

New York's Chesapeake Offset Program Status.

New York submitted its final Phase II Watershed Implementation Plan (WIP2) to EPA on January 7, 2013. New York continues to utilize the approach for accounting for growth outlined in the WIP2.

On February 6, 2013, Jon Capacasa amended EPA's request for a mathematical analysis and instead asked for a status update of New York's offset program. As New York has completed the mathematical analysis and calculated negative growth in all sectors, no formal offset program is necessary at this time.

In response to the specific instructions from the February 6, 2013 email from Jon Capacasa that revised previous instructions and contains the five bullets that describe initial submission contents:

- *How the jurisdiction has been tracking changes in WLAs, and LAs for each of the Bay TMDL sectors; New York's analysis indicates negative growth in all sectors. New or expanded discharges from sewage treatment facilities must be 100% offset. Offset calculations will be described in the fact sheet associated with the draft SPDES permit that authorizes any new or increased loadings and public notice and opportunity for comment will be afforded.*
- *How the jurisdiction has been offsetting any new or increased loads above the jurisdiction's LAs or WLAs for each sector; New York submitted its' final Phase II WIP on January 7th, 2012. No new or increased loads have been identified since that time. Based on the analysis submitted below, no overall increase in loads is expected at this time.*
- *The date (projected) by which the jurisdiction will have developed an offset program; The submitted analysis does not support the need for a formal offset program at this time.*
- *A clear explanation regarding managing loads when land conversion takes place; Because projections in all sectors are for negative between 2010 and 2025, New York is using an abbreviated analysis (below) to demonstrate the lack of load growth, and to conclude that no offset program is needed. Agricultural statistics and projections for agricultural land and farm animals provided by USDA indicated no growth. USEPA projects a decline for septic systems, and the populations served by both septic systems and wastewater treatment systems. Also demonstrated below is that any increased load associated with urban sector growth is in essence offset by losses in agricultural land.*
- *A commitment to re-evaluate this initial submission periodically and to conduct a mathematical analysis later this year following issuance of the revised technical memorandum on sector growth management. At a minimum, there should be a review of the initial submission following the mid-point assessment and prior to development of the Phase III WIPs. New York will review the need for a formal offset program as part of the mid-point assessment.*

New York

Sector Load Management Demonstration

NYSDEC August 14, 2013 Submission

Purpose

New York intends to demonstrate using information provided by USEPA or USDA that a formal offset program is NOT necessary, because each of the sectors are either contracting or do not contribute new loads.

Adaptive Implementation

New York will periodically re-examine whether the inputs of the demonstration remain valid. New York reserves the right to include locally derived information in the future, should that information be considered more accurate of existing conditions or trends, or more reliable as projections of future conditions.

Disclaimer

By using USEPA and USDA historical estimates and projections, New York does not necessarily agree with the accuracy and precision of those estimates and projections. New York is using the information provided by the federal agencies to be consistent with Chesapeake Bay program's instruction to use their Sector Load Management Demonstration Technical Memorandum.

Sector Growth Demonstration

Because projections in all sectors are for negative or negligible growth between 2010 and 2025, New York is using an abbreviated analysis below to demonstrate the lack of load growth, and to conclude that no offset program is needed. Agricultural statistics and projections for agricultural land and farm animals provided by USDA indicated no growth. USEPA projects a decline for septic systems, and the populations served by both septic systems and wastewater treatment systems. Also demonstrated below is that any increased load associated with urban sector growth is in essence offset by losses in agricultural land.

Agriculture

USDA statistics show a decline in animal units in the New York portion of the Chesapeake Bay watershed of 829,539 A.U. in 1982 to 552,539 A.U. in 2010. Row cropland decreased from 238,658 acres in 1985 to 157,793 acres in 2010, and overall agricultural land decreased from 1,009,725 acres in 1985 to 821,344, a 34 and 19 percent decline, respectively. Analysis of the USDA references in the Technical Memorandum and discussions with the USDA contact did not reveal projections that counter this declining trend.

In 2013, NYSDEC amended the Environmental Conservation Law General Permit for Concentrated Animal Feeding Operations. By reducing costs associated with the previous regulatory scheme, the NYS Department of Agriculture and Markets estimated that the revised permit would result in a 4 percent increase in the State's total milking cow herd and a return to the number of cows milked in 2006. This would be essentially the same as the 2007 agricultural census numbers used in the modeling baseline. Consequently, there is no reason to estimate future load increases in the agricultural sector, and no offset program is necessary.

Urban and suburban stormwater (MS4s, Construction and "nonregulated stormwater")

USEPA projects that there will be an increase of 128 acres of "impervious" land use and 1,044 acres of "pervious" land use between 2010 and 2025. The only projected increase in "MS4" acres are 8 acres of pervious land out of the 1,044 acre overall increase. Of the 1,172 acres that will be developed, USEPA projects that 574 acres will come from forest and 598 acres will come from agriculture.

In summary, accounting for the universal benefits of New York's fertilizer law and estimating an additional benefit of at least 40 percent phosphorus reduction resulting from post construction control requirements, the estimated load from the post-development urban land would be slightly less in its equivalent Bay impact than the modeled load from the pre-development forest and agricultural land as documented in numerical detail in the Appendix. Consequently, no offset program is required for the stormwater sector.

WWTP and CSOs

USEPA projects that the population served by centralized wastewater treatment systems will decrease from 430,047 in 2010 to 428,267 in 2017, and 425,955 in 2025. In addition to the population loss, loads from the WWTP discharges is accounted for in the WLA and included in the model confirmation run for WIP2.

USEPA projects that the area tributary to Combined Sewer Overflows will be unchanged at 3,208 acres of impervious and 7,422 acres of pervious land.

Because there is no projected increase in load, no offset program is necessary, except when a new discharge permit is issued, as explained in the Phase II WIP.

OSWTS (septics)

USEPA projects that the number of on-site wastewater treatment systems will decrease from an estimated 97,456 in 2010 to 92,945 in 2017, and to 87,220 in 2025, and that the corresponding population served by OSWTS will decrease from 224,038 to 203,535 and then to 180,187, respectively. Because there is no projected increase in systems or population, there will not be an increased load, and no offset program is necessary.

Furthermore, because USEPA projects a decrease in the number of systems, New York has concluded that a detailed accounting of future OSWTS “growth” is not warranted. However, where a new permitted discharge is created to serve an un-sewered area, credit for the previous OSWTS load will be allowed as an offset, as noted in the Phase II WIP.

Forest Lands

The *Sector Load Growth Demonstration Technical Memorandum* states that:

“Forest lands have the lowest pollutant loading rates of all land use categories in the Chesapeake Bay model, Forest loads are a result of air deposition and cannot be further reduced through BMPs in the TMDL context. In contrast to other sectors, a trend of increasing forest cover over time results in reduced pollutant loads, while the loss of forest cover to higher loading land uses (development or agriculture) results in a growth in loads that should be offset.”

The dominant historical land conversion trend in New York’s portion of the Chesapeake Bay watershed continues to be reversion of agricultural lands to forest, such that now about three quarters of the land is forest. This has resulted in a significant reduction in loads, in contrast particularly to the bay states, which have undergone urbanization. The minor predicted shift of 574 acres of forest to urban land by 2025 is reflected in the analysis describe above and documented in the Appendix.

New York has no information that would lead to a projection of increased forest harvesting in future years up to 2025, and therefore concludes there will be no increase of loads in this sector.

Appendix: Detailed Load Estimates for Urbanization: 2010 to 2025

Land use type	Area acres	N unit load Lbs/acre/yr	N load Lbs/year	P unit load Lbs/acre/yr	P load Lbs/year
Pre-development					
From forest	574	1.05	604	0.04	22
From agriculture	598	5.39	3,222	0.62	374
Total pre-development	1,172		3,826		395
Post-development					
Impervious	128	4.46	571	0.43	54
Pervious	1,044	4.30	4,489	0.10	101
Total post-development	1,172		5,060		155
Net Development Loads			1,234		-240
P to N Exchange @ 5.7			-1,317		
Equivalent Net N Load			-136		

Pre-development unit loads are from 2009 AA model run for annual delivered loads from forest and agricultural land uses divided by the acres in those land use categories.

Post-development unit loads originate from the WIP2 model run for annual delivered loads from Impervious and Pervious (urban) land uses divided by the acres in those land use categories. These model yields account for the impact of New York's fertilizer restriction law, but would only account for the relatively minor decrease from retrofits, reconstruction and post-construction controls applied to a small fraction of urban acres. New York's SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES from CONSTRUCTION ACTIVITY, Permit No. GP-0-10-001, requires post construction controls in accordance with the New York State Stormwater Management Design Manual (August 2010). Section 3.3 of the Design Manual, Standard Stormwater Management Practices for Treatment, presents a list of standard stormwater management practices (SMPs) that are acceptable for water quality treatment, including the requirement that the practices can capture and treat the full water quality volume and are capable 40% TP removal. Therefore the model post-development unit load shown in the table above for phosphorus are reduced by 40% because this is the minimum BMP efficiency of any of the SMPs selected for use. This assumption is quite conservative in that the Design Manual also includes runoff reduction requirements that would further substantially reduce post construction loads from lands undergoing future development.

Net Development Loads are calculated by subtracting the **Total pre-development** N and P loads from the **Total post-development** loads. The **P to N Exchange** is calculated using the decrease in P load of 240 lbs/year, exchanged for nitrogen at the N:P ratio of 5.7, resulting in 1,317 lbs/year of N. The **Equivalent Net N Load**, is calculated by subtracting the resulting **N Exchange** from the **Net Development Load** increase of 1,234 lbs/year of N, to result in an **Equivalent Net N Load reduction** of 136 lbs/year of N.

