



OFFICE OF INSPECTOR GENERAL

Catalyst for Improving the Environment

Evaluation Report

Total Maximum Daily Load Program Needs Better Data and Measures to Demonstrate Environmental Results

Report No. 2007-P-00036

September 19, 2007

Report Contributors:

Susan Barvenik
Renee McGhee-Lenart
Laura Tam
Dan Engelberg

Abbreviations

EPA	U.S. Environmental Protection Agency
FY	Fiscal Year
GPRA	Government Performance and Results Act
NPDES	National Pollutant Discharge Elimination System
NTTS	National TMDL Tracking System
OIG	Office of Inspector General
OMB	Office of Management and Budget
PART	Program Assessment Rating Tool
TMDL	Total Maximum Daily Load
USDA	U.S. Department of Agriculture



At a Glance

Catalyst for Improving the Environment

Why We Did This Review

The Office of Inspector General (OIG) began this project to identify issues in the Total Maximum Daily Load (TMDL) program that would be suitable for future evaluations. Our preliminary review revealed issues for Agency management to review at this time concerning TMDL program data and performance measures.

Background

TMDLs are designed to play a critical role in restoring impaired waters by calculating pollutant loads consistent with water quality standards. A TMDL specifies the amount of a pollutant that a water body may receive and still meet water quality standards. EPA is responsible for working with States to develop TMDLs to address impaired waters. EPA had approved over 24,000 TMDLs through Fiscal Year (FY) 2006. To achieve environmental results, TMDLs must be implemented through National Pollutant Discharge Elimination System (NPDES) permits or best management practices.

For further information, contact our Office of Congressional and Public Liaison at (202) 566-2391.

To view the full report, click on the following link:
www.epa.gov/oig/reports/2007/20070919-2007-P-00036.pdf

Total Maximum Daily Load Program Needs Better Data and Measures to Demonstrate Environmental Results

What We Found

EPA does not have comprehensive information on the outcomes of the Total Maximum Daily Load (TMDL) program nationwide, nor national data on TMDL implementation activities. Although EPA and States are responsible for implementing point source TMDLs, EPA cannot identify all of the permitted dischargers that should receive or have received wasteload allocations. Measuring nonpoint source TMDL implementation is difficult because it is highly dependent on State and local stakeholders, and EPA does not have statutory authority to regulate nonpoint sources. EPA's lack of information prevents the Agency from determining if TMDL implementation activities are occurring in a timely manner, and the extent to which TMDLs are restoring impaired waters.

EPA measures the pace at which TMDLs are developed and approved. For the last 2 years, EPA and States have exceeded goals for these measures. EPA has begun to take steps to measure program results and improve program data, has sponsored several studies of TMDL implementation, and is studying additional TMDL results measures. Developing meaningful measures of the environmental results of water quality programs is challenging. However, EPA needs to provide more management direction to improve its ability to assess how well this critical program is functioning.

The TMDL and surface water quality performance measures we reviewed do not provide clear and complete metrics of the program's accomplishments. Since the TMDL program did not have any outcome measures, we reviewed the two TMDL output measures along with two of EPA's annually reported surface water quality measures that are broader than, but related to, the TMDL program. All of these measures are unclear, and some are inconsistently reported in EPA's publications.

What We Recommend

We recommend that the Assistant Administrator for the Office of Water:

- Require regions to ensure that the National TMDL Tracking System is complete.
- Report information on TMDL implementation activities and on the water quality improvements associated with TMDLs.
- Clarify terminology, activities included, and other elements of the TMDL development measures, and the surface water program's efficiency and effectiveness measures.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
INSPECTOR GENERAL

September 19, 2007

MEMORANDUM

SUBJECT: Total Maximum Daily Load Program Needs Better Data and Measures
to Demonstrate Environmental Results
Report No. 2007-P-00036

FROM: Wade T. Najjum
Assistant Inspector General, Office of Program Evaluation

A handwritten signature in black ink, appearing to read "Wade T. Najjum", is written over the printed name.

TO: Benjamin Grumbles
Assistant Administrator, Office of Water

This is our report on the subject evaluation conducted by the Office of Inspector General (OIG) of the U.S. Environmental Protection Agency (EPA). This report contains findings that describe the problems the OIG has identified and corrective actions the OIG recommends. This report represents the opinion of the OIG and does not necessarily represent the final EPA position. Final determinations on matters in this report will be made by EPA managers in accordance with established audit resolution procedures.

The estimated cost of this report – calculated by multiplying the project's staff days by the applicable daily full cost billing rates in effect at the time – is \$188,780.

Action Required

In accordance with EPA Manual 2750, you are required to provide a written response to this report within 90 calendar days. You should include a corrective actions plan for agreed upon actions, including milestone dates. We have no objections to the further release of this report to the public. This report will be available at <http://www.epa.gov/oig>.

If you or your staff have any questions, please contact me at 202-566-0827 or najjum.wade@epa.gov; or Dan Engelberg, Director for Program Evaluation, Water Issues, at 202-566-0830 or engelberg.dan@epa.gov.

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Purpose

EPA and States have identified nearly 39,000 waterbodies that do not meet one or more water quality standards. Under the Clean Water Act, States are required to develop Total Maximum Daily Loads (TMDLs) for these impaired waterbodies. A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount among the sources that discharge the pollutant.¹ EPA must review and approve States' lists of impaired waters, and the TMDLs developed to address them. As of October 2006, EPA and States had developed approximately 24,000 TMDLs, and estimated that 45,000 more need to be developed.

We began this project to identify issues in the TMDL program that would be suitable for future program evaluations. Our objective was to obtain more information about the program, including the status of TMDL development and implementation, EPA's resource investment, and performance measures. However, the scope of our preliminary review broadened as we examined the program, revealing issues appropriate for Agency management to review. These issues concern TMDL program data and performance measures and two published surface water program performance measures.

Background

TMDLs are designed to play a critical role in restoring impaired waters. They establish a pollutant budget for waterbodies in which other principal parts of the program – the National Pollutant Discharge Elimination System (NPDES) and the Section 319 Nonpoint Source program – have not controlled all causes of impairment (see box). EPA's Office of Water has a number of tools and programs to protect, improve, and maintain water quality. These other clean water programs contribute to water quality results that may not be directly related to TMDLs. For example, the NPDES Permit Program establishes technology or water quality-based discharge limits for facilities discharging directly to surface waters, known as point sources. The Section 319 Nonpoint Source Program provides grant funding for implementing best management practices to control nonpoint source pollution, or runoff. While this program is voluntary at the Federal level, States may include regulatory components in their Section 319 programs. Other Federal agencies, such as the United States Department of Agriculture (USDA), fund voluntary nonpoint source control programs.

Pollution Sources

Point Sources – direct discharges through a manmade conveyance to surface waters.

Nonpoint Sources – Indirect discharges to surface waters from diffuse sources (e.g., land use, forestry, and farmland).

Source: www.epa.gov/owow/nps/ga.html
& <http://cfpub.epa.gov/npdes/index.cfm>

¹EPA must approve or disapprove each TMDL. If the Agency does not approve a TMDL, EPA must develop the TMDL itself.

EPA and States' monitoring efforts have assessed water quality in approximately 19 percent of stream miles and 43 percent of lake acres, according to EPA's most recent national water quality inventory. Even with the existence of the NPDES and nonpoint source programs, 40 percent of the Nation's assessed waters still do not meet water quality standards. The TMDL program is designed to address these impaired waters. Section 303(d) of the 1972 Clean Water Act requires States, territories, and authorized tribes to develop lists of impaired waters every 2 years, known as 303(d) lists. EPA must approve or disapprove of States' 303(d) lists. If EPA disapproves a 303(d) list, it is responsible for establishing the list itself.

After EPA approves the 303(d) list, the law requires States, territories, and authorized tribes to develop TMDLs for the impaired waterbodies on their lists.

TMDL Development and Implementation

During the early years of the TMDL program, EPA and States developed few TMDLs. Due to the States' slow start in developing TMDLs in the late 1990s (see Figure 1), citizen groups brought numerous lawsuits regarding developing TMDLs throughout the country. From FY 2004 to FY 2006, EPA and States have developed (and EPA has approved) over 12,000 TMDLs. Since the program began, over 24,000 TMDLs have been developed and recorded in EPA's TMDL data system, the National TMDL Tracking System (NTTS). These TMDLs are categorized as point source only (approximately 7 percent of the universe), nonpoint source only (44 percent), or a combination of nonpoint source and point sources (44 percent).² From the time it is developed and approved, a TMDL may take many years to be substantially implemented on the ground.

Developing and approving TMDLs does not result in water quality changes. Achieving TMDLs' water quality goals rests on implementing them through controls such as NPDES permits and best management practices. EPA and States must ensure that NPDES permits are consistent with wasteload allocations assigned to point source-related TMDLs (see box). However, the Clean Water Act does not provide EPA with a parallel authority to institute controls on nonpoint sources. States can but are not required to regulate nonpoint sources to achieve the goals set out in TMDLs. Implementation activities for many TMDLs may take many years to result in

TMDL Implementation: Two Options

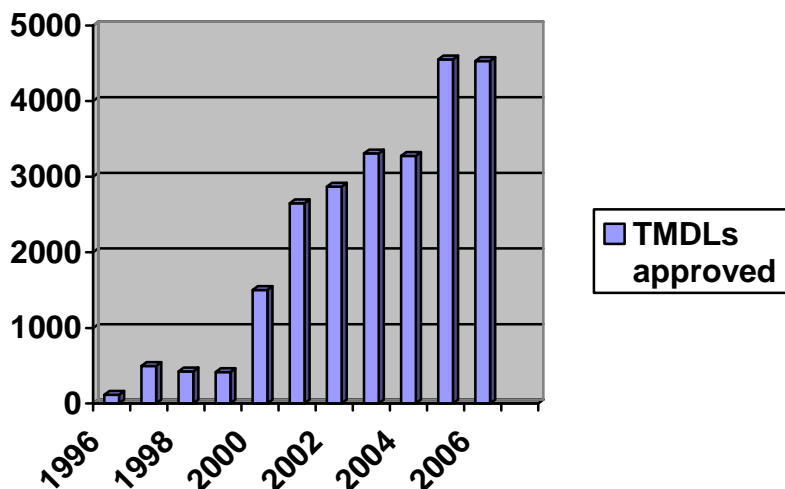
- 1. Wasteload Allocations** are incorporated into NPDES permit limits.
- 2. Load Allocations** are implemented in nonpoint source best management practices.

Source: Title 40, Code of Federal Regulations, Section 130.7; and EPA's Office of Water

² Approximately 5 percent of TMDLs in the National TMDL Tracking System are not categorized by type. Many of these TMDLs are from the earliest years of the program.

measurable water quality improvements, or to restore a waterbody to its designated uses.

Figure 1: Developed and Approved TMDLs by Fiscal Year (FY) through FY 2006



Source: http://oaspub.epa.gov/waters/national_rept.control.
Data downloaded from EPA's WATERS database as of 10/31/2006.

Resources Spent on the TMDL Program

EPA and States have devoted significant funding and resources to the TMDL program. Between FY 2002 and FY 2006, EPA expended approximately \$53 million for the TMDL program. This investment, as well as those of the States and other sources, has resulted in developing and approving over 24,000 TMDLs to date. These resources also funded other program activities such as listing impaired waters, responding to TMDL litigation, and supporting the national TMDL database. In 2001, EPA estimated that the total average annual costs to EPA and States of developing about 36,000 TMDLs over 15 years would be between \$63 to \$69 million per year, totaling approximately \$1 billion nationwide. According to Office of Water staff, the Agency does not have a recent estimate of the nationwide cost of implementing these TMDLs, but expects to complete several projects that compare costs of watershed versus water body approaches during the summer of 2007.

Measuring Results

Federal agencies use various performance measures to assess program effectiveness and make improvements. The Government Performance and Results Act of 1993 (GPRA) requires EPA to set long-term and annual goals, and to measure the results of its programs and report annually to Congress. GPRA

makes agencies accountable to Congress and the public for their performance by requiring them to report on goals, resource needs, and results. The Office of Management and Budget (OMB) has initiated Program Assessment Rating Tool (PART) reviews and assessments of Federal programs focusing on effectiveness. Based on PART reviews, OMB may require agencies to develop additional program measures to address specific issues, such as efficiency. In 2005, OMB conducted a PART review of surface water protection program, which included the TMDL program. OMB rated the surface water protection program “moderately effective,” and described it as having ambitious baselines and targets for most of its annual measures. However, the review also found that EPA lacked statistically valid national water data, which severely hindered EPA’s ability to make informed decisions regarding the surface water protection program priorities, resource allocation, and program management. EPA also reports to Congress on PART-generated measures in its Annual Plan and Congressional Justifications (hereafter referred to as Annual Performance Plans) and Performance and Accountability Reports.

Noteworthy Achievements

EPA and States exceeded 100 percent of their annual pace goal for developing TMDLs in both FY 2005 and FY 2006. Prior to our initiating this review, the program had also taken steps to improve its outcome measures and program data. It has sponsored several studies of TMDL implementation and is studying additional TMDL results measures. For example, Region 10 conducted a study of Washington State's TMDL implementation, which was published in 2005. EPA also conducted an internal review of 100 TMDL documents and contracted a study of characteristics of successful TMDL implementation.

EPA has several ongoing and planned efforts designed to obtain additional information regarding TMDL implementation tracking. Region 3 has developed a tracking system that identifies NPDES permits associated with TMDLs and is further refining its database to reflect wasteload allocations and load allocations. Results analysis is a major 5-year theme for the national program office, which is sponsoring dialogues among TMDL coordinators and watershed managers and offering grants to States and other national organizations. The program has also taken steps to improve management information by integrating the national databases on water quality assessments and TMDL information, and updating data management business rules. EPA also has ongoing efforts to develop and refine measures of the TMDL program’s results through a national workgroup and a study of potential additional results measures.

Scope and Methodology

We began our work in August 2006 and completed our work in May 2007. The OIG has previously issued two reports to the Office of Water related to data quality issues and program measures.³ The scope of this review was limited to the results of the TMDL program as it contributes to national clean water objectives. We did not review any specific TMDLs for quality or on the ground results. We reviewed publicly reported TMDL performance measures in the FY 2007 and 2008 Annual Performance Plans. Since the TMDL program did not have any outcome measures, we reviewed two of EPA's annually reported surface water quality measures that are related to the TMDL program.

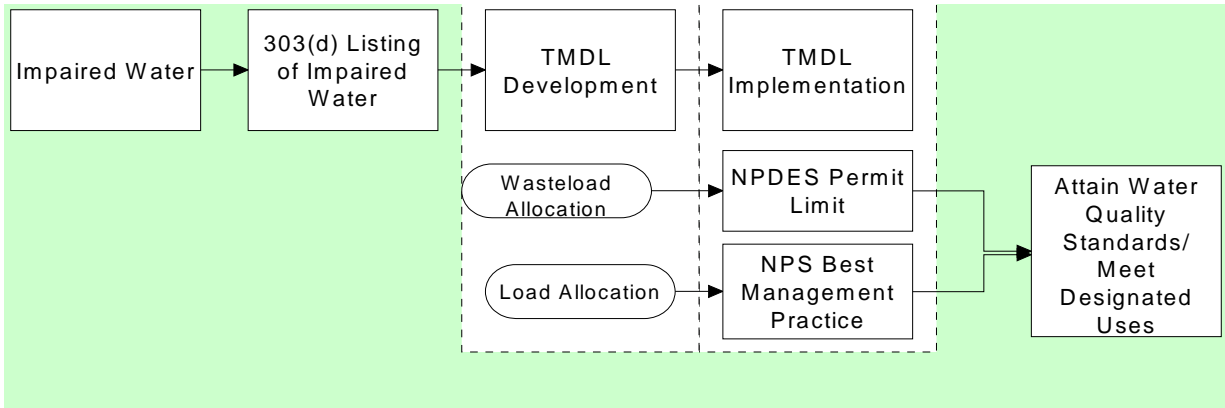
We interviewed EPA headquarters officials and staff from the Office of Wetlands, Oceans, and Watersheds. We interviewed TMDL staff from Regions 1, 3, 4, 7, and 10. We also interviewed TMDL staff from two States: Georgia and Kansas. We identified publicly available databases on the EPA Internet site as well as EPA-internal databases that provided data regarding TMDLs and associated NPDES permits. We reviewed the FY 2005, 2006, 2007, and 2008 Annual Performance Plans, the FY 2005 and 2006 Performance and Accountability Reports, and the draft and final Strategic Plan for 2006-2011. We also reviewed the National Program Guidance for FY 2006, 2007, and 2008. We reviewed the PART information that was available regarding the TMDL program. We performed this evaluation in accordance with all Government Auditing Standards issued by the Comptroller General of the United States.

More Data Needed to Quantify Results of TMDL Implementation

EPA does not have comprehensive data to determine the environmental results of TMDL implementation nationwide. The TMDL program achieves its outcomes of restoring impaired waters through two pathways: permit limit modifications and best management practices implemented on the ground (see Figure 2). However, nationally, EPA cannot identify all of the permits that should receive wasteload allocations, nor which actually have received them. EPA also cannot quantify the number or the results of best management practices completed nationally to implement nonpoint source-related TMDLs. EPA does not have the data to determine what TMDL implementation activities have occurred or the interim results of those activities. EPA has begun to collect limited information on TMDL implementation, which is necessary to determine if this program is moving towards its goal of restoring impaired waters.

³ *Sustained Commitment Needed to Further Advance Watershed Approach*, Report No. 2005-P-00025, September 2005, and *EPA Claims to Meet Drinking Water Goals Despite Persistent Data Quality Shortcomings*, Report No. 2004-P-0008, March 2004.

Figure 2: Stylized Model of Achieving Water Quality Changes through the TMDL Program



Source: OIG analysis of EPA information

EPA does not have complete information in the National TMDL Tracking System (NTTS) to determine which NPDES permits need to incorporate wasteload allocations. Only 64 percent of point source-related TMDLs have NPDES or other permit identifiers entered into NTTS (see Table 1).

Table 1: Point Source-Related TMDLs Linked with NPDES or Other Permit Identifier in the National TMDL Tracking System (Program Totals through March 2007)

Region	Number of Point Source-Related TMDLs	Number of Point Source-Related TMDLs Linked with NPDES Identifier/Other Permit Identifier	Percent Populated
1	159	70	44%
2	282	229	81%
3	1402	380	27%
4	2963	2771	94%
5	1513	1327	88%
6	410	179	44%
7	1968	1251	64%
8	1087	804	74%
9	912	9	1%
10	2083	1111	53%
Total	12,779	8,131	64%

Source: Data from NTTS provided by EPA on 3/18/07

These identifiers link TMDLs with the discharge permits that must incorporate a corresponding wasteload allocation.⁴ EPA and State permit writers need this

⁴ Beginning in Fiscal Year 2003, EPA required regions to enter NPDES permit identifiers into NTTS. Since then, 83 percent of point source-related TMDLs have this information in the data system. While this shows an improvement, information for all point-source related TMDLs needs to be entered into NTTS.

information to identify the NPDES permits that should receive wasteload allocations, and the permit program needs this information to review if permits are being written accordingly. EPA has identified the need to improve NPDES permit information in NTTS as a high priority action item.⁵

EPA also does not track if TMDL wasteload allocations have actually been incorporated into the appropriate NPDES permits. EPA and States are responsible for ensuring that permit limits are consistent with any applicable wasteload allocations when NPDES permits are renewed. At least two States, Pennsylvania and Delaware, have indicated they can improve incorporating wasteload allocations into permits. EPA staff believes that wasteload allocations are being incorporated into permits by State permitting staff but does not have national data to demonstrate this process is occurring.⁶

EPA is also unable to quantify the level of implementation of best management practices nationwide. EPA does not have statutory authority for nonpoint source TMDL implementation, and numerous parties may implement TMDLs and fund implementation activities. Because of the diffuse nature of these activities, information about best management practice implementation is difficult to collect and track. EPA has begun collecting information on best management practice activities in impaired watersheds funded by the Section 319 program. However, Section 319 funding is not all dedicated to implementing specific TMDLs. Also, USDA programs provide significantly greater best management practice funding than the Section 319 program, although these best management practices are not necessarily linked to water quality improvements related to TMDLs or impaired waters. As a result, EPA does not have information to determine what best management practices have been implemented and the results of those practices.

EPA's efforts to collect TMDL information are a step in the right direction towards understanding the program's impacts. TMDL implementation is complex, and highly dependent on State and local stakeholders. However, EPA's lack of information on TMDL implementation at the national level prevents the Agency from determining if activities are occurring in a timely manner, and the extent to which TMDLs are successfully restoring impaired waters. EPA should continue to improve its databases and tracking systems to ensure that NPDES permits are consistent with point source-related TMDLs.

⁵ According to Office of Water staff, an Office of Water workgroup of permits and TMDL data systems staff is identifying recommended steps to improve permit/TMDL information linkages. EPA said it is also fixing a database loophole that previously allowed regions to circumvent this requirement when entering TMDL data into the system.

⁶ The presence of wasteload allocation data in NTTS does not ensure that wasteload allocations are or are not being incorporated into permits. However, EPA does not track wasteload incorporation either in NTTS or the Permit Compliance System, which tracks effluent limits for NPDES permittees.

Performance Measures are Not Clear and Complete

The TMDL development measures and two related surface water quality measures do not provide clear and complete metrics of the TMDL program and its contribution to improving surface water quality. Since the TMDL program did not have any outcome measures, we reviewed the two TMDL output measures along with two of EPA's annually reported surface water quality measures that are related to the TMDL program. The two surface water performance measures were developed through OMB's PART review of Surface Water Protection in 2005. While EPA cannot modify these PART measures without approval from OMB, EPA can better communicate exactly what is being measured and what the limitations of each measure are.

TMDL Development Measures are Not Clear

EPA's two development measures in the FY 2008 Annual Report are not clear and may mischaracterize EPA's accomplishments (see Table 2).

Table 2: FY 2008 Annual Performance Plan Measures for TMDL Development

Annual Performance Plan Measure	FY 2008 Target
Number of TMDLs that are established by States and approved by EPA on schedule consistent with national policy (cumulative).	24,411
Number of TMDLs required that are established or approved by EPA on a schedule consistent with national policy (cumulative).	28,401

Source: EPA's FY 2008 Annual Plan and Congressional Justification

First, the terminology used in these measures may be misinterpreted. These measures are reporting on the number of TMDLs *developed*, but that term does not appear anywhere in the measures. The public could incorrectly assume that use of the term "established" means that the TMDL is fully implemented and water quality standards are being attained. However, States and EPA can develop and approve TMDLs without specific implementation plans and some do;⁷ only some States require including such plans in TMDL documents. EPA agreed to make this change and proposed the word "developed" rather than "established" in its draft FY 2008 National Program Guidance.

Second, EPA has not consistently counted TMDLs in this measure. Although a TMDL is defined as a waterbody-pollutant combination, the numbers reported for this measure also include the cause of the waterbody being impaired. Thus, a single TMDL was counted for several causes of impairment that it addresses. By counting TMDLs this way, the reported number of developed TMDLs is inflated by approximately 6 percent (approximately 1,300 TMDLs). In comments to the draft report, EPA informed us that the TMDL program approved a revised

⁷ Based on final report: *TMDL Implementation—Characteristics of Successful Projects*, prepared by the Center for TMDL and Watershed Studies at Virginia Tech, May 3, 2006.

counting methodology development paper at its March 2007 national meeting. This method resolves regional variation related to any potential miscounting and promotes consistency across all regional reporting of TMDL totals based on the water body segment/pollutant combination concept. According to Office of Water's response, the TMDL program will institute the corrected count in its data systems during August 2007, and program documents from the end of FY2007 onward will reflect the revised counting methodology.

EPA's Reporting of the Water Quality Restoration Measure Mischaracterizes Changes in Impaired Water Status

EPA's reporting of its 2012 strategic target and annual effectiveness measure (that reports the number of impaired waters fully attaining standards) inflates the extent of water quality improvements achieved. The baseline year and units of the effectiveness measure have been presented inconsistently in annual reports and strategic planning documents. The target is one of EPA's keystone results measures (see box). Although this surface water measure is not specific to TMDLs, TMDL implementation contributes to water quality standard achievements counted for this measure.

Full Restoration Strategic Target for the 2006-2011 Strategic Plan (Measure L)

By 2012, attain water quality standards for all pollutants and impairments in more than 2,250 water bodies identified in 2002 as not attaining standards (cumulative). (2002 Baseline: 39,798 water bodies identified by States as not meeting water quality standards. Water bodies where mercury is among multiple pollutants causing impairment may be counted toward this target when all pollutants but mercury attain standards, but must be identified as still needing restoration for mercury [1,703 impaired water bodies are impaired by multiple pollutants including mercury, and 6,501 are impaired by mercury alone].)

Source: EPA's 2006-2011 Strategic Plan⁸

The strategic target's title and description noted in the box above do not accurately reflect what it being measured. The target is presented as a "restoration" measure implying that it captures waters that have been restored by some activity, thus "attaining" water quality standards. EPA also reports annually on the progress of this measure. Certain program activities, such as TMDLs and best management practices, may result in actual water quality outcomes being tracked under this target. However, EPA defines the target and the annual measure more broadly, and counts waters as restored due to changes from other program activities that do not cause water quality changes. Most of these factors do not reflect actual changes in environmental quality (see box next page).

⁸ EPA clarified that effective May 23, 2007, the 2002 Baseline for Measure L is 38,935.

Factors for Counting Waters in Strategic Target L

- Water no longer is impaired because of restoration activities; meets water quality standards.
- New monitoring data show water meets water quality standards; reason for recovery unspecified.
- Original basis for 303(d) listing is incorrect; water meets water quality standards.
- Change in water quality standards assessment methodology; water meets water quality standards.
- Water originally listed as threatened but has continued to meet water quality standards and is no longer considered threatened.
- Change in water quality standards; data show that water meets new water quality standards.

Source: EPA's 2006-2011 Strategic Plan, Water Quality/Watershed Subobjective

EPA cannot break out the results of the measure in terms of these various factors to determine which waters have been restored. The Office of Water reported that it is working with its regional staff on adapting its data systems to allow separate tracking of these factors in future years, for tracking and evaluation purposes.

EPA needs to report actual water quality changes for this measure. We agree that it is important for the Agency and States to track changes in listing impaired waters, accurately monitoring waterbodies, and ensuring that water quality standards are appropriate, in order to have information to manage the program. We understand that this PART measure was developed to measure both outcomes and outputs of various surface water quality programs, and to demonstrate program effectiveness. However, counting waters as “attaining” standards when no physical change has occurred produces results that could be misleading. For example, in its FY 2006 Performance and Accountability Report, EPA said that it “continued to exceed its interim targets” and had “*restored* 12.1 percent of the waters identified in 2000 as impaired” [emphasis added]. EPA anticipated that the reported success rate would not be as high in future years, once the “easier restorations” declined, such as those based on improved assessments. According to Office of Water staff, EPA cannot change this PART measure without approval from OMB, but it can clarify exactly what is being measured in its annual performance plans and reports. EPA should strive to break out the categories included in this measure to demonstrate the physical water quality improvements that can be attributed to its program activities.

Finally, the baseline year and units of this effectiveness measure have been presented inconsistently between recent annual reports and strategic planning documents. For example, the 2006-2011 Strategic Plan and FY 2008 Annual Performance Plan use a baseline of 2002, while recent annual reports, National Program Guidance, and Agency staff have indicated that the baseline is actually 2000. The FY 2008 Annual Performance Plan uses different units for the baseline (miles/ acres) than for the text of the measure itself which uses the term “waterbody segments.” EPA must clarify the baseline (year of data and units) in order to consistently track the achievements of this measure in the future. EPA

has stated that it will ensure accurate reporting of the measure and its baseline in future planning and performance reports.

Measure of Water Quality Restoration Efficiency Is Flawed

The PART-generated efficiency measure for surface water quality that EPA utilizes, cost per water segment restored, has severe limitations that prevent it from being a useful management tool. The measure, also not specific to TMDLs, is unclear because no relationship exists between the costs included in the measure and results. It includes costs not directly associated with impaired waters. In addition, the portion of the measure reflecting water segments contains the same weaknesses as the effectiveness measure discussed above. Efficiency measures are used to capture a program’s ability to implement its activities and achieve results relative to costs. As a result of its deficiencies, this efficiency measure does not provide meaningful management information (see Table 3).

Table 3: Annual Efficiency Measure in FY 2008 Annual Performance Plan

	FY 2006 Actual	FY 2007 Targeted	FY 2008 Target
Cost per water segment restored	\$576,618 per water segment	\$636,744 per water segment	\$685,611 per water segment

Source: EPA’s FY 2008 Annual Plan and Congressional Justification

The measure presented in the FY 2008 Annual Performance Plan is incomplete in two ways. First, not all Section 106 program funding is used for restoration activities. The Section 106 program funding⁹ included in the measure can be used for activities such as developing water quality standards and discharge permits. Some of these are program activities associated with maintaining water quality and therefore these funds are not being used to restore waterbodies. Activities to restore impaired waters are broad and carried out by a number of groups, which makes tracking Section 106 program expenditures burdensome and leads to lack of uniform reporting by States. But unless EPA can estimate the share of Section 106 funds devoted to restoration-related activities, the costs in the measure may be overstated.

Second, the denominator, “water segments restored,” has the same limitations as Measure L, discussed above. The segments counted in this measure include waters found to meet standards for reasons other than measurable environmental change, such as a new water quality standard or new monitoring data.

This efficiency measure does not provide meaningful management information. Measuring the efficiency of government programs can be very challenging. While EPA staff recognized weaknesses in the measure, they stated that OMB required them to develop an efficiency measure. Currently, the measure could

⁹ The Section 106 funds presented include the Federal 106 dollars to the States plus the State matching funds for the maintenance of effort portion. The State portion is the statutory match, by States, required in order to receive a portion of the Section 106 funds appropriation. The Federal and State funds are cumulative since 2000.

lead decision makers and the public into thinking more restoration activity is taking place than is actually occurring. EPA should clarify how it reports information about this measure in its annual performance plans and reports.

Conclusions

EPA does not have adequate management information on a national basis to determine the results of the TMDL program, and the extent to which it is helping to restore impaired waters. EPA has studied TMDL implementation in various States and regions and began making changes to its TMDL tracking system to improve information quality prior to the start of our study. However, EPA has no TMDL-specific implementation or outcome measures, and little data exist on a national level for TMDL program results. EPA's TMDL development measures are output-oriented, and its more holistic measures of surface water quality programs that include the TMDL program are unclear. Although they may be difficult to obtain, EPA needs more data to effectively oversee the program and determine if it is on track with national clean water objectives.

While EPA may be limited in removing or revising PART-measures because of OMB requirements, EPA can do more to clarify and communicate exactly what each measure is tracking, and what the limitations of each measure are. We understand that EPA is reducing the number of measures it has so that it can reduce the reporting burden on the States. However, clear and complete measures are needed so that EPA and Congress can determine the results of this key water program. The TMDL program lacks the information it needs to assess program effectiveness. We believe that this constitutes a management control weakness that needs to be addressed through the steps indicated below.

Recommendations

We recommend that the Assistant Administrator for the Office of Water:

- 1-1 Require regions to ensure that point source-related TMDLs in the National TMDL Tracking System are associated with NPDES identifiers.
- 1-2 Demonstrate that TMDLs are being implemented by annually reporting on the progress of TMDL implementation activities completed nationwide including the number of TMDLs:
 - that have all wasteload allocations incorporated into NPDES permits,
 - that have implemented load allocations through at least one best management practice funded through the Section 319 Program, and
 - for which implementation data are not available to EPA.

- 1-3 Demonstrate the results of implemented TMDLs by annually reporting on the progress of water quality improvements resulting from TMDLs nationwide.
- 1-4 Revise the counting methodology to eliminate double-counting of developed TMDLs in EPA's Annual Performance Plan and Annual Report and clarify terminology for the two TMDL development measures.
- 1-5 Consistently disclose in Measure L and the efficiency measure that water segments reported include segments removed from the impaired waters list due to administrative changes.
- 1-6 Ensure consistency and accuracy of information between the measure and baseline for the effectiveness measure for restoring waters (Measure L and Annual Performance Measure) in the Annual Performance Plan and any strategic planning guidance.
- 1-7 Disclose the categories of non-restoration costs included in the efficiency measure in the Annual Performance Plan.

Agency Comments and OIG Evaluation

The Office of Water generally concurred with five of the six draft report recommendations, most with comment, and proposed one alternative recommendation. EPA's detailed response is shown in Appendix A. In response, we have added detail to our recommendation that EPA develop an implementation metric, and replaced the two draft recommendations regarding measures with three in order to clarify the activities that EPA needs to do to improve those measures. We have also made minor clarifications where appropriate in response to the Office of Water's comments. For Recommendation 1-1, we accept Office of Water's response.

EPA did not concur with the draft report recommendation 1-2 due to data availability and feasibility concerns and proposed an alternative recommendation: Report annually on TMDL implementation actions funded or tracked directly by EPA and analyze whether voluntary cost-effective methods to obtain additional forms of implementation information can be developed. We understand that EPA cannot require States to report on all data for the program. However, it is important for EPA to be able to determine the results of the TMDL program due to its significant resource investment in TMDL development. We have revised the recommendation to indicate the types of data that should be reported by the program based on data readily available to the Agency and also request that EPA account for TMDLs for which it lacks readily accessible implementation data. In our opinion, until EPA collects and analyzes this information, the inability to judge program effectiveness is a management control weakness. Recommendation 1-2 remains open and the disposition undecided.

EPA concurred with draft report Recommendation 1-3 with the comment that it could be addressed in conjunction with the draft report recommendation regarding Measure L. However, EPA's response to the draft report recommendation regarding Measure L (now Recommendation 1-6) indicated that specific data breakdown for the measure could not be assured. Therefore, we have retained draft report Recommendation 1-3 as a separate recommendation. We do agree that both recommendations may be addressed together depending on the steps taken in response to Recommendation 1-6. Recommendations 1-3 and 1-6 remain open and the disposition undecided.

EPA concurred with draft report Recommendation 1-4. However, EPA's corrective actions only addressed part of the recommendation on revising the counting methodology. EPA needs to address how they will clarify the terminology for the two TMDL development measures. Recommendation 1-4 remains open and the disposition undecided.

Draft recommendation 1-5 was modified and broken out into two recommendations (1-5 and 1-6) in the final report to provide more specificity. Recommendation 1-5 specifically addresses the need to disclose in Measure L and the efficiency measure that water segments reported include segments removed from the impaired waters list due to administrative changes. Recommendation 1-5 remains open and the disposition undecided.

For draft report Recommendation 1-6 (now 1-7), EPA concurred that the measure should be clarified but restated that the measure currently provides valuable management information. The OIG's position is that the measure will not reflect the recommended improvements until action is taken on its commitments. We further modified the draft recommendation for clarity. Recommendation 1-7 remains open and the disposition undecided.

We met with officials and staff in the Office of Water to discuss minor revisions to our conclusion and recommendations subsequent to the formal draft report. EPA officials' position was that the TMDL program's effectiveness is defined by its statutory authority. The officials were concerned that the report's interpretation of program effectiveness encompasses outcomes outside of the TMDL program's statutory role to track impaired waters and develop TMDLs. The officials stated that the TMDL program meets its statutory mandate to develop and finalize TMDLs, but lacks data to assess their subsequent implementation by States and their environmental results. The officials stated that the Office of Water is not only committed to a long-term process for measuring results, but also has made significant progress on results measurement both within and beyond its statutory role. We agree that EPA is making progress measuring results; however, our position is that the Agency must collect data on TMDL implementation to determine the water quality impacts of the TMDL program.

Status of Recommendations and Potential Monetary Benefits

RECOMMENDATIONS						POTENTIAL MONETARY BENEFITS (in \$000s)	
Rec. No.	Page No.	Subject	Status ¹	Action Official	Planned Completion Date	Claimed Amount	Agreed To Amount
1-1	12	Require regions to ensure that point source-related TMDLs in the National TMDL Tracking System are associated with NPDES identifiers.	O	Assistant Administrator for the Office of Water			
1-2	12	Demonstrate that TMDLs are being implemented by annually reporting on the progress of TMDL implementation activities completed nationwide including the number of TMDLs: <ul style="list-style-type: none"> • that have all waste load allocations incorporated into NPDES permits • that have implemented load allocations through at least one best management practice funded through the Section 319 program, and • for which implementation data are not available to EPA 	U	Assistant Administrator for the Office of Water			
1-3	13	Demonstrate the results of implemented TMDLs by annually reporting on the progress of water quality improvements resulting from TMDLs nationwide.	U	Assistant Administrator for the Office of Water			
1-4	13	Revise the counting methodology to eliminate double-counting of developed TMDLs in EPA's Annual Performance Plan and Annual Report and clarify terminology for the two TMDL development measures.	U	Assistant Administrator for the Office of Water			
1-5	13	Consistently disclose in Measure L and the efficiency measure that water segments reported include segments removed from the impaired waters list due to administrative changes.	U	Assistant Administrator for the Office of Water			
1-6	13	Ensure consistency and accuracy of information between the measure and baseline for the effectiveness measure for restoring waters (Measure L and Annual Performance Measure) in the Annual Performance Plan and any strategic planning guidance.	U	Assistant Administrator for the Office of Water			
1-7	13	Disclose the categories of non-restoration costs included in the efficiency measure in the Annual Performance Plan.	U	Assistant Administrator for the Office of Water			

¹ O = recommendation is open with agreed-to corrective actions pending
C = recommendation is closed with all agreed-to actions completed
U = recommendation is undecided with resolution efforts in progress

Response by the Office of Water

July 10, 2007

MEMORANDUM

SUBJECT: *Total Maximum Daily Load Program Needs Better Data and Measures to Demonstrate Environmental Results*, Assignment No. 2006-001552, Draft Report

FROM: Benjamin H. Grumbles /s/
Assistant Administrator

TO: Dan Engelberg
Director of Program Evaluation
Office of the Inspector General

Thank you for the opportunity to comment on your Office's draft report, *Total Maximum Daily Load Program Needs Better Data and Measures to Demonstrate Environmental Results*. I am responding to the overall findings and recommendations in the body of this memorandum, with more detailed technical comments in the attachment.

The Office of Water (OW) appreciates the attention that the Office of Inspector General (OIG) has brought to the efforts we are undertaking to assess TMDL program effectiveness, the progress already made, and the remaining challenges we face in documenting TMDL program outputs and outcomes. As you reported, several noteworthy achievements have been reached by EPA and the States, such as exceeding 100% of TMDL development pace in recent years. The TMDL program's own efforts to improve its effectiveness have spanned studies of characteristics of successful TMDLs and driving factors of implementation, analyses of recent TMDL documents, improvements in data systems and performance measures, a broad dialogue with States, regions and practitioners on TMDL results analysis, and joint efforts to improve EPA data on the linkages of NPDES permits and TMDLs.

Several elements that complicate TMDL program tracking and evaluation are also evident in your review, including: the large numbers of impaired waters, long recovery time frames, high costs of restoration, the States' reporting burden, and the limited authority of EPA to require new post-TMDL monitoring, data tracking, and reporting. Also noted is the integration of the TMDL program with other surface water protection programs based on the common goals they seek, and a side effect of integrated programs – difficulty isolating the effectiveness of the TMDL program alone. Further, the costs of national tracking, reporting and assessment can draw down resources available for TMDLs and restoring impaired waters. Even

with these challenges, OW had already been working before your review on improving data, data systems, and performance measures consistent with many of the draft's findings.

Before addressing the report's findings and recommendations, I would like to note three overarching issues that are particularly important to the draft report recommendations and our response:

Clarity and calculation of measures. We agree that clear definitions and counting methods are essential for good program measures, and below we describe improvements already underway. OW has continually worked to improve clarity and has sought to establish thoroughly vetted measures that are both meaningful and feasible for States to track and report. The draft report notes the tension between number/content of performance measures and the reporting/tracking burden on States. As you know, we cannot – and should not -- require States to report on all possible measures of interest, thus data limits do constrain some of the potential options for clarifying measures and counting methods as well as for related tracking and reporting.

Integrated vs isolated program implementation. Our program history has demonstrated that integrated approaches, in which multiple programs work toward common goals, drive success in watershed programs. Your review found that program outcomes of TMDLs are sometimes inseparable from the combined effect of multiple surface water protection program activities integrated around common restoration goals. For example, completed TMDLs are an output easily attributed solely to the TMDL program, but TMDL implementation and environmental outcomes of TMDLs are attributable to an array of pollution control actions – TMDL-related and non-related, federal and non-federal. We share a keen interest in understanding the effectiveness of all our programs but recognize that many outputs and outcomes are only measurable in combination, as that is the way they are best implemented.

Program output/outcome data & systems. The insights from tracking come at a price. OW's substantial investment in data systems development and improvement demonstrates our commitment to tracking and assessing program progress. In several discussions with your Office, we have emphasized that there are substantial cost and logistical implications of reporting annually and nationally on TMDL implementation and TMDL environmental outcomes. After a point, tradeoffs between level of effort invested in reporting and actually restoring impaired waters must be made by EPA and the States. OW has also noted in our ongoing communications with the OIG that some options for tracking and reporting on implementation and documenting TMDL outcomes would require highly improbable levels of voluntary reporting from all States. Resource constraints must be factored into the actions we take to track and report on our programs.

Responses on Review Findings and Recommendations

Recommendation 1-1. Require regions to ensure that point source-related TMDLs in the National TMDL Tracking System are associated with NPDES identifiers.

We concur with this recommendation, with comment. OW has been requesting that NPDES identifier information be included in NTTS since 2003 and has put checks into the data entry system to enforce this request. However, during this OIG program evaluation the TMDL program found a loophole in the data entry system that bypassed the internal checks. This loophole is slated to be remedied by October 2007. Since 2003, OW has also been requesting that either wasteload allocation information or a copy of the TMDL document be uploaded to NTTS for every point source related TMDL. A data entry check will be put in place to enforce this requirement as well, by October 2007.

Joint efforts between the TMDL and permits programs to scope TMDL and permit program linkage improvements are already underway. Whether requiring NPDES identifier information in our national TMDL database is key to State permit writers actually incorporating TMDL information in permits is still an open question, given the contrast between the incomplete population of the data field in NTTS and the apparently universal incorporation of wasteload allocations in permits illustrated by a review of 308 TMDLs in Washington State. Nevertheless, we share the interest in improving the inclusion of TMDL information into permits and improving EPA's ability to measure this activity. Limitations on the feasibility of reaching 100% linkage between NPDES information and TMDL information in a national database include the absence of NPDES identifiers or georeferencing for tens of thousands of minor permits and general permits in the PCS database. We look forward to additional recommendations and actions based on scoping efforts of a workgroup including State and EPA permits staff and EPA TMDL staff.

DECISION: CONCURRENCE

PLANNED COMPLETION: Oct 31, 2007 – OW will upgrade data entry system to remedy loophole in NPDES identifier, and add wasteload allocation/document upload data entry requirement. Mar 1, 2008 - Joint permits and TMDL workgroup will develop recommendations for data system linkage improvements. Sept 30, 2008 – OW will implement appropriate data system linkage improvements based on these recommendations.

Recommendation 1-2. Annually report on the progress of TMDL implementation activities completed nationwide (e.g., wasteload allocations in NPDES permits and best management practices completed).

We do not concur with this recommendation based on issues of data availability and feasibility. Our recognition of implementation as a key milestone and our commitment to study and assess TMDL implementation is amply demonstrated in our multiple existing and continuing studies of implementation success factors, tracking requirements, State capacity, and implementation rates, where data are available. We appear to share with the OIG the desire to understand implementation rates and successes, but we do not concur on this recommendation's wording mainly because it is infeasible to require or otherwise accomplish tracking and reporting of the broad array of point and nonpoint control actions involved. This data constraint includes the nonpoint BMPs over which EPA has no control and/or data; also, tracking wasteload allocations in permits cannot be done in the current PCS data system and it is not possible to require States to change their current data gathering to produce these kinds of data. Further, we do not believe

that the budgetary impacts of both annual and national reporting as recommended would justify the product obtained.

The recommendation does leave EPA's method for analyzing and reporting on TMDL implementation somewhat open to interpretation. The OIG appears to recognize that full national census of every TMDL implementation action is unachievable for numerous reasons that OW explained in our past written responses and meetings. On the other hand, as now worded, the analytical approach and therefore the magnitude of effort required by the annual and national reporting is not clearly defined. Thus, options other than a full census might include: reporting on implementation case study examples nationwide; reporting on all voluntarily reported implementation data we obtain yearly; reporting on actions that EPA controls or funds; or assessing a national, probabilistic sample of TMDLs for implementation actions. Of these, only the census or the probabilistic sample study may provide statistically valid estimates of national rates of implementation – but only if the site-specific implementation data on all permits and BMPs are fully accessible. EPA cannot require the necessary State cooperation on tracking these data and expects that data gaps may lead to inconclusive results from a census approach or a sample approach. Further, if required annually, the same study would need to be repeated each year with a new national sample at a non-trivial cost, for highly questionable value-added of frequent re-documentation of continuing data gaps.

Our proposed alternate recommendation on this topic is based on actions for OW to take that are feasible and cost-effective. We propose to report annually on the TMDL implementation actions that are tracked in our data systems, while continuing to assess the potential options for additional TMDL implementation analyses where sufficient data exist. Regarding implementation of permits, the joint workgroup recommendations discussed above will also address the feasibility of tracking point source-related control actions. Regarding implementation of BMPs, we propose to provide information within the TMDL data system on CWA Section 319 nonpoint source funds used to implement specific TMDL actions. In addition, the TMDL program will continue its ongoing studies of TMDL implementation and evaluate the options for further action.

DECISION: NON-CONCURRENCE

ALTERNATE RECOMMENDATION: ***Report annually on TMDL implementation actions funded or tracked directly by EPA and analyze whether voluntary cost-effective methods to obtain additional forms of implementation information can be developed.***

PLANNED COMPLETION: Mar 1, 2008 – OW will collect information on CWA Section 319 nonpoint source funds used to implement TMDLs. Mar 1, 2008 - Joint permits and TMDL workgroup will issue recommendations on options for tracking point source related actions. November 30, 2008 – OW will report on implementation actions that will be incorporated with year-end performance documents for FY2008.

Recommendation 1-3. Annually report on the progress of water quality improvements resulting from TMDLs nationwide. This recommendation may be addressed in conjunction with Recommendation 1-5.

We concur with this recommendation, with comment. We suggest that 1-3 can be fully covered by merging it with recommendation 1-5, which concerns clarifying our existing measures. We have initiated the steps to upgrade our tracking systems to be capable of separating out the formerly lumped multiple ‘causes for removal’ that were criticized in the draft report.

DECISION: CONCURRENCE

PLANNED COMPLETION: September 30, 2008

Recommendation 1-4. Clarify terminology and the counting methodology for the two TMDL development measures in EPA’s Annual Performance Plan and Annual Report.

We concur with this recommendation and have begun to institute corrective actions. The TMDL program discussed and approved a revised counting methodology at our March 2007 national meeting. This method resolves regional variation leading to any potential miscounting and promotes consistency across all regional reporting of TMDL counts based on the water body segment/pollutant combination concept. The TMDL program plans to institute the corrected count in our data systems during August 2007 and all historic and future TMDL counts will reflect the revised counting methodology. Additionally, the methodology used to calculate regional TMDL commitments for strategic measures has been revised in the 2008 National Program Guidance to reflect the revised counting methodology. The revised counting methodology will be fully implemented by the end of fiscal year 2007.

DECISION: CONCURRENCE

PLANNED COMPLETION: September 30, 2007

Recommendation 1-5. Clarify the activities and results, baseline year, and units of measure reported in the effectiveness measure for restoring waters (Measure L and Annual Performance Measure) in the Annual Performance Plan and any strategic planning guidance.

We concur with this recommendation, but with comment. Quantifying every sub-component of these measures, while feasible in principle, needs State data and cooperation in reporting that may not be uniformly available across the nation (see discussion above). However, the clarifications in this recommendation and in Recommendation 1-3 can be made in the upcoming cycles of the performance plan and strategic plan.

DECISION: CONCURRENCE

PLANNED COMPLETION: September 30, 2008

Recommendation 1-6. Clarify the costs included and the activities used to count water segments as restored in the efficiency measure in the Annual Performance Plan.

We concur with this recommendation, with comment. OW agrees that the measure should be clarified, but continues to assert that such a measure provides valuable management information. We do note, however, that the measure encompasses far more than the scope of the TMDL program and therefore cannot signify the efficiency of the TMDL program alone. OW will seek opportunities to provide the public with clarifying information about this measure and its limitations, including language in the Annual Performance Plan. In addition, OW will commit to

revisiting this measure when the program is reassessed in the PART process (projected Spring 2009).

DECISION: CONCURRENCE

PLANNED COMPLETION: September 30, 2008

Thank you again for the opportunity to comment on this draft report. If you have questions regarding our comments, please contact Craig Hooks, Director, Office of Wetlands, Oceans and Watersheds, at (202) 566-6372.

Attachment

Attachment:

Detailed Responses to OIG Report, *Total Maximum Daily Load Program Needs Better Data and Measures to Demonstrate Environmental Results*, Draft of June 7, 2007

No.	Pg/Section	Draft Report Text	OW Response
1	At a Glance fact sheet	(general)	We find the fact sheet summary format to be a useful recap of the TMDL program setting and the status of the OIG findings and recommendations. The text is mostly accurate in content and objective in tone. We have two suggestions in the interest of the clearest possible description of the role and function of TMDL program, below.
2	At a Glance factsheet/ Background	TMDLs play a critical role as a backstop for the Nation's clean water protection program.	TMDLs are oriented more toward restoration of impairments than protection, thus the first sentence under Background could more appropriately read " <i>TMDLs play a critical role in the Nation's clean water protection program by calculating changes in pollutant loads necessary to restore impaired waters.</i> "
3	At a Glance factsheet/ What we found	EPA's lack of information prevents the Agency from determining if activities are occurring in a timely manner...	We believe the current text is in error because it was meant to refer specifically to implementation of TMDLs, not all TMDL program activities. We have provided information that demonstrates our comprehensive tracking of other key TMDL program activities such as 303(d) listing of impaired waters, prioritized scheduling for TMDL development, TMDL development itself, and TMDL approval. Our suggested rewording would be " <i>EPA's lack of information prevents the Agency from determining if TMDL implementation activities are occurring in a timely manner...</i> "
4	1/ Background	A TMDL specifies the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards and allocates pollutant loadings among the sources that discharge the pollutant.	We agree that defining a TMDL is key information to this report, but feel that the wording currently is in error as it lacks a key part of what TMDLs do – provide a scientific calculation of how pollutant loads can be <u>reduced</u> to meet water quality standards. We suggest the following modification: <i>"A TMDL specifies the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. As such, TMDLs provide a scientific calculation of how much the pollutant loads from the sources that discharge the pollutant into impaired waters need to be reduced to meet those standards."</i>
5	2/TMDL Dev'pment and Impl.also known as blended TMDLs.	We recommend deleting the phrase as the meaning is clear without it and we have avoided using the term 'blended' with TMDLs of any sort due to its strong association with point source mixing zones.
6	3/resources spent on the TMDL program	According to Office of Water staff, the Agency does not have a recent estimate of the cost of implementing these TMDLs, but has been working on several projects that may provide more accurate estimates by the summer of 2007.	The text has misinterpreted information we provided during the informal review of the 1/25 draft. At that time we stated: <i>As the authors note, these cost figures are potentially inaccurate for representing 2007 estimates, and they have a wide range of variability. While we do not have more recent or more accurate comprehensive cost estimates, we have funded three pilot watershed scale TMDL project components that are expected to yield by this summer cost-benefit information on watershed v. waterbody approaches.</i>

			This information was provided to indicate that these pilot projects would increase understanding of relative cost differences between two generic approach options, not to provide new or more accurate national cost estimates. We recommend the text be revised to say, "According to Office of Water staff, the Agency does not have a recent estimate of the nationwide cost of implementing these TMDLs, but expects to complete several projects that compare costs of watershed vs. water body approaches by the summer of 2007."
7	4/ noteworthy achievements by the program	(whole section)	OW appreciates the addition of this section since the previous draft. It recognizes our successful tracking of a number of program elements and ongoing efforts to address the measurement and tracking elements that are not yet well documented. Most importantly, it acknowledges the PART-driven TMDL measures and the TMDL program's success meeting the central measure that is clearly and solely its own: development and completion of TMDLs.
8	5/more data needed to quantify results of TMDL implem.	EPA does not have comprehensive data to determine the results of the TMDL program nationwide.	The lead sentence is not fully consistent in meaning with the section title; 'results' of the program include 303d lists and completed and approved TMDLs which are well documented, but data on implementation rates and outcomes are minimal. We suggest the following revision: " <i>EPA does not have comprehensive data to determine the environmental results of TMDL implementation nationwide.</i> "
9	6/ (footnote 5)	5 According to Office of Water staff, EPA is also fixing a database loophole that previously allowed regions to circumvent this requirement when entering TMDL data into the system.	This is one of two actions we have taken that both may be appropriate to footnote. We suggest the footnote read, " <i>5 According to Office of Water staff, an OW workgroup of permits and TMDL data systems staff is identifying recommended steps to improve permit/TMDL information linkages. EPA is also fixing a database loophole that previously allowed regions to circumvent this requirement when entering TMDL data into the system.</i> "
10	9/TMDL development measures are not clear	Second, EPA is not consistently counting TMDLs in this measure. Although TMDL is defined as a waterbody-pollutant combination, the numbers reported for this measure also include the cause of the waterbody being impaired. Thus, a single TMDL may be counted for several causes of impairment that it addresses. By counting TMDLs this way, the reported number of developed TMDLs is inflated by approximately 6 percent (approximately 1,300 TMDLs). If EPA continues to	The TMDL program approved a revised counting methodology paper at our March 2007 national meeting. This method resolves regional variation related to any potential miscounting and promotes consistency across all regional reporting of TMDL totals based on the water body segment/pollutant combination concept. The TMDL program will institute the corrected count in our data systems during August 2007 and program documents from the end of FY2007 onward will reflect the revised counting methodology.

		use this methodology, it should clarify how it counts TMDLs in annual reports and national program guidance.	
11	12/ conclusions	Although they may be difficult to obtain, EPA needs more data to effectively oversee the program and determine if it is on track with national clean water objectives.	We firmly concur with this broad, general statement and have a record of actions that move toward resolving this issue. We might not fully agree on the specific actions that should be taken to accomplish this purpose, or on the frequency and intensity of data collection and assessment. See individual discussions under each recommendation for details.

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