality standards. This review is not applicable to impaired waters that are the subject of a TMDL.

3. Require Net Improvement Offsets.

EPA has no authority to require net improvement offsets for new or increasing discharges. The only way for EPA to carry out this threat is to object to a state-issued permit and then claim that it is inconsistent with the CWA. The CWA requires effluent limitations to ensure discharges do not cause or contribute to the violation of water quality standards. A net improvement requires a source to over-control, beyond what is needed to avoid causing or contributing to a violation. A source may voluntarily over-control, to create an offset. However, nothing in the CWA allows EPA to object to a permit in order to compel a source to control discharges beyond what is necessary to ensure that the specific discharge does not cause or contribute to a violation of a water quality standard.

4. Require Finer-scale Wasteload Allocations and Load Allocations in the Chesapeake Bay TMDL Than Those Proposed By Watershed Jurisdictions in Their WIPs.

EPA has proposed "finer-scale" allocations in the Draft TMDL. "EPA is … replacing some allocations proposed by jurisdictions; EPA is also providing finer level of detail for allocations in headwater jurisdictions….." Draft TMDL, at 8-2. In fact, EPA has proposed allocations for 1006 individual residences.

By setting wasteload allocations for individual homes, and by proposing fine-scale load allocations, EPA has overstepped its bounds and is attempting to dictate the implementation of the TMDL. As EPA notes, "there are limitless combinations of loadings." Draft TMDL, at 6- 18. This statement is an admission that EPA is encroaching on state

implementation authority.

As discussed above, a TMDL is merely the sum of the load allocations and the wasteload allocations. In 2002, the Ninth Circuit upheld EPA's authority to issue a TMDL for a water body impaired only by nonpoint sources because the Court considered the TMDL to be merely "an informational tool." Pronsolino v. Nastri, 291 F.3d 1123, 1140 (9th Cir. 2002). The Court also recognized that specifying pollutant allocations at a fine scale is tantamount to TMDL implementation. According to the Ninth Circuit, the TMDL at issue in Pronsolino was within EPA's authority because:

[It] does not specify the load of pollutants that may be received from particular parcels of land or describe what measures the state should take to implement the TMDL. Instead, the TMDL expressly recognizes that ‘implementation and monitoring' ‘are state responsibilities' and notes that, for this reason, the EPA did not include implementation or monitoring plans within the TMDL. Id. (emphasis added).

In contrast, the Draft TMDL goes far beyond an "informational tool." It includes implementation measures and specifies pollutant loadings at a fine scale. As such, it goes beyond EPA's authority under the CWA.

5. Require Additional Reductions From Point Sources.

EPA has revised the point and nonpoint source reductions proposed by the watershed jurisdictions. "EPA is making additional point source reductions and, in some cases nonpoint source reductions, as necessary to achieve Bay TMDL nitrogen, phosphorus, and sediment allocations." Draft TMDL, at 8-2.

The CWA requires that a TMDL be set at a level necessary to achieve applicable water quality standards. 33 U.S.C. 1313(d); see also 33 U.S.C. § 1313(b)(1)(C) (requiring effluent limitations "necessary to meet water quality standards"). The statute does not limit a state's discretion to calculate and assign wasteload and load allocations within the TMDL. However, it does not follow that EPA has the same discretion. If a water body is impaired by both point sources and nonpoint sources and water quality standards cannot be met through reductions from point sources alone, then more stringent wasteload allocations cannot be required as "necessary" to achieve water quality standards. Moreover, to threaten unreasonable and unnecessary point source limits in an effort to force state regulation of nonpoint sources and the adoption of land use controls to EPA's liking offends the fundamental policy of the CWA favoring state primacy over nonpoint sources and land use decision-making.

6. Increase and Target Federal Enforcement in the Watershed.

EPA has prosecutorial discretion to determine what sources it targets for enforcement against actual violations of the CWA. EPA does not have authority to coerce state action through unfounded enforcement measures. Thus, the threat of increased EPA enforcement against actual CWA violations should have no bearing on state TMDL implementation.

7. Condition or Redirect EPA Grants.

EPA can only give grants to states pursuant to an authorization by Congress. Congress generally spells out the purpose and terms of the grant. EPA has no authority to redirect or withhold certain grants, particularly those that are allocated based on a statutory or regulatory formula such as title VI state revolving loan fund grants and section 106 program implementation grant. Even for other grant monies, EPA cannot arbitrarily choose to withhold state funding

because it does not like a state WIP. Congress appropriates money for specific purposes. For example, funding for nonpoint source management programs under section 319 of the CWA is conditioned on a state's development of a nonpoint source management program, not a WIP to implement a federal TMDL.[FN27] EPA must implement Congressional appropriations as Congress intends and lacks the authority to redirect appropriated monies to carry out its own agenda.

8. Promulgate Federal Nutrient Criteria.

EPA's authority to issue federal numeric nutrient standards is limited. Section 303(c)(4) of the Clean Water Act authorizes EPA to issue a new or revised water quality standard in a state only if EPA determines that a new or revised state standard is not consistent with the applicable requirements of the Act, or if EPA determines that a new or revised standard is necessary to meet the requirements of the Act. 33 U.S.C. 1313(c)(4). EPA has approved the water quality standards in the Chesapeake Bay states (some modifications are pending). EPA has no basis to say that federal standards are necessary because it does not agree with a jurisdiction's WIP. Thus, it cannot use this threat to coerce a state into changing its WIP.

[FN26] See Waterkeeper Alliance et al. v. EPA, 399 F.3d 486, 504 (2d Cir. 2005); Service Oil, Inc v. EPA,, 590 F.3d 545 (8th Cir. 2009).
[FN27] Congress gave EPA authority to withhold section 319 funding under specific conditions identified under section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990. Those conditions relate to coastal zone management programs which are distinct from the state WIPs at issue here.

Response

Thank you for your comment. EPA disagrees with the substantial comments and respectfully directs to the response for Comment Number 0481.1.001.004.

Comment ID 0492-cp.001.001

Author Name: Stetson R.

Organization:

We encourage the EPA to monitor the clean water act as it relates to the Chesapeake Bay. Our recommendation is to provide for the adequate resources to monitor local and state agencies and the formulas they use to apply the specific rules and regulations, especially within the critical areas.

Resources should also be availlable for adequate enforcement, which should be applied evenly for all citizens. For the better part of the last 18 month we have singlhandledly been challenging a sub-division in Kent County Maryland within the critical areas. Due to the perceived (or actual) power of one of the counties largest and wealthiest landowners, we have witnessed both the state of Maryland (MDE) and the County blatantly disregard the current regulations in place to protect wetlands and the Chesapeake Bay.

Due to the 20 minute time constarint we cannot elaborate, but can be reached at 610/540-2023. In our instance, it is clear that the state and Kent County have a greater desire to protect powerful landowners versus their true mission of conserving the Chesapeake Bay

Response

Please see the response to comment number 0394.001.013. EPA also notes, with respect to substantive comments regarding individual jurisdictions' Phase I WIPs, that the WIPs submitted by each jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdiction for consideration as part of its WIP.

Comment ID 0501.1.001.001

Author Name: Stainman S.

Organization:

1. The EPA Chesapeake Bay Program has done an excellent job of developing a process to require the 6 states and D.C. to prepare their own plans that will be closely monitored and enforced by EPA and the citizens. EPA must remain firm in requiring these jurisdictions to meet the stated regulatory timetable and emission limits, and to impose stated consequences when these jurisdictions lag behind their commitments. A mandated regulatory process is the only way substantive progress will be made to improve the Chesapeake Bay in the next 15 years.

Response

Thank you for your comment. EPA appreciates your support for the Chesapeake Bay TMDL. For more detail regarding EPA's enforcement of the TMDL, please see the response to comment number 0110.001.005.

Comment ID 0535.1.001.001

Author Name: Perkinson Russ

Organization: Virginia Department of Conservation and Recreation

The attainment of aggregate milestone load reductions is more critical that individual results of each milestone strategy states or D.C. might elect to utilize.

Recommendation: EPA should evaluate state progress in meeting specific milestone goals based on aggregate reductions for nitrogen, phosphorus, and sediment rather than the success of each individual strategy or sector in achieving reductions.

Response

EPA will assess milestone progress based on whether jurisdictions are achieving nutrient and sediment load reductions on schedule. EPA understands and accepts that jurisdictions may pursue a different suite of strategies from those identified in their WIPs to achieve these reductions. EPA will accept these adjustments so long as revised strategies result in at least the equivalent reductions in nutrients and sediment delivered to the Bay.

Comment ID 0548.1.001.008

Author Name: Smith Brooks

Organization: Utility Water Act Group

6. EPA lacks authority to compel a schedule for implementation of the TMDL or to threaten consequences against states that fail to meet this schedule.

EPA has unilaterally established a schedule for achieving 60% of the reductions set forth in the Bay TMDL by 2017, and 100% of the reductions by 2025. See Bay TMDL Executive Summary at 1. To meet this schedule, EPA has mandated that the states meet recurring two-year milestones to demonstrate their restoration progress or suffer certain EPA-prescribed consequences. See Bay TMDL at 1-12 ("The Bay TMDL will be implemented using an accountability framework that includes WIPs, 2-year milestones, EPA's tracking and assessment of restoration progress and, as necessary, specific federal actions if the Bay jurisdictions do not meet their commitments.").

We appreciate that many stakeholders are frustrated by the pace of progress and desire greater urgency and speed in the restoration effort. We believe that the TMDL is an important tool to facilitate restoration. But we caution EPA against infusing the TMDL with more than the statute allows. The problem with EPA's schedule and mandate is that the Agency has no authority to compel them. Nothing in the Clean Water Act or EPA's implementing regulations provides a deadline for TMDL implementation. To the contrary, TMDLs are simply planning tools that help to inform state water quality management decisions. EPA has conceded as much in prior TMDL litigation. See, e.g., Pronsolino v. Nastri, 291 F.3d 1123, 1129 (9th Cir. 2002).

We certainly share EPA's interest in restoring the Chesapeake Bay, but EPA cannot impose a schedule for restoration, or threaten consequences against states and dischargers that fail to meet this schedule, without legal authority. EPA lacks that authority here, and must in turn retract both the schedule and the threat of consequences.

Response

EPA has the authority to invoke federal actions provided under the Clean Water Act. EPA has chosen to not invoke many of those

actions now but rather wait to see if states make adequate progress in restoring the Bay. In response to the comment regarding EPA's authority to require a schedule for restoration, see the response to comment number 0169.1.001.027. In response to the comment regarding EPA's authority to take federal actions, see the response to comment number 0230.1.001.026.

Comment ID 0556-cp.001.002

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

Political and governmental leaders in Chemung County, NY have taken the "it's a too costly approach." That is short sighted. New York State and its local governments along the watershed corridor must be pushed to help clean up our water. With Hydo Fracking most likely to arrive on our doorsteps in 2011, there will be a need for even closer scrutiny. The natural gas drillers around the country have shown no willingness to protect the watersheds in which they operate. The EPA must come down on them NOW with a much heavier regulatory hand.

Response

Thank you for your comment; please see the response to comment number 0110.001.005.

Comment ID 0571.1.001.003

Author Name: Rountree Glynn

Organization: National Association of Home Builders (NAHB)

In addition, NAHB is concerned that EPA's proposal is not only another unfunded federal mandate, but also takes over some of the decision-making that has always been the prerogative of the states. For example, the "Independent Evaluator," which we assume that EPA has hired even though it is not discussed in the proposal, will punish any state that does not raise sufficient funds to meet its goals for the proposed rule. This means that other state needs such as functioning schools, fire protection, police protection, road repair, reliable infrastructure or feeding the poor will likely suffer the effects. At a time when the states have been laying off employees, they must now redirect their scarce resources from safety, education, and infrastructure to hire new people to ensure that the state meets the TMDL requirements. The real risk is that a state may seek to avoid punishment by eventually taking funds from one of its other critical needs to meet the TMDL requirements, which are expensive, will require extensive documentation by the state, and will continue into perpetuity.

Response

The TMDL is not a new mandate, regulation or law. EPA has not hired an "Independent Evaluator" as suggested by the commenter and is unclear to whom the commenter is referring. EPA understands that each jurisdiction's government has competing and

important priorities including providing for schools, fire protection, police protection, road repair, reliable infrastructure or feeding the poor. The TMDL is not aimed at "punishing" jurisdictions for not obtaining sufficient funds. With that said, this TMDL and its associated WIPs established by the jurisdictions should be considered as one of the many priorities of a jurisdiction and should also be part of a jurisdiction's budget consideration, where and if needed.

Comment ID 0583.001.003

Author Name: Campaign Mass

Organization: Virginia League of Conservation Voters

...we must verify those plans are being followed.

Response

Thank you for your comment. Please see the response to comment number 0388.1.001.002.

Comment ID 0614.1.001.005

Author Name: Street William

Organization: James River Association (JRA)

EPA's role is important not only to ensure that Virginia does its job for the James River, but also to ensure equity among the Chesapeake Bay jurisdictions. Consistent accountability and enforcement by EPA is essential to make certain that all Bay jurisdictions do their part for the Chesapeake Bay and prevent a jurisdiction that does commit the necessary actions and resources to fulfill its responsibilities from facing a competitive disadvantage of some sort compared to other Bay jurisdictions.

Response

Thank you for your comment. Please see the response to comment number 0252.1.001.014.

Comment ID 0614.1.001.006

Author Name: Street William

Organization: James River Association (JRA)

Virginia's Duty to Develop and Implement a Watershed Implementation Plan

Virginia has a legal obligation to address impairments and pollution of its waters. Beginning with the Commonwealth's highest law, the Virginia Constitution, Article XI states that "it shall be the policy of the Commonwealth . . . to protect its . . . waters from pollution, impairment, or destruction…" Furthermore, the Water Quality Monitoring, Information and Restoration Act directs the Commonwealth to develop and implement a Total Maximum Daily Load implementation plan. Additionally, the Chesapeake Bay and Virginia Waters Clean-up and Oversight Act directs the Secretary of Natural Resources to develop a plan for the cleanup of the Chesapeake Bay and Virginia's waters designated as impaired by the U.S. Environmental Protection Agency (EPA) that is largely similar to the expectations set for the WIP by EPA, including milestones; measurable and attainable objective; time frames; clearly defined, prioritized, and sufficiently funded program of work; disbursement projection plan; potential problem areas where delays in the implementation of the plan may occur; a risk mitigation strategy; a description of the extent of coordination between state and local governments; and an assessments of alternative funding mechanisms.

Despite the concerns raised over the Chesapeake Bay TMDL as an "unfunded federal mandate" and over the role of EPA in fulfilling their legal requirements under the Clean Water Act, JRA believes that the Chesapeake Bay TMDL process serves to ensure that Virginia follows through with its own mandates and obligations for the Chesapeake Bay and its tidal waters. The Chesapeake Bay TMDL and Virginia WIP will also greatly help Virginia address pollution and impairment of local streams, rivers and other waters for which it has the same legal obligation to clean and protect.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. EPA also notes, with respect to substantive comments regarding individual jurisdictions' Phase I WIPs, that the WIPs submitted by each jurisdiction are part of the accountability framework outlined in the Chesapeake Bay Protection and Restoration Executive Order 13508. The WIPs help ensure implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) but are not an approvable part of the TMDL. Because this public comment period is specific to EPA's Chesapeake Bay TMDL, specific comments on each jurisdiction's WIP should be directed to the appropriate jurisdiction for consideration. EPA has forwarded this comment to the appropriate jurisdiction for consideration as part of its WIP.

Comment ID 0625-cp.001.001

Author Name: Comment Anonymous

Organization: National Wildlife Federation Action Fund

As a native of Northern Virginia, Alexandria, the bay has always been a part of my life. It has been very natural for me to be very careful about the drainage and what is feeding into the bay. My husband and son fish regularly on the bay and feel a real attachment to it as well. Please develop and enforce policies that will ensure that the bay is clean, healthy, full of life, and free of dead zones.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. For more

information on potential EPA enforcement action(s), please see the response to comment number 0110.001.005.

Comment ID 0682-cp.001.002

Author Name: Comment Anonymous

Organization:

I remember how clean the Bay was in my youth. Oysters were abundant and we thought crabs would never go away. The few times I got out on the Bay's rivers, I remember seeing the bottom. Now, these are memories. They do not have to be just memories, for the first time in my lifetime we have the opportunity to really do something about the nitrogen, the pollution and sediment and the lack of the grasses I remember so well. We are at a threshold. If we set enforceable standards, the past does not have to be a memory. We can go back to a clean, healthy Bay by setting legally enforcable requirements.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. For more information on potential EPA enforcement action(s), please see the response to comment number 0110.001.005.

Comment ID 0719.001.001

Author Name: Comment Anonymous

Organization:

The DEP has not enforced Federal or PA State laws in the past. The newspaper articles recently published in Lancaster about the Bay and the Amish show a continued reluctance to enforce the laws that impact the Bay. The attachment [Comment Letter contains information in the form of an attachment. See original comment letter 0719.1.001] contains documents proving that DEP has not enforced the Clean Streams Act. And they show how EPA had to come to 2 very small STPs in Adams County PA to enforce what DEP would not. This was after DEP was confronted with it's own documents (same as some attached) from it's own file room over the course of 4 days of research into one local watershed. DEP refused to discuss it. Maryland is impacted more than PA by PA DEP not enforcing the law. And DEP of PA raising the argument that EPA should stick to big cities and big farm ooperations-letting DEP allow 'unforcement' as has happened in the past is no longer a viable option for any party concerned with the Bay. The SRBC has these documents and did not act.

Obviously DEP has them and the thousands of other pages of showing inspections noting overloads, permiits issued before planning modules approved, etc.... Maryland did not want them, but maybe that has changed. EPA discusses farm inspections Targeted 24 farms in Leacock Township Intelligencer Journal Lancaster New Era Jan 26, 2010 06:43 EST When the federal Environmental Protection Agency announced last fall it had targeted nearly two dozen small farms near Intercourse for farm-related water pollution inspections, fears of a crackdown rippled through farm and

regulatory circles all the way to Harrisburg.

The 3-square-mile Watson Run, a tributary of Pequea Creek, was chosen from tax maps, according to Kyle Zieba of EPA. David McGuigan, also of EPA, said the agency wasn't initially aware that 23 of the 24 farmers in the watershed were Plain Sect. "There was a great deal of trepidation," McGuigan, of the regional National Pollutant Discharge Elimination System Permits and Enforcement office, acknowledged Monday as he delivered the results to the Lancaster County Conservation District board. The 24 farmers in Leacock Township appealed to the Lancaster County Conservation District to intercede on their behalf. Intense conversations have ensued, and Amish bishops have been involved. At the presentation Monday, EPA officials emphasized that they would allow the conservation district to work with the farmers in the Watson Run watershed between Paradise and Intercourse to correct farm-runoff problems they found. John Hanger, secretary of the state Department of Environmental Protection, drove to Lancaster to thank EPA for "listening and changing how you were going to do this."

Later, when asked about Hanger's comment, Don McNutt, administrator of the conservation district, said EPA's original intention was to declare all the farms as concentrated animal feeding operations, which would require the highest level of on-the-farm conservation measures. Still, most of the Watson Run farmers are expected to place best-management practices on their farms or possibly face enforcement actions in the future, according to the EPA. And the EPA assessment - others are planned in watersheds in Lancaster County - is another indication that the county is under the gun to dramatically reduce its flow of harmful nutrients from manure and crop fertilizers that are finding their way into local streams and the Chesapeake Bay. •••

What was EPA, which only regulates large farms, doing assessing a local cluster of dairy, poultry and swine farms?

Southcentral Pennsylvania has been identified as one of three hot spots that are sources of unacceptably high amounts of manure nitrogen levels tainting surface, groundwater and drinking water. The other two are intense poultry farming areas in the Delmarva Peninsula and the Shenandoah Valley of Virginia. Zieba said the agency wanted to find a small headwaters area in Lancaster County to study the effectiveness of key best-management practices. The two EPA members and one conservation district staffer who visited each farm between Nov. 30 and Dec. 18 were pleasantly surprised by some of the things they saw. Most of the farms used cover crops and no-till or low-till farming. Most had their soil tested to determine they weren't over-saturating the soil with fertilizer and none discharged milk wastewater directly into Watson Run. McNutt said that the conservation district and EPA "agreed that the farmers had met or exceeded some of the baseline requirements for many of their field practices." But only four had manure storage facilities capable of holding manure through the winter without spreading it on fields.

Only three of the 24 had farm conservation plans as required by the state. And during storms, water running through barn lots and fields was observed flowing into waterways, Zieba said. "We absolutely saw manure going into Watson Run, as well," she said. "Our results show that only one farm is a best situation here." Discussing the next step in the assessment, Zieba said, "There are regulatory options, but a cooperative approach is preferable."

Hanger noted the tough economic times Pennsylvania farmers have struggled with and said they can't be expected to implement large-scale conservation measures "without partnerships. I get that." And he said it can't be just farmers shouldering the load for improving water quality and helping the Chesapeake Bay. Sewer plants will have to be improved. Urban storm water and lawn fertilizers must be better controlled, he said. New, emerging technologies also will have to play a key role for nutrient limits imposed on Pennsylvania by the federal government to be met by 2025, he

stressed. Hanger praised the Lancaster County Conservation District as tied with another as the best in Pennsylvania. acrable@lnpnews.com

EPA eyes tougher bay measures
Pa. environmental official concerned Intelligencer
Journal Lancaster New Era
Jan 12, 2010 08:09 EST

More local farms may fall under big-farm pollution regulations. And local municipalities and developments may be required to do a better job of containing storm water and keeping it out of streams. Both measures are being sought by the U.S. Environmental Protection Agency, which Monday announced the latest round of tougher regulations designed to clean up the Chesapeake Bay. President Barack Obama in May issued an executive order to clean up the Chesapeake Bay after two decades of failed commitments from states and the federal government to do so. "We're developing the most rigorous framework to date for reducing pollution in the bay and its watersheds," EPA Administrator Lisa P. Jackson said in announcing the new federal rules. "These rules will provide critical backstop measures to ensure accountability in state efforts that are the front line for success in this historic cleanup effort." But at least one top Pennsylvania environmental official expressed concerns that a tougher federal hand might undo the state's preference to work at the local level for cleanup of streams. "We have concerns," said John T. Hines, the state Department of Environmental Protection's deputy secretary of water management. EPA said it would seek stringent regulations to more effectively get large farms in Pennsylvania, Maryland, Virginia and New York to reduce nutrient pollutants than can run off farmland and into streams that feed the Bay. EPA said it would consider "expanding the universe" of concentrated animal feeding operations, meaning smaller farm operations may be brought under the umbrella of the stricter pollution controls currently on only the largest farms. Currently, Pennsylvania has about 340 CAFO farms, as determined by the number of animals. EPA is considering designating farms on the basis of the number of discharge pipes on the farms, not just animals, according to Hines. "I don't know if that is the best approach for us," he said. Pennsylvania has been trying to aid farmers financially to help them with on-farm conservation measures so that they can come into compliance, he said. "Then we would seek options on enforcement for the recalcitrant ones. I don't think anyone would disagree with that," he said. Also to be considered by EPA are options that would improve how surplus manure is spread or stored and streamlining the designation process.

"We think our nutrient management regulations cover that," Hines said in reaction to the proposal. EPA said it hoped to propose the new rules in 2012 and have them in effect by late 2013. New regulations on municipal storm water controls could have a big impact on local communities. Not only would more storm-runoff controls be required on newly developed and redeveloped sites, but EPA said it might impose tougher regulations on communities in the bay watershed than found in the rest of the nation.

Also, the regulations may be levied on smaller sites than in the past. Hines said he is concerned that effective efforts to minimize urban runoff by working on a county or regional level may be disrupted by tougher regulations imposed on each borough, city or township. Plus, forcing already developed sites, such as a housing development or office complex, to try to reduce more runoff could be a problem. "You are looking at some of our older communities. How do you retrofit, and how do communities afford it?" Hines said.

Hines did have favorable things to say about another EPA initiative that would allow pollution load offsets. Under new

pollution limits each waterway in the state will have, development could be prohibited if it would lower a stream's water quality. The offset measure would allow such projects to go forward if the developer could improve stream quality elsewhere. Planting a riparian buffer along a stream might be one such measure. "The important thing here is we have to work with partners," Hines said. acrable@lnpnews.com

Response

For a comprehensive discussion of legal issues see EPA Essay Response to Legal Issues provided in response to comment number 0293.1.001.014. Regarding the portion of the comment referring to federal regulation of farms, EPA understands this to be a reference to concentrated animal feeding operations; EPA regulates CAFOs pursuant to the federal CAFO rule at 40 C.F.R. Parts 9, 122, and 412. With regards to comments concerning enforcement, please refer to response to comment 0130.001.001.

Comment ID 0732.001.004

Author Name: Hoagland Roy

Organization: Chesapeake Bay Foundation (CBF)

EPA's Accountability Framework is Firmly Based on Its Authority Under the CWA

Section 303 of the CWA and the TMDL Regulations are Clear: TMDLs Shall be Set at a Level Necessary to Implement The Applicable Water Duality Standards.

The CWA triggers the need for a TMDL when efforts to meet water quality standards fail. [FN3] States are first required to set water quality standards for all waters within their boundaries. If the states do not set water quality standards, or the EPA determines that the standards do not meet the requirements of the Act, EPA will promulgate standards for the state. 33 U.S.C. §§ 303(b), (c)(3)-(4).

The CWA requires the establishment of technology-based controls on point sources; this occurs through the application of the "best practicable control technology" effluent limitations for most point source discharges. 33 U.S.C. § 1311(b)(1) . When these technology-based controls are insufficient in meeting and maintaining water quality standards, the CWA requires the establishment of water quality-based controls under Section 303(d). Section 303(d)(1)(A) of the Act requires each state to identify waters within its boundaries when these water quality standards are not met for an applicable water segment. For these "impaired" waters, each state must then "establish . . . the total maximum daily load [TMDL], for those pollutants which the Administrator identifies . . . as suitable for such calculation." 33 U.S.C. § 1313(d)(1)(C). A TMDL is a specification of the maximum amount of a particular pollutant that can pass through a waterbody without water quality standards being violated. Id. at 1313(d)(1)(C). Such "load shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge. . . ." Id. These requirements apply to both point sources and nonpoint sources of pollution. Pronsolino v. Nastri, 291 F.3d 1123, 1139 (9" Cir. 2002). Once EPA approves the 303(d) list and any associated TMDL, [FN4] the CWA requires that that state incorporate the list and TMDLs into its continuing planning process. Id. at § 303(d)(2).

Further, each state "shall have a [management plan]" that is consistent with the CWA and contains the "total maximum daily load for pollutants" and a provision for "adequate implementation, including schedules of compliance, for revised or new water quality standards." 33 U.S.C. §§ 1313(e)(3)(C), (F). The CWA regulations are also clear on this point as TMDLs are to be included as part of Water Quality Management Plans used to direct implementation. 40 C.F.R. Part 130.6(b), (c). Again, the use of the Water Quality Management Plans - that include TMDLs - are required in order to achieve the applicable water quality standards. The Bay TMDL, therefore, must be established and implemented with mandated steps to achieve the water quality standards.

As such, EPA must reject state submitted TMDLs that do not provide reasonable assurances they will "implement applicable water quality standards." 33 U.S.C. § 1313(d)(2). The goal of the CWA is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S .C. § 1251(a). Without question, these congressional goals will only be advanced if there are reasonable assurances of implementation of TMDLs to improve water quality. Courts have long recognized this principle. In American Canoe Ass'n, Inc. v. EPA, the Court-ordered schedule in the Virginia TMDL case "ensures that the CWA shall not be reduced to empty formalism." 54 F. Supp. 2d 621, 628 (E.D. Va. 1999). Similar court pronouncements on implementation of the CWA can be found elsewhere. See Natural Resources Defense Council, Inc. v Texaco Refining & Mktg, Inc., 20 F. Supp. 2d 700, 708 (D . Del. 1998) (Court concluded that the public interest, as revealed by the "spirit and intent" of the CWA, would best be served by mandating the implementation of a monitoring program).

TMDLs are one of the very last lines of defense to improve water quality. The CWA calls for them when permits for point sources and controls for nonpoint sources fail to protect water quality. See 33 U.S.C . § 1313(d)(1)(A) ; 40 C.F.R. § 130.7(b)(1). If TMDLs fail, there are no other comprehensive pollution abatement programs under the CWA.[FN5] As such, and as required by the CWA, TMDLs must be established at a level necessary to meet water quality standards. In order to meet water quality standards, there: must be "reasonable assurances" that TMDLs will be implemented both for point and nonpoint sources. Otherwise, Congress' goals in the CWA will never be achieved and the Bay TMDL will be little more than a lengthy exercise in re-stating much of what we already know.

A Bay Jurisdictions' Watershed Implementation Plan (WIP) Must Meet the Bay TMDL Allocations and Provide Reasonable Assurances

EPA is required to ensure that the Bay jurisdictions will meet their respective TMDL allocations. And the CWA provides the states with the responsibility of establishing to EPA's satisfaction how they will achieve those goals. EPA has executed these elements of the CWA by directing the states to develop Watershed Implementation Plans (WIPs) [FN6] that delineate how it will achieve the TMDL waste load and load allocations. See September 11, 2008 letter from the EPA to the Principals' Staff Committee. The requirement that Bay jurisdictions adopt an adequate WIP that implements the Bay TMDL, meets the Bay TMDL allocations, and includes reasonable assurances of point and nonpoint source pollution reductions is a crucial aspect of the Bay TMDL and its "accountability framework." [FN7]

The WIP fills several essential components of EPA's accountability framework. Together, the jurisdictions' WIPs are to meet - and not exceed - the Bay TMDL's total nutrient and sediment allocations. Individually, each jurisdiction's WIP must meet its allocations and sub-allocate them among point and nonpoint source sectors and individual permitted sources. [FN8] Further, while the WIP must identify specific actions and assurances, EPA's process has provided the states with a high degree of flexibility. For example, the WIP identifies specific actions and controls to be 60% implemented by 2017 and 100% implemented by 2025. The WIP must provide information concerning interim and final

nutrient and sediment target loads; current loading baselines and program capacity (including current legal, regulatory, programmatic, financial, staffing and technical capacity to deliver the target loads); ways to address growth; an analysis of gaps in program capacity; commitments and strategies for filling the gaps; tracking and reporting protocols; contingencies for slow or incomplete implementation; and detailed targets or schedules. The states have the opportunity to adjust the WIP provisions at least: every two years as it develops further information and assesses progress. [FN9] Thus, the WIP is a living, evolving document.

As previously noted, a WIP, as a CWA implementation tool, must provide reasonable assurances that the jurisdiction can and will achieve its TMDL allocations, both point and nonpoint source allocations. EPA has issued a plethora of guidance confirming that reasonable assurances are the binding, enforceable and/or incentive based tools that demonstrate future attainment of water quality goals. For example, in 1991, EPA explained:

"Assurances may include the application or utilization of local ordinances, grant conditions, or other enforcement authorities. For example, it may be appropriate to provide that a permit may be reopened for a WLA which requires more stringent limits because attainment of nonpoint source load allocation was not demonstrated. . . State nonpoint source management programs may include, as appropriate, non-regulatory or regulatory programs for enforcement, technical assistance, financial assistance, education, training, technology transfer, and demonstration projects. [FN10] The TMDL is established so that the statutorily-required water quality standards are achieved, reasonable assurances must be given that the nonpoint source load allocations will be achieved." [FN11]

EPA's 1997 TMDL guidance, "New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs)" further provides: "It is now time to move towards the next stage of our strategy to achieve water quality standards - to make sure that TMDLs are established for all listed waters, and that the load allocations established by TMDLs are implemented by point and nonpoint sources alike." [FN12] The guidance continues by explaining that "reasonable assurances that the nonpoint source load allocations established in TMDLs (for waters impaired solely or primarily by nonpoint sources) will in fact be achieved. These assurances may be non-regulatory, regulatory, or incentive-based, consistent with applicable laws and programs." [FN13] To the same effect is EPA's 2002 document, "Guidelines for Reviewing TMDLs under Existing Regulations issued in 1991": For waters that are impaired by both point and nonpoint sources, "reasonable assurances that nonpoint source control measures will achieve expected load reductions [are required] in order for the TMDL to be approvable ." [FN14]

EPA offered a similar explanation in 2009, as the Bay TMDL process gathered strength: [FN15]

"When EPA establishes or approves a TMDL that allocates loads to both point and nonpoint sources, it determines whether there is a "reasonable assurance" that the nonpoint source load allocation will, in fact, be achieved and water quality standards be attained. EPA does this to be sure that the load allocations are not based on too generous assumptions regarding the amount of nonpoint source pollutant reductions that will occur. . . If the reductions embodied in load allocations are not fully achieved because of a failure to fully implement needed nonpoint pollution controls, the collective reductions from point and nonpoint sources will not result in attainment of the water quality standards." [FN16]

Moreover, the settlement agreement entered among the parties in Fowler v. EPA (Case No. 1 :09-CV-00005-CKK, D.C. May 10, 2010) explicitly addresses the need for reasonable assurance in the development of the Bay TMDL - and EPA's obligation to ensure this essential element of the TMDL and WIPs is met. While the case dealt with the failure of

EPA to sufficiently implement the provisions of the many Chesapeake Bay Agreements, including the Chesapeake 2000 agreement, the settlement agreement obligated EPA to establish a TMDL that included a reasonable assurance and implementation framework that demonstrated "nonpoint source loading reductions will be achieved." See attached Settlement Agreement. [Comment Letter contains additional information in the form of an attachment. See original comment letter 0732.1, page 79 of pdf.]

[FN3] There is no question that the states and EPA are required to establish TMDLs when triggered by the CWA. See Natural Resources Defense Council v. Fox, 909 F. Supp. 153 (S.D.N.Y. 1995) (EPA must establish TMDLs based on Congress' use of the word "shall" in section 303); Alaska Center for the Environment v. Reilly, 762 F. Supp. 1422 (W.D. Wa. 1991) (EPA has a mandatory duty to promulgate TMDLs).
[FN4] Or, if the state fails to prepare an adequate TMDL, EPA can do so . Scott v. Hammond, 741 F. 2d 992 (7th, Cir. 1984) (holding that lengthy inaction on the part of a state can constitute a "constructive submittal" of an inadequate TMDL, thereby transferring the duty to prepare to EPA).
[FN5] The Administrator does retain residual designation and emergency powers authorities but there is no other comprehensive management program like the TMDL provisions.
[FN6] In addition, the plan mandated by CWA Section 117(g), discussed below, can also be considered a fundamental element of the CWA Continuing Planning Process. See Environmental Defense Fund v. Costle, 657 F2d 275 (D.C. Cir. 1981).
[FN7] See Executive Order 13508.
[FN8] A state could assign all of its allocation to solely point sources, if it chose to do so, but if it were to do so, it would be unlikely, or impossible, for the state to achieve the total allocation . Thus, the WIP must address nonpoint source sectors.
[FN9] See EPA correspondence to former Virginia Secretary of Natural Resources Preston Bryant, Jr., for the Chesapeake Bay Program Principals' Staff Committee (November 9, 2009), at 15.
[FN10] See 1991 Guidance (emphasis added), EPA 440/4-91-001, at 6.
[FN11] Guidelines for Reviewing TMDLs Under Existing Regulations Issued in 1992 (US EPA 1991a), http://www.epa.gov/owow/tmdl/guidance/final52002.html.
[FN12] Id., at 1.
[FN13] Id., at 6.
[FN14] "Guidelines for Reviewing TMDLs under Existing Regulations issued in 1991," at 5.
[FN15] See EPA correspondence to former Virginia Secretary of Natural Resources Preston Bryant, Jr., for the Chesapeake Bay Program Principals' Staff Committee (November 9, 2009), at 15.
[FN16] Id, at 5. See also U.S . E.P.A. (2002),

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL.

Comment ID 0732.001.006

Author Name: Hoagland Roy

Organization: Chesapeake Bay Foundation (CBF)

The CWA Requires WIPs Specifically for the Chesapeake Bay Under Section 117

EPA's authority to require WIPs is further substantiated by Section 117 of the CWA which provides:

(g) Chesapeake Bay Program (1) Management strategies The Administrator, in coordination with other members of the Chesapeake Executive Council, shall ensure that management plans are developed and implementation is begun by signatories to the Chesapeake Bay Agreement to achieve and maintain - (A) the nutrient goals of the Chesapeake Bay Agreement for the quantity of nitrogen and phosphorus entering the Chesapeake Bay and its watershed. (B) the water quality requirements necessary to restore living resources in the Chesapeake Bay ecosystem; . . .

33 U.S .C . § 1267(g)(1)(A)-(g)(1)(B). This section was re-codified as part of the Estuaries and Clean Water Act of 2000, Title II Chesapeake Bay Restoration. In recodifying this section, Congress stated that the purposes of the Act were to "(1) expand and strengthen cooperative efforts to restore and protect the Chesapeake Bay, and; (2) to achieve the goals established in the Chesapeake Bay Agreement." Id. Congress concluded that the mere development of a plan was not sufficient: the plan and implementation of it were to actually accomplish Bay agreement goals. Pub.L. 106-457, Title II, Sec. 202(b)(2), Nov. 7, 2000, 114 Stat. 1967.

Accordingly, Section 117(g) explicitly provides additional authority for the development of WIPs: the "management plans" which will achieve both the "nutrient goals" for the "quantity of nitrogen and phosphorus entering the Chesapeake Bay and its watershed" (i.e., the load and wasteload allocations of the TMDL) as well as the "the water quality requirements necessary to restore living resources in the Chesapeake Bay ecosystem" (i.e., the plan must actually lead to the achievement of the load and wasteload allocations).

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL.

Comment ID 0740.001.012

Author Name: Hanmer R.

Organization:

Why the Chesapeake Bay TMDL is essential

Despite the efforts over the past five years to implement the tributary strategies and the new permitting strategy, the Chesapeake Bay cleanup program remains seriously behind schedule and Bay tidal water quality seriously degraded. The law and the settlement agreements compel EPA to act.

It is essential that a more accountable structure be created to drive essential nutrient and sediment reductions. Establishing TMDLs through the Clean Water Act will be more authoritative than the former 2003 Chesapeake Bay allocations, and will set the stage for addressing a common concern, that most localities (rural, urban and suburban) do not yet understand what their responsibilities for nutrient and sediment control are. Despite the long-standing tributary

strategies and the initial effort by the states to draft Watershed Implementation Plans, this is still being said. Despite years of public communication; and stakeholder involvement in the Chesapeake Bay Program criteria-development, allocations and tributary strategy processes, finger-pointing persists among areas and sectors.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL.

Comment ID 0745.001.003

Author Name: Campaign Mass

Organization: Chesapeake Bay Foundation (CBF)

We know what the problems are. We have the technology to address the problem. We just need a strong, enforceable plan.

We are at the tipping point and your actions will determine to a very large degree whether we succeed in restoring clean. water in the Bay or must explain to the next generation why all the fish are floating.

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. For more information on potential EPA enforcement action(s), please see the response to comment number 0110.001.005.

Comment ID 0769.001.001

Author Name: Campaign Mass

Organization: Environment Maryland Research & Policy Center

Environment Maryland Research & Policy Center offers the following comments on the draft Total Maximum Daily Load (TMDL) for the Chesapeake Bay, in Docket ID No. EPA-R03- OW-2010-0736.

Thanks to the leadership of President Obama and U.S. Environmental Protection Agency Administrator Lisa Jackson, we now have the best chance in a generation to improve the quality of our waterways throughout the Chesapeake Bay region. The ultimate success of this historic effort will rely on the EPA's ability to hold states accountable to the clear goals laid out for them.

Thank you for accepting public comments on this important plan. Enclosed are 289 petition signatures collected on the campus of the University of Maryland at College Park by student activists. Every signatory signed the following petition language addressed to EPA Administrator Lisa Jackson:

"Thank you for your leadership in this unprecedented opportunity for clean water. Your hard work now relies on ensuring the states hold all Bay polluters accountable.

I urge you to accept state plans only if they require polluters to improve their practices. The past decades have proven that voluntary measures are not enough. Corporate agribusiness alone generates 1 billion pounds of chicken manure in the Bay region every year. As you have suggested, state plans should include a requirement for cover crops to help manage all of that manure.

If a state is not making polluters do their fair share of clean-up, you should impose significant consequences. All children are taught not to make a new mess until cleaning up one they already made. Likewise, the EPA should not allow any new permits for pollution until the states have compelled current polluters to clean up their acts."

Response

Thank you for your comment, which EPA construes as a statement of support for the Chesapeake Bay TMDL. As described more fully in response to comment number 0394.001.013, EPA has committed to take a number of federal actions consistent with its December 29, 2009 letter to the jurisdictions should it determine that expectations have not been met and that such federal actions are necessary.