

EPA EVALUATION OF DELAWARE'S 2018-2019 and 2020-2021 MILESTONES

Executive Summary

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 and implement a framework for holding each partner accountable for reducing nitrogen, phosphorus, and sediment loads to meet water quality standards in the Chesapeake Bay and its tidal tributaries. The CBP partnership established the goal to have all programs and practices in place by 2025 that were necessary to achieve applicable water quality standards in the tidal Bay. Part of the U.S. Environmental Protection Agency's (EPA's) role in the partnership's accountability framework is to evaluate and report each jurisdiction's progress toward meeting this goal every two years.

In that role, EPA has evaluated Delaware's progress toward attaining the goal of having programs and practices in place by 2025. This evaluation includes an assessment of progress toward attaining this goal at the state and state-basin level and progress toward meeting sector-specific programmatic commitments for the 2018-2019 milestone period. This evaluation also provides an assessment of other sector-specific programmatic and numeric commitments (e.g., Best Management Practices or BMP implementation targets) for the 2020-2021 milestone period and the status of the relevant water quality monitoring trends.

In reviewing Delaware's final progress for the 2018-2019 milestones, the 2019 numeric progress, and the 2020-2021 milestones, EPA found areas in which the state achieved the goals it set. EPA also identified key areas to address during the 2020-2021 milestone period and beyond, such as providing programmatic milestones to increase implementation for animal waste management storage, manure transport, grass buffers, and nutrient management rate and timing. According to the data provided by Delaware for the 2019 progress run¹, Delaware achieved its statewide 2019 targets for phosphorus and sediment but did not achieve its statewide target for nitrogen.

Some notable strengths identified in this evaluation of the Delaware 2018-2019 milestones and the 2020-2021 milestones include:

- Developing Standard Operating Procedures for Delaware Nutrient Management Plan Verification for Land and/or Animal Operations that were approved by the Delaware Nutrient Management Commission and supported by EPA.
- Quantifying numeric milestones for the priority BMPs listed in the table below.
- Issuing coverage for 197 Concentrated Animal Feeding Operations (CAFOs) under the National Pollutant Discharge Elimination System (NPDES) CAFO General Permit for Large, Medium, & Designated Poultry Operations with No-Land Application of Manure (GP1).

¹ Each year, jurisdictions in the CBP partnership report on the BMPs installed, tracked and verified and the pollutant load reductions from wastewater treatment plants. Using the Chesapeake Assessment Scenario Tool, this information (or "annual progress runs") provides an estimate of how much nitrogen, phosphorus and sediment has been reduced.

- Issuing the NPDES CAFO General Permit for Large, Medium & Designated Poultry Operations with the Land Application of Manure (GP2) and committing to issue the NPDES CAFO General Permit for Large, Medium, & Designated Non-Poultry Operations (GP3).
- Revising the Sediment and Stormwater Regulations to include an added section for stormwater management offset provisions, fees-in-lieu, trading, banking, and stormwater management offset districts.

Some key areas that EPA recommends addressing during the 2020-2021 milestone period and beyond include:

- Reporting on programmatic actions that will achieve the anticipated BMP implementation rates for the priority BMPs. Programmatic milestones were not provided and/or did not demonstrate an increase in implementation levels for animal waste management storage, manure transport, grass buffers, and nutrient management rate and timing.
- Providing the number of CAFOs registered under GP3 in 2020 and 2021, following the issuance of GP3 in 2020.

Load Reduction Review

When evaluating 2018-2019 milestone implementation, EPA compared nutrient and sediment loads simulated using the 6.0 suite of the CBP partnership's modeling tools and wastewater discharge data reported by Delaware to the statewide and state-basin (Eastern Shore) Phase III WIP planning targets.

According to the data provided by Delaware for the 2019 progress run², Delaware achieved its statewide 2019 targets for phosphorus and sediment but did not achieve its statewide target for nitrogen.

Delaware developed specific BMP implementation targets for the 2020-2021 milestone period. Delaware included numeric targets for the specific BMP implementation targets highlighted in Delaware's Phase III WIP and listed in EPA's evaluation of Delaware's Phase III WIP.

A summary of the 2009 and 2019 progress, the 2020-2021 commitments, and the 2025 goals for the BMPs Delaware selected to achieve the majority of the nitrogen reductions are listed below. The summary progress from the CBP partnership's modeling tools for 2009 and 2019 incorporate BMP credit duration. The CBP partnership decided to remove reported BMPs from the model simulation at the end of their established lifespans unless verified by the state as inspected and continuing to function as designed. Delaware provided some programmatic milestones to support increased implementation for the BMPs listed in the table below. Delaware did not provide programmatic milestones to increase implementation for animal waste management storage, manure transport, grass buffers, and nutrient management rate and timing. Delaware also committed to BMP implementation for urban nutrient management, tax ditches, and forest buffers.

² Each year, jurisdictions in the CBP partnership report on the BMPs installed, tracked and verified and the pollutant load reductions from wastewater treatment plants. Using the Chesapeake Assessment Scenario Tool, this information (or "annual progress runs") provides an estimate of how much nitrogen, phosphorus and sediment has been reduced.

BMP³	2009 Progress	2019 Progress	2020-2021 Milestone Target	2025 WIP Target
Cover Crops (acres)	25,067	40,116	74,738	109,360
Animal Waste Storage - livestock and poultry (animal units, unless otherwise noted)	188,781	676,446	884,176	1,091,906
Nutrient Management – Core Plans (acres)	34,669	136,882	130,936	130,936
Manure Transport (Dry Tons)	14,199	17,388	45,734	74,080
Wetland Restoration – Floodplain (acres)	7,972	4,809	3,000 acres annually	14,173
Soil Conservation and Water Quality Plans (acres)	36,048	166,999	164,916	164,916
Grass Buffers (acres)	2,552	3,628	3,000 acres annually	13,021
Nutrient Management – Rate Nitrogen (acres)	None reported ⁴	None reported	46,213	92,426
Nutrient Management Precision Timing Nitrogen (acres)	None reported	None reported	46,213	92,426

Agriculture

2018-2019 Milestone Achievements

- Issued permit coverage for 197 CAFOs under the NPDES CAFO GP1 for Large, Medium, & Designated Poultry Operations with No-Land Application of Manure.

³ BMP levels are units reported or planned by the jurisdiction. The levels are calculated using the phase 6.0 suite of modeling tools and include everything established or installed, reported, and functioning through the particular year, e.g. through 2009, or through 2019, etc., not just new reported implementation, unless otherwise noted.

⁴ CBP partnership modeling tools evolve based on CBP partnership decisions. As a result, some BMPs have “none reported” listed since those particular BMP names were not available for reporting. These practices were often included in another BMP category before the refinement to be more specific in the naming convention.

- Issued the NPDES CAFO General Permit for Large, Medium & Designated Poultry Operations with the Land Application of Manure (GP2).
- Drafted the NPDES CAFO General Permit for Large, Medium, & Designated Non-Poultry Operations (GP3).
- Developed Standard Operating Procedures for Delaware Nutrient Management Plan Verification for Land and/or Animal Operations that were approved by the Delaware Nutrient Management Commission and supported by EPA.
- Maintained the annual volume of poultry litter transported under its manure transport program.

2018-2019 Milestones Missed

- Did not finalize GP3 during this milestone period.
- Did not achieve its annual inspection goal of 20% of currently permitted CAFOs (inspected 18% in 2018 and inspected 11% in 2019). Delaware expects to increase the numbers of inspections and has a goal for 2020 of inspecting 20% of all currently permitted CAFOs.
- Did not report whether the milestone to inspect 80% of the expiring BMPs was achieved.
- Delaware's milestone called for the collection of soil phosphorus data and did not indicate the year when the phosphorus soil database would be updated with additional soil data. When available, Delaware should share the soil phosphorus data with the CBP partnership for inclusion in the its watershed model. The data can be aggregated to the county scale.

2020-2021 Milestone Strengths

- Secured \$2.9 million dollars for cover crop implementation, which will help achieve the Phase III WIP goal of implementing cover crops on all eligible acres.
- The Sussex Conservation District is advocating for whole-farm conservation plans which will capture all existing BMPs on a farm (including BMPs that are not cost-shared).
- Commitment to bring the percentage of permitted CAFOs to 50% of the known universe by processing an additional 75 applications for permit coverage in 2020 and 75 more in 2021.
- Commitment to meet or exceed 20% of permitted facilities inspected annually, in addition to inspections of new or problem facilities.
- Commitment to reissue CAFO GP1, which expires March 31, 2021, during this milestone period.
- The Delaware Department of Agriculture hired a full-time CAFO inspector in November 2019 in order to increase the number of CAFO inspections performed in 2020-2021.

Key Areas to Address in the 2020-2021 Milestone Period and beyond

- Report on programmatic actions that will achieve the anticipated BMP implementation rates for the priority BMPs listed in the table above. Programmatic milestones were not provided and/or did not demonstrate an increase in implementation levels for animal waste management storage, manure transport, grass buffers, and nutrient management rate and timing.
- The Delaware Department of Agriculture has a goal of capturing supplemental nutrient management practices in annual reporting from the State's producers. Delaware should indicate what data will be provided to EPA to verify nutrient management implementation acres reported to the CBP partnership's watershed model.

- Report information for CAFO GP1, GP2, and GP3 to document and track the number of CAFOs per permit, permit coverage per permit, and schedules for providing coverage/reissuance.
- Register the 21 submitted CAFO permit applications under GP1, following the public notice period in 2020.
- Report the number of CAFOs registered under GP3 in 2021.

Urban/Suburban Stormwater

2018-2019 Milestone Achievements

- Achieved the goal of performing 200 BMP maintenance inspections.
- Provided technical support to its Delegated Agencies to implement the revised Sediment and Stormwater regulations.
- Included an offset section in its revised Sediment and Stormwater regulations.
- Participated in various one-on-one meetings, attended the Municipal Separate Storm Sewer Systems (MS4) consortium, and conducted 5 inspections of the co-permittees to the Phase I MS4 permit in an effort to maintain MS4 compliance throughout the state.
- Achieved its goal to have 50 homeowners sign up for the Livable Lawns program.

2018-2019 Milestones Missed

- Did not finalize the Phase II MS4 general permits.
- Did not issue its industrial stormwater general permit.
- Could not perform sampling of a bioreactor to determine the effectiveness of its use as a future BMPs due to design failure.

2020-2021 Milestone Strengths

- Commitment to providing outreach to homeowners and homeowners associations (HOAs) regarding stormwater BMPs and will install demonstration projects on two religious/civic organization campuses.
- Commitment to increasing its acreage and certified applicators under the Livable Lawns program.
- Commitment to develop an online training program for its Sediment and Stormwater program.
- Commitment to issuing the Phase I MS4 permit for New Castle County and Construction Stormwater general permit by December 2020.

Key Areas to Address in the 2020-2021 Milestone Period and beyond

- Provide more specific programs and strategies to support the increased BMP implementation called for this sector in the Phase III WIP.

Wastewater Treatment Plants and Onsite Systems

2018-2019 Milestone Achievements

Mobile Gardens (non-significant) permit was reissued.

2018-2019 Milestones Missed

None.

2020-2021 Milestone Strengths

Commitment to reissue two Chesapeake Bay significant permits (Seaford and Invista) over the next milestone period.

Key Areas to Address in the 2020-2021 Milestone Period and beyond

- Update milestones to reflect that the Seaford and Invista permits expire October 31, 2020.
- Commit to increase septic connections and denitrification systems.

Growth, Offsets and Trading

2018-2019 Milestone Achievements

Revised Sediment and Stormwater Regulations include an added Section 13.0 for Offsets. Stormwater management offset provisions, fees-in-lieu, trading, banking and stormwater management offset districts have been included in this section of the revised regulations.

2018-2019 Milestones Missed

None.

2020-2021 Milestone Strengths

Delaware's Livable Lawns Program includes the Chesapeake Bay Watershed. Working with conservation partners, Delaware will assess nutrient loads from the urban sector.

Key Areas to Address in the 2020-2021 Milestone Period and beyond

- Track growth from wastewater treatment plants, agriculture and stormwater to determine if loads need to be offset.
- Track projected increases in nutrient loads in the agricultural sector from changes in crops, animals, and/or fertilizer.
- Track stormwater controls under its MS4 Phase II General Permit and individual permit that reduce runoff and nutrient export from new development to pre-development levels.

Natural Sector

2018-2019 Milestone Achievements

- Collected the data needed for the Wetland Condition Assessment Report with the final report expected in 2020.
- Installed 4 acres of tree planting in 2019 in the Cypress Complex of Blackbird State Forest.

2018-2019 Milestones Missed

Milestones related to mapping tax ditches in Delaware were not completed due to loss of key staff. The position was filled in late 2019 and work will proceed into 2020.

2020-2021 Milestone Strengths

- Intent to use a variety of funding sources to implement its forest buffer, tree planting, urban tree canopy and forest harvesting practices goals.
- Intent to update the wetlands maps based on 2017 imagery.
- Intent to analyze and report on trends for wetland gain and/or loss for 2007-2017.

Key Areas to Address in the 2020-2021 Milestone Period and beyond

None.

Other (Communication, Planning and Land Use, Public Lands, Local Planning Goals, Segment-shed Goals for the Tidal Jurisdictions, BMP Verification)

2018-2019 Milestone Achievements

- Installed several green infrastructure BMPs in Laurel, Delaware and is installing a living shoreline in Seaford.
- Participated in numerous outreach events and workshops related to various WIP related activities.
- Maintained an active social media campaign to engage the public in watershed improvement and promote partners activities.

2018-2019 Milestones Missed

Phase 2 of the green infrastructure improvements in the Town of Bethel was not completed due to lack of funding.

2020-2021 Milestone Strengths

- Intent to evaluate its current outreach goals and to incorporate diversity and environmental justice.
- Continues to update and expand the BMP Tracking and Reporting Tool.

Key Areas to Address in the 2020-2021 Milestone Period and beyond

None.

Potential Federal Actions and Assistance

As noted in its Phase III WIP evaluations, EPA remains prepared to assist each of the seven watershed jurisdictions in implementing the 2020-2021 milestones. EPA will work with each jurisdiction to develop specific oversight and assistance activities to provide prioritized support for implementation efforts, including funding, technical assistance and analysis, training, and regulatory reviews.

2009-2018 Monitoring Trends Summary

The CBP partnership's Chesapeake Bay Program Nontidal Water Quality Monitoring Network, supported by EPA, the U.S. Geological Survey (USGS), the Susquehanna River Basin Commission (SRBC), and the Bay jurisdictions, generates water quality monitoring data in freshwater rivers and streams throughout the watershed that is analyzed by USGS for nutrient and sediment loads and trends. The most recent USGS results (<https://cbrim.er.usgs.gov/summary.html>) over the period of 2009-2018 were made available in March 2020. While identifying drivers behind individual trends is often complex, the monitoring results are worthy of Delaware's consideration as it develops the programs and BMPs planned for the next two years. EPA's initial summary of how the monitoring results in Delaware watersheds can potentially inform planning are below.

- Of the three monitored stations to which Delaware's watershed contributes, all are degrading for both nitrogen and phosphorus. These watersheds are all high-loading areas within the

Chesapeake Bay watershed and implementing efforts in these high loading areas can potentially yield the greatest nutrient reduction benefits.

- All of Delaware's monitored watersheds are agricultural. While more information would be needed to determine what is driving individual trends, agricultural areas should be a continued focus for both nitrogen and phosphorus.
- Additional exploration of these trends can help elucidate what may be sources and drivers, which can in turn help inform adaptation of programs, policies, or practices.
- While groundwater can contribute to a delayed response in nitrogen levels, phosphorus loads are most associated with overland runoff. The degrading phosphorus trends at these monitored stations suggest that the Eastern Shore continues to be important places to focus implementation.