Evaluation of Maryland's Draft Phase III Watershed Implementation Plan

Background

The seven jurisdictions (Delaware, the District of Columbia, Maryland, New York, Pennsylvania, Virginia, and West Virginia) in the Chesapeake Bay Program (CBP) partnership agreed to develop Watershed Implementation Plans (WIPs) in three phases to provide a framework for reducing nitrogen, phosphorus, and sediment loads to meet water quality standards in the Chesapeake Bay and its tidal tributaries. The Phase III WIPs provide a road map for the numeric and programmatic commitments the jurisdictions intend to implement between 2019 and 2025 so that all practices are in place by 2025[1] to achieve the Bay's dissolved oxygen, water clarity/submerged aquatic vegetation, and chlorophyll-a standards. The 2010 Chesapeake Bay Total Maximum Daily Load (Bay TMDL) document outlined the process for the development of WIPs and for tracking progress towards attaining the CBP partnership restoration goals.

The U.S. Environmental Protection Agency (EPA) is providing this evaluation to the CBP partnership and the public. The draft Phase III WIP was evaluated to determine whether Maryland included sufficient information in the WIP to provide confidence[2] that Maryland will achieve its statewide and state-basin Phase III WIP planning targets by 2025. The seven jurisdictions, EPA, and the Chesapeake Bay Commission jointly approved these Phase III WIP planning targets in July 2018.

The seven jurisdictions each divided their respective Phase III WIP planning targets into reduction goals for specific source sectors to more finely demonstrate how overall pollutant load reductions would be achieved by 2025. Those major source sectors include agriculture, wastewater, and stormwater. Each jurisdiction could shift reductions between source sectors through development and implementation of programs for pollutant trading and offsetting. In addition, the CBP partnership decided that jurisdictions would highlight pollutant reductions from federal facilities separately in each WIP and would consider the following when addressing specific source sector pollutant reductions: growth, local engagement strategies, local planning goals and climate. The CBP partnership expects these local and changing conditions to be addressed in each jurisdiction's Phase III WIP.

This evaluation is also based on whether Maryland met the numeric and programmatic expectations as described in the June 2018 *U.S. Environmental Protection Agency's Expectations for the Phase III Watershed Implementation Plans*. Maryland recommitted to the CBP partnership that it would meet these numeric and programmatic expectations.

Overview

EPA's review of Maryland's draft Phase III WIP found many areas in which the State exceled in addressing the expectations. Some of the notable strengths include:

- Maryland demonstrated engagement of local agricultural partners, including the conservation districts and non-governmental organizations, to increase voluntary participation in conservation practices.
- Maryland invested in a thorough verification program that accounts for BMPs implemented historically up to the present.

[1] This commitment to have all practices and controls installed by 2025 to achieve applicable water quality standards was reaffirmed by the Chesapeake Bay Program signatories in the 2014 Chesapeake Bay Watershed Agreement.

[2] The phrase "reasonable assurance" is a term of art specific to TMDL establishment. In evaluating the Phase I WIPs, EPA used the phrase and concept of "reasonable assurance" because those WIPs ultimately formed the basis of the 2010 Bay TMDL. EPA continued to use the phrase in its evaluation of the Phase II WIPs, but was using it in a more general way, as TMDL establishment had been completed. In Phase III, in an effort to be more consistent with applicable guidance and regulations and to avoid potential confusion, EPA is using the term "confidence" instead of "reasonable assurance."

- Maryland created three programs to incentivize POTWs to achieve concentrations lower than 4 mg/L of total nitrogen in wastewater effluent – BRF Operations and Maintenance Grants, the Clean Water Commerce Act, and the Water Quality Trading Program with a goal of achieving 3.25 mg/L by 2025.

EPA's review, however, also noted potential enhancements in Maryland's draft Phase III WIP that should be areas of focus in revising the draft document prior to submitting a final WIP. These areas include:

- Maryland should accelerate nitrogen reductions in the agricultural sector to provide greater confidence to the CBP partnership that sustained funding, increased technical capacity, and BMP implementation will be realized. An example includes new strategies, legislative programs, incentive programs, compliance programs, and/or funding mechanisms to support how Maryland will achieve, by 2025, implementation rates of those BMPs that are much higher than current rates.
- Maryland should provide additional information on how implementation in the stormwater sector will increase over time to meet its pollutant load reduction goals. This is consistent with Maryland's recognition that accelerated reductions in the wastewater and agriculture sectors, currently being used to account for the load reduction gap in this sector, will be difficult to sustain post-2025.

EPA Oversight and Assistance

The 2010 Bay TMDL contains an accountability framework that guides and supports restoration efforts and includes: three phases of WIPs, two-year milestones, and EPA's tracking and assessment of restoration progress. EPA tracks and assesses annual progress and two-year milestone commitments to determine if the Bay jurisdictions are on track toward meeting their water quality goals.

Under the accountability framework, EPA assigns each jurisdiction's source sectors (e.g., agriculture, stormwater, wastewater, and trading and offsets) a level of oversight based on its evaluation of whether the jurisdiction provided sufficient information in its WIP and/or two-year milestones that load reductions and programmatic commitments will be achieved in those source sectors by 2025. The levels of oversight are as follows:

- **Ongoing oversight**: EPA, while having no significant concerns with a jurisdiction's strategy to implement the TMDL goals, will continue to monitor progress.
- **Enhanced oversight**: EPA, having identified specific concerns with a jurisdiction's strategy to implement the TMDL goals, may take additional federal actions, as necessary, to ensure that the jurisdiction stays on-track.
- **Backstop oversight**: EPA, having identified substantial concerns with a jurisdiction's strategy to implement the TMDL goals, has taken necessary federal actions to help the jurisdiction get back on-track.

Maryland is currently subject to enhanced oversight in its stormwater sector and ongoing oversight in all other sectors.

Since the release of 2010 Bay TMDL, EPA has provided technical and financial assistance to Maryland to support meeting its 2025 planning goals and during Phase III WIP development, EPA worked closely with staff at Maryland's Department of Environment (MDE). Since July of 2018, EPA provided approximately 1,500 hours of technical assistance to help MDE incorporate the results of the Bay TMDL's Midpoint Assessment into their input data for the draft Phase III WIP. This included understanding changes in pollutant loadings and BMP implementation under a new suite of modeling tools; acquiring high resolution land use and land cover data; developing local planning goals; and adapting to changing conditions, such as climate.

On February 6, 2019, EPA issued an updated Water Quality Trading Policy Memo to promote market-based mechanisms for improving water quality. This policy update includes additional flexibilities that state and local policy makers may consider incorporating into trading and other market-based programs to promote water quality improvements and may provide Maryland with an opportunity to update or improve its current policies and regulations related to nutrient accounting and trading. EPA welcomes the opportunity to discuss with Maryland new market-based approaches to consider in support of finalizing the Phase III WIP.

EPA will continue to commit staff, contractual, and funding resources to support the finalization and implementation of Maryland's Phase III WIPs and future two-year milestones. This support includes evaluation of the most-effective practices and locations, annual WIP assistance funding to address priority implementation needs, evaluation of Maryland's implementation capacity under various staffing, funding, regulatory and programmatic scenarios, local planning outreach, legislative and regulatory gap analysis, and monitoring trend analyses. In addition, EPA will continue to work with federal partners to provide leadership and coordinate with Maryland on WIP and two-year milestone implementation to reduce pollution from federal lands.

Detailed Evaluation

The following sections provide specific highlights of key strengths of Maryland's draft Phase III WIP. These sections also provide potential enhancements for the WIP, designed to provide greater confidence to the CBP partnership and the public that Maryland will have programs and practices in place by 2025 that will promote achievement of its Phase III WIP planning targets. Maryland should maintain these key strengths and address potential enhancements in its final Phase III WIP.

Load Reduction Review

When evaluating Maryland's draft Phase III WIP numeric commitments, EPA modeled implementation scenarios through the CBP partnership's Phase 6 suite of modeling tools and compared those simulated nutrient[3] loads to Maryland's 2025 statewide and state-basin Phase III WIP planning targets. Simulations indicate that Maryland's plan achieves its statewide Phase III WIP planning targets for nitrogen and phosphorus. Maryland's plan also achieves its Phase III WIP planning targets for nitrogen and phosphorus in all major basins[4] due to state-basin exchanges that, when run through the CBP partnership's Phase 6 suite of modeling tools, still result in water quality standards attainment.

Maryland proposes to achieve its pollutant reductions by implementing best management practices (BMPs) in the agriculture, stormwater and wastewater sectors. Maryland also proposes to shift reductions between sectors through enhancement and implementation of its existing program for nutrient trading and offsetting. Finally, Maryland's Phase III WIP addresses each of the additional changing and local conditions identified by the CBP partnership.

Source Sectors

Agriculture

Key Strengths

- Maryland demonstrated excellent engagement of local agricultural partners, including the conservation districts and non-governmental organizations, to increase voluntary participation in conservation practices.

[3] Phase III WIP planning targets for sediment are currently under development by the CBP partnership.

[4] Each jurisdiction has the option of adjusting its Phase III WIP state-basin planning targets through nutrient exchanges and/or exchanges with other basins within that jurisdiction. Any adjustments to the state-basin planning targets must still result in all 92 Chesapeake Bay segments achieving the respective jurisdictions' Chesapeake Bay water quality standards under Phase 6 Chesapeake Bay airshed, watershed, and estuarine water quality/sediment transport model simulated conditions.

- Maryland has a dedicated state agriculture cost share program in place that is targeted towards priority BMPs reflected in the draft Phase III WIP.
- Maryland's draft Phase III WIP recommends an in-depth financial analysis in the near term to confirm Maryland's fiscal capacity to achieve its agricultural goals.
- Maryland demonstrated strong coordination between Maryland Department of Agriculture (MDA) and the U.S. Department of Agriculture National Resources Conservation Service to fund priority agricultural conservation practices.
- Maryland has a strong, targeted compliance assurance program within MDA to ensure farmers are properly implementing plans; animals are excluded from streams and stream buffers are in place; compliance with winter spreading restrictions; and progress in implementing supplemental nutrient management practices.
- Maryland invested greatly in a thorough verification program that accounts for BMPs implemented historically up to the present.
- Maryland developed the Healthy Soils Initiative focused on accelerating educational outreach and promotion of a wide variety of agricultural and climate management co-benefits.

Potential Enhancements

- Maryland should accelerate nitrogen reductions in the agricultural sector to provide greater confidence to the CBP partnership that sustained funding, increased technical capacity, and BMP implementation will be realized. Examples include:
    - Development, enhancement and implementation of the following initiatives: partnering with NGOs on voluntary conservation, market-based approaches, pay for performance approaches, public-private partnerships, and improving regulatory compliance.
    - New strategies, legislative programs, incentive programs, compliance programs, and/or funding mechanisms to support how Maryland will achieve, by 2025, implementation rates of those BMPs that are much higher than current rates, such as livestock waste management systems, grass buffers, nutrient application management core nitrogen and phosphorus, forest buffers, and conversation tillage.
    - New strategies, legislative programs, incentive programs, compliance programs, and/or funding mechanisms for those practices that Maryland is reporting for the first time (e.g., capture and reuse and dairy precision feeding) to better understand how implementation goals will be achieved by 2025.
- Maryland has identified several agricultural BMPs as priorities for implementation. Maryland should provide more detail on how it is targeting funding toward implementing these priority agricultural conservation practices in priority nutrient loading areas, and whether there is adequate funding to fully implement the agricultural conservation practices called for in the draft Phase III WIP. For example, Maryland estimates a need of $54.2 million per year to achieve the agricultural commitments. It is unclear what portion of funding listed in Table 12 of the draft Phase III WIP would go to agriculture and if it would fully fund the need of $54.2 million per year.
- Maryland should provide clarification on whether any agricultural implementation is tied to its Agriculture Certainty Program, since adoption and growth of that program has been challenging.

Stormwater

Key Strengths

- Approximately 90% of Maryland's developed land is covered by National Pollutant Discharge Elimination System permits, which provides some level of confidence that reductions can be achieved in this sector over time.
- Maryland recommends that a financial analysis be conducted to confirm sufficient resources are in place to achieve urban/suburban stormwater goals.
- Maryland established dedicated funding mechanisms to support the work of several Phase II Municipal Separate Storm Sewer Systems (MS4s), including Gaithersburg, Rockville, Salisbury, and Takoma Park.
- Maryland modified its MS4 permits to enable permittees to use nutrient trading to achieve pollutant reductions in the urban/suburban stormwater sector to drive innovation across sectors.
- Maryland created two new programs (Clean Water Commerce Act and Water Quality Trading Program) to potentially fund projects in non-regulated MS4 areas.
- Maryland established several programs to assist communities lacking in staffing and technical expertise. For example, grant funding is being used to support five Sea Grant Extension Watershed Specialists and a Regional Watershed Services Manager.

Potential Enhancements

- Maryland should provide further information (e.g., new strategies, legislative programs, incentive programs, compliance programs, funding mechanisms, etc.) on how it will achieve, by 2025, implementation rates of those BMPs that are much higher than current rates, such as stormwater treatment performance standard, extended dry ponds, infiltration practices, erosion and sediment control, and street sweeping.
- Maryland should provide additional information on how implementation in the stormwater sector will increase over time to meet its pollutant load reduction goals. This is consistent with Maryland's recognition that accelerated reductions in the wastewater and agriculture sectors, currently being used to account for the load reduction gap in this sector, will be difficult to sustain post-2025.
- Maryland asserts that regulatory tools are backed by effective compliance and enforcement programs that can implement legal backstops to ensure restoration progress. Maryland should provide additional information on how these regulatory tools will be used in the future to ensure compliance.
- Maryland should develop a timeline for when Maryland's *Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated* guidance document will be completed, since this document is currently being updated.
- Maryland should provide more detail on how the Phase II MS4 permittees will achieve the 20% restoration requirement, given that this is the first permit cycle with this requirement included.
- Maryland should provide additional information (e.g., voluntary programs, funding, technical assistance, etc.) for those BMPs to be implemented on 400 acres of non-regulated urban lands to increase confidence that this goal will be achieved.
- Maryland should provide additional detail on a strategy for enhancing technical assistance delivery in both regulated and non-regulated stormwater. While each county conducted a feasibility analysis to outline implementation that they feel can be achieved by 2025, not much detail was provided as to how this analysis was conducted or how specific BMPs were selected.

Wastewater and Septic Systems

Key Strengths

- Maryland commits to complete Bay Restoration Fund (BRF) Enhanced Nutrient Removal (ENR) upgrades to 67 significant municipal wastewater plants by 2025.
- Maryland continues funding for ENR upgrades for non-significant municipal plants through the BRF.
- Maryland created three programs to incentivize POTWs to achieve concentrations lower than 4 mg/L of nitrogen in wastewater effluent – BRF Operations and Maintenance Grants, the Clean Water Commerce Act, and the Water Quality Trading Program with a goal of achieving 3.25 mg/L by 2025.
- Maryland commits to implement a multi-pronged septic strategy, including continued implementation of septic upgrades through its BRF Septic Fund.
- Maryland passed legislation that makes funding available to county governments that adopt Septic Stewardship Plans.

Potential Enhancements

- The draft Phase III WIP narrative document describes how wastewater will account for the majority of the nitrogen reductions to meet the Phase III WIP planning targets by 2025. However, Maryland's implementation scenario shows that the agriculture sector accounts for most of the nitrogen reductions, followed by wastewater. Maryland should resolve this discrepancy in the final Phase III WIP.

Trading & Offsets

Key Strengths

- Maryland incentivized higher wastewater treatment levels (below 3.0 mg/L of total nitrogen) through water quality trading and the Clean Water Commerce Act through 2021.
- Maryland provides flexibility to MS4 permittees to meet a portion of their restoration requirements through water quality trading.

Potential Enhancements

- Maryland should further explain whether there are sufficient state resources to administer the MS4 trading program.
- Maryland should provide further detail on whether there are tools (e.g., online market place with applications and registration processes) to support the MS4s if trading occurs.

Federal Facilities

Key Strengths

- Maryland demonstrated strong collaboration between Maryland Department of the Environment and Department of Defense (DoD).
- Maryland included the DoD narrative in Appendix E of its draft Phase III WIP document.
- Maryland has been an active participant on the CBP partnership's Federal Facilities Workgroup.

Potential Enhancements

- Maryland should continue to evaluate the content of DoD and other federal agency programmatic and numeric commitments and include this information in the final Phase III WIP.
- Maryland should add federal agencies under "Target Audiences," on page 25 of the draft Phase III WIP document, especially in the context of Phase I and II MS4 permit coordination.

Changing and Local Conditions

Growth

Key Strengths

- Maryland developed its implementation scenarios on 2025 forecasted growth conditions, per the CBP partnership decision, including local land use preservation and protection programs in a Conservation Plus scenario.
- Maryland provided a description of its Land Policy BMPs and confirmed its intent to apply them to reduce nitrogen loads by an additional 85,000 pounds in the final Phase III WIP.
- Maryland extensively collaborated with Maryland Department of Planning and Department of Natural Resources in the development and selection of its Land Policy BMPs.
- Maryland identified the need to maintain reductions post-2025.

Potential Enhancements

- Maryland should provide further detail on its planned implementation of an adaptive growth policy to revisit sector-loading trends and offsets to remain under the Phase III WIP planning targets.

Climate

Key Strengths

- Maryland documented its jurisdiction-specific 2025 numeric climate change loads in the Phase III WIP document, noting its commitments to address those loads starting with the 2022-2023 milestones.
- Maryland provided a comprehensive inventory and associated descriptions of the state and local action plans and strategies to address climate change.
- Maryland commits to designing and siting BMPs that are expected to persist and perform in a changing climate.
- Maryland established the Maryland Climate Leadership Academy to advance the capacity of state and local government agencies, infrastructure organizations, and businesses.
- Maryland commits to establish an emergency dam repair fund and revolving loan dam fund for maintaining critical stormwater infrastructure and dams in response to climate change.
- Maryland commits to explore potential changes to its erosion and sediment control and stormwater programs based upon the outcome of research into how changes in precipitation affect design storms.

Local Engagement Strategies

Key Strengths

- Maryland clearly defined and engaged stakeholders for involvement in Phase III WIP implementation, including county and municipal-level staff, MS4 permittees, soil conservation district staff, local elected officials, and agricultural community leaders.
- Maryland specified lead agencies and organizations for continued local engagement across source sectors, including the importance of utilizing “trusted messengers” to support implementation efforts in the non-regulated stormwater sector.
- Maryland provided information on opportunities across source sectors to engage in Phase III WIP implementation, including targeted education and outreach events.
- Maryland documented capacity and technical assistance gaps and needs by local partners to advance Phase III WIP implementation.
- Maryland provided examples of successful working relationships and models (e.g., Maryland Sea Grant Extension’s watershed restoration specialists and the Maryland Association of Counties) to support Phase III WIP implementation.

Potential Enhancements

- Maryland should provide additional information (e.g., programmatic commitments) on how BMP strategies under each of the county-level plans were developed and planned to be implemented. For example, some plans emphasize a single BMP (e.g., stream restoration), while others have multiple BMPs.
- Maryland should provide more information on proposed strategies to address cited local capacity needs and resource challenges (e.g., BMP maintenance, verification, funding, programs, and accounting) by local partners.

Local Planning Goals

Key Strengths

- Maryland developed local planning goals that are measurable and below the major state-basin scale (i.e., county scale and number of BMPs to be implemented and associated load reductions), following the CBP partnership decision.
- Maryland clearly documented points of engagement with local partners throughout the development of local planning goals.
- Maryland committed to tracking local implementation progress through two-year milestones and annual progress reporting to the CBP partnership.

Potential Enhancements

- Maryland should further clarify its key local partners responsible for implementing the BMPs reflected in the county-level plans.
- Maryland should define the specific tool and process to be used to track and report achievement of local planning goals through the two-year milestones and annual progress submissions.

Segment-shed Goals for the Tidal Jurisdictions

Key Strengths

- Maryland addressed segment-shed goals and targeting in the "Targeting of Impaired Bay Segments" section of Appendix F of Maryland's Phase III WIP document.
- Maryland identified 17 out of 57 tidal segments with dissolved oxygen (DO) impairment exceedances above 1% for summer, open water DO criteria.
- Maryland described that most of the impaired segments have greater nitrogen reductions planned than on average across the tidal segments.

Potential Enhancements

- Maryland could target implementation in the most impaired segments. For example, the Pocomoke Tidal Fresh is by far the most out of attainment of water quality standards, but only 15% nitrogen reductions are planned. This segment-shed influences not only the Pocomoke Tidal Fresh tidal segment, but also downstream tidal segments, such as the impaired Pocomoke Oligohaline.
- Maryland could explore more opportunities in other sectors beyond wastewater for potential nitrogen reductions in the targeted segment-sheds.

Other Comments

Strengths

- The draft Phase III WIP emphasizes "locally-driven" strategies and co-benefits that heavily overlap with those benefits in the 2014 Watershed Agreement. The EPA encourages Maryland to continue its focus on local solutions and implementation to achieve its Phase III WIP planning targets.

Potential Enhancements

- Maryland is reporting cropland irrigation for the first time. However, the Cropland Irrigation BMP Expert Panel report concluded that nutrient reduction benefits cannot be ascertained at this point in time without further long-term research. As a result, Maryland should exercise caution in relying on this practice for attaining its Phase III WIP goals since there is no confirmation that it will result in nutrient reduction crediting for the present time.
- Regarding plans to conduct an inventory of data for BMPs that have already been implemented, it is important that future reporting of this data include accurate implementation and inspection dates, following the CBP partnership's verification protocols. Much of the historic implementation of practices and programs has already been accounted for in the calibration of the CBP partnership's Phase 6 suite of modeling tools through the changes in loads and water quality at monitored locations.
- Jurisdictions agreed to follow CBP partnership-approved BMP verification protocols when developing and implementing the Phase III WIPs. Because Maryland is proposing to increase BMP implementation rates of some BMPs by 10-fold or more in the next seven years, the State should ensure that implementation at this higher rate can be tracked, verified, and reported within that period. Maryland should also evaluate whether the CBP partnership-approved verification protocols should be adjusted to accommodate this increased implementation.
- Maryland should consider changing acres of "Wetland Enhancement" to "Wetland Rehabilitation." The current CBP partnership Wetland BMP Expert Panel expects to recommend elimination of "Wetland Enhancement" as a water quality BMP. Both practices will remain for the next two-year milestone period, but Maryland should not rely on the Wetland Enhancement BMP as part of its implementation scenario.