

Chesapeake Bay TMDLs and Maryland Watershed Implementation Plan

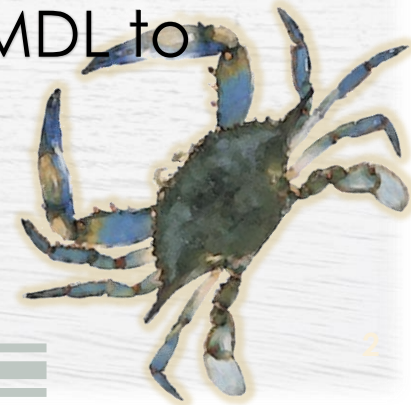
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February 19, 2020



What is a TMDL?

- TMDL stands for Total Maximum Daily Load, which is a value of the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards designed to ensure waterways meet national primary goal of being swimmable and fishable.
- Sets a pollution limit for a water body; load must be reduced to limit then, at a minimum, maintained
- Federal Clean Water Act (CWA) requires TMDL to be set for impaired waters



What is a TMDL? *(continued)*

- Pollutant load (amount) allocated among various sources
 - Agriculture
 - Wastewater
 - Stormwater
 - Septic
 - Forest



What is a TMDL? *(continued)*

- $TMDL = \sum LA + WLA + MOS$

- LA = load allocation
- WLA = wasteload allocation (point sources)
- MOS = Margin of Safety



Background on Chesapeake Bay TMDL: When Set & For What?

- Set by US Environmental Protection Agency (EPA) in December 2010
- Actually is a combination of 92 smaller TMDLs for individual Chesapeake Bay tidal segments
- Bay TMDLs address reductions in nitrogen (N), phosphorus (P), and sediment (aka total suspended solids or TSS) needed to restore Bay



Background on Chesapeake Bay TMDL: Where, How Set, & By When?

- Pollution limits divided by jurisdiction and major river basin
- Based on modeling, monitoring data, peer-reviewed science, and interaction with States
 - *Chesapeake Bay Watershed Model*
- Designed to ensure all pollution control measures needed to fully restore the Bay and its tidal rivers are in place by 2025
- Practices to be in place by 2017 to meet 60% of overall nitrogen, phosphorus, and sediment reductions



Watershed Implementation Plans (WIP_s) to Restore Bay

- Required plan designed to demonstrate how water quality standards will be met and impaired waterbodies restored in each state
- Developed and submitted to EPA for approval by each of 6 states in Bay watershed
- Three-phased planning process



Phase I

- Developed same time as Bay TMDLs
- Set final target loads that provided EPA information to establish TMDL allocations and set interim target loads
- Laid out key actions and deadlines for states to meet + regulatory and other consequences triggered if not met
- Maryland submitted to EPA in December 2010



Phase II

- Refined details of Phase I Plan by providing more geographic specificity regarding target loads
- Included greater detail about pollution controls that the State and partners will implement by the end of 2017
- Allowed significantly more interaction between the State and interested partners, especially counties
 - *Allocations to states. Local governments only requirement is through NPDES permits.*
- Maryland submitted to EPA in March 2012



2017/2018 Midpoint Assessment

- Updated data; included local data provided
- Updated methods and model
- 1st official re-run of model since TMDLs set



Pollution Reductions Achieved to Date

- Between 2010 and 2017, Maryland has reduced:
 - Nitrogen: 3.8 million lbs per year
 - Phosphorus: 0.34 million lbs per year
 - Sediment: 51 million lbs per year

Source: Maryland Overview: Maryland's Phase III Watershed Implementation Plan (FAQs August 23, 2019)



Maryland Pollution Reduction Requirements

Pollutant	2010 Progress (M lbs/yr)	2025 Target In 2010	2025 Target In 2019	2010 % ↓ Needed	% > from 2010 ↓
Nitrogen	52.76	41.17	45.80	22.0%	10.1%
Phosphorus	3.30	2.81	3.68	14.9%	25.7%

Source: MD's Phase II Watershed Implementation Plan for the Chesapeake Bay TMDL, October 2012, Pg. iv AND MD's Phase III Watershed Implementation Plan to Restore Chesapeake Bay by 2025, August 2019, Pg. 4.



Phase III

- Developed after Midpoint Assessment to address remaining reductions needed to achieve TMDLs by 2025
- Identifies strategies, opportunities, and challenges to meet 2025 restoration targets & sustain restoration into future
- Introduced concept of climate change goals + separate CWIP to address Conowingo Dam

Source: Maryland Overview: Maryland's Phase III Watershed Implementation Plan (FAQs August 23, 2019)



Approaches for MD to Meet Bay Goals

- Using incentive programs to improve the performance of wastewater
- Ensuring there are boots on the ground to do the work
- Using pay for performance approaches in state and local funding
- Advancing markets through water quality trading
- Fostering public private partnerships

Source: Maryland Overview: Maryland's Phase III Watershed Implementation Plan (FAQs August 23, 2019)



Phase III: Key Strategy to Meet Goals

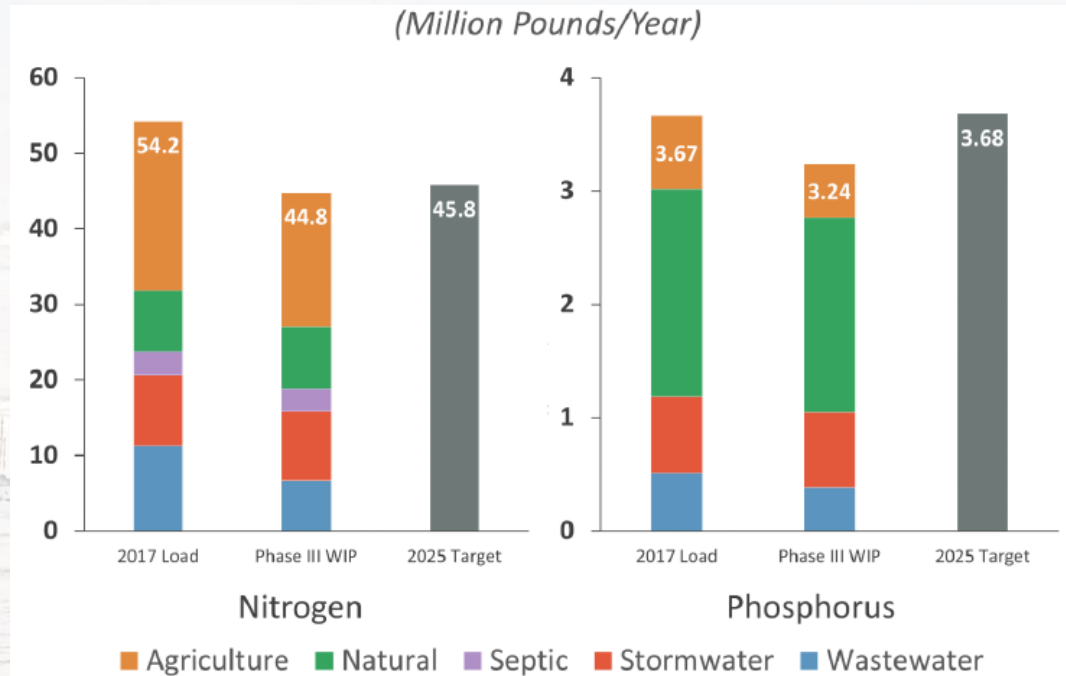
- **Short Term:** Use enhanced capacity from our wastewater treatment plants and additional agricultural implementation for our 2025 goal
- **Long Term:** Increase restoration in stormwater and septic sectors more gradually over time, beyond 2025.

Source: Maryland Overview: Maryland's Phase III Watershed Implementation Plan (FAQs August 23, 2019)



What Phase III WIP Will Accomplish

- Maryland's Phase III WIP will achieve the following reductions:
 - Nitrogen: 9.2 million lbs/yr
 - Phosphorus: 0.4 million lbs/yr



Source: Maryland Phase III WIP Scenario; CAST 2019

- Anticipates surpassing targets by 1 million lbs nitrogen and .44 million lbs phosphorus

Source: Maryland Overview: Maryland's Phase III Watershed Implementation Plan (FAQs August 23, 2019)

