Report of the Virginia Secretary of Natural and Historic Resources

2025 Chesapeake Bay and Virginia Waters Clean-Up Plan

To the Governor and the Chairs of the Senate Agriculture, Conservation and Natural Resources Committee; the House Agriculture, Chesapeake and Natural Resources Committee, the Senate Committee on Finance and Appropriations; and the House Committee on Appropriations

Contents

Preface

This Chesapeake Bay and Virginia Waters Clean-Up Plan Report was developed to comply with consolidated water quality reporting requirements set forth in § 62.1-44.118 of the *Code of Virginia*. This section requires the Secretary of Natural and Historic Resources to submit a progress report on implementing the impaired waters clean-up plan as described in § 62.1-44.117 of the *Code of Virginia*. This consolidated report also includes the *"Annual Report on the Water Quality Improvement Fund"* by the Department of Conservation and Recreation (DCR) and Department of Environmental Quality (DEQ) pursuant to § 10.1-2134 of the *Code of Virginia* and incorporates the reports on "*Cooperative Nonpoint Source Pollution Programs"* required in subsection D of § 10.1-2127 and the *"Watershed Planning and Permitting Report"* required in subsection B of § 10.1-1193 of the *Code of Virginia*. The report also encompasses DCR's report of *"Annual Funding Needs for Effective Implementation of Agricultural Best Management Practices"* pursuant to subsection C of § 10.1-2128.1 of the *Code of Virginia*. The 2025 report includes the "*Water Quality Improvement Fund Requests Estimate Report"* required by § 10.1-2134.1 of the *Code of Virginia* and the "*Stormwater Local Assistance Fund Requests Estimates Report*" required by § 62.1-44.15:29.2 of the *Code of Virginia*. This consolidated report also includes the "*2014 Chesapeake Bay Watershed Agreement Progress Report: State of the Chesapeake Bay Program Report to the Chesapeake Bay Executive Council*," as required in § 2.2-220.1. This consolidated report also addresses Item 361.A. originally required by the 2018 Special Session I Budget.

Executive Summary

The Commonwealth's Progress on Federal Planning Targets

The Commonwealth has made significant and substantial progress towards meeting the Chesapeake Bay Total Maximum Daily Load (TMDL). Virginia's reported pollution controls achieved 100% of the 2025 federal planning target reduction goal for sediment, 91% of the reduction goal for nitrogen, and 97% of the reduction goal for phosphorous according to the Chesapeake Bay Program highlighting modeled pollution load estimates generated through the 2023 version of the Chesapeake Assessment Scenario Tool (CAST-23) of the Watershed Model. Virginia's reported pollution controls achieved 100% of the 2025 Phase III Watershed Implementation Plan (WIP) milestone for sediment, 84% reduction for nitrogen, and 91% reduction for phosphorous. See the Chesapeake Bay Total Maximum Daily Load Implementation section of this document for additional information. Furthermore, modeled pollutant load estimates for phosphorous will be even lower once the model is adjusted to account for 2011 legislation (HB 1831 and SB 1055, 2011 Va. Acts Chs. 341 and 353) that limited the sale, distribution, and use of lawn fertilizer containing phosphorous in Virginia after December 31, 2013. Based on evaluation by the Department of Environmental Quality (DEQ), the modeled pollutant load reduction for phosphorous in Virginia could be on the order of 100% of the federal planning target when adjusted for the reductions achieved by the 2011 law change and 2010 WIP requirement to eliminate phosphorous in most lawn fertilizers. However, the modeling tools utilized by the Environmental Protection Agency (EPA) Chesapeake Bay Program Office will not be updated to reflect the phosphorus load reductions from Virginia's legislative fertilizer restrictions until the next round of modeling updates, which are currently scheduled to be released in 2028.

Chesapeake Bay and Virginia Waters Clean-Up Plan Report

The Chesapeake Bay and Virginia Waters Clean-Up Plan Report articulates Fiscal Year (FY) 2025 activities and progress on implementing the impaired waters clean-up plan, including progress outlined under Virginia's Chesapeake Bay Watershed Implementation Plan (WIP). During FY 2025, many strategies were implemented in the Commonwealth to reduce pollutants entering the Chesapeake Bay tributaries and Southern Rivers basins. Significant progress was made in reducing point source pollutant discharges from sewage treatment plants, installing agricultural best management practices (BMPs) with a continuing focus on livestock exclusion practices, and implementing revised Stormwater Management Regulations. Virginia agencies submitted 2024-2025 interim progress reports demonstrating progress in the Chesapeake Bay Clean-Up for the WIP milestones period.

In FY 2025, DEQ made significant progress on the development of Total Maximum Daily Load (TMDL) equations in complex watersheds addressing polychlorinated biphenyls (PCBs), sediment, and nutrients, and is in the process of obtaining EPA approval on 31 new TMDL equations. DEQ completed three TMDL implementation plans covering 24 waterbody impairments. BMP data reported by the Nonpoint Source (NPS) program is delayed by one fiscal year due to the limited availability of BMP data at the time of the Clean-Up Plan reporting deadline. In FY 2024, a total of 237 small implementation watersheds saw BMP activity resulting in 7,259 BMPs installed.

Water Quality Improvement Fund and Cooperative Nonpoint Source Pollution Programs

For FY 2025 (the period July 1, 2024 – June 30, 2025), the Virginia Soil and Water Conservation Board allocated $152.6 million in agricultural cost-share and nearly $24.2 million in technical assistance funds to Soil and Water Conservation Districts (SWCDs or Districts). An additional $60.5 million, including associated technical assistance funds, was set aside for Districts that implemented the Whole Farm Approach. For FY 2025 and FY 2026, $2 million is available for the Conservation Reserve Enhancement Program (CREP) cost-share funds for disbursement to Districts as state match for new projects. Practices installed on farms during FY 2025 will result in an estimated edge-of-field nitrogen reduction of approximately 14.1 million pounds, phosphorus reduction of approximately 4.6 million pounds, and sediment reduction of approximately 1.4 million tons.

Under the Water Quality Improvement Fund (WQIF) Point Source Program, since 1998, 107 point source WQIF grant agreements obligating $1.04 billion have been signed. The construction project grants range from 35% to 95% cost-share for the design and installation of nutrient reduction technology and wastewater conveyance infrastructure at Chesapeake Bay watershed point source discharges. WQIF point source grants provide critical support for compliance with the nutrient discharge control regulations and achieving Chesapeake Bay nitrogen and phosphorus wasteload allocations (WLAs). Ninety-two of the projects have been completed and are operational. For calendar year 2024, facilities registered under the Chesapeake Bay Watershed Nutrient Discharge General Permit reported discharged loads that, in the aggregate, were significantly below the total WLAs currently in effect for all Chesapeake Bay tributary

basins. Tables of discharged and delivered loads for each individual facility and basin totals are available online from DEQ.

With nonpoint source funding made available through the WQIF, along with matching funds, DEQ has worked with local government and state agency partners to implement a wide range of actions to reduce nonpoint source pollution that contributes to water quality problems.

Funding Needs for Effective Implementation of Agricultural Best Management Practices

The funding projections for the effective implementation of best management plans were determined using a revised formula for FY 2025 and were updated for inflation in FY 2025. These projections for the Chesapeake Bay were developed based on a detailed analysis of practices identified in the Chesapeake Bay Phase III WIP. This included a review of progress made in implementing the WIP through 2024 and assumes the practices included in the WIP are implemented.

For FY 2025-2032 a revised estimate of over $1.7 billion may be required from state and federal funds as well as farmer financial contributions to meet water quality goals. Approximately 46% of this total (nearly $791 million) could be needed from state sources, the vast majority of which is direct funding of the Virginia Agricultural Cost-Share (VACS) Program and support for Districts that implement the VACS program.

Actual FY 2025 allocations from state sources for implementation of agricultural BMPs had the following breakdown:

FY 2025 (Program Name – amount):

VACS Program - $237.5 million; this includes technical assistance funding provided to the Districts as well as funding for implementation of the Whole Farm Approach in certain Districts

District Technical Assistance - $31.3 million; this includes funding set aside for implementation of the Whole Farm Approach in certain Districts

District Financial Assistance - $12.8 million

FY 2025 support figures exclude engineering support via DCR staff, IT support, and training assistance (*e.g.*, Conservation Planning Certification). These have been itemized separately.

Projected funding needs from state sources for implementation of agricultural BMPs through FY 2025-2030 are estimated in the 2025 Agricultural Needs Assessment Table on page 71. A comprehensive review of the VACS Program that began in 2019 has led to improved program efficiency, increased flexibility in agricultural practice standards and specifications, and other significant programmatic revisions. Additional efforts are focused on methods to improve tracking of voluntarily installed practices and bundling several practices into one VACS application.

Chapter 1 - Chesapeake Bay and Virginia Waters Clean-Up Plan Report

This chapter is submitted to fulfill the progress reporting requirements of § 62.1-44.117 and § 62.1-44.118 of the *Code of Virginia,* which calls on the Secretary of Natural and Historic Resources to plan for the clean-up of the Chesapeake Bay and Virginia's waters designated as impaired by the U.S. Environmental Protection Agency (EPA). This chapter also incorporates the reports on "*Cooperative Nonpoint Source Pollution Programs"* required in subsection D of § 10.1-2127 and the *"Watershed Planning and Permitting Report"* required in subsection B of § 10.1-1193 of the *Code of Virginia*.

Upgrades to wastewater treatment facilities in the Chesapeake Bay watershed

2025 Progress Report

Nutrient load reductions from the point source sector have been the most reliable reductions achieved under the Chesapeake Bay Total Maximum Daily Load (Bay TMDL). Significant dischargers, and in certain circumstances non-significant dischargers, are regulated under the General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorous discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (Chesapeake Bay Watershed General Permit). The general permit includes wasteload allocations (WLAs) and schedules of compliance when necessary to phase in treatment facility upgrades. The general permit also allows point sources to trade nutrient credits so that facility upgrades can be phased in over several years while still meeting Bay TMDL nutrient reduction goals. The permit was first issued on January 1, 2007 and reissued on January 1, 2012, January 1, 2017, and January 1, 2022. Upgrades implemented to date have reduced the annual point source nutrient load delivered to the Chesapeake Bay and tidal rivers by approximately 9.93 million pounds of nitrogen (52% reduction) and 658,488 pounds of phosphorus (47% reduction) compared to the 2007 loads.

The current Chesapeake Bay Watershed General Permit includes additional nutrient reductions for significant dischargers in the James River basin (nitrogen and phosphorus), consistent with the Bay TMDL. Point source nutrient loads are dominated by the James River facilities that accounted for 75% of the statewide point source nitrogen loads and 80% of the statewide point source phosphorus loads in 2024. Delivered nutrient loads from point sources in the James River basin declined by 1% for nitrogen (74,812 pounds) and increased by 11% for phosphorus (56,267 pounds) since 2021.

Appendix X of the Bay TMDL identified two phases of additional total nitrogen (TN) and total phosphorous (TP) reductions necessary in the James River Basin to meet, initially, the dissolved oxygen (DO) criteria, and ultimately the chlorophyll-*a* criteria which were in effect at the time. Appendix X to the Bay TMDL provided a staged implementation strategy to give the Commonwealth time to identify what additional point source reductions would be necessary to meet water quality criteria for chlorophyll-*a* in the tidal portions of the James River Basin. DEQ took the opportunity provided by the staged implementation schedule to further evaluate and refine the existing chlorophyll-*a* criteria.

On September 20, 2018, the State Water Control Board approved DEQ to proceed with the public hearing and comment period on amendments to the Water Quality Standards Regulation (9VAC25-260-310 (bb)), addressing the numeric chlorophyll-*a* criteria applicable to the tidal James River. The proposed amendments were the outcome of a seven-year-long effort to update the regulation with the best available science, evaluate the protectiveness of the current criteria, determine if revisions were appropriate, as well as modify the methods used to assess criteria attainment. The new criteria and assessment method take into consideration the recommendations of a scientific advisory panel (SAP) and a regulatory advisory panel (RAP). The final chlorophyll criteria amendments were presented to the State Water Control Board for adoption at its June 27, 2019 meeting, with additional text included in response to comments received, to describe additional lines of evidence that would be examined to render an appropriate assessment determination for the aquatic life use if "back-to-back" seasonal mean exceedances were to occur. EPA subsequently approved the new James River numeric chlorophyll criteria, and they became effective on January 6, 2020.

In addition, during the James River chlorophyll study, an enhanced water quality model was developed to simulate chlorophyll concentrations in response to varying levels of point source nutrient reduction. Through the spring and into the early summer of 2020, the model was updated with adjusted climate change factors, and a set of point source nutrient reduction scenarios was re-run to test chlorophyll criteria attainment. Results indicated that water quality conditions protective of the revised chlorophyll criteria can be attained with the point sources controlling total phosphorus to near state-of-the-art treatment levels. Numerous scenarios evaluating various levels of phosphorus reductions in the tidal fresh and free-flowing portions of the James River were evaluated by DEQ with input from a RAP. In December 2020, the State Water Control Board authorized DEQ to publish a notice of public comment and hold a public hearing on Scenario “3-B(i),” which reduces phosphorus WLAs for six publicly owned treatment works (POTWs) and one industry discharging to the tidal freshwater estuary in order to meet the newly adopted chlorophyll-*a* water quality criteria. The reduced phosphorus WLAs were subsequently approved by the State Water Control Board in December 2021 following a public hearing and comment period.

The Water Quality Management Planning (WQMP) Regulation (9VAC25-720) amendments authorized for public notice in December 2020 also included the implementation of floating WLAs for 36 significant municipal wastewater treatment plants (WWTPs). The floating WLAs were proposed to meet the commitment to achieve additional nutrient reductions from the wastewater sector included in Initiative #52 of Virginia’s Chesapeake Bay TMDL Phase III WIP. The floating WLA approach was subsequently superseded by HB 2129 and SB 1354, which were enacted following Special Session I of the 2021 General Assembly (2021 Special Session I Va. Acts Chs. 363 and 364). HB 2129 and SB 1354 eliminated the floating WLA concept and established the Enhanced Nutrient Removal Certainty (ENRC) Program. The ENRC Program includes established schedules for nutrient upgrades and/or consolidation projects at 13 POTWs and reduced WLAs at seven Hampton Roads Sanitary District treatment plants in the James River and York River Basins. The State Water Control Board approved amendments to the WQMP Regulation (9VAC25-720) to incorporate the reduced WLAs in June 2021. The General Assembly expanded the ENRC Program to include the expansion and upgrade of the Fredericksburg WWTP with the passage of HB 1067 and SB 355 in the 2022 Session (2022 Va. Acts Chs. 127 and 128).

TMDL development and implementation for waters impacted by toxic contamination

2025 Progress Report

Bluestone River: The Virginia portion of the Bluestone River watershed has impairments for Polychlorinated Biphenyls (PCBs) in fish tissue and violations of the total PCB water quality criterion in water. To address these impairments, Virginia and West Virginia are collaborating on the development of an interstate PCB TMDL. High PCB concentrations detected in the water column during an earlier multistate collaborative TMDL source investigation study triggered an EPA study and a cleanup effort. For example, a former Superfund site known as Lin Electric was remediated for extremely high levels of PCBs in sediment/sludge. Beginning in 2016, Virginia performed a PCB source identification component of a TMDL study that included instream monitoring during base flow and high flow conditions. The EPA Superfund program followed with additional monitoring in 2021 at a site known as the Bluefield Beacon PCB Groundwater Site in Bluefield, West Virginia. The results, which were reported in 2023, corroborated DEQ's findings that suggest PCBs are likely originating from West Virginia. In 2024, DEQ began the planning process for the development of the TMDL project. Data analysis and planning for model development continues.

Elizabeth/tidal James Rivers: A PCB fish consumption advisory extends from the fall line in Richmond to the mouth of the James River, and includes the Elizabeth River and its tributaries. A PCB TMDL, currently under development and scheduled for completion in 2026, will establish reductions needed to meet the fish consumption use threshold within these impaired waters. A large component of the TMDL includes a PCB source investigation study, also currently under development, that will tabulate PCB sources from each category, from which allocations and reductions will be assigned. Example categories consist of point sources such as industrial and municipal outfalls, regulated stormwater from urbanized areas as well as known PCB-contaminated sites. Contaminated sediment, contributions from atmospheric deposition, and PCB loads from above the fall line are also considered for this study. A PCB fate and transport model will be utilized by the Virginia Institute of Marine Science (VIMS) to link available PCB sources to the contaminated fish. PCB loadings from the upstream (non-tidal) James River, which is currently under development, are vital to completing this study.

James (non-tidal)/Jackson/Maury Rivers: The non-tidal James River basin is located in Central Virginia. Five river segments were listed for PCB fish consumption advisories beginning in 2004 with the most recent occurring in 2020. Initial TMDL studies to delineate the geographic distribution and possible sources of the PCB contamination began in 2017 and continued through 2019. The purpose of this intensive monitoring effort was to identify sources of PCBs throughout the impaired watershed in addition to informing the fate and transport of PCBs to assist with the TMDL model development. TMDL development was completed in 2025 and presented to the State Water Control Board. After executive review, the TMDL will be submitted to EPA for final approval.

Levisa Fork: A PCB TMDL was completed in April 2010 for the Levisa Fork watershed, which is part of the Tennessee/Big Sandy River basin. Since PCB monitoring had not revealed a viable source(s) of the

contaminant, the study was submitted to EPA as a phased TMDL. The Virginia Department of Energy developed an EPA-approved monitoring plan to evaluate PCBs, total suspended solids (TSS), and total dissolved solids (TDS). Funding to support monitoring was limited, and PCB monitoring was de-prioritized to concentrate efforts on monitoring of TSS and TDS for completion of the phased TMDL. Existing monitoring results for instream concentrations suggest focusing future PCB monitoring on Dismal Creek and Slate Creek will aid in TMDL implementation. Pollutant minimization plans (PMPs) are utilized as part of Virginia Pollutant Discharge Elimination System (VPDES) permits to attain reductions at applicable facilities that were assigned a PCB wasteload allocation (WLA) under the TMDL.

Lewis Creek: Lewis Creek is in the Potomac-Shenandoah River Basin in western Virginia. The impaired segment of Lewis Creek was first listed for fish consumption advisories in 2004. Initial TMDL studies to delineate the geographic distribution and possible sources of the contamination were performed in 2017 and continued into 2019. The results were used to identify sources of PCBs throughout the study watershed and inform the fate and transport model. The TMDL was completed and approved by EPA in early 2022. A former metal recycling site identified as a significant source of PCBs within the TMDL is scheduled for additional remediation efforts during 2025.

Mountain Run: The Mountain Run PCB impairment extends from the Route 15/29 bridge crossing near Culpeper, approximately 19 miles to the confluence with the Rappahannock River. This waterbody was listed in 2004, although PCB contamination was originally identified during studies performed back in the 1970s. PCB monitoring was initiated in 2013 as part of the source investigation study for TMDL development. Additional rounds of monitoring also occurred during 2014, 2015, 2018, and 2021 with the results pointing toward the identification of possible source areas in the Culpeper area, as well as an old waste disposal site. DEQ has completed TMDL development and received final approval from EPA.

New River: The New River, beginning at the I-77 bridge and extending to the West Virginia line, has been the focus of an extensive PCB source investigation study due to fish consumption use impairments. The study was initiated in 2010 and included several iterations of ambient river PCB monitoring within the impairment. Large tributaries such as Peak Creek have also been investigated. In addition, PCB monitoring of permitted VPDES facilities has occurred along with the identification of other prospective sources such as contaminated sites, atmospheric deposition, and contaminated sediment. The TMDL that was developed to restore the fish consumption use was completed during the summer of 2018. As allowed by available resources, DEQ intends to develop a TMDL implementation approach to identify and reduce PCB loadings from nonpoint source TMDL categories with an emphasis on the “Uncategorized” category. Additionally, VPDES permits that were assigned WLAs within the TMDL continue to implement the PMPs as applicable.

North Fork Holston River: The North Fork Holston River mercury TMDL was completed in 2011. A fish consumption advisory for mercury extends approximately 81 miles from Saltville to the Tennessee state line. While most of the mercury in the river originated from the Olin plant site, this contaminant has been distributed throughout the floodplain downstream. The TMDL identified that most of the current mercury loadings come from the watershed and floodplain with lesser amounts from the former plant site.

Dating back to 2018, under the authority of the Superfund Program, EPA performed additional instream mercury monitoring to reassess the mercury loadings from the former Olin plant site. There are indications that additional mercury loads not originally captured in the TMDL may be coming from the contaminated site. As such, EPA is in the process of reviewing updated information to determine future remedial steps at the former Olin site. Moreover, the TMDL could be updated to reflect the new information.

Potomac River: A multi-jurisdictional PCB TMDL was completed in 2007. TMDL implementation activities have been ongoing within the Virginia embayments with focus on the VPDES municipal wastewater treatment facilities that discharge to the tidal Potomac River embayments. These facilities have monitored for the presence of PCBs and are utilizing PMPs to implement reductions where they are needed to meet the assigned TMDL WLAs.

Roanoke (Staunton) River: A PCB TMDL was completed in 2010 for the Roanoke River that included drainage areas from the headwaters and extended as far downstream as the Dan River (Kerr Reservoir). The Roanoke River TMDL source investigation study identified two noteworthy PCB sources in the downstream (Staunton River) portion of the river. One facility successfully eliminated 10% of the ongoing PCB load to the river by identifying, treating, and eliminating the source. TMDL implementation continues at the other significant source where site modifications are underway to address the contamination. A PCB monitoring requirement is also applicable for an extensive list of VPDES permits throughout the watershed. Moreover, the permitted facilities with existing loads greater than the assigned WLA have submitted PMPs to address the PCB contamination. PMP implementation will continue until appreciable PCB reductions identified within the TMDL are achieved.

South and Shenandoah Rivers: The South River and Shenandoah River mercury TMDL was completed in 2010. The South River has a fish consumption advisory that extends about 150 miles from Waynesboro to the West Virginia state line via the South River, the South Fork Shenandoah River, and the mainstem Shenandoah River. The primary source of mercury deposited in the river and floodplain was from releases that occurred during the 21 years that DuPont used mercury in the production of rayon at the facility (1929-1950) in Waynesboro. Atmospheric deposition was not identified as a significant mercury source. Fish tissue data from a reference site upstream of the former DuPont plant site shows safe mercury levels, while fish tissue samples below the plant contain elevated amounts of mercury.

Mercury levels in fish tissue from this portion of the river have not shown a decline since the mercury was discovered in the river in 1976. Remediation and restoration efforts to reduce or eliminate mercury contamination continue through DEQ's TMDL and Resource Conservation and Recovery Act and Natural Resource Damage Assessment (NRDA) regulatory programs, and a significant non-regulatory, science-based initiative through the South River Science Team that has been in place since 2000. As part of a $50 million settlement approved by a federal court in August 2017, DuPont has agreed to mitigate the environmental harm, including water quality, caused by the mercury contamination. Corrective actions on the DuPont site, which included soil removal, capping, sewer abandonment, cleaning, and lining, were completed in October 2021, and the Corrective Measures Implementation Report was approved by DEQ on June 15, 2022.

Ongoing offsite activities have included bank stabilizations and soil removal and capping. Remediation has been completed in the first two miles of river with the completion of removals and bank stabilization of 4,000 feet of riverbank. Modeling predicts this work will reduce mercury loading from the riverbanks in this part of the river by 90%. Monitoring is occurring to assess the effectiveness of this work on reducing mercury concentrations in the river and biota. Preliminary data is showing decreases in young of the year smallmouth bass mercury concentrations. During the reporting period, investigations have continued with an evaluation of the riverbanks two to four miles downstream of the former DuPont facility for potential remediation activities. NRDA activities to date have included land protection, habitat restoration, bank stabilizations, stream exclusion and animal waste control projects, mussel restoration, and improving and creating new access for recreational fishing.

Dan River Coal Ash Spill and State Response

On February 2, 2014, about 39,000 tons of coal ash and 25 million gallons of ash storage pond water were released into the Dan River from the Duke Energy facility in Eden, North Carolina. Coal ash is the residue generated from burning coal and is typically stored at power plants or placed in landfills. Coal ash has a large variety of components – mostly silicon oxide, iron oxide, and aluminum oxide, with trace amounts of arsenic, selenium, mercury, boron, thallium, cadmium, chlorides, bromine, magnesium, chromium, copper, nickel, and other metals.

EPA, DEQ, U.S. Fish and Wildlife Service, North Carolina Department of Environmental Quality, and Duke Energy conducted emergency response monitoring to detect any acute effects to aquatic life over the following 10-12 months. Analytical results for water samples taken by DEQ staff at four river and two reservoir stations located in Virginia's portion of the Dan River showed no exceedances of water quality standards for the protection of aquatic life. Sediment taken from the same locations showed elevated levels of trace metals, but not above any freshwater ecological screening levels that DEQ uses to indicate potential concerns. In addition to the emergency response environmental monitoring, to protect human health, the Virginia Department of Health (VDH) was involved in finished drinking water testing with the localities that draw their water from the Dan River (Danville, South Boston, and Clarksville). All finished water met state and federal drinking water standards throughout the emergency.

Following the release, the ash was distributed by river flow over the entire length of the Dan River and into Kerr Reservoir, a distance of about 70 miles. Longer-term environmental monitoring, aimed at detecting any trends in sediment or water column concentrations of trace metals associated with the ash, was done from 2015 to 2017. This trend monitoring plan was composed of several elements (Figure 1.1):

- Monthly water column and sediment sampling at four river stations and two Kerr Reservoir stations.
- Fish tissue collection at eight sites, once at each location annually, during the period September - October.
- "Boatable Probabilistic" monitoring (habitat, macroinvertebrates, fish community structure, and expanded chemical testing) at two stations; sampling done annually in late summer.

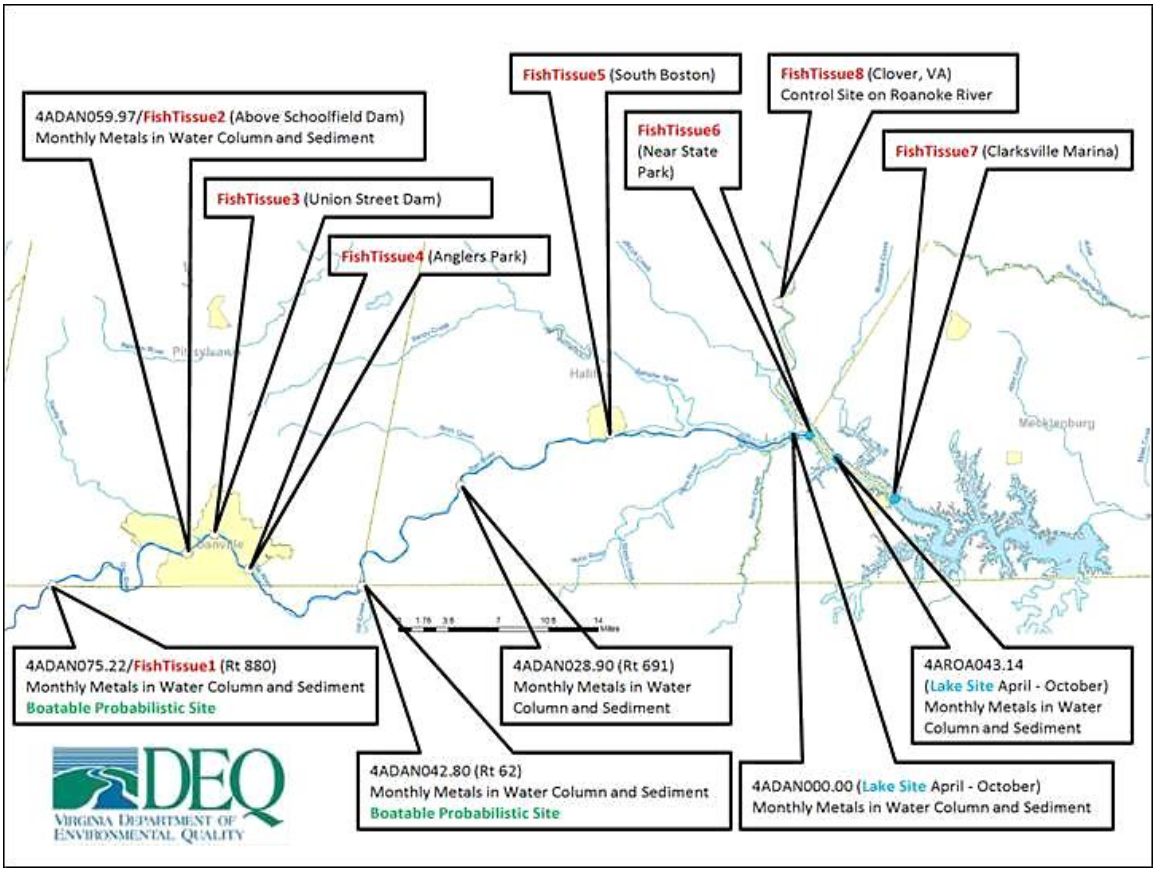

Figure 1.1: Map of Dan River Monitoring Program Sites

Because the accumulated results indicate that impacts were minimal and trends were essentially in a positive direction (*i.e.*, decreasing concentrations), the Dan River monitoring program was scaled back to a few sentinel sites periodically sampled for sediment and water column metals levels. Fish tissue collection continued at a slightly expanded scope, with the addition of five more stations located within the larger Roanoke and Yadkin River basins, under a five-year grant (through 2022) from the National Fish and Wildlife Foundation (using a portion of the penalty settlement funds paid by Duke Energy to the federal government).

Following is a summary of the results from the monitoring program from 2014 through 2022:

- Sediment monitoring occurred from 2014 to 2017 only. Sediment metals levels remained low, below thresholds of potential concern, and the ash continued to be mixed with and covered by native sediment to non-detectable levels in the biologically active layer throughout the river.
- Water column dissolved metals monitoring occurred from 2014 to 2017 only. Water column dissolved metals levels remained below water quality standards for both aquatic life and human health protection.

- Fish tissue collection and analysis has been completed for all samples taken (962 total) from 2014 through 2022. Lab results indicate that uptake by fish does not appear to be a concern for metals associated with the coal ash. There were no major differences or significant variations across the nine years of monitoring, except for chromium in the 2017 results. There was a notable uptick in the number of samples in which chromium was detected above the Method Detection Limit of 0.01 parts per million (ppm), but only one concentration in 160 samples was above the Practical Quantification Limit of 0.50 ppm. Even with this result for chromium in 2017, the reported concentrations of all the metal analytes were below DEQ's screening values for levels of concern. However, for fish taken in the region of the river where there is an existing consumption advisory due to legacy mercury contamination not associated with the Duke Energy release, the need for the advisory was confirmed.

- The uptick in chromium concentration observed during the 2017 monitoring season was not present in 2018-2022.

- Routine water column and fish tissue samples will continue to be collected in the Dan River watershed as part of the agency's annual monitoring plan. Fish tissue samples are planned for collection once every three years.

Regarding state-level compliance actions, at its June 25, 2015 meeting, the State Water Control Board approved an enforcement Consent Order negotiated with Duke Energy that included a $2.5 million settlement. Under the Order, Duke Energy agreed to undertake $2.25 million in environmental projects that benefit Virginia localities affected by the spill. The remaining $250,000 was placed in a fund DEQ uses to respond to environmental emergencies.

The monitoring data was used in a basin-wide Natural Resources Damage Assessment and Restoration (NRDAR) process led by the Dan River Natural Resource Trustee Council, a group composed of state and federal natural resources trustees. The Council finalized an early-restoration plan and solicited public input on specific projects that Duke Energy could undertake for environmental improvement and enhancement in the Dan River basin. A report entitled "Restoration Plan Environmental Assessment for the Dan River Coal Ash Spill" was released for public review in April 2019 and was finalized in June 2019. This report provides information on quantifying the injuries to natural resources and resource services (*e.g.*, human recreation) resulting from the ash release, as well as a summary of restoration alternatives that have either been completed or are underway, including:

- Mayo River Park Expansion and Land Protection – land along the Mayo River corridor was conserved and transferred to the State Park Systems in North Carolina (404 acres) and Virginia (214 acres).

- Pigg River Power Dam Removal – this defunct dam was removed, reopening 75 miles of river to protect federal, state, and local trust resources, including the Roanoke Logperch, the Trout Heritage Waterway, and a historic dam powerhouse. The dam removal was the last obstacle to completing Franklin County's Pigg River Blueway. Environmental monitoring is ongoing to assess the effect dam removal has on the watershed.

- Abreu-Grogan Park Improvements – completed; added a bathroom, deck, handicap access pier, bank stabilization, and other enhancements to expand river-centered opportunities for public recreation and wildlife viewing.
- Public Boat Ramp (location to be determined, planning in progress) – this will improve recreational access to the Dan River for motorboats, canoes, and kayaks.

The proposed NRDAR Consent Decree was lodged with the federal court on July 19, 2019. The Trustees held two information sessions regarding the Restoration Plan on August 6, 2019 and August 7, 2019 in Danville, Virginia and Eden, North Carolina. The sessions provided an overview of the proposal and projects and were held in conjunction with the public comment period for the proposals. Approximately 15-25 citizens attended each event, with one media outlet at each session. On September 21, 2020, the Trustees filed a Motion to Enter the Consent Decree with the court for final approval.

Regulation and Management of Coal Ash Impoundments in Virginia

In response to the Eden, North Carolina coal ash release into the Dan River, DEQ conducted a review of coal ash impoundment operations along Virginia's waterways. EPA had previously concluded a review of the structural integrity of Virginia's coal ash impoundments in 2013. None of the units were found to have an unsatisfactory rating.

There are currently 17 active coal ash impoundments located at nine facilities. The map below identifies the locations and owner/operators of these units. DEQ shares regulatory oversight with DCR, with DCR having statutory authority over the permitting, operation, maintenance, and decommissioning of impoundment berms under its Dam Safety Program.

Coal Ash Impoundments in Virginia

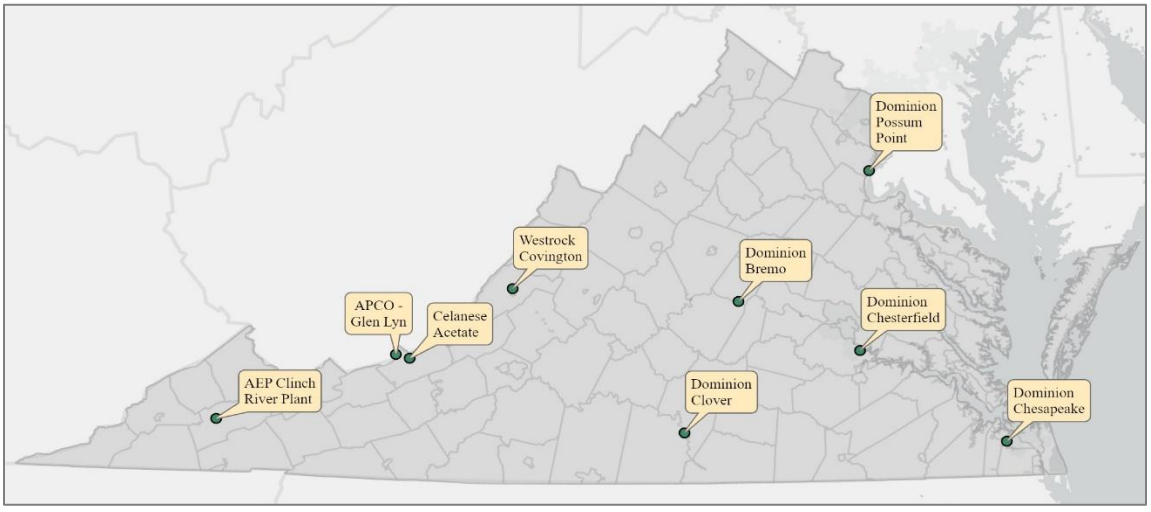

Figure 1.2: Map of Coal Ash Impoundments in Virginia

EPA's final rule on the Disposal of Coal Combustion Residuals from Electric Utilities became effective on April 17, 2015. The federal requirements were adopted into Virginia's Solid Waste Management Regulations effective January 27, 2016. The state and federal rules require closure or retrofit of existing wet ash handling impoundments at six electric generating utilities in Virginia (American Electric Power's Clinch River Plant and Dominion's Clover, Bremo, Possum Point, Chesterfield and Chesapeake Plants) (Figure 1.2). Additionally, the General Assembly passed legislation regarding the closure of coal ash units (including impoundments) in the Chesapeake Bay Watershed. HB 2786 and SB 1355 (2019 Va. Acts Chs. 650 and 651), effective July 1, 2019, require that coal ash impoundments at power stations in the Chesapeake Bay Watershed (Bremo, Chesterfield, Chesapeake, and Possum Point) must be closed by removal and the coal ash either recycled or disposed of in a modern, lined landfill. Additionally, the legislation requires that a minimum of 6.8 million cubic yards must be recycled from at least two of the four sites. The legislation also includes additional requirements related to transportation, public water connection, and continued efforts to recycle. The General Assembly passed additional legislation regarding the closure of coal ash units (including impoundments) located in Giles and Russell counties. House Bill 443 (2020 Va. Acts Ch. 563), effective July 1, 2020, requires that coal ash units at power stations in Giles and Russell counties (Clinch and Glen Lyn) must be closed by removal and the coal ash either recycled or disposed of in a modern, lined landfill, unless all units completed closure prior to January 1, 2019. The legislation also includes additional requirements related to transportation, public water connection, and continued efforts to recycle.

In response to these requirements and to facilitate unit closures, VPDES permits have been issued for the drawdown and dewatering of the AEP Clinch River, Dominion Bremo, Chesterfield, and Possum Point facilities. The VPDES permits include monitoring requirements, limitations for whole effluent toxicity and metals associated with coal combustion residuals, and other necessary conditions. Closure of the ash impoundments also includes DEQ oversight through waste permitting requirements including plan reviews, groundwater and surface water monitoring, post-closure care requirements, and other necessary conditions.

Impoundments at the AEP Clinch River facility were dewatered and closed in place in accordance with the EPA final rule. The Bremo and Possum Point facilities have dewatered and consolidated ash from smaller onsite impoundment units to a single remaining impoundment at each site. The Bremo facility recently completed permitting for the lined CCR Industrial Landfill where ash from the surface impoundments will be placed. An application for a proposed lined CCR Industrial Landfill at the Possum Point Facility is currently under review. Clean closure of the AEP Glen Lyn industrial landfill and surface impoundments is also under review. The wastewater treatment system for the Chesterfield facility has been constructed and ash removal activities continue. Ash is either being sent offsite for beneficial use or disposed of in the onsite landfill. Permitting of an industrial landfill for storage of ash prior to beneficiation is also being permitted for ERI Development Inc. A permit application for clean closure of coal ash units at the Chesapeake facility was recently submitted and is under review. Solid waste staff are in contact with facilities impacted by these federal regulations and legislative actions and working to issue permits covering these required actions. Other ash impoundments have either received solid waste permits related to closure (Celanese Acetate) or are in the process of evaluating final closure (WestRock).

On May 8, 2024, the EPA finalized the CCR Legacy Rule which establishes groundwater monitoring, corrective action, closure and post-closure care requirements for inactive surface impoundments at inactive electric utilities and CCR management units. Facility Evaluation Reports (FER) required under the CCR Legacy Rule are to be submitted by February 8, 2027, if both parts are prepared concurrently. Solid waste staff will assess notifications for inactive surface impoundments and CCR management units to determine additional permitting requirements to comply with the state and federal regulations.

Harmful Algal Blooms

Harmful algal blooms (HABs) can produce toxins that may cause skin, eye, and digestive tract irritation, kidney and liver damage, and neurotoxic effects. DEQ and VDH, including the VDH Division of Shellfish Safety and Waterborne Hazards, work together to regularly monitor the water and shellfish growing areas for the presence of HABs and to conduct surveillance for human health effects. DEQ and VDH respond to public complaints, conduct scientific investigations on potential HAB events, and provide information to the public on HAB events and their associated health risks. These investigations inform VDH health advisories and DEQ water quality assessments. DEQ serves Virginia's HAB response primarily by conducting field investigations of potential HABs in freshwater systems. The aim of these investigations is to determine if cyanobacteria produce toxins that exceed VDH safe swimming thresholds, which may trigger VDH swimming advisories and DEQ assessments that a waterbody is impaired for the recreational designated use. DEQ also serves in an advisory role to partners on technical issues and policies related to HABs. As resources and staff availability allow, DEQ also responds to reports in marine waters and may provide limited support for drinking water authorities.

For complete information on freshwater thresholds and advisories, including updated criteria, see VDH's 2025 Guidance for Cyanobacteria Bloom Recreational Advisory Management.

For information on DEQ water quality assessments, see DEQ's Water Quality Assessment Guidance Manual.

DEQ began using information on VDH HAB advisories to assess Virginia's waters' attainment of the recreational designated use in the 2022 303(d)/305(b) Integrated Water Quality Assessment Report to EPA (2022 IR). VDH HAB advisory information was again used for water quality assessments in the 2024 IR. For the calendar years 2021 and 2022 (the last two years of the six-year 2024 IR assessment cycle), seven waterbodies for which VDH HAB advisories persisted for 30 days or longer were assessed as impaired and not meeting the recreational designated use due to HABs. The impairments were due to cyanobacteria blooms in the following fresh waterbodies: Lake Anna (Spotsylvania, Louisa, and Orange counties), Lee Lake (Nottoway County), Aquia Creek (Stafford County), Wilcox Lake (City of Petersburg), Woodstock Pond (James City County), Prince Edward Lake (Prince Edward County), and an unnamed tributary of the Chickahominy River (Henrico County). Two waterbodies previously listed in the 2022 IR for recreational use impairments due to HABs were proposed for delisting in the draft 2024 IR as no new advisories were issued during the assessment window: Mint Springs Lake (Albemarle County) and the Lake Anna State Park fishing pond (Spotsylvania County).

The VDH Division of Shellfish Safety and Waterborne Hazards, along with VIMS, Old Dominion University (ODU), and other state and federal partners also conduct routine investigations for marine HABs and associated toxins. These investigations are primarily conducted to determine if health criteria associated with algae and algal toxins in shellfish tissue are exceeded. Although toxin-producing algae do occur in Virginia's marine waters, to date there have been no exceedances of the VDH shellfish thresholds, no human illnesses attributed to HABs in shellfish, and no recreational advisories due to HABs in marine waters.

Prior to 2025, DEQ and VDH monitored both the concentration of blue green algae (known as cell counts) and the concentration of toxins in water samples. When cell counts exceeded 100,000 cells per milliliter (mL) of water, or when toxin concentrations exceeded thresholds, VDH issued advisories recommending that the public avoid swimming and other activities that pose a risk of ingesting water. These advisories are not closures; they are recommendations, and do not prohibit swimming in a waterbody under an advisory.

Following a public comment process, VDH issued revised guidance in June 2025 focusing on toxins generated by HABs as the primary concern with protecting public safety. Cell count thresholds are no longer considered for VDH advisories, and samples for cell counts are no longer collected during typical HAB investigations (see current VDH guidance). Issuing advisories based on toxin concentrations is expected to increase certainty; when an advisory is issued, it will mean that there is a substantial health risk from HAB toxins.

In 2021, DEQ led an effort in collaboration with VDH and the Virginia Department of Agriculture and Consumer Services (VDACS), to develop a report to the Virginia General Assembly entitled: "Harmful Algal Blooms in Virginia." For more information on the programs described above and more detailed information on HABs in the commonwealth, please reference the final collaborative report and the supplemental information listed below.

In 2022, the Virginia General Assembly allocated $3.5 million to the Commonwealth's 2022-2024 biennial budget to investigate potentially harmful algal blooms observed in Lake Anna and the Shenandoah River (see: 2022 Special Session I Virginia Acts Of Assembly, Chapter 2, Item 374, B.1, page 429). The agency has partnered with VDH, the United States Geologic Survey (USGS), and the Interstate Commission on the Potomac River Basin (ICPRB) on the studies and contracts were issued in spring 2023. Project study plans and updates are available on the DEQ's Harmful Algal Blooms webpage.

In 2024, the Virginia General Assembly allocated $150,000 to the Commonwealth's 2024-2026 biennial budget to conduct a study at Smith Mountain Lake, in collaboration with Virginia Tech, to evaluate conditions that have led to the appearance of HABs and to develop recommendations for prevention of further occurrences (see 2024 Session Virginia Acts of Assembly, Chapter 2, Item 363, M).

No Discharge Zone (NDZ) designations

2025 Progress Report

Federal law prohibits the discharge of untreated sewage from vessels within all navigable waters. A "No Discharge Zone" (NDZ) is an area in which both treated and untreated sewage discharges from vessels are prohibited. In 2021, EPA provided an affirmative determination for the establishment of an NDZ for Sarah Creek and Perrin River in Gloucester County, Virginia. The NDZs were finalized in Virginia regulations in June 2021. Implementation efforts in the form of signage and outreach continues in this and other approved NDZs in Virginia in 2025.

DEQ is in the process of completing an NDZ application for many of the tidal waters in the four counties of Virginia's Northern Neck: Richmond, Lancaster, Northumberland, and Westmoreland counties. The tidal waters included are tributaries of the Rappahannock River, Potomac River, or the Chesapeake Bay.

In 2022, DEQ completed an investigation of options for additional NDZs in the Chesapeake Bay's tidal tributaries as a part of the strategy in Virginia's Phase III WIP, which provides that "[t]he Commonwealth, in consultation with stakeholders, will consider options available under the Clean Water Act to apply to the Administrator of the EPA for a No Discharge Zone (NDZ) for all or portions of the Chesapeake Bay mainstem and its tributaries." As a result of this investigation, DEQ is developing a strategy for additional NDZ development in the Chesapeake Bay's smaller and secondary tidal tributaries. The development of the strategy continued in 2025 and included the collection and analysis of a multitude of datasets and performing stakeholder outreach. DEQ intends to use the strategy to plan for future NDZ development.

Onsite septic systems

2025 Progress Report

VDH, through its Office of Environmental Health Services (OEHS) and 35 local health districts, implements and oversees the state onsite wastewater program to protect public health and groundwater quality. Across the state, there are approximately 1.1 million onsite sewage systems, including approximately 34,700 alternative onsite sewage systems (AOSS). Roughly 550,000 of the total onsite sewage systems in Virginia are in the Chesapeake Bay watershed.

House Bill 769 (2022 Va. Acts Ch. 486), which transitions oversight authority of onsite sewage system pump-outs within certain localities, was passed by the General Assembly during the 2022 session and signed by Governor Youngkin in April 2022. Effective July 1, 2023, VDH began management and enforcement of onsite sewage system pump-out compliance for Accomack, Essex, Gloucester, King and Queen, King William, Lancaster, Mathews, Middlesex, Northampton, Northumberland, Richmond, and Westmoreland counties and the incorporated towns within those counties. Licensed operators conducting pump-outs in these localities are required to provide a report on these system visits using the updated online maintenance portal developed by VDH. Between July 1, 2024 and June 30, 2025, VDH received 3,163 conventional system pump out reports through the online maintenance portal for the localities listed

above. VDH also received 1,457 conventional system pump-out reports from other localities within the Chesapeake Bay Watershed during that same time period. These reports were submitted voluntarily through the online maintenance portal.

In August 2021, the General Assembly also approved $11.5 million in funding from the American Rescue Plan Act (ARPA) for improvements to private well and septic systems for homeowners at or below 200% of the federal poverty guidelines. VDH established the Septic and Well Assistance Program (SWAP) to distribute these funds to approved applicants. VDH began accepting applications from homeowners in need of private well and septic repairs in January 2022 and had to close the application process by September 2, 2022, due to the overwhelming demand. VDH received 270 direct project applications for 344 projects (some owners applied for both well and septic assistance) totaling an estimated $7,204,100. VDH has also provided nearly $2,400,000 in funding to local government partners and non-profits to implement the SWAP program in their area. VDH-OEHS continues to acquire additional funding, beyond the original $11.5 million for septic and well assistance. This includes receiving $1.989 million in Most Effective Basin Funding (from EPA's Chesapeake Bay Implementation Grant and Infrastructure Investment and Jobs Act) for addressing failing septic systems with either connection to public sewer, septic pumpouts for installation of a denitrifying AOSS and $862,000 from EPA for the Water Investment for the Nation - Small, Underserved and Disadvantaged Communities (WIIN-SUDC) Grant.

Between July 1, 2024 and June 30, 2025, VDH completed eight onsite sewage system repair designs, 19 AOSS repair installations, six conventional onsite sewage system repair installations, 12 public sewer connections to replace failing onsite sewage systems, 38 onsite sewage system pump outs, and 34 private well replacements using these funds and other funds acquired by VDH (Table 1.1).

Table 1.1: VDH Septic and Well Assistance Program (SWAP) – Grant Funded BMPs (7/1/2024-6/30/2025)

BMP Practice Code	Name of BMP	Number of BMPs Installed	Pounds of Nitrogen Reduced	CFU* of Bacteria Reduced
RB-1	Septic Tank Pump-out	6	16.80	2.98E+10
RB-1	Septic Pump (associated with RB-2-RB-5)	32	89.62	1.59E+11
RB-2	Connection to Public Sewer	12	372.00	5.98E+11
RB-4	Septic Tank System Replacement	5	115.58	1.87E+11
RB-4P	Septic Tank System Installation/Replacement with Pump	1	23.11	3.73E+10
RB-5	Installation of Alternative Waste Treatment System	19	439.38	7.08E+11
Well	Well Install and/or Well Abandonment	34	n/a	n/a
Total	**--**	**75**	**1,056.49**	**1.72E+12**

VDH has continued to maintain and modify the online Operations and Maintenance (O&M) portal for uploading AOSS maintenance reports. VDH has also developed an Application Programming Interface (API), allowing third party vendors with databases used by septic system operators and other professionals to interface with and upload maintenance reports to the maintenance portal. Local health district staff have reviewed 17,382 of the 23,492 completed O&M reports received during FY 2025.

DEQ grant funding for repairing/replacing failing on-site septic systems and straight pipes

2024 Progress Report[1]

DEQ continues to work with organizations and localities across Virginia to fund projects that correct failing septic systems or straight pipes. Most of these projects are part of larger watershed restoration and implementation efforts in TMDL implementation watersheds. During FY 2024, DEQ provided $505,796 from state and federal funding and landowner contributions to address failing or failed septic systems (Table 1.2). Please note that the information covered here does not include septic activity associated with the Chesapeake Bay Preservation Act.

Table 1.2: Residential Septic Program – Grant Funded BMPs (7/1/2023– 6/30/2024)

BMP Practice Code	Name of BMP	Number of BMPs Installed	Pounds of Nitrogen Reduced	CFU* of Bacteria Reduced	Total Amount of Cost-share Provided	Total Cost of Practice
RB-1	Septic Tank Pump-out	465	1,302.49	2.32E+12	$100,849.39	$186,731.53
RB-3	Septic Tank System Repair	14	323.53	5.22E+11	$36,248	$82,245
RB-3M	Conventional Onsite Sewage System Full Inspection and Maintenance	60	1,386.55	2.24E+12	$73,137.40	$148,676.33
RB-4	Septic Tank System Replacement	34	785.71	1.27E+12	$165,438.94	$353,064.17
RB-4P	Septic Tank System Installation/Replacement with Pump	11	254.20	4.10E+11	$86,632.26	$180,826.96
RB-5	Installation of Alternative Waste Treatment System	3	69.33	1.12E+11	$44,491.00	$77,792.33
Total	**--**	**587**	**4,121.80**	**6.87E+12**	**$505,796.99**	**$1,029,336.32**

*CFU = colony forming units

The grant funds were utilized in seven different river basins throughout Virginia. Generally, Districts facilitate septic repair and replacements along with overall NPS TMDL implementation; however, in a few cases, non-profits, PDCs, and localities assisted with the projects.

[1] Due to the availability of BMP data at the time of the report deadline, the NPS program is not able to provide an FY 2025 programmatic report. The full BMP data for the reporting fiscal year is not received by this report deadline. Beginning in FY 2020, the BMP data included in this report section is one fiscal year behind the other report content.

Adoption of cost-effective agricultural best management practices

2025 Progress Report

Agricultural Cost-Share Programs

DCR administers funds for conservation programs that SWCDs deliver to the agricultural community. Some of these programs include the VACS Program, Agricultural BMP Tax Credit Program, and Conservation Reserve Enhancement Programs. Details on cost-share allocations to SWCDs are summarized in Chapter 5 of this report.

Through funding provided by the General Assembly, Virginia developed and is working to expand a computerized BMP tracking program, referred to as the Conservation Application Suite (CAS), to record the implementation and financial data associated with all implemented BMPs. Both VDACS' Agricultural Stewardship Act (ASA) and DEQ's TMDL programs utilize modules within the CAS to administer their programs. During the last fiscal year, DCR continued to enhance this application. CAS has integrated modules that now have the added capacity to interface with those state agencies that protect cultural and historic resources as well as threatened and endangered species. DCR received funding in FY 2023 to develop a new version of CAS that will take advantage of technological advances that have taken place since the original version of the application was launched in 2009. The first phase of the replacement process, which included requirements for validation, planning, and high-level design concluded during the summer of 2024. The current phase includes modernizing the user authentication process and updates to the user interface and is expected to be complete in summer 2025. Subsequent phases will take place to replace each module in the application with the entire process scheduled to conclude during 2027.

Agricultural Stewardship Act Program

The ASA program is a complaint-based program by which the Commissioner of Agriculture and Consumer Services receives information alleging water pollution from agricultural activities. The Commissioner receives complaints alleging that a specific agricultural activity is causing or will cause water pollution. If a complaint meets the criteria for investigation, the Commissioner (through the ASA program staff) contacts the appropriate SWCD about investigating the alleged water pollution problem. If the SWCD declines, the ASA program staff conducts the investigation on behalf of the Commissioner. In most cases, a joint investigation involving local SWCD staff and ASA program staff is performed.

The purpose of the investigation is to determine whether the agricultural activity is causing or will cause water pollution. If no causal link is found, the Commissioner decides that the complaint is unfounded. If the Commissioner determines that the activity is the cause of pollution, the farmer is given up to 60 days to develop an agricultural stewardship plan to correct the identified water pollution problems. The local SWCD typically reviews the plan and the Commissioner will approve the plan when it is determined that it meets the necessary requirements to solve the water pollution problem.

The ASA provides the farmer up to six months from the date of the Commissioner's determination that a complaint is founded to start implementing the agricultural stewardship plan and up to 18 months from

that date to complete plan implementation. The timing allows the farmer to take advantage of suitable weather conditions for outside work or required construction. If a farmer fails to submit a plan for approval or implement a plan within the given timeline, the Commissioner takes enforcement action.

The ASA program received numerous inquiries regarding possible agricultural pollution during the program year of April 1, 2024 through March 31, 2025. Thirty-nine of these cases became official complaints. The official complaints fell into 10 categories according to the type of agricultural activity: beef (14); swine (6); land conversion (5); equine (5); dairy (3); other (2); goats, sheep (1); beef, equine, goats, swine (1); equine, goats (1); and cropland, dairy (1).

The ASA addresses water pollution problems caused by nutrients, sediment, and toxins entering state waters from agricultural activities. The ASA program received complaints based on the following nine pollution categories during the program year of April 1, 2024 through March 31, 2025: bacteria, sediment, nutrients (11); nutrients, sediment (10); bacteria, nutrients (8); sediment (7); nutrients (2); and bacteria (1).

During the program year, 17 of the 39 official complaints were determined to be founded and required agricultural stewardship plans to address water pollution problems. In each founded case, there was sufficient evidence to support the allegations that the agricultural activities were causing or would cause water pollution.

Ten of the 39 official complaints received during the program year were determined to be unfounded, because there was either insufficient evidence or no evidence of water pollution. In some instances, farmers involved in the unfounded complaints voluntarily incorporated BMPs into their operations to prevent more complaints or to prevent potential problems from becoming founded complaints.

Twelve of the 39 official complaints received during the program year were dismissed for various reasons. Many of the complaints that were dismissed were situations where a water quality concern existed but was remedied prior to the completion of the investigation process. Others were cases in which the ASA program had no jurisdiction in the matter, were withdrawn by the complainant, or were dismissed because insufficient information was provided by the complainant.

Two corrective orders were issued during the 2024-2025 program year for failure to maintain the measures necessary to prevent water pollution that were included in the approved agricultural stewardship plan on past complaint sites. There was an appeal of a corrective order during the program year, and two notices of violation of a corrective order issued by the Commissioner. Civil penalties for the violations of the corrective order were suspended due to the appeal process.

With the assistance of DCR, the ASA program uses a geographic information system (GIS) to track and report certain BMPs implemented to address water pollution on founded complaint sites. This GIS tracking module assists ASA staff in the verification process and contributes to the goals outlined in the Chesapeake Bay Phase III WIP. The ASA program has prioritized visiting past complaint sites to measure, document, and verify the livestock exclusion fencing that was implemented as a result of stewardship plan implementation prior to the ASA program having the GIS capability to track BMPs.

During the 2024-2025 program year, the ASA program staff recorded a total of 3,599 linear feet of livestock exclusion fencing and 0.82 acres of stream bank buffer implemented from current and past complaint sites within the Chesapeake Bay watershed. These figures include only the livestock exclusion fencing and buffer acres installed without cost-share assistance involving current and past ASA complaints.

Department of Forestry Implementation of Silvicultural Regulation and Strategic Water Quality and Watershed Protection Initiatives

2025 Progress Report

The mission of the Virginia Department of Forestry (DOF) is to protect and develop healthy, sustainable forest resources for Virginians. Forests provide superior watershed benefits over nearly every other land use. Managing the state forests and working with private forest owners and communities to ensure that the forests of the Commonwealth are major contributors to water quality and healthy watersheds aligns with DOF's core mission, its current strategic plan, and its Forest Action Plan. Silvicultural water quality enforcement, fire suppression, promoting riparian buffers, land conservation, Urban and Community Forestry, outreach and education, and restoring diminished native tree species are key DOF programs.

Silvicultural Water Quality Law Enforcement Actions

In July 1993, the General Assembly of Virginia – with the support of the forest industry – enacted the Virginia Silvicultural Water Quality Law, § 10-1-1181.1 through § 10.1-1181.7 of the *Code of Virginia*. The law authorizes the State Forester to assess civil penalties to owners and operators who fail to protect water quality in their forestry operations. Virginia is the only state in the southeastern United States that grants enforcement authority under such a law to a state's forestry agency. In FY 2025, DOF was involved in 77 water quality actions initiated under the Silvicultural Law. Of these actions, three resulted in a Special Order being issued during the period for violations of the law. In addition, there were 23 failures to notify violations by timber harvesting contractors during the fiscal year.

Forestry Best Management Practices (BMPs) for Water Quality

DOF has been a leader in the conservation of forested watersheds since the early 1970s when it published its first set of Forestry Best Management Practices for Water Quality. The fifth and current edition of those guidelines came out in 2011. A statewide audit system has been in place since 1993 to track trends in BMP implementation and effectiveness. The entire BMP Implementation Monitoring effort has also been automated to be compatible with DOF's Integrated Forest Resource Information System (IFRIS) enterprise database system. The information compiled serves as the basis for DOF reporting under Virginia's WIP. In calendar year 2024, 96.5% of the timber harvest acres in Virginia conducted within the boundaries of the Chesapeake Bay watershed were under BMPs and 95.0% of the timber harvest acres statewide were under BMPs. The audit also showed that five (2.1%) of the sites visited had a significant risk of sedimentation, and two (0.83%) of those showed signs of active sedimentation present after the closeout of the harvesting operation. The BMP goal for WIP III is to achieve a 95% implementation rate by 2025.

Harvest Inspection Program

DOF's harvest inspection program began in the mid-1980s and provides DOF an opportunity to educate forestland owners and operators about BMPs and water quality protection techniques. In FY 2024, DOF field personnel conducted 5,981 inspections on 1,415 timber harvest sites within the Chesapeake Bay watershed on 63,943 acres (Figure 1.3).

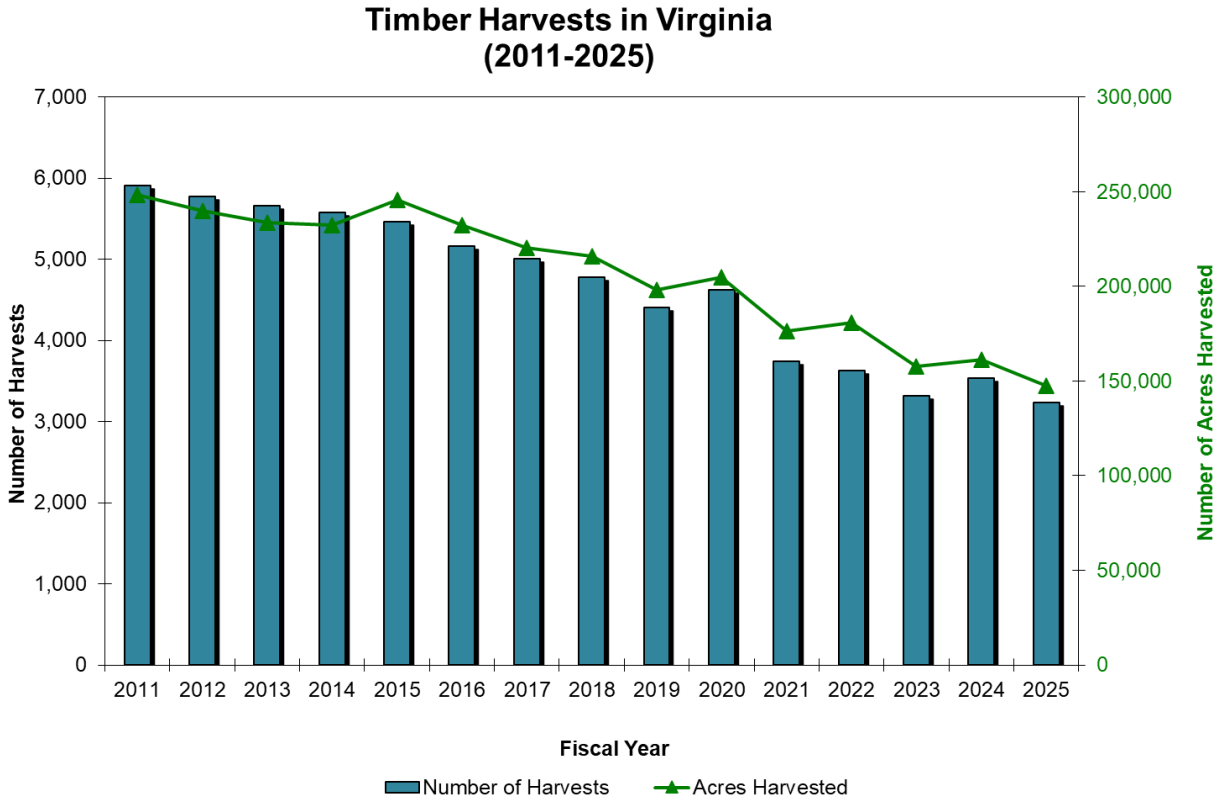

Figure 1.3: Statewide number of harvests inspected and total number of acres harvested (2011-2025)

Cost-Share Assistance

DOF offers cost-share assistance to timber harvest operators through a program funded by the WQIF. This program shares the cost of the installation of forestry BMPs on timber harvest sites by harvest contractors. In FY 2025, 38 stream protection projects were implemented with funds used to purchase portable bridges and mats to provide stream crossing protection across the site during and after harvesting.

In addition to WQIF funding, DOF received funding from the U.S. Forest Service (USFS) through the Temporary Water Crossing Program. The funding came from the Bipartisan Infrastructure Law (BIL). Like the WQIF program, this program assists with the purchase of temporary portable bridges and mats on stream crossings. Ten projects were funded with this program in FY 2025.

DOF also offers tree-planting grants using the Virginia Trees for Clean Water (VTCW) Program promoted through an RFP process. The 2024 cycle allocated $919,968 to 34 projects utilizing the WQIF. Most of the projects completed are in the Chesapeake Bay watershed with a smaller percentage of planting projects completed outside the watershed. Technical assistance and application review was provided by DOF International Society of Arboriculture (ISA) Certified Arborist staff and community engagement is required as part of the review process. Projects funded include establishing riparian forest buffers, school and park plantings, re-greening efforts to combat urban heat islands, and stormwater retrofits that incorporate the use of trees. All DOF grant opportunities are now processed online through the DOF System Access Portal. This was a significant administrative lift that resulted in shorter processing times and streamlined document collection. DOF has addressed potential concerns by providing multiple trainings for awardees and office hours to support submissions to the new portal. DOF also changed its deadlines to rolling deadlines to allow potential applicants and DOF staff more time to submit and review projects. DOF has assisted in planting more than 235,000 urban trees in Virginia communities since the program's inception.

DOF has also implemented a new program called Throwing Shade VA. This native tree and shrub discount program partnered with 10 retail nurseries across the Commonwealth in spring 2024. The discount program offers customers native trees and shrubs at a discount of $25 off purchases of $50 or more and supports Virginia businesses. Throwing Shade VA aims to provide more Virginia residents with the opportunity to plant trees while educating the public on the many benefits of choosing to plant natives. DOF monitored the number of trees purchased and locations planted through a QR code survey submitted by customers. In FY25, 5,593 native trees and shrubs were purchased and planted through the program, and more than 1,900 individual customers benefited (Figure 1.4). A total of $151,011 was reimbursed to partner nurseries during this year's program.

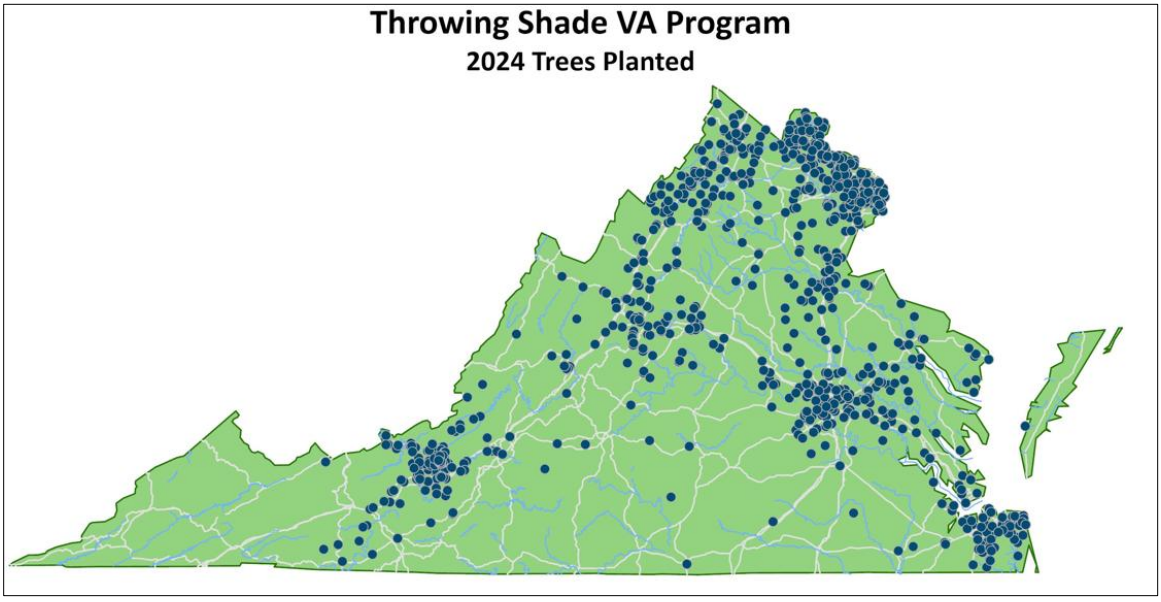

Figure 1.4: Distribution of all trees planted as part of the Throwing Shade VA Program

James River Buffer Program

The James River Buffer Program (JRBP) was established in December 2018 and is funded through the Virginia Environmental Endowment's (VEE) James River Water Quality Improvement Program. JRBP is designed to work in tandem with existing programs and currently targets new landowners who have not participated or do not qualify for existing buffer programs.

Two partners, DOF and the James River Association, carried out the James River Buffer Program within the Middle James River Watershed. In 2021, the Chesapeake Bay Foundation joined as a partner to serve landowners in the Upper James River watershed.

DOF's grant period with VEE ended in 2023, and DOF is no longer a JRBP program partner. Select projects established under the program continue to receive maintenance support. In FY 2025, DOF used funds from internally managed programs to provide buffer maintenance in the form of competition control, including invasive species management, and replanting of dead seedlings. In FY 2025, DOF maintained 22 projects accounting for a total of 40 acres.

Environmental Impact Reviews

In its role as a reviewing agency for DEQ's and the Virginia Department of Transportation's (VDOT) environmental impact review processes, DOF evaluates proposed projects to identify the forest resources that may be impacted, provides assessments, and provides recommendations and comments that address forest health, conservation, management, and mitigation needs aimed at conserving Virginia's forest resources. These reviews have resulted in the modification of project footprints to avoid forest loss and to commitments by project sponsors to follow DOF Forestry BMPs for Water Quality in numerous cases. DEQ has also included special forestland mitigation guidance to project sponsors that was developed by DOF in its environmental impact review instructions.

DOF has also partnered with the Commonwealth's other natural resources agencies to look beyond the direct footprints of proposed long, linear infrastructure projects to measure the indirect impacts of forest fragmentation. DOF and partnering agencies will continue to evaluate impacted forest resources as companies look to upgrade Virginia's energy infrastructure to meet rising demand for reliable and clean energy. DOF was instrumental in creating the Virginia Forest Conservation Partnership (VFCP). This partnership was forged to better leverage agency and organization missions, forest conservation and forest mitigation initiatives, and available conservation financing. The group most recently provided analysis to state executive offices on the potential impact on Virginia's forest resources of the construction of multiple proposed projects to assist in refining potential mitigation options. For FY 2025, DOF has reviewed 104 projects for impacts to forest resources. Of these 104 projects, 74 were at least partially in the Chesapeake Bay watershed.

Logger Education

DOF was involved in 15 logger education programs in FY 2025, educating 499 timber harvesting professionals through the Virginia SHARP Logger Program in cooperation with Virginia Tech and the Sustainable Forestry Initiative (SFI®) State Implementation Committee. This program has enabled DOF

to offer 419 programs related to water quality protection with a cumulative attendance of 12,840 participants at these classes. Figure 1.5 exhibits historical levels of participation in DOF logger education programs since 2011.

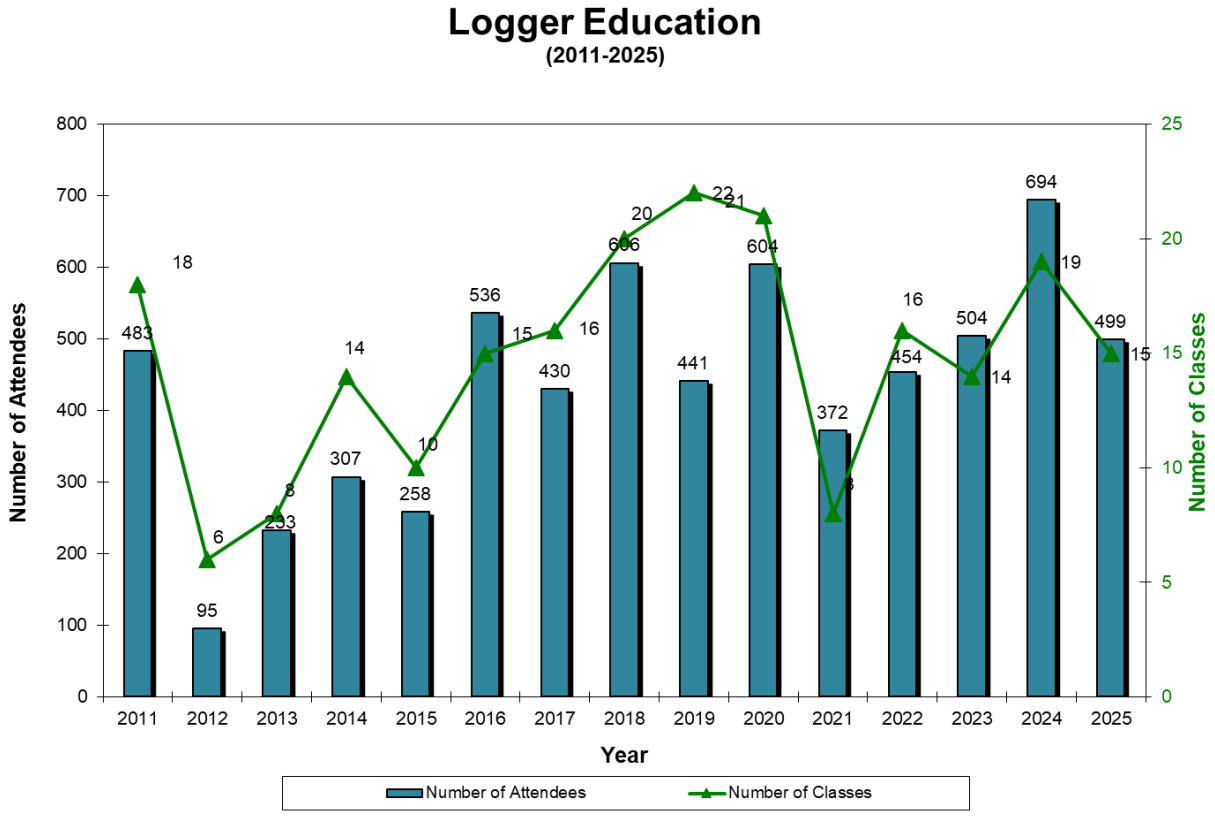

Figure 1.5: DOF Logger Education and Attendees (2011-2025)

Riparian Forest Buffers Technical Assistance

Riparian forest buffers (RFBs) provide particular and critical protection for Virginia's waters. They provide shade that cools water, capture sediment, filter excess nutrients, mitigate floodwaters, and provide essential food and habitat for both aquatic and terrestrial life. RFBs are an effective water quality improvement practice in addition to being cost-effective. Because of this, state and federal agencies, landowners, and contractors work together to establish and expand buffers for multiple values. DOF has technical assistance responsibility for planning, coordination, and certification of RFB establishment for federal, state, and privately funded programs. DOF foresters meet with landowners, assess sites, develop site-specific recommendations, and coordinate with contractors and owners to establish buffers through tree planting or natural means.

The Commonwealth still has significant progress to make to reach its WIP III buffer establishment goals. DOF's Watershed Program implements several strategies to increase buffer establishment within the Bay and across the Commonwealth.

These include:

- Setting specific, numeric, and realistic goals for field staff
- Tracking quarterly progress towards meeting those goals and offering support and technical assistance as needed
- Led the Commonwealth's efforts to create an updated Statewide Riparian Forest Buffer Action Plan, which will be published in FY 2025
- Offering training opportunities to increase staff's ability to plan, plant, and maintain buffers
- Exploring new funding opportunities to support buffer establishment and maintenance
- Creating a buffer cost-share portal and internal flow-chart to better match landowners with a best-fit funding program
- Improving internal recording and reporting protocols
- Coordinating with other governmental agencies and nonprofit partners to improve outreach and reporting efforts
- Continuing to actively participate in the Virginia Bay Interagency Team (BIT), State Lands WIP, Virginia Association of Soil and Water Conservation Districts (VASWCD) meetings, the James River Consortium, the Rappahannock River Roundtable, and Shenandoah Valley Conservation Collaborative, among many other governmental and non-profit led forums.

Riparian Forests for Landowners Program

In 2024, with funding from the Virginia State Water Quality Improvement Act and the Federal Inflation Reduction Act via the USDA Forest Service, DOF established the Riparian Forests for Landowners (RFFL) Program. This flexible, state-wide program provides turnkey coverage of costs of RFB establishment and one year of maintenance to a broad range of landowners and is meant to fill gaps in RFB establishment assistance not met by other agricultural cost-share programs. DOF worked with partner organizations to implement the program. For FY 2025, in its first year RFFL planted 85 buffer projects totaling 170 acres, with 69 projects totaling 110.7 acres established in the Chesapeake Bay Watershed.

In FY 2025, DOF recorded riparian buffer establishment on 197 sites for a total of 460.3 acres within the Chesapeake Bay Watershed. These acres include projects planted through RFFL.

Riparian Forest Buffer Tax Credits

For Tax Year 2024, DOF issued RFB tax credits on 41 applications covering 782 acres of retained forested buffers.

Easement Program

DOF administers an open-space easement program to ensure a sustainable forest resource. Because larger blocks of forest potentially provide the greatest range of functions and values, DOF easements focus on keeping the forested land base intact, unfragmented, helping to maintain forests in larger, more manageable and functional acreages. DOF has 234 properties under open-space easements in 64 counties that permanently protect 99,850 acres of vital forest and farmland. Of these easements, 140 properties consisting of 35,449 acres are within the Chesapeake Bay watershed.

In FY 2025, DOF permanently protected 2,181 acres of open space and nearly 11 miles of water courses through five new conservation easements. One easement, comprising 133 acres and protecting 1,750 linear feet of water courses, is within the Chesapeake Bay watershed.

Forest Management Planning

DOF has a strong role in forest management planning for Virginia landowners. Forest management plans are a foundational element in meeting the needs of landowners and meeting the broader resource objectives of the Commonwealth. Managing forests requires long-term planning, and the implementation of plans helps meet a variety of goals, including water quality. The Forest Stewardship Program, a joint effort with USFS Cooperative Forestry, enables DOF foresters to prepare multi-resource forest management plans for non-industrial private landowners that address forests, timber, wildlife habitat, water quality, soils, and recreation. Private consulting foresters prepare similar, equivalent plans, like the American Tree Farm Program certification, or plans funded by the United States Department of Agriculture (USDA) and the Natural Resources Conservation Service (NRCS). The aforementioned multi-resource management plans address forests and protecting water quality as a required element. DOF and private foresters prepare stand-level plans for specific forest management projects, and land use plans

that meet county and state requirements for the use-value taxation program. DOF field staff also develop pre-harvest plans to assist loggers in planning a timber harvest that minimizes erosion and protects water quality. The development of forest management plans aids in comprehensive resource and watershed management. In FY 2025 DOF recorded 1,708 plans encompassing 64,485 acres in the Chesapeake Bay watershed.

Forest management plans are written with the intent of being action-based, designed to meet landowner and resource needs, and typically include recommended activities such as timber harvesting, site preparation and tree planting, forest stand improvement, treating invasive species, installing BMPs that reduce erosion and sedimentation and planting buffers to improve streams and protect water quality. DOF field staff provide technical assistance and administer financial assistance programs to implement these practices. In FY 2025, DOF recorded 586 forest management projects on approximately 10,900 acres in the Chesapeake Bay watershed. More specifically, DOF reported tree planting on 550 sites on 15,842 acres in the Chesapeake Bay watershed. Of this, 623 acres were established on previously non-forested open land.

DOF manages 26 State Forests that cover 74,969 acres. These operational, working forests are managed for multiple uses including demonstration, research, watershed protection, timber, wildlife, and recreation. They have recently been certified by SFI® and the American Tree Farm System standards, which includes rigorous water quality and BMP Standards. Additionally, DOF operates two tree seedling nurseries, offering over 40 species of trees and shrubs that meet Virginia's needs for reforestation, afforestation, water quality, wildlife, and aesthetics. Each year, the nurseries produce approximately 25-30 million seedlings. DOF is also seeking to expand seedling production to support the continuing demand for hardwood species for riparian buffer establishment.

Urban Tree Canopy Program

The Virginia Urban Tree Canopy (UTC) program assists communities by providing both cost-share funding and technical assistance to plan for, plant and maintain more trees on both public and private land. These trees provide green stormwater infrastructure benefits, thereby improving water quality across Virginia and specifically, in the Chesapeake Bay. The USFS Urban and Community Forestry Program (U&CF) also financially supports and provides technical assistance for UTC analyses, tree inventories, and urban forest management plans to give communities better data and encourage better management of existing canopy. DOF onboarded a contractor to complete a statewide submeter tree and forest canopy assessment and plan required by § 10.1-1103.1 of the *Code of Virginia*. The assessment will include a 5-year canopy change analysis, heat analysis, possible planting areas and a working forests layer for harvest operations. The analysis is on track to be completed by December 2025 and the plan by November 2026. DOF was also awarded $6.6 million from USFS to support urban tree canopy work. DOF also launched two application opportunities in 2023-2024 and awarded 41 grants totaling $5.3 million.

DOF also developed the Community Forest Revitalization Program to provide turn-key support to Virginia's communities at no cost to them. Communities and partners submitted a brief survey to apply for program support. DOF received 28 applications and awarded 13 projects. Projects onboarded include Master Plan development, tree planting activities and conceptual designs for parks and trails. Work will

be ongoing for these projects until 2026. Figure 1.6 reflects the distribution of all grants associated with the U&CF program in 2024.

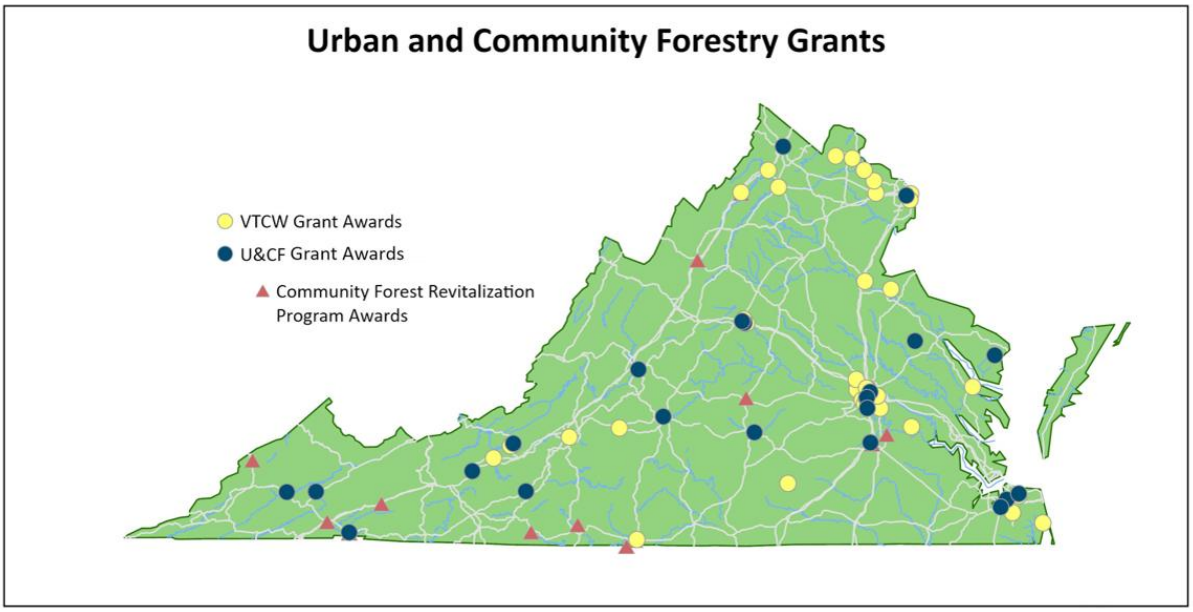

Figure 1.6: Urban and Community Forestry Grant Distribution in Virginia

Healthy Watershed Forest/TMDL Project

The Virginia Healthy Watersheds/Forest Retention Project was completed, and the Phase III final report is available online. This project demonstrates that retaining forestland can be a very cost-effective strategy for localities when it comes to protecting and improving water quality. When forests are converted to another land use such as developed area, the cost of stormwater BMPs that must be implemented to account for the development activities can be significant. The report can also serve as a roadmap for localities interested in utilizing forest and agricultural land conservation as a management strategy to protect watersheds. DOF continues to support programs and strategies that conserve forestland and agricultural lands, particularly within the Chesapeake Bay Watershed, where development pressure is high.

Assessments of Forestland Change

DOF is currently working with a contractor to complete a statewide submeter tree and forest canopy assessment. Once completed, the assessment will include a five-year canopy change analysis, heat analysis, working forests layer for harvest operations, and potential planting areas. The analysis is on track to be completed by December 2025. The assessment may also help inform urban forestry policies, state forest resources assessments, wildlife action plans and eco-regional assessments.

Implementation of Nutrient Management Planning

2025 Progress Report

There were over one million acres of active nutrient management plans prepared for Virginia agricultural land during the program year from July 1, 2023 through June 30, 2024. (Table 1.3) This includes the acreage in nutrient management plans prepared by private sector nutrient management planners, in addition to the acreage covered by plans prepared by DCR staff. This was an increase of over 68,000 acres from the previous reporting cycle. The data for the program year ending June 30, 2025 is currently being submitted by private-sector certified nutrient management planners and will be compiled and available later this year.

Table 1.3: DCR Nutrient Management Planning

	Crop Acres	Hay Acres	Pasture Acres	Specialty Acres	Total Acres
Chesapeake Bay Watershed	647,501	108,241	67,126	3,704	**826,572**
Outside the Chesapeake Bay Watershed	392,409	32,448	22,387	2,561	**449,805**
Totals	1,039,910	140,689	89,513	6,265	**1,276,377**

All golf courses are required by § 10.1-104.5 of the *Code of Virginia* to obtain and implement nutrient management plans. Nutrient management plans for golf course acreage comprised 25,238 acres representing 261 courses for a compliance rate of 84%. DCR continues to work with the golf courses to ensure the nutrient management plans are updated and revised as required by law.

Total urban areas with nutrient management now exceed 30,318 acres. Currently, there are 2,996 acres of nutrient management plans implemented in response to the requirements of the MS4 general permit.

Currently, there are 1,998 acres of state-owned lands contained in turf and landscape nutrient management plans. Because of rising fertilizer costs, some agencies have opted to eliminate turf fertilization from their management practices, reducing the acres of land that need nutrient management plans. DCR's Green & Clean initiative is a voluntary initiative that encourages lawn care companies to adhere to the fertilizer rates established in the Nutrient Management Training and Certification Regulations (4VAC50-85). Lawn care companies that participate in this initiative report all acreages in amounts higher than 50 acres treated per season to VDACS. However, any acreages treated that fall below that threshold are reported to DCR. For FY 2025, lawn care companies reported 59 acres to DCR. There were an additional 187 voluntary turf and landscape nutrient management plans prepared, including 66 acres prepared by Virginia Cooperative Extension's Healthy Virginia Lawns program.

Section 3.2-3602.1 of the *Code of Virginia* applies to the application of regulated products (fertilizer) to nonagricultural property. It calls for training requirements, establishment of proper nutrient management practices (according to Virginia's Nutrient Management Standards and Criteria), and reporting requirements for contract-applicators who apply fertilizer to more than 50 acres as well as for employees,

representatives, or agents of state agencies, localities, or other governmental entities who apply fertilizer to nonagricultural lands. The total acreage reported to VDACS for the 2024 calendar year was 131,451 acres and can be viewed on the Certified Fertilizer Applicator (CFA) Program website.

During the most recent General Assembly sessions, funding was provided for nonpoint source reduction projects including the Poultry Litter Transport Incentive Program (PLTIP). Utilizing the additional funding provided, DCR has expanded PLTIP to include Accomack County while still maintaining programs in Page and Rockingham counties. As a strategy in WIP III, poultry litter transported from these three key counties needs to increase from 5,000 – 6,000 tons annually to approximately 89,000 tons annually by year 2025, and each year thereafter. For FY 2025, 3,815.2 tons of litter were transported out of Accomack County, totaling $114,456 in payments. Out of Rockingham County, 21,072.14 tons of litter were transported, totaling $492,555.13 in payments. FY 2025 contracts requested a total of 81,016.91 tons of litter be moved; however, some of these requests may not be filled due to the limited availability of litter for the applicants.

To continue progress toward meeting goals for the Chesapeake Bay TMDL, DCR has a dedicated certified nutrient management specialist to work exclusively with small dairies and other small farms to develop nutrient management plans. There are currently fewer than 400 dairies in Virginia, a reduction from more than 500 in recent years. Forty-seven of these permitted operations have current nutrient management plans. DCR staff develop nutrient management plans for most of the animal operations in the Commonwealth. All nutrient management plans involving the use of biosolids meeting specific criteria must be approved by DCR as well as many of the nutrient management plans that utilize manure as a fertilizer.

DCR developed the Nutrient Management Planning (NMP) Module, which is completely integrated within the existing Conservation Application Suite. The NMP Module is an online program that nutrient management planners can use to write comprehensive NMPs. The module collects data in a systematic and thorough manner that allows for more accurate reporting and data collection on nutrient management. All DCR nutrient management planners utilize the NMP Module and DCR provides financial incentives for planners participating in the Direct Pay Program to utilize the Module. Additional incentives will be provided in the future to encourage planners to digitize the fields included in a nutrient management plan, which will allow more accurate and efficient reporting of nutrient plan data.

The Virginia Nutrient Management Direct Pay Program continues to expand. This program is an incentive program that pays Virginia certified nutrient management planners to prepare, revise, and verify the implementation of nutrient management plans that cover acres within certain counties in Virginia's Chesapeake Bay watershed or when the plans are required by other DCR programs. For FY 2025, 180,422.5 acres of nutrient management plans were prepared, revised, and implemented with a state funds pay-out of $1,007,271.02. Since its inception in FY 2019 the Direct Pay Program has provided total funding of $3.3 million, which has led to over 680,000 acres of preparation, revision, and verification of the implementation of nutrient management plans.

Implementation of and compliance with erosion and sediment control programs

2025 Progress Report

Several program changes occurred from July 1, 2024 to June 30, 2025. Effective on July 1, 2024, DEQ consolidated the Erosion and Sediment Control Law and the Stormwater Management Act into the Virginia Erosion and Stormwater Management Act (VESMA) and attendant regulation. The reissuance of the General VPDES Permit for Discharges of Stormwater from Construction Activities (Construction General Permit or CGP) also became effective for the next five year cycle, from July 1, 2024 – June 30, 2029. The CGP was updated to be consistent with the EPA CGP, include turbidity monitoring at certain locations, and to add the definition of qualified personnel. Finally, DEQ consolidated and updated the 1992 Virginia Erosion and Sediment Control Handbook and the 1999 Virginia Stormwater Management Handbook to the Virginia Stormwater Management Handbook, Version 1.1 (GM24-2001 V 1.1). This major update included necessary updates to outdated erosion and sediment control measures and standards for use during construction and required local governments to update their ordinance to reference the new standards and specifications. These updates necessitated additional training for local governments and permittees which was provided and is now available in webinar format.

DEQ central and regional office staff assist local governments with the implementation of their Virginia Erosion and Stormwater Management Programs (VESMPs), which includes addressing erosion and sediment control in a manner consistent with the VESMA and attendant regulations. DEQ staff continued to perform site inspections on small and large construction activities for compliance with the 2024 CGP, including addressing erosion and sediment control measures in a manner consistent with the VESMA and attendant regulations.

Implementation of stormwater management programs

2025 Progress Report

During the reporting period, no new local governments requested or received approval to manage local stormwater management programs. Ninety-four local governments continued to implement their previously approved local stormwater management programs with the assistance of DEQ central and regional office staff. One local government previously requested and obtained approval at the end of the reporting period to no longer administer its stormwater management program and only operates an erosion and sediment control program due to staffing and funding issues. This locality transferred administration of the stormwater program back to DEQ. As noted above, the 2019 CGP expired on June 30, 2024 and the 2024 CGP became effective for the next five year cycle from July 1, 2024 – June 30, 2029. The 2024 CGP was updated to be consistent with the 2022 EPA CGP. DEQ central office staff and local governments continued to process coverage under the 2024 CGP using the Stormwater Construction General Permit System. This online system enables local stormwater management programs to continue to coordinate their efforts with DEQ's issuance, reissuance, modification, transfer, and termination of CGP coverage. From July 1, 2024 through June 30, 2025, new (*i.e.*, first-time) coverage under the 2024

CGP was approved for 404 land-disturbing activities where DEQ is the Virginia Stormwater Management Program (VSMP) authority, and new coverage under the 2024 CGP was approved for 1,356 land-disturbing activities statewide. DEQ staff continued to visit small and large construction activities to perform site inspections for compliance with the 2024 CGP.

Authorization of Stormwater Local Assistance Fund Project Funding List

To reduce nonpoint source pollution from stormwater runoff, the Virginia General Assembly included Item 360 in Chapter 806 of the 2013 Acts of Assembly (the Commonwealth's 2013 Budget Bill) which created and set forth specific parameters for the administration of the Stormwater Local Assistance Fund (SLAF). The purpose of the SLAF is to provide matching grants to local governments for the planning, design, and implementation of stormwater BMPs that address cost efficiency and commitments related to reducing pollutant loads to the state's surface waters. In accordance with that legislation, the State Water Control Board approved Guidelines for the implementation of the SLAF Program. The Guidelines call for an annual solicitation of applications, an application review and ranking process, and the authorization of a Project Funding List by the DEQ Director.

The General Assembly has provided a total of $240 million in funds for the SLAF Program since it began in FY 2014 (with an additional $7.17 million in interest) totaling over $247 million for the program. A total of $255 million in SLAF funding has been authorized for 390 projects through 10 solicitation cycles.

Virginia Clean Water Revolving Loan Fund

For FY 2025, the Virginia Clean Water Revolving Loan Fund (VCWRLF) allocated roughly $190 million in loan funds to 30 separate localities and public utility authorities for wastewater infrastructure projects. The VCWRLF was created in 1987, and DEQ, on behalf of the State Water Control Board, manages the VCWRLF. The VCWRLF was initiated to provide financial assistance in the form of low-interest loans to local governments for needed improvements at publicly owned wastewater treatment facilities and collection systems. Since the program's inception, the State Water Control Board has expanded the scope of VCWRLF activity and DEQ implemented additional programs to provide low-interest loans related to agricultural and other nonpoint source water quality issues.

From 1988 to 2024, under the VCWRLF Program, DEQ has authorized over 1,300 projects, providing over $4.6 billion in subsidized loan funds for projects in the Chesapeake Bay watershed and Southern Rivers watershed. Eligible costs include the planning and design to upgrade, rehabilitate, and/or expand wastewater treatment plants; the remediation of brownfields; purchase of land for the purpose of conservation; installation of living shorelines; and construction of stormwater and agricultural BMPs.

Local government implementation and compliance with requirements of the Chesapeake Bay Preservation Act

2025 Progress Report

Chesapeake Bay Preservation Act (CBPA) compliance reviews continue to be conducted for the Tidewater localities subject to the CBPA. DEQ Local Government Assistance Program staff continued to work to ensure periodic (every five years) compliance reviews are completed for all local programs in the 84 CBPA localities. All 84 localities were reviewed under round two. The round three Compliance Procedures Manual was finalized and initial reviews began in May 2024 for five localities. By December 31, 2024, fifteen localities were under review.

DEQ established a review schedule to ensure all 84 localities will be reviewed in the five-year timeframe. If a DEQ review reveals conditions that must be addressed by a locality for its program to come into compliance with the CBPA and the locality does not meet the conditions by an established deadline, a warning letter is issued with a short deadline to comply. The review is passed on to DEQ's Enforcement Division if the locality does not comply with the conditions after the established deadline.

During these compliance reviews, staff assess whether the locality is implementing soil and water quality conservation assessments for all active agricultural lands, the status of the water quality provisions of the local comprehensive plans, how well local governments are ensuring that impervious cover is minimized, indigenous vegetation is maintained, and land disturbance is minimized on approved development projects, and septic tank pump-out requirements are met. As part of the compliance review process, localities are required to submit annual reports on their continued implementation of the CBPA. In coordination with DCR, Bay Act localities report the number of Resource Management Plans and Conservation Plans which provide proven agricultural and forestry best management practices to ensure agricultural enterprises meet a conservation farming standard. Based on the 2025 Annual Report (January 1, 2024 – December 31, 2025), 5,283 septic pump-outs and 97 plans were completed. Additional data may become available in the next report as VDH continues to finalize tracking in the 17 localities for which it now has responsibility for septic pump-out requirements.

Chesapeake Bay Total Maximum Daily Load Implementation

Calendar Year 2024 Progress Report

The following graphs show the modeled annual nitrogen, phosphorus, and sediment loads reaching the Chesapeake Bay from Virginia based on the Phase 6 Chesapeake Bay Watershed model (Figures 1.7-1.9) Chesapeake Assessment and Scenario Tool (CAST) Version 2023. Virginia's official 2024 Progress (as determined by EPA's Chesapeake Bay Program Office) was determined using CAST-23, which is the version that will be used to evaluate progress in reaching nutrient reduction goals until the next suite of Chesapeake Bay Program models are available. The modeling suite is referred to as the Phase 7 model and is anticipated to be available for use in 2028. Each of the bars represents the estimated annual loads reaching the Chesapeake Bay from Virginia for 2010-2024. The last bar on the right shows the model-estimated annual loads that would result from full implementation of the BMPs identified in Virginia's

Phase III WIP. Each of the colors stacked in the bars represents the annual loads from the various sectors (natural, agriculture, developed, septic, and wastewater). The green line on each graph represents the 2025 planning target.

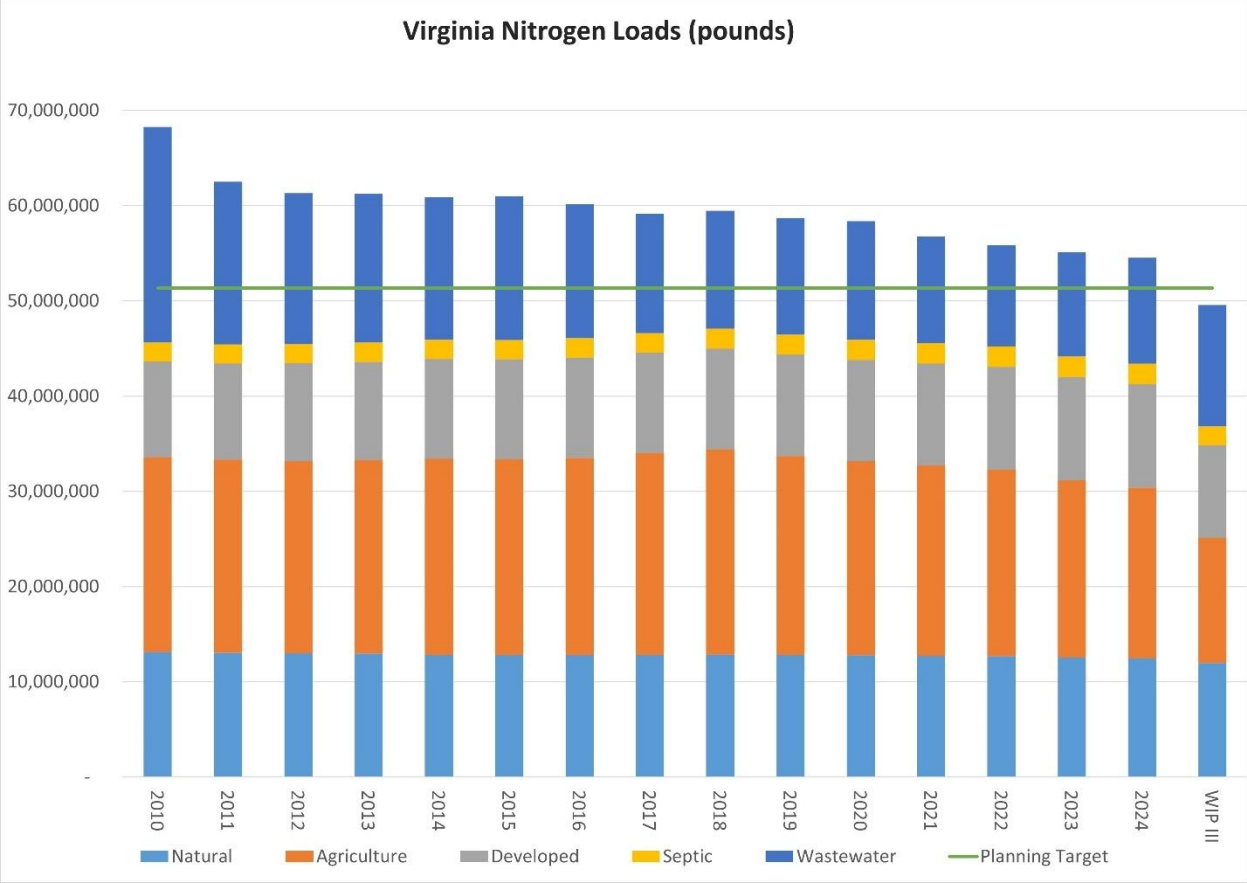

Figure 1.7: Virginia's Annual Nitrogen Progress Loads for 2010-2024 with WIP III Planned 2025 Loads

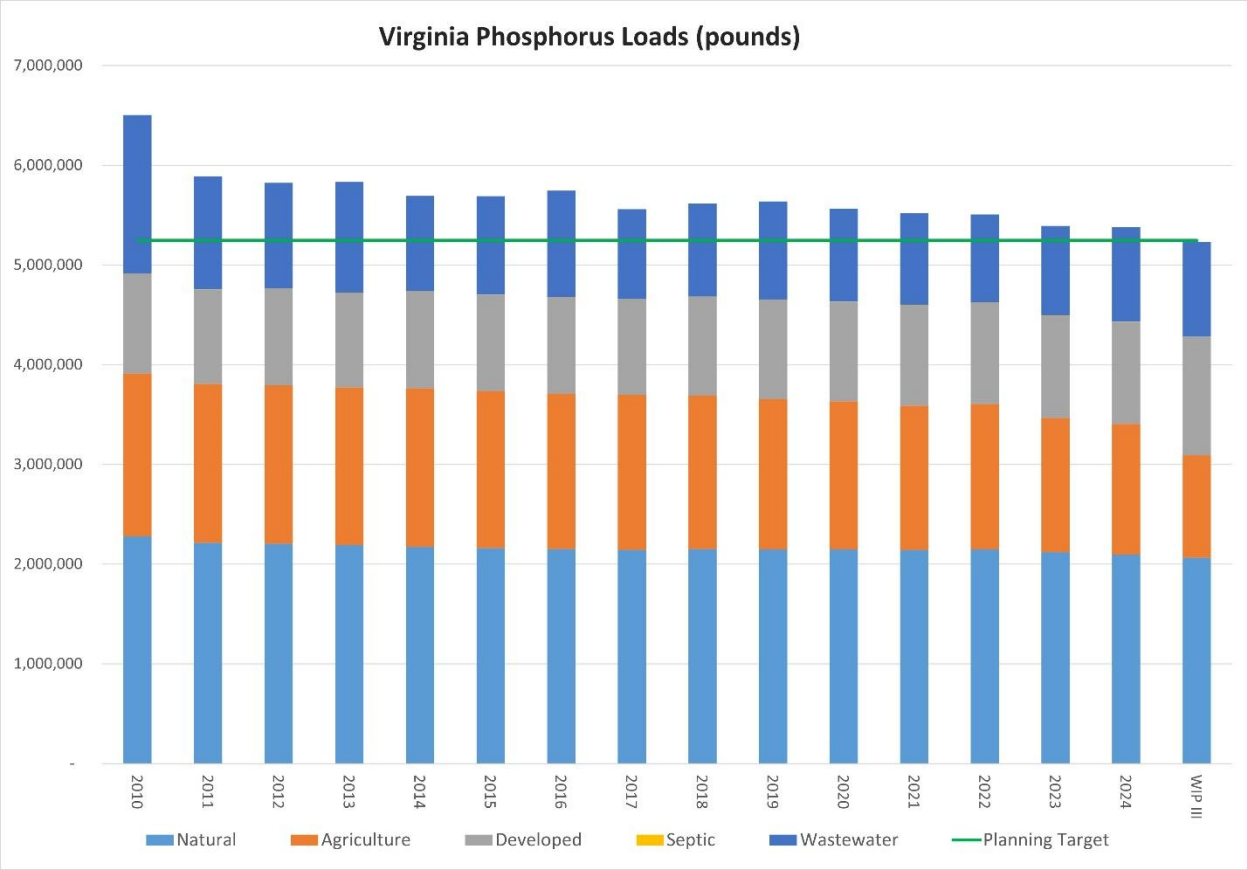

Figure 1.8: Virginia's Annual Phosphorus Progress Loads for 2010-2024 with WIP III Planned 2025 Loads

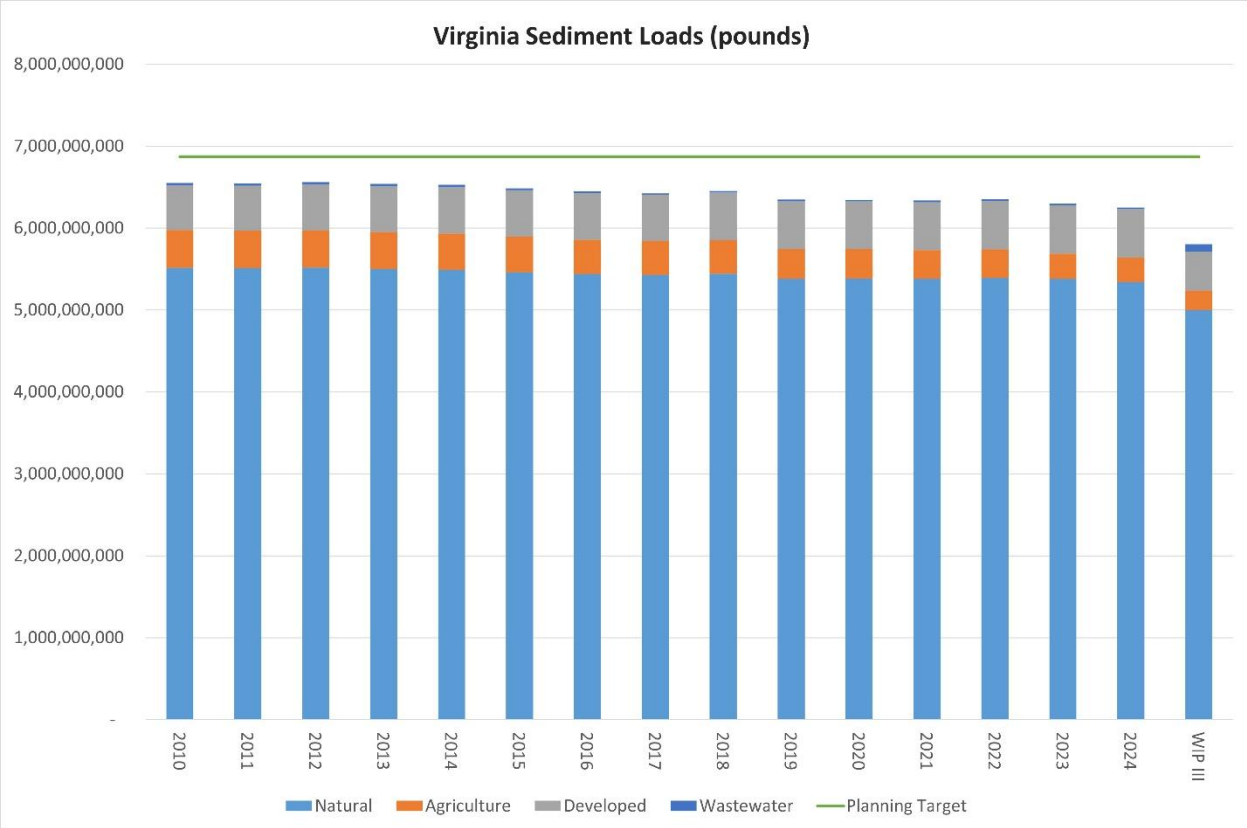

Figure 1.9: Virginia's Annual Sediment Progress Loads for 2010-2024 with WIP III Planned 2025 Loads

The remaining nitrogen reductions needed by sector for Virginia to meet its WIP III goal by 2025 are presented in Figure 1.10.

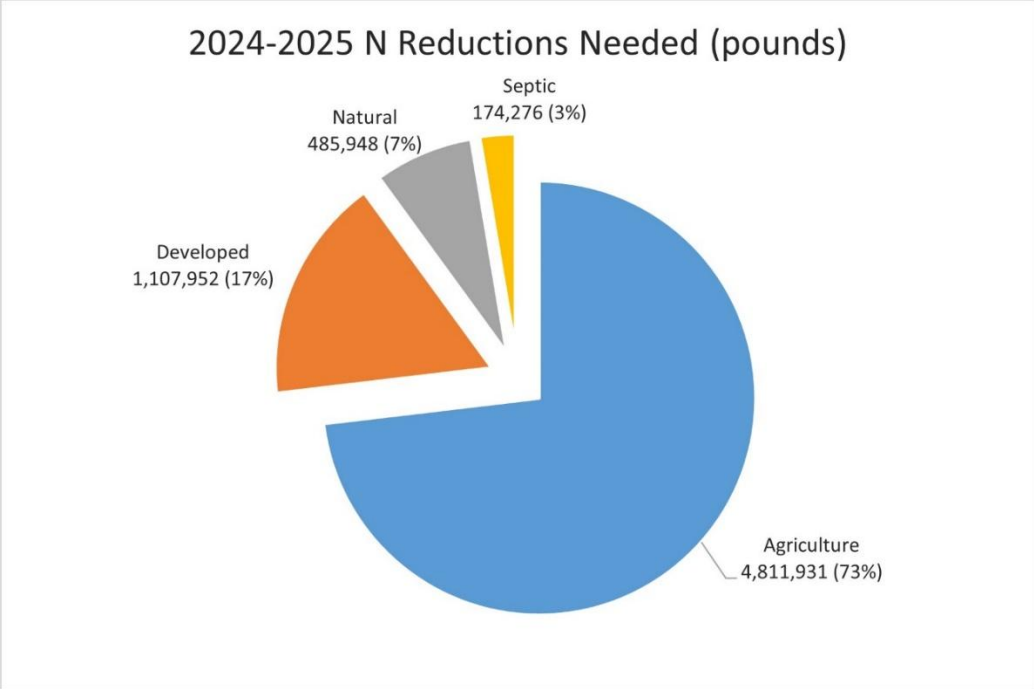

Figure 1.10: Virginia's Remaining Nitrogen Reductions Needed for 2025 (pounds)

The remaining phosphorus reductions needed by sector for Virginia to meet its WIP III goal by 2025 are presented in Figure 1.11.

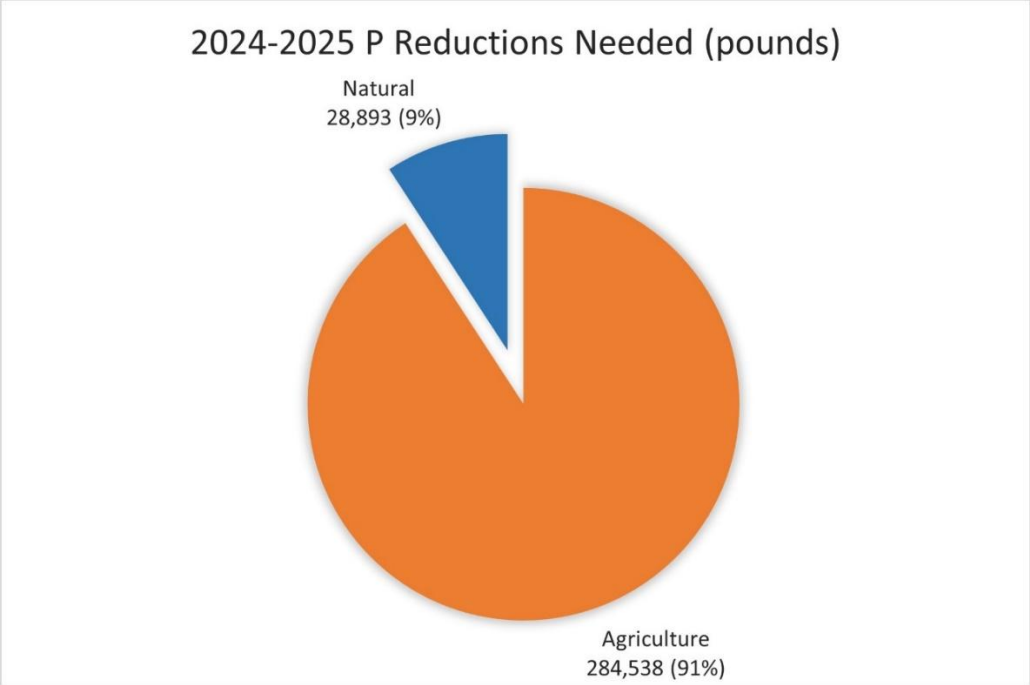

Figure 1.11: Virginia's Remaining Phosphorus Reductions Needed for 2025 (pounds)

Tables 1.4-1.5 summarize the pounds per year of nutrient reductions achieved by sector by Virginia in 2024 compared to the WIP III target loads. The tables also include the remaining gap needed to achieve Virginia's nitrogen and phosphorus WIP III goals.

Table 1.4: Comparison of Virginia's 2024 Modeled Total Nitrogen Loadings Compared to WIP III Goals

TN (lbs./yr. delivered)	Agriculture	Developed	Natural	Septic	Wastewater	Total
2024	17,956,538	10,831,756	12,458,506	2,152,854	11,143,156	54,542,810
WIP III	13,144,607	9,723,803	11,972,558	1,978,577	12,753,717	49,573,264
Gap	4,811,931	1,107,952	485,948	174,276	-1,610,561	4,969,547

Table 1.5: Comparison of Virginia's 2024 Modeled Total Phosphorus Loadings Compared to WIP III Goals

TP (lbs./yr. delivered)	Agriculture	Developed	Natural	Septic	Wastewater	Total
2024	1,312,041	1,022,891	2,094,260	1,243	948,250	5,378,685
WIP III	1,027,503	1,189,883	2,065,367	1,243	945,985	5,229,981
Gap	284,538	-166,992	28,893	0	2,265	148,704

For additional information on the Chesapeake Bay TMDL, associated implementation efforts, and progress, please visit the DEQ Chesapeake Bay Programs webpage and the Chesapeake Bay Program's website .

Development of TMDL reports, implementation plans, and implementation projects

Development of Total Maximum Daily Load Reports

2025 Progress Report

The figure below shows the number of TMDL equations by pollutant set across Virginia since the inception of the TMDL program (Figure 1.12). During the past fiscal year, DEQ has progressed with the development of TMDLs addressing more complex impairments, many of which are in large-scale watersheds. DEQ has made significant strides in the development of PCB, sediment, and nutrient TMDLs in watersheds with fish consumption and aquatic life use impairments. DEQ is in the process of seeking EPA approval for 31 new TMDL equations.

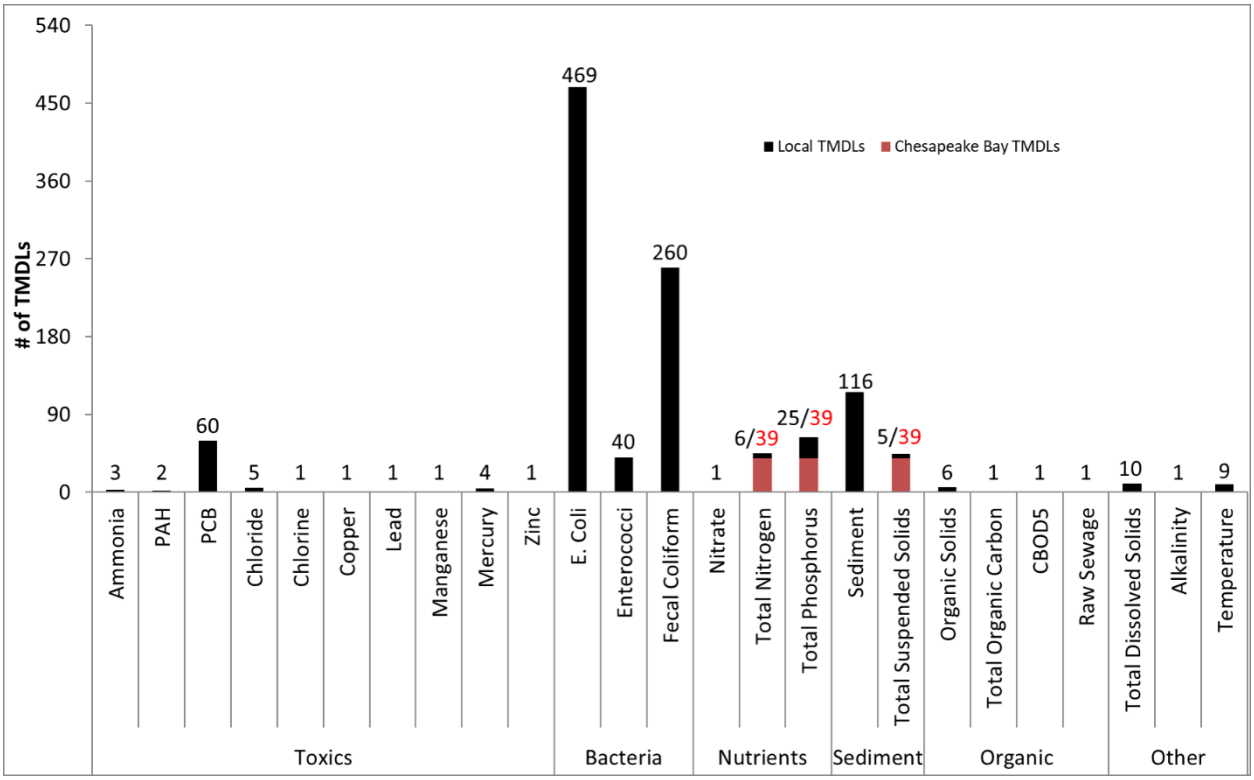

Figure 1.12: TMDL Equations by Pollutant[2]

Based on the 2024 Integrated Report, Virginia estimates that 8,322 miles of river, 79,701 acres of lake, and 2,842 square miles of estuary will require TMDL development in the coming years. To maintain a robust pace of TMDL development with level funding, Virginia has developed several strategies including: a) developing TMDLs using a watershed approach to address multiple impairments in watersheds with similar characteristics; b) developing TMDLs in-house; c) identifying non-TMDL solutions, such as plans that outline BMP implementation strategies in predominantly nonpoint source polluted watersheds; and d) developing TMDLs that are more easily implemented. Virginia continues to explore tools and options for restoring and protecting water quality, both for environmental benefit and efficient program management.

DEQ is implementing EPA's national 2022-2032 Vision for the Clean Water Act Section 303(d) Program, which is the culmination of EPA's collaboration with states, territories, and tribes to renew and update the original 2013 Vision. The intent of the 2022 Vision is to identify opportunities for states to

[2] The graph includes TMDL equations reported previously and newly adopted equations. In some instances, previously established TMDLs were superseded by revised TMDLs. Supersession can be one equation replacing another or one equation replacing many equations. Note that 39 of the Total Nitrogen, Total Phosphorus, and Total Suspended Sediments equations are for the Chesapeake Bay TMDL. The remainder are for local TMDLs.

effectively manage their own 303(d) programs and achieve their unique water quality objectives through a set of goals and focus areas. A key component of the 2022-2032 Vision calls for each state to develop a Prioritization Framework that describes its long-term planning priorities and that outlines a general strategy for implementing the goals and focus areas of the 2022-2032 Vision. DEQ developed Virginia's Framework, which is included in Virginia's 2024 Integrated Report. The 2022-2032 Vision also calls for states to develop a prioritization of waterbodies to be addressed over shorter increments (every two years) through 2032. These lists of impaired waterbodies are considered priorities, wherein DEQ plans to address impairments through the development of TMDLs or Advance Restoration Plans. The two-year priority waterbodies will be included in Integrated Reports through 2032. DEQ is currently addressing its two-year priority waterbodies for the 2025-2026 period. The list of priority waterbodies for the 2025-2026 period can be found in Appendix 8 of the 2024 305(b)/303(d) Water Quality Assessment Integrated Report.

Development of Implementation Plans

2025 Progress Report

Virginia law (1997 Water Quality Monitoring, Information, and Restoration Act, § 62.1- 44.19:4 through § 62.1-44.19:8 of the *Code of Virginia*, or WQMIRA) requires the development and implementation of a plan (including a TMDL when appropriate) to achieve fully supporting status for impaired waters. The development of an implementation plan (IP) is Virginia's main planning mechanism for addressing nonpoint sources of pollution in impaired watersheds. The IP report includes, at a minimum: water quality goals, control measure goals, a schedule of corrective actions, monitoring strategy, and associated costs and benefits of implementation. DEQ, along with other agency and non-agency partners, continues to develop and implement IPs throughout Virginia. In addition to Virginia law, IPs are also submitted to EPA for their review and acceptance according to their *NPS Program and Grants Guidelines for States and Territories (2024)*, which details nine elements of watershed based planning. The EPA publication, *Handbook for Developing Watershed Plans to Restore and Protect Our Waters*, provides further details on the development of these plans. DEQ also has a guidance document that outlines how Virginia develops its IPs in coordination with the aforementioned EPA guidance (Guidance Manual for Total Maximum Daily Load Implementation Plans). Once an IP is accepted by EPA, the control measures (BMPs) cited in the report become eligible for Clean Water Act (CWA) Section 319(h) funding. In the following figures and tables there will be mentions of the following terminology:

- In Progress - IP report is being developed as part of a process that involves data gathering, modeling, and public participation either in-house and/or with a contractor to meet EPA's nine elements of watershed-based planning and state law requirements.
- Draft - IP report is considered draft after the final public comment period has ended and all public and internal comments are addressed and incorporated into the report. The report is then submitted to EPA for nine element consistency review. The IP report will remain in draft status until it receives EPA acceptance.

- Approved - IP has been reviewed and accepted by EPA and approved by DEQ's Divisional Director and satisfies the nine elements of watershed-based planning; the IP and its associated watershed area and BMPs are eligible for CWA Section 319(h) funds.

As of June 30, 2025, 86 IPs were approved, five IPs were draft and two IPs were in progress. In FY 2025, DEQ and partners completed drafts of three IPs covering 24 impairments, two of which are pending EPA review and acceptance. DEQ received feedback from EPA on two previously submitted IPs, but neither have been fully accepted as of the end of the fiscal year. In addition, one advance restoration plan (ARP) covering three impairments was in progress at the end of the fiscal year. The map below shows all watersheds organized by IP status as of the end of June 2025 (including the ARP) (Figure 1.13).

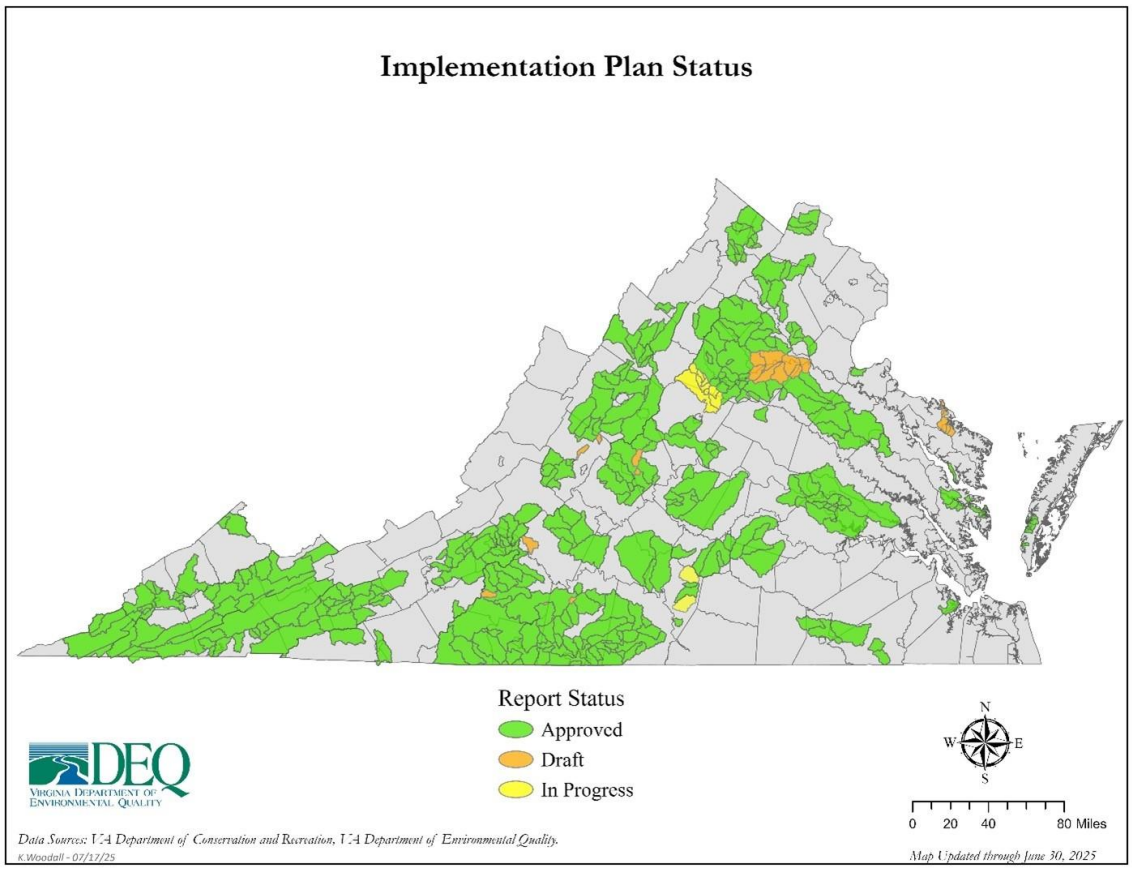

Figure 1.13: Implementation Report Status

The graph below summarizes implementation planning progress since the program's inception in 2001, with the first IP receiving EPA acceptance in 2003. Cumulatively, Virginia and EPA have approved 86 IPs, addressing 584 impairments of designated uses covering 318 TMDL equations (Figure 1.14).

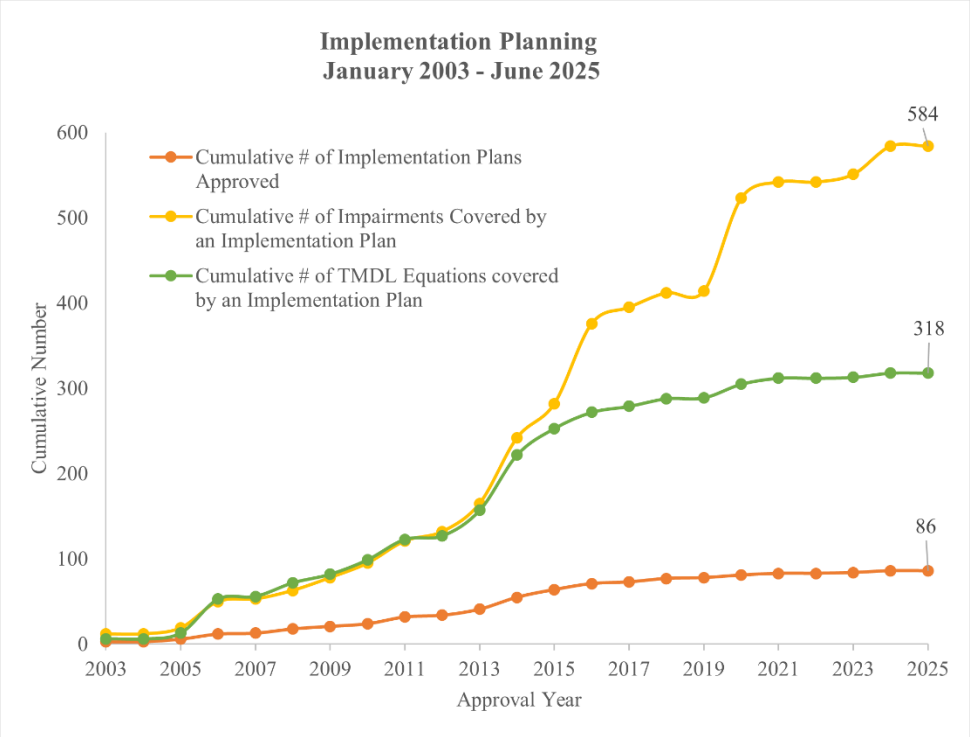

Figure 1.14: Cumulative Summary of Implementation Plan Development (January 2003 – June 2025)

As funding and technical limitations have continued over the years, it has become increasingly important to evolve the implementation planning program. DEQ has worked diligently over the past year to expand its technical abilities, empower and train internal staff and expand the breadth of the NPS planning activities. Many of these changes have been in response to EPA's comments and clarifications needed in order to make an IP acceptable, enabling eligibility for CWA Section 319(h) funds. In FY 2025, joint TMDL-IP projects and developing IPs soon after TMDL completion remained a top priority for implementation planning. DEQ actively pursues the option of developing an ARP, which is a clean-up plan combining some aspects of a TMDL with the nine elements of watershed-based planning necessary for CWA Section 319(h) eligibility. Earlier this fiscal year, such a project was underway, but circumstances necessitated a change in course. However, another watershed became a prime candidate for an ARP and is in development as of the end of the fiscal year. These types of plans are submitted to both TMDL and NPS teams at EPA for acceptance. Sediment/benthic impairments continue to be prioritized, stemming from the FY 2022 TMDL priorities with the development of IPs following suit where possible. Recreational use impairments due to exceedances of numeric criteria for indicator bacteria are the most common impairment in Virgina waterbodies. New IPs are scheduled to address several of those bacteria impairments, or multiple impairments in a watershed if present, and this trend will continue into the next fiscal year.

More information on IPs and other planning efforts can be found on DEQ's Implementation Planning webpage.

Watershed Restoration and TMDL Implementation

2024 Progress Report[3]

The goal of the NPS Management Program is to implement targeted, on-the-ground activities, identified in TMDL IPs, which will result in water quality improvements and subsequent delisting of impaired streams. Virginia uses a staged approach that provides opportunities for periodic evaluation of the effectiveness of the implementation actions and adjustment of efforts to achieve water quality objectives in a timely and cost-effective manner. Virginia's TMDL Implementation Program was developed by DCR in 2001 and has been funded by a mix of federal and state funds. In June 2013, the responsibility for program administration was moved to DEQ. From July 1, 2024 through June 30, 2025, DEQ managed 28 implementation projects funded partially or fully with federal CWA Section 319(h) funds. Additional information and data on the Commonwealth's overall NPS Management Activity can be found in DEQ's 2024 Nonpoint Source Annual Report submitted to EPA.

The map below depicts the overall status of nonpoint source implementation in Virginia since 2001 (Figure 1.15). It displays watersheds from EPA-accepted IPs where implementation projects have been active and therefore have received strategic funding. It should be noted that DCR administers a statewide agricultural cost-share program that resulted in BMP installation and implementation in various IP watersheds and although not reflected on the maps, the information is presented in the remaining part of this section.

[3] Due to the availability of BMP data at the time of this reporting deadline, the NPS program is not able to provide an FY 2025 programmatic report. The FY 2024 Clean-Up Plan Report had the same deadline issue. Subsequent reports will cover the period one year delayed. The program data included in this report is for FY 2024 activity (7/1/2023-6/30/2024).

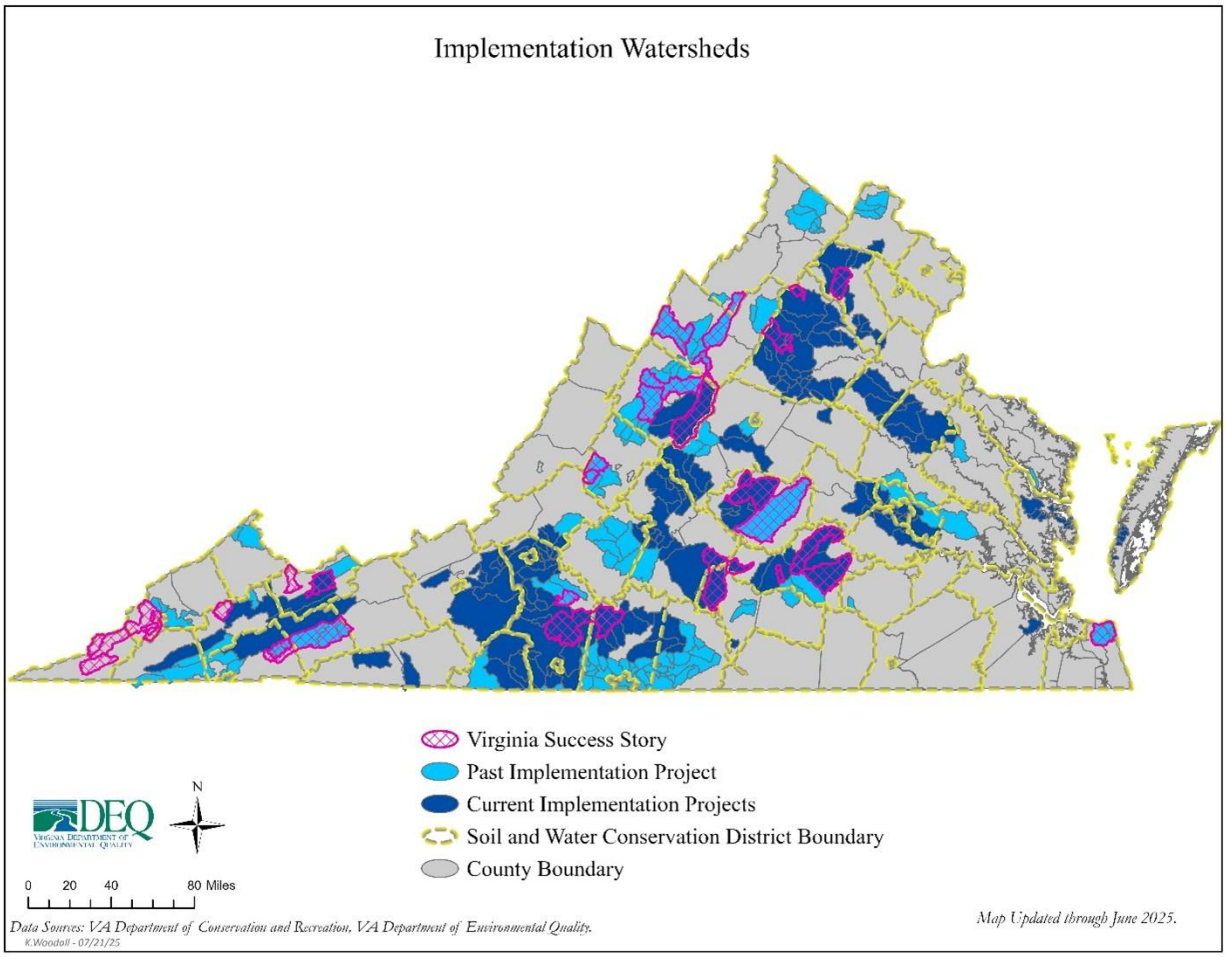

Figure 1.15: Status of NPS Implementation Projects by Watersheds and Success Stories in Virginia (2001 – June 2025)

The map below identifies the specific watersheds with CWA Section 319(h)-funded active NPS implementation projects in Virginia in FY 2025 (Figure 1.16).

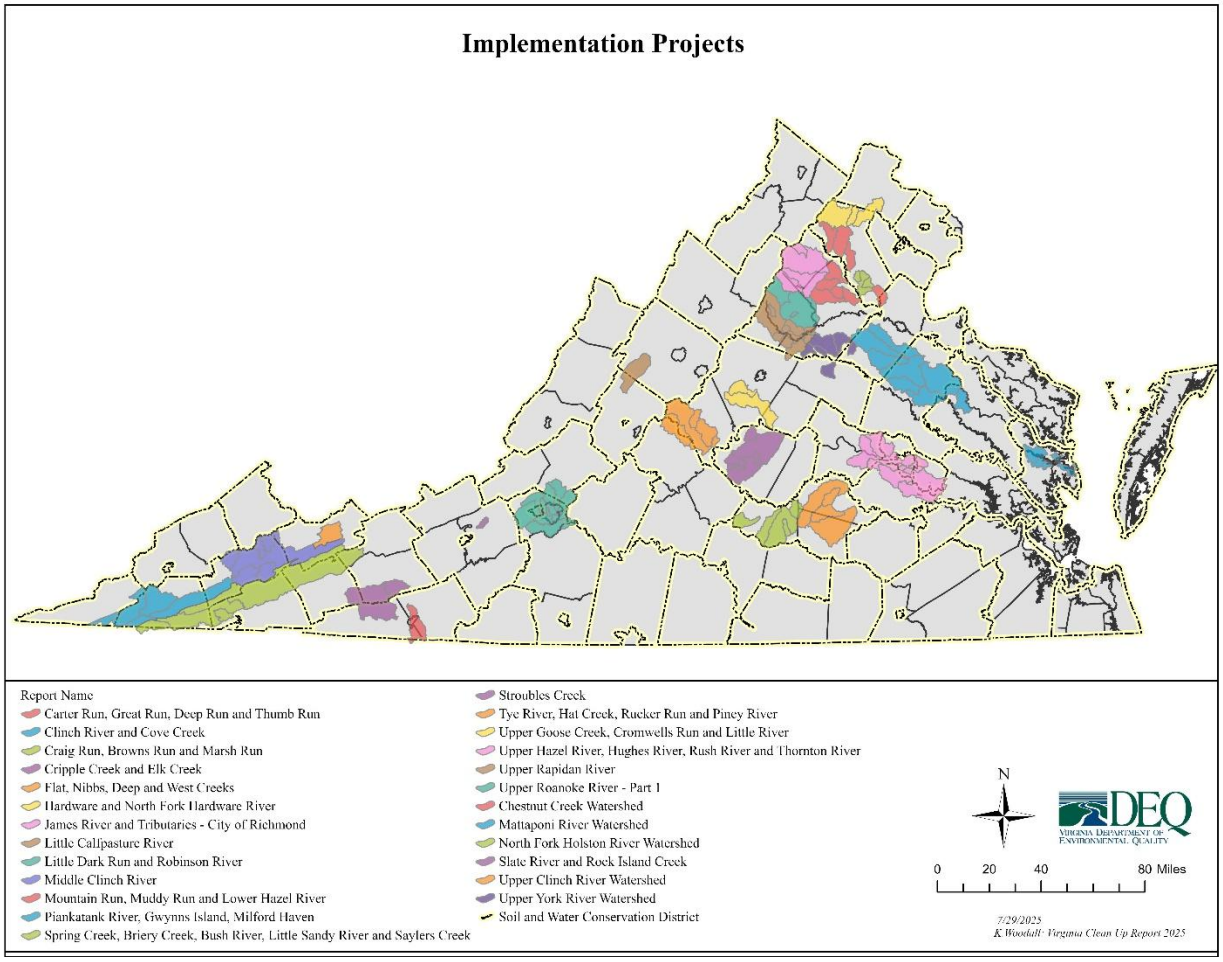

Figure 1.16: Active CWA Section 319(h)-funded NPS Implementation Projects in Virginia during FY 2025

Past TMDL Implementation Projects with Continued Implementation Activity during FY 2025

Funding of Nonpoint Source Implementation

As the lead agency in nonpoint source implementation, DEQ utilizes both CWA Section 319(h) and Chesapeake Bay Implementation Grant (CBIG) funds to pay for staff that provide project management and technical support to watershed stakeholders implementing projects. In addition, Virginia runs a comprehensive cost-share program for BMP implementation utilizing both federal (CWA Section 319(h) and CBIG) grants and state resources (from WQIF, the Virginia Natural Resources Commitment Fund, VACS program, and Virginia Conservation Assistance Program (VCAP)). Overall, DEQ and its agency partners utilized over $35.6 million of state and federal (excluding NRCS) sources of funding to implement BMPs throughout the Commonwealth.

BMP Implementation and Pollutant Reductions

Tracking both BMP implementation and water quality improvements in approved IP watersheds is critical in measuring the success of the NPS Management Program. BMPs are effective and practical ways to prevent or reduce pollutants from nonpoint sources to protect and restore water quality. While highly effective BMP tracking programs are in place to account for BMPs installed using state or federal cost-share funds, tracking BMPs installed voluntarily (without government assistance) has proven challenging. DEQ manages the BMP Warehouse database (mostly created for Chesapeake Bay watershed National Environmental Information Exchange Network submission), which allows for all types of BMP tracking to be entered via an online portal. BMP implementation and associated pollutant reductions reported to date are mostly practices installed with government cost-share funds.

The residential septic and agricultural BMPs implemented within IP areas in FY 2024 resulted in the restoration and protection of many of Virginia's waterbodies. The tables below provide a summary of BMP-related information, pollutant reductions achieved, and a detailed accounting of the type of BMPs installed in IP watersheds (Tables 1.6 and 1.7).

Table 1.6: Summary of BMP-related information and associated load reductions achieved in IP watersheds (7/1/2023 - 6/30/2024)

Metric	VA FY 2024	FY 2002-2024
#BMPs Installed	7,259	50,761
Stream Protected (Linear Feet)	1,268,472	15,685,878
Stream Exclusion Buffer Created (Acres)	2,949	21,888
Animal Units Excluded	51,927	623,217
Residential Septic Systems	488	6,468
Bacteria (CFU)	5.84E+16	7.15E+17
Total Nitrogen (lbs./yr.)	4,813,684	30,003,435
Total Phosphorous (lbs./yr.)	57,437	507,195
Total Sediment (Tons/yr.)	50,731	591,891

Table 1.7: BMPs Installed in IP Watersheds in FY 2023 (7/1/2023 – 6/30/2024)

BMP Name	# BMPs	Extent Installed	Unit
Afforestation of Crop, Hay and Pastureland	16	125	Acres
Alternative Onsite Sewage System Installation	2	2	Systems
Animal Waste Control Facility	46	46	Systems
Composter Facility	51	51	Systems
Cover Crops	4,253	194,788	Acres
Extension of Watering System	48	2,369	Acres
Exclusion of Livestock from Stream Exclusion Practices	-	12,364	Animals
Farm Road, Animal Travel Lane, Heavy Use Area Stabilization	1	0.1	Acres
Loafing Lot Management System	3	3	Systems
Manure Injection	31	4,135.83	Acres
No-Till or Minimal Till	79	2,619	Acres
Nutrient Management	-	127,911	Acres
Pasture or Grazing Land Management	34	3,300	Acres
Pasture Management Calculated from Grazing Stream Exclusion	-	14,337	Acres
Riparian, Forested, Woodland or Vegetated Buffer	79	194	Acres
Riparian Buffers Created from Stream Exclusion Practices	-	2,949	Acres
Roof Runoff Management System	2	9,272	Sq. Feet
Septic System Installation/Replacement	45	45	Systems
Septic System Inspection/Repair	60	60	Systems
Septic Tank Pump-out	381	222	Systems
Stream Stabilization	2	2,859	Lin. Feet
Stream Exclusion, Grazing Land Management or Stream Protection and Stream Exclusion Maintenance	333	1,266,122	Lin. Feet
Total	**5,448**		

Virginia Water Quality Improvements and Success Stories

The success of Virginia's NPS Management Program and implementation planning is documented by describing the improvement of water quality conditions via NPS Success Stories. Through CWA Section 319 Nonpoint Source Success Stories, EPA and DEQ document progress of partially or fully restoring waterbodies associated with NPS implementation actions.

Since 2002, Virginia's NPS Management Program and its associated Implementation Planning Program, in coordination with its partners, have written 39 success stories that address delisting and/or water quality improvement of 57 impaired stream segments. These stories are classified into two types: Type 1 stories are related to partial or full restoration (delisting of impairments), and Type 2 indicates significant water quality improvement of waterbodies. Figure 1.14 shows the location of success stories in Virginia.

EPA released new *Nonpoint Source Program and Grants Guidelines for States and Territories* in late FY 2024. As part of the new guidelines, Success Story types were expanded from two to five. DEQ will continue to explore the use of the three new types of Success Stories during the next fiscal year. For more information, refer to the new guidance document linked above or EPA's NPS website.

Healthy Waters

2025 Progress Report

The Healthy Waters Program (HWP) is an inter-agency program led by the DCR Natural Heritage Program (NHP) and Virginia Commonwealth University (VCU) to identify and maintain watersheds with high ecological integrity. Virginia' NHP and VCU define "ecologically healthy waters and watersheds" as those that maintain high ecological integrity when viewed in a holistic assessment approach that addresses in-stream habitat, stormwater inputs, invasive species, and natural flows. HWP data serves as the primary aquatic community data used for conservation decision making and data sharing in the day-to-day biodiversity conservation work of the DCR-NHP. The DCR-NHP mission is conserving Virginia's biodiversity through inventory, protection, and stewardship. The Virginia Natural Area Preserves Act, §§ 10.1-209 through 217 of the Code of Virginia, was passed in 1989 and codified DCR's powers and duties related to statewide biological inventory: maintaining a statewide database for conservation planning and project review, land protection for the conservation of biodiversity, and the protection and ecological management of natural heritage resources.

Utilizing field-based, empirically collected data, the HWP is a non-regulatory conservation program that benefits water quality and is consistent with the antidegradation language of the Clean Water Act to maintain the chemical, physical and biological integrity of the Nation's waters. Ecologically healthy streams in Virginia are identified and ranked through a stream ecological integrity assessment known as the Interactive Stream Assessment Resource (INSTAR), as "outstanding," "ecologically healthy," "restoration candidate," or "compromised," with methods developed and conducted by VCU. DEQ has provided funding from EPA Section 319, CBIG and the National Oceanic and Atmospheric Administration Coastal Zone Management (CZM) program to support ongoing partnerships with DOF, nongovernmental organizations, and the private sector. VCU provides the majority of the significant

technical field data collection, model development and data management services. Highlights of activities include:

- HWP continued stream assessments throughout the Commonwealth to characterize ecological stream health and inform conservation models. In 2024, the HWP-INSTAR field assessment team visited over 30 sites including sites that have not been monitored for over 10 years. The inclusion of these sites helps to determine changes at older sites once characterized as ecologically healthy. Piedmont and Coastal Plain sites were included to inform the determination of catchment scale to which those characterized data remain accurate from a watershed collection point. For example, a site may remain characterized as ecologically healthy at 2 kilometers (km) upstream (including the associated NHD+ catchment) but may change at 10 km due to the larger watershed area and land use and land cover impacts. Additional refinement of those data will improve the scale to characterize the effects of changes in land use and land cover with the intent to maintain stream ecological health conditions. The data will improve the focus of on the ground activities that may ensure those ecological conditions are maintained. The VCU field team visited sites in the James, Rappahannock and Potomac watersheds, collecting a total of 352 taxa from 30 sites. By watersheds, the program collected 228 taxa from the James, 66 from the Rappahannock and 58 from the Potomac.
    - HWP initiated an INSTAR revision/update to modernize the characterization model to improve transparency, efficiency, and reduce the lag time for data interpretation. The model integrates biological metrics (e.g., fish community data), habitat condition scores, and watershed-scale landscape variables (e.g., land use, hydrology, and population density). This multi-source data is fused and analyzed through machine learning techniques (Gradient Boosting Regressor) and ecological indicators such as diversity indices and trophic traits to generate predicted stream health scores for reaches sampled.
- The hiring of the field coordinator (FC) position was delayed due to changes in current and future grant funding priorities. The HWP Manager is pursuing alternative funding from the Virginia Sea Grant Program for a Commonwealth Fellow position leveraging a partnership with VCU and CZM. The FC role will increase HWP's on-the-ground capacity for implementation of agricultural or forestry BMPs to meet local TMDL WIP measures in impaired but ecologically healthy waters.
- The HWP Manager continued to serve as the Virginia representative on the CBP Goal Implementation Team Four (GIT4; Healthy Watersheds). Under the direction of the Secretary of Natural and Historic Resources, the HWP Manager also worked with DEQ, DCR, and DOF to refine the GIT Goals/Outcomes related to the identification and conservation of ecologically healthy aquatic resources related to the Beyond 2025 effort.

Pay-for-Outcomes Nonpoint Source Pilot Program Update

The Virginia General Assembly, through Budget Item 365(L), tasked DEQ with designing and administering the Pay for Outcomes (PFO) Pilot Program. To do so, the agency received a $20,000,000, one-time appropriation from the General Fund in 2024. The Program's stated purpose is to support and implement BMPs (practices and technology which mitigate adverse environmental effects) that: (1) provide real and quantifiable impacts to water quality, (2) are cost-effective and competitive against existing precedents, and (3) have associated benefits to local habitats and environmental resiliency. DEQ created a program that compensates selected participants for demonstrated, verified nutrient reductions in the Bay Watershed. Additionally, breaking with the traditional model of other state's PFO programs, DEQ opted to adopt two discounts to any removals by awardees. The first discount is a net-present value discount (an annual compound 3%) to decrease the value of reductions each year (highlighting and rewarding urgency). The other discount is a delivery factor coefficient, which deflates the value of a reduction based, generally, on distance from the Chesapeake Bay to compensate for biogeological attrition. The combination of discounts and stringent verification methods ensure increased accuracy in recording outcomes and issuing proper payments.

The pilot run of the PFO Program was successful in attracting immense demand, as the program had 30 applications from 25 applicants submitted in February 2025, requesting over $109,000,000 in funds. The applicants varied in nature, with both large and small organizations applying as well as being representative of the public, private, and non-profit sectors. The array of various BMPs was also diverse, with some being more conventional and others being novel (innovative or newly developed technology). Through a rigorous review and scoring process overseen by DEQ with assistance from DCR, VIMS, and Virginia Tech, nine projects from eight applicants were selected and awarded in May 2025. Examples of the selected projects include dairy farm nutrient mass balance improvements (Virginia State Dairymen's Association), gaseous ammonia capture in poultry houses (MOVA Technologies), and domestic urine diverting toilets with onsite nitrogen treatment systems (LIXIL).

The projected impact of the program over time, based on the selected proposals, is preventing approximately 580,000 pounds of nitrogen from reaching the Chesapeake Bay at an average price of $32/pound. This amount of nitrogen translates to a year's worth of runoff from 52,000 acres (1.26 times the size of the City of Richmond) of parking lots, roofs, etc. The program is currently in contract negotiations with awardees, and reductions are projected to start this fall.

Should the program continue to be funded, more innovative and cost-effective BMPs could be implemented, furthering the Commonwealth's goal to restore the Chesapeake Bay. Additionally, the program has initially succeeded in lowering the price per pound of nitrogen removed and could continue to do so through the program's use of open market competition and efficiency improvements.

Chapter 2 - Annual Report on Water Quality Improvement Fund Grants

The purpose of the Virginia Water Quality Improvement Act of 1997 (the "Act") is "to restore and improve the quality of state waters and to protect them from impairment and destruction for the benefit of current and future citizens of the Commonwealth" (§ 10.1-2118 of the *Code of Virginia*). The Act created the Water Quality Improvement Fund (WQIF); its purpose is "to provide Water Quality Improvement Grants to local governments, soil and water conservation districts, state agencies, institutions of higher education and individuals for point and nonpoint source pollution prevention, reduction and control programs" (§ 10.1-2128.B of the *Code of Virginia*). In 2008, the General Assembly created a sub-fund of the WQIF called the Virginia Natural Resources Commitment Fund (VNRCF) (§ 10.1-2128.1 of the *Code of Virginia*) that is to be used for agricultural best management practices (BMPs) and associated technical assistance.

This report section fulfills a legislative requirement under § 10.1-2134 of the Act for DEQ and DCR to report on the WQIF. Specifically, the mandate is for an annual report to be submitted to the Governor and the General Assembly specifying the amounts and recipients of grants made from WQIF and pollution reduction achievements from these grants. Information on WQIF grants awarded is provided in this report, along with available data on pollutant reductions achieved and estimated pollutant reductions to be achieved from recently funded grant projects.

WQIF & VNRCF Nonpoint Source Programs

The WQIF and its sub-funds have served as the principal funding source for nonpoint source pollution control projects in Virginia. The goal of the nonpoint source grant component of WQIF is to improve water quality throughout the Commonwealth and in the Chesapeake Bay by reducing nonpoint source pollution. Nonpoint source pollution is a significant cause of degradation of state waters. Within the Chesapeake Bay watershed, the immediate priority is to implement the Chesapeake Bay Total Maximum Daily Load (TMDL) Watershed Implementation Plans (WIP) developed by the Commonwealth and evaluated by the U.S. Environmental Protection Agency (EPA). The Chesapeake Bay Watershed Agreement, signed in 2014, renewed the commitments made in the 2010 TMDL to, "[b]y 2025, have all practices and controls installed to achieve the Bay's dissolved oxygen, water clarity/submerged aquatic vegetation and chlorophyll-*a* standards as articulated in the Chesapeake Bay TMDL document."

For watersheds outside of the Chesapeake Bay watershed, the goal is to achieve measurable improvements in water quality, which can include nutrient and sediment reductions, as well as reduction of other pollutants including bacterial contamination. Other uses of grant funds may include providing protection or restoration of other priority waters such as those containing critical habitat, serving as water supplies, or that target acid mine drainage or other nonpoint source pollution problems.

DCR distributes the nonpoint WQIF and VNRCF funds pursuant to § 10.1-2132 of the *Code of Virginia* and the Appropriation Act. This includes managing the allocation of funding to the Agricultural Cost-Share Program and the federally funded Conservation Reserve Enhancement Program (CREP). These

funding sources also provide cost-share funds to Virginia Agricultural Cost-Share (VACS) program participants to fund 100% of the cost of implementing qualifying livestock stream exclusion BMPs. DEQ is responsible for soliciting applications for Water Quality Initiative grants and Cooperative Nonpoint Source (NPS) Pollution Program Projects with local governments and managing the distribution of those nonpoint WQIF grants.

Agricultural Best Management Practices Cost-Share Program

Agricultural BMPs that are most effective in reducing excess nutrients and sediment from agricultural lands are implemented through the VACS Program managed by DCR under the Virginia Soil and Water Conservation Board's (VSWCB) allocation policy and guidance. BMPs installed through the program must be implemented in accordance with the Virginia Agricultural BMP Program Manual. Virginia's 47 Soil and Water Conservation Districts (SWCDs or Districts) administer the local implementation of the VACS program with funding from DCR to cover the cost-share expenditures, the technical assistance to administer the program, and essential funding for district operations. State financial support for FY 2025 was approximately $250.3 million.

Conservation Reserve Enhancement Program

WQIF and VNRCF funds support Virginia's commitment for participation in the U.S. Department of Agriculture's (USDA) CREP. Under the USDA-administered CREP, which is implemented through the Districts, eligible landowners may receive cost-share incentives for eligible BMPs for restoration of riparian buffers and wetlands, as well as rental payments (up to 15 years) for removing environmentally sensitive land from agricultural production and planting grasses or trees that will improve water quality and waterfowl and wildlife habitat. Virginia doubled its cost-share contributions for the restoration of forested riparian buffers adjacent to both pastureland and cropland from July 1, 2015 to February 28, 2017. This enabled the USDA Farm Service Agency to receive an additional $1 million with which to establish the Chesapeake Bay Incentive Payment for CREP participants within Virginia's portion of the Chesapeake Bay watershed. With the additional funding provided for CREP over this biennium, the state CREP match for FY 2025 remained at 50%.

Water Quality Initiatives

In FY 2014, DEQ became the lead nonpoint source agency in the Commonwealth for Section 319 of the Clean Water Act. DEQ and DCR work collaboratively to fund water quality initiatives to manage other nonpoint source pollution priority needs. These projects focus on priority, cost-effective, and innovative initiatives that further advance Virginia's NPS programs and provide for measurable water quality improvements. These include initiatives with other state agencies, SWCDs, Planning District Commissions (PDCs), local governments, educational institutions, and individuals on nonpoint source pollution reduction, education, research, and other NPS reduction activities such as acid mine land reclamation and nutrient management.

2025 WQIF & VNRCF Nonpoint Source Program Funds

Agricultural Cost-Share Allocations

DCR's emphasis for agricultural BMP implementation focuses on efficient nutrient and sediment reduction and includes priority practices such as cover crops, conservation tillage, nutrient management, livestock exclusion from streams, the establishment of vegetative riparian buffers, and animal waste facilities. Historical, annual cost-share totals are summarized below (Table 2.1).

Annual state cost-share allocations are based upon the Agricultural NPS Assessment and VSWCB policy. Hydrologic units with the highest potential to contribute agricultural NPS pollution to surface and ground waters receive the highest amounts of cost-share funds. Districts then rank cost-share applications and fund those applications that will provide the greatest amount of local water quality benefit.

Table 2.1: Historical Cost Data for Agricultural BMPs Completed by Fiscal Year

Program Year	Actual BMP Cost	Total Cost-Share Paid	State Cost-Share Paid	Non-State Cost-Share Paid	Other Funding Amount	Farmer Cost Before Tax Credit	Tax Credit Amount Issued
1998	$6,579,111.37	$4,086,016.91	$3,147,431.74	$938,585.17	$327,733.37	$2,165,361.09	$416,228.26
1999	$5,914,553.56	$4,438,993.05	$4,027,564.92	$411,428.13	$213,319.44	$1,262,241.07	$350,507.40
2000	$13,657,918.11	$8,301,893.63	$8,241,147.70	$60,745.93	$906,150.61	$4,449,873.87	$825,490.56
2001	$15,853,406.58	$7,850,195.91	$6,526,498.00	$1,323,697.91	$2,572,224.08	$5,430,986.59	$806,364.22
2002	$23,129,507.51	$8,360,639.54	$6,580,590.51	$1,780,049.03	$6,513,049.74	$8,255,818.23	$889,307.04
2003	$13,737,218.56	$3,201,082.16	$2,355,360.91	$845,721.25	$4,936,562.95	$5,599,573.45	$984,731.44
2004	$10,016,920.07	$2,771,069.24	$2,391,617.08	$379,452.16	$3,333,439.92	$3,912,410.91	$535,905.53
2005	$11,220,639.44	$4,317,587.05	$3,681,507.66	$636,079.39	$2,207,948.41	$4,695,103.98	$605,437.00
2006	$19,311,239.13	$9,602,914.69	$8,861,095.58	$741,819.11	$2,835,516.06	$6,872,808.38	$856,239.37
2007	$24,497,548.48	$15,208,729.37	$14,170,526.24	$1,038,203.13	$3,521,520.45	$5,767,298.66	$934,154.01
2008	$24,399,169.67	$13,892,012.86	$12,851,741.10	$1,040,271.76	$3,138,890.66	$7,368,266.15	$1,057,741.83
2009	$31,350,056.35	$16,068,967.68	$15,211,981.85	$856,985.83	$5,893,277.13	$9,387,811.54	$1,327,632.62
2010	$36,631,820.58	$23,185,213.00	$22,220,836.17	$964,376.83	$4,404,192.71	$9,042,414.87	$1,424,446.66
2011	$17,570,281.85	$10,680,823.29	$10,232,892.27	$447,931.02	$1,846,145.82	$5,043,312.74	$964,457.06
2012	$32,119,243.94	$21,467,712.08	$21,261,749.33	$205,962.75	$2,817,437.00	$7,834,094.86	$1,383,236.37
2013	$36,845,476.71	$27,981,843.59	$27,660,922.75	$320,920.84	$4,016,926.86	$4,846,706.26	$1,072,168.37
2014	$39,784,317.49	$30,757,783.12	$28,753,600.39	$2,004,182.73	$3,975,330.01	$5,051,204.36	$971,193.35
2015*	$78,492,863.64	$66,277,409.39	$62,511,750.91	$3,765,658.48	$5,498,501.15	$6,716,953.10	$1,069,688.51
2016	$17,065,446.08	$10,282,655.15	$9,916,772.89	$365,882.26	$1,081,809.23	$5,700,981.70	$886,436.03
2017	$27,507,485.21	$18,167,119.88	$17,576,796.92	$590,322.96	$2,583,765.91	$6,756,599.42	$842,508.40
2018	$31,927,598.78	$17,695,161.70	$14,692,606.17	$3,002,555.53	$4,715,870.02	$9,516,567.06	$1,778,664.65
2019	$29,062,391.36	$19,049,082.41	$17,774,194.86	$1,274,887.55	$3,643,040.25	$6,370,268.70	$1,130,151.82
2020**	$61,722,059.32	$50,063,367.78	$48,546,555.29	$1,516,812.49	$3,242,463.18	$8,416,228.36	$1,230,874.44
2021**	$48,964,957.95	$40,402,687.99	$38,021,812.90	$2,380,875.09	$1,984,608.51	$6,577,661.45	$663,765.01
2022**	$65,202,043.64	$53,612,087.77	$52,000,442.40	$1,611,645.37	$2,512,042.61	$9,077,913.26	$810,685.70
2023**	$94,742,361.17	$84,799,064.00	$82,930,463.59	$1,868,600.41	$3,381,957.38	$6,561,339.79	$766,426.32
2024**	$92,522,653.81	$87,507,949.93	$87,178,013.74	$329,936.19	$1,917,154.81	$3,097,549.07	$550,480.04
2025**	$86,667,602.27	$82,704,070.52	$82,549,896.47	$154,174.05	$356,827.50	$3,606,704.25	$143,946.93
State Totals	$996,495,892.63	$742,734,133.69	$711,876,370.34	$30,857,763.35	$84,377,705.77	$169,384,053.17	$25,278,868.94

*2015 figures will be adjusted each year as SL-6(T) BMPs that were obligated under the 100% SL-6 funding program are completed. Significant funding from FYs 2016 through 2021 was transferred to FYs 2013, 2014 and 2015 to cover 100% SL-6s.

**FY 2020 - 2025 figures do not include approved BMPs carried forward into FY 2025 that are awaiting completion

There are certain BMPs that are allowed to be implemented over more than one program year (July through June). Certain agronomic practices require actions to be taken in the spring and the fall to be deemed complete. Structural practices may be delayed by material or contractor shortages. The VACS Agricultural BMP Program Manual allows up to four program years for practices to be fully implemented and only under certain conditions. For FY 2025, there are a significant number of carryover practices, reflecting the increasing workload for contractors and the increased demand for materials (Table 2.2).

Table 2.2: Cost of Approved Carryover Practices by Fiscal Year

Program Year	Approved Carryover Remaining
2020	$108,452.57
2021	$726,233.62
2022	$986,368.12
2023	$6,774,366.19
2024	$20,825,429.59
2025	$50,099,556.28
State Totals	**$79,520,406.40**

Conservation Reserve Enhancement Program

The Virginia CREP is divided into two regions. The Chesapeake Bay CREP targets Virginia's entire portion of the Chesapeake Bay watershed and is aiming to restore 22,000 acres of riparian buffers and filter strips and 3,000 acres of wetlands. The Southern Rivers CREP aims to restore 13,500 acres of riparian buffers and filter strips and 1,500 acres of wetland restoration. A summary of Virginia CREP cost-share assistance to farmers during the period from July 2000 to June 2024 is provided in the following table (Table 2.3).

Table 2.3: CREP Summary FY 2001-2024 by Drainage by Fiscal Year

Drainage	Fiscal Year	Total Cost Share Payment	Area Buffer Restored (acres)	Miles Stream Bank Protected
Chesapeake Bay	2001	$321,247.50	1325.90	50.76
Chesapeake Bay	2002	$1,462,116.90	5032.10	258.35
Chesapeake Bay	2003	$602,270.38	1716.10	164.05
Chesapeake Bay	2004	$331,743.07	1965.40	101.30
Chesapeake Bay	2005	$219,240.64	1130.50	77.93
Chesapeake Bay	2006	$237,156.47	1609.94	84.79
Chesapeake Bay	2007	$228,218.64	545.20	50.10
Chesapeake Bay	2008	$354,493.72	1468.04	94.66
Chesapeake Bay	2009	$467,225.79	1411.70	97.53
Chesapeake Bay	2010	$646,097.21	1580.80	81.54
Chesapeake Bay	2011	$444,625.29	575.50	50.67
Chesapeake Bay	2012	$477,040.35	442.00	51.81
Chesapeake Bay	2013	$129,214.22	159.00	11.65
Chesapeake Bay	2014	$115,096.92	176.90	6.94
Chesapeake Bay	2015	$115,683.77	99.40	12.78
Chesapeake Bay	2016	$415,908.36	199.74	23.14
Chesapeake Bay	2017	$438,476.05	133.03	22.02
Chesapeake Bay	2018	$127,888.28	75.03	16.09
Chesapeake Bay	2019	$39,049.75	21.53	2.92
Chesapeake Bay**	2021	$51,739.95	43.34	3.81
Chesapeake Bay**	2022	$22,316.25	6.64	0.51
Chesapeake Bay**	2024	$75,395.75	15.64	2.14
Chesapeake Bay Totals:		**$7,243,794.90**	$3,061.56	5.82
Southern Rivers	2001	$275,966.34	606.80	41.98
Southern Rivers	2002	$1,011,454.63	2638.90	184.75
Southern Rivers	2003	$381,269.67	1964.40	102.79
Southern Rivers	2004	$391,879.34	1666.00	124.33
Southern Rivers	2005	$346,378.31	2207.90	145.18
Southern Rivers	2006	$226,412.45	1519.36	121.46
Southern Rivers	2007	$195,951.05	541.50	153.77
Southern Rivers	2008	$267,733.17	845.30	203.61
Southern Rivers	2009	$250,768.21	1787.96	98.33
Southern Rivers	2010	$388,281.49	481.80	42.73
Southern Rivers	2011	$333,779.04	292.50	27.48
Southern Rivers	2012	$405,606.84	535.10	33.90
Southern Rivers	2013	$271,355.39	516.18	23.69
Southern Rivers	2014	$244,332.22	151.80	28.69
Southern Rivers	2015	$314,990.14	228.10	28.78

Southern Rivers	2016	$670,504.24	225.90	30.29
Southern Rivers	2017	$611,499.30	247.66	31.25
Southern Rivers	2018	$279,177.31	86.70	21.68
Southern Rivers	2019	$155,608.35	71.14	12.14
Southern Rivers**	2020	$110,134.67	24.43	4.03
Southern Rivers	2021	$353,755.52	117.32	20.11
Southern Rivers	2022	$390,744.95	335.09	18.64
Southern Rivers	2023	$884,946.58	158.72	24.89
Southern Rivers	2024	$222,923.40	29.48	7.04
Southern Rivers	2025	$13,439.50	3.24	0.35
Southern Rivers Totals:		**$8,998,892.11**	**17,283.28**	**1,531.89**
Statewide Totals:		**$16,324,198.93**	**37,022.53**	**2,797.38**

*Prior years' figures are adjusted each year as CREP practices that were previously obligated are completed. While no BMPs were completed in the Chesapeake Bay drainage for 2025 there are several BMPs in progress.

**Due to the delay in restarting the CREP Program, 2020 signups were significantly lower than previous years including no completed BMPs in the Chesapeake Bay drainage for 2020

Strategic Water Quality Initiatives

Resource Management Plans

Virginia's Resource Management Plan (RMP) Program provides a voluntary way to promote the use of BMPs that improve water quality and agricultural operations. RMPs are designed to encourage producers to implement a high level of BMPs to reduce pollution and, in many instances, to increase the producer's profitability. By participating in the RMP Program and fully implementing an RMP, the producer is considered to be in compliance with any new state nutrient, sediment, and water quality standards for a period of nine years. As of June 30, 2025, 220 RMPs, including over 55,000 acres, have been certified as fully implemented. Additionally, 389 RMPs, including nearly 79,000 acres, are included in an RMP that is currently being implemented (*i.e.*, not yet certified). The certified RMPs within the Chesapeake Bay watershed include over 48,000 acres. Nearly 70,000 additional acres within the Chesapeake Bay watershed are included in an RMP that is currently being implemented. There are more than 6,600 acres outside of the Chesapeake Bay watershed that are certified and more than 7,500 acres are included in an RMP that is currently being implemented. There are approximately 50 RMPs currently under development. It is anticipated that these RMPs include approximately 9,000 acres and will be approved in Program Year 2026. RMPs currently being developed or certified are incentivized through the direct pay initiative DCR began in FY 2021. This successful initiative does not require RMP developers to respond to a Request for Applications (RFA) but instead provides payment for RMP development on a first-come, first-served basis until available funding has been obligated.

Livestock Stream Exclusion in Virginia

In FY 2020, the VACS stream exclusion options were expanded, giving agricultural producers a variety of cost-share options including continued funding for up to 100% of the practice cost based upon buffer

width and contract lifespan (*i.e.*, 5 to 15 years). Wide width buffers greater than or equal to 35 feet also receive a per-acre buffer payment to incentivize these effective practices. The wide variety of options and buffer payment has led to increased sign-ups. In FY 2022, a portable stream fencing practice became eligible for state cost share for the first time. Starting in FY 2023, a stream exclusion option specifically for floodplains where fencing is likely to be destroyed by flooding was made available.

The Small Herd Initiative started in FY 2021 and provides cost-share funding to small producers that choose to implement one of the VACS livestock stream exclusion practices. In FY 2023, $7 million was provided in the state budget for the Small Herd Initiative, enabling the pilot program to be expanded statewide. This Initiative is for producers who meet all the VACS eligibility requirements and who manage between 20-49 bovines. Producers are eligible to receive up to 100% of the cost of the practice, up to $50,000.

Whole Farm Approach Pilot Project

DCR, with approval from the VSWCB, developed a Whole Farm Approach (WFA) pilot project that began in 2019 at one District. This pilot allows an agricultural producer to submit a single cost share application for a bundle of agricultural BMPs, including their choice of nutrient management, precision nutrient management, and cover crop practices. This significantly simplifies the process for the producer. This pilot has increased producer participation and provides information on all the BMPs implemented or installed on the agricultural operation, not just information on the BMPs funded by WFA. The WFA was slightly expanded in FY 2021 to include the Chesapeake Bay watershed portion of the Eastern Shore. In FY 2023, the WFA was expanded again and has continued to expand each year to include a total of 18 SWCDs in FY 2025: Eastern Shore (Accomack and Northampton counties), Halifax (Halifax County), Holston River (Washington County), New River (Carroll and Grayson counties and the City of Galax), Shenandoah Valley (Rockingham County), Tidewater (Gloucester, Mathews, and Middlesex counties), and Three Rivers (Essex, King and Queen, and King William counties), Blue Ridge (Franklin, Henry, and Roanoke counties and the City of Roanoke), Clinch Valley (Russell County), Hanover-Caroline (Hanover and Caroline counties), Northern Neck (Westmoreland, Northumberland, Richmond, and Lancaster counties), Peanut (Isle of Wight and Surry counties and the City of Suffolk). This very successful pilot will be further expanded in FY 2026 to include an additional three SWCDs.

Updates to the Virginia Nutrient Management Training and Certification Program

The Virginia Nutrient Management Training and Certification Program (NMTC) has been certifying qualifying individuals to prepare nutrient management plans since 1996. In FY 2023, DCR took actions to better integrate technology into the Program with the goal of reaching a broader audience of individuals interested in being certified to prepare nutrient management plans. These actions continued in FY 2025; the DCR website now allows the completion of submission of the application for nutrient management certification. Improvements have been made to the Nutrient Management Module included in the Conservation Application Suite that certified planners use to create plans. This is now offered to all planners, not just those employed by DCR. These are significant advances in collecting accurate and detailed data from certified nutrient management planners and making the certification process more user friendly to those who wish to become certified.

Virginia Conservation Assistance Program

The Virginia Conservation Assistance Program (VCAP) was established to assist the Commonwealth in meeting its Chesapeake Bay TMDL reduction targets for urban and residential areas, including localities with Municipal Separate Storm Sewer Systems (MS4s). VCAP fills a critical gap by providing cost-share and technical assistance to landowners in urban, suburban, and rural areas to control erosion and runoff on non-agricultural lands where other cost-share programs are not applicable. VCAP empowers Districts to promote efforts for voluntary corrective action on developed land through the implementation of retrofitted BMPs.

The VASWCD administers VCAP. Virginia's Districts, with qualified, trained, and experienced staff, implement the voluntary stormwater BMPs and cost-share program for public, private, and non-profit landowners. Since March 2016, $10,952,242 in cost-share funding has been obligated through VCAP and $1,090,900 has been provided for technical assistance. Projects have been completed across a wide variety of properties, with the support of partner agencies, educators, and contractors. Most practices are eligible for 80% cost share and some practices provide a flat incentive payment up to the cost of installation. Since 2016, 1,330 projects have been approved for cost share.

Throughout VCAP's history, landowners have shown dedication to environmental stewardship. They have invested nearly $9 million of their own money, supplementing the almost $11 million in cost-share provided by VCAP. This private contribution underscores the powerful impact of conservation investments and highlights a shared commitment to protecting Virginia's natural resources.

VCAP BMPs are practical and accessible to the average landowner. They not only treat an identified and active water quality resource concern, but they have tangential benefits to Virginia's overall resilience. One property at a time, VCAP practices effectively reduce stormwater runoff, support biodiversity through native habitats, help recharge groundwater, and create valuable educational opportunities within communities. In fiscal year 2025-2026, $4 million was provided in the state budget for VCAP, which is currently the exclusive source of cost-share and technical assistance supporting VCAP BMP implementation for qualifying landowners.

The VASWCD, with guidance from the VCAP Steering Committee and VCAP Technical Advisory Committee, continues to focus on strategies to improve the program and accessibility. Alternative payment strategies have been developed to reduce participation barriers. Districts may opt into a start-up payment process that allows payment of certain BMP costs upfront in order to offset an applicant's out-of-pocket expenses, as well as encourage more contractors to participate in the Program. Additionally, Districts may opt to offer a direct pay structure, directing cost-share to the technical provider instead of the landowner, shifting tax responsibilities. The VASWCD continues to support outreach events and program growth encouraging not only homeowner projects but those located on community properties, such as churches, community meeting facilities, and schools.

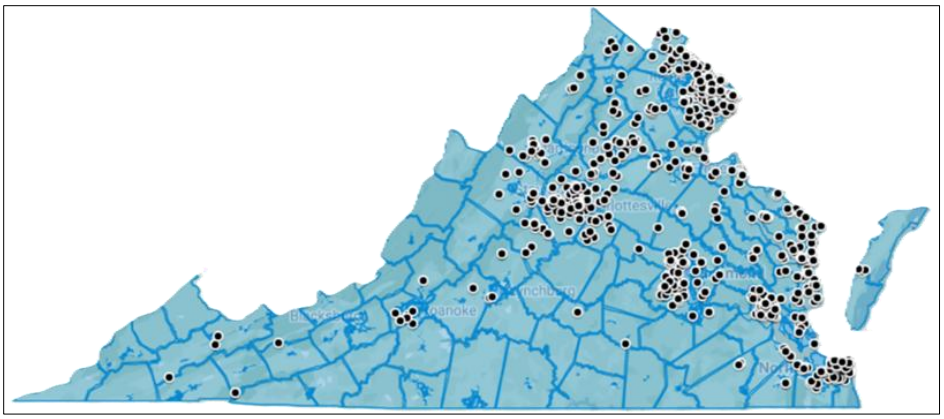

Figure 2.1 VCAP BMPs Across Virginia

While 30 of Virginia's 47 SWCDs have active VCAP BMPs, the Chesapeake Bay Watershed shows particularly strong participation, with 26 of its 31 SWCDs (84%) having in-lifespan VCAP BMPs (Figure 2.1).

Table 2.4 tracks the popularity and trends of VCAP practices by type from program inception through FY 2025 ending June 30, 2025. Conservation Landscaping is the most popular practice, thanks to its five adaptable subtypes. Further, Permeable Pavement has treated over 10 acres of impervious surfaces and Living Shoreline initiatives have restored over 3.6 miles of shoreline, both showing significant popularity increases over program time.

Table 2.4 VCAP Practice Analytics

Approved Practices:	Total	PY16	PY17	PY18	PY19	PY20	PY21	PY22	PY23	PY24	PY25	PY26	Trend	% Change in Popularity PY16 to PY25
Conservation Landscaping =	**542**	24	79	48	28	30	35	19	51	102	117	9		388% ▲
Permeable Pavement =	**335**	0	27	23	30	71	64	7	38	28	45	2		188% ▲
Rain Garden =	**121**	10	16	8	7	14	9	9	11	20	16	1		25% ▲
Living Shoreline =	**120**	0	4	15	8	10	5	2	15	20	37	4		154% ▲
Impervious Surface Removal =	**61**	2	23	19	1	1	2	0	4	3	3	1		4% ▲
Rainwater Harvesting =	**70**	15	8	5	3	2	3	3	7	9	13	2		8% ▼
Dry Well =	**29**	4	4	1	3	2	2	1	4	2	6	0		8% ▲
Vegetated Stormwater Conveyance =	**22**	0	3	2	2	1	1	4	2	1	6	0		25% ▲
Bioretention =	**16**	1	4	2	0	2	1	0	1	4	1	0		0% ◄►
Infiltration =	**9**	0	0	1	2	1	1	0	2	0	1	1		4% ▲
Green Roof =	**3**	2	1	0	0	0	0	0	0	0	0	0		8% ▼
Constructed Wetland =	**2**	0	0	0	0	0	0	0	0	0	2	0		8% ▲
Total Projects Approved = 1,330														

Increased Marketing and Outreach Efforts to Small Farms and Minority Producers

In FY 2022, DCR and Virginia State University – Small Farms Outreach Program (SFOP) established a partnership to increase the awareness of smaller acreage producers, veterans, and minority producers of the opportunities available from DCR and Districts. SFOP now operates in three states, Virginia, Maryland, and West Virginia. When the partnership with DCR began, SFOP conducted a survey of client producers to determine how many were aware of both state and federal cost-share programs. A large majority of the producers surveyed were unaware of VACS and the other programs offered in Virginia such as nutrient management planning. In an effort to address this, Districts continue to be required to conduct an outreach event, and invite SFOP to participate. This has been an annual grant agreement deliverable for SWCDs since FY 2023. For many Districts, conducting outreach events is a routine part of assisting producers; however, there are many Districts that did not have a robust outreach program.

Coordinating with DCR, SFOP continued to provide small farm events with two held in 2025. These events encouraged SFOP's producers to learn about BMPs and management techniques that have worked well for similar operations. DCR has dramatically increased its own outreach activities. DCR staff continue to attend Virginia's Annual Ag Expo and other agricultural organization conferences. This direct contact with producers and partners has led to enhanced awareness of programs and additional participation in VACS. In the FY 2025, there were 588 new VACS Program participants. There was also expanded interest in other agriculture programs, such as DCR's Direct Pay Nutrient Management Program and the Whole Farm Approach. DCR continues to seek additional opportunities to increase market penetration and participation in all of its agricultural programs.

Increased Training Efforts

DCR, working with the VASWCD, has continued to offer and expand the training offered to SWCDs and other partners. Both in-person and virtual trainings and informational sessions are routinely offered. DCR has prioritized providing the courses required for individuals to become certified conservation planners with all required courses to achieve certification during calendar year 2025.

Continued trainings have been offered regionally on the revisions to the VACS Program as well as trainings for individual BMPs. Sessions on best practices for engineered BMPs have been routinely offered as well.

Including partners in training opportunities continues to be prioritized. Multiple occasions are provided for partner organizations to discuss programs and initiatives including the VASWCD annual meeting, annual District employee training, trainings on VACS revisions, and through the conservation planning curriculum.

WQIF Point Source Program

Since 1998, 107 point source WQIF grant agreements obligating $1.04 billion have been signed. The construction project grants range from 35% to 95% cost-share for design and installation of nutrient reduction technology at Chesapeake Bay watershed point source discharges. WQIF point source grants provide critical support for compliance with the nutrient discharge control regulations and achieving

Chesapeake Bay nitrogen and phosphorus waste load allocations. Ninety-two of the projects have been completed and are operational.

Since its formation in 1998, the WQIF Point Source Program has received a total of $1.622 billion in appropriations, bond proceeds, monetary assessments, and accrued interest. Part of that total was in the General Assembly's most recent WQIF point source commitment in FY 2024; authorization was given for up to $400 million in bonds to be issued to support point source nutrient reduction and conveyance projects in the Chesapeake Bay watershed. Approximately $95.3 million of the $1.622 billion total funding was used for 24 grants prior to the adoption of nutrient discharge control regulations in late 2005. A total of $4.01 million was awarded for 39 technical assistance grants, including Basis of Design Reports, Interim Optimization Plans, and startup support for the Nutrient Credit Exchange Association; all have been completed. In 2011, $3 million was set aside for the James River Chlorophyll Study, which has been completed with revised water quality criteria and assessment methods adopted by the State Water Control Board on June 27, 2019. EPA subsequently approved the new criteria and they became effective on January 6, 2020. A relatively small balance of WQIF funds remained after the James River Study ended and were targeted for the Virginia Institute of Marine Sciences (VIMS) for modeling work for the James River. The model has been used to evaluate point source nutrient reduction scenarios and chlorophyll criteria attainment and is the basis of revised wasteload allocations being considered for selected significant discharges in the James River basin.

The balance of WQIF grants have been awarded for the design and installation of nutrient reduction technology and conveyance infrastructure needed to meet the total nitrogen and total phosphorus waste load allocations assigned to the significant dischargers in the Chesapeake Bay watershed under the EPA–adopted Chesapeake Bay TMDL. As of June 30, 2025, the grant amount owed under existing, signed WQIF agreements was $ 181,001,537.13.

It should be noted that all grantees are obligated to complete their projects regardless of the amount of grant funds received. The Commonwealth commits to fully funding all grant agreements, subject to the availability of funds. Additionally, the Director of DEQ is statutorily mandated to enter into agreements with all eligible applicants regardless of the availability of WQIF funds.

Legislation enacted following the 2019 General Assembly session added the design and installation of certain wastewater conveyance infrastructure as an eligible project type for WQIF point source funding provided certain conditions established in the *Code of Virginia* are satisfied. DEQ drafted guidance for evaluating and implementing those projects with stakeholder input and provided the guidance for a 30-day public review period. No comments were received, and the guidance became effective on August 15, 2021.

WQIF & Virginia Natural Resources Commitment Fund Nutrient Reductions

Estimated Nutrient Reductions from Nonpoint Source WQIF-Funded Projects

During FY 2025, WQIF and VNRCF funding supported agricultural BMPs that are expected to reduce edge of field nutrient and sediment losses by approximately 14.1 million pounds of nitrogen, 4.6 million

pounds of phosphorus, and 1.4 million tons of sediment (Table 2.5). CREP implementation is included in the above reductions. A table of nutrient and sediment reductions resulting from the implementation of agricultural BMPs is provided below.

Table 2.5: Historic Edge of Field Nutrient/Sediment Reductions Resulting from Agricultural BMP Implementation by Fiscal Year – State Funding Only

Fiscal Year	Total N Reduction (lbs./year)***	Total P Reduction (lbs./year)***	Total Soil Loss Reduction (tons/year)
1998	1,354,471.85	297,694.29	250,783.40
1999	765,329.20	144,723.47	145,377.12
2000	2,311,011.24	449,102.30	430,289.62
2001	1,507,861.85	377,642.45	240,639.43
2002	1,650,676.00	363,671.55	282,882.04
2003	1,155,992.20	269,781.24	185,706.04
2004	532,797.77	107,027.24	98,081.64
2005	1,190,042.54	268,827.02	200,792.54
2006	1,991,936.86	435,996.64	353,497.26
2007	4,687,542.42	1,505,745.48	473,657.43
2008	6,092,551.80	1,652,536.40	832,054.06
2009	4,482,673.28	1,180,191.79	608,187.72
2010	6,705,627.12	2,033,817.75	756,966.13
2011	5,982,103.02	1,775,930.72	834,204.85
2012	9,564,194.54	2,905,017.23	1,300,785.96
2013	10,266,298.81	3,087,566.14	1,387,148.73
2014	7,658,889.52	2,614,919.41	719,986.25
2015*	9,543,840.64	3,358,596.50	773,283.28
2016	7,548,122.75	2,929,674.88	439,561.38
2017	10,953,577.13	3,754,230.74	932,643.72
2018	9,670,343.77	3,189,616.59	907,594.04
2019**	10,743,330.76	3,728,957.36	890,738.42
2020**	14,855,319.83	5,287,035.50	1,188,854.29
2021**	11,656,565.73	4,129,651.71	907,267.40
2022**	12,070,654.67	4,276,637.73	978,242.90
2023**	12,734,910.67	4,179,203.34	1,288,995.07
2024**	13,162,299.06	4,324,265.72	1,329,022.14
2025**	14,083,595.40	4,645,834.78	1,433,197.25

*2015 figures will be adjusted each year as SL-6(T) BMPs that were obligated under the 100% SL-6 funding program are completed

**FY 2019 - 2025 figures do not include approved BMPs carried forward into FY 2025 that are awaiting completion

***Total N and P Reduction numbers now include estimates for Nutrient Management BMPs

Estimated Nutrient Reductions from Point Source WQIF-Funded Projects

To date, 70 of the 80 construction projects with signed grant agreements after 2007 for the installation of nutrient reduction technology, including wastewater conveyance infrastructure projects, have initiated operation. With these projects coming on-line, annual nutrient loads discharged from wastewater plants in the Chesapeake Bay watershed have declined dramatically. From 2005 to 2024, annual nitrogen discharges were reduced by about 7,716,635 pounds; phosphorus annual loads were reduced by almost 620,034 pounds, exceeding the milestone commitments set in Virginia's WIP for both nutrients. Because of these ongoing nutrient control upgrades and facilities operating below their design capacity, point source loads continue to be below the allocations called for in the WIP and TMDL.

Chapter 3 - Water Quality Improvement Fund Requests Estimates Report

The Water Quality Improvement Fund (WQIF) is a non-reverting fund established to provide Water Quality Improvement Grants in accordance with the provisions of the Virginia Water Quality Improvement Act of 1997. DEQ, in accordance with § 10.1-2134.1 of the Code of Virginia and in consultation with stakeholders, including representatives of the Virginia Association of Municipal Wastewater Agencies (VAMWA), local governments, and conservation organizations, is required to annually determine an estimate of the amount of WQIF grant funding expected to be requested by local governments for eligible point source pollution projects.

The methodology for estimating the amount of WQIF grant funding expected to be requested by local governments was established by DEQ in consultation with wastewater stakeholders from VAMWA. An electronic survey was created in consultation with stakeholders and distributed, with the assistance of VAMWA, to significant dischargers (localities, publicly owned treatment works, and sanitation authorities) in the Chesapeake Bay watershed. The survey requested: 1) general information: facility name and contact information, 2) programmatic information: WQIF funding needs over a five-year time horizon (Fiscal Year (FY) 2026 to FY 2030 projects identified in Capital Improvement Plans or equivalent documents issued by the locality), and 3) total project cost with no time horizon to include entire project costs beyond FY 2030.

In total, 23 survey responses from 13 prospective grantees were received. DEQ program staff took the self-reported estimated total project cost and determined the WQIF eligible project cost from that amount (i.e. only nutrient removal portions of the project are eligible for funding). These WQIF eligible project cost amounts were then multiplied by the estimated eligible grant percentage for each survey respondent to determine the estimated eligible grant amount for each proposed project. Virginia Code § 10.1-2131 determines the percentage of eligible project costs that can be funded for each community based on the ratio of annual sewer charges to reasonable sewer cost. For consistency, the grant percentage from a previous WQIF grant or current application for each locality was utilized for the calculation. If the locality did not have a grant or current application, the percentage was calculated utilizing census data and publicly available average sewer charges (this amount varies by respondent and project).

The total estimated project cost for all 13 projects was $3.56 billion, with WQIF-eligible project costs estimated to be $1.74 billion (Table 3.1). Based on the estimated eligible grant percentage for each survey respondent, the amount of WQIF point source funding needed with no specified time horizon totals $1.2 billion (Table 3.1). The portion of WQIF point source funding needed for Enhanced Nutrient Removal Certainty (ENRC) Program projects, necessary to meet permit limits under the ENRC Program established in § 62.1-44.19:14 of the Code of Virginia, with no specified time horizon totals $1.06 billion, and is included in the $1.2 billion previously referenced.

Table 3.1: 2025 WQIF Needs Survey Results – Total Project Costs (No Time Horizon)

Estimated Total Project Costs	WQIF-Eligible Project Costs	Estimated Eligible Grant Total
$3,556,183,535	$1,742,926,951	$1,204,133,162

In the FY 2026 to FY 2030 timeframe, the eligible project cost for those anticipating WQIF funding requests totaled $1.64 billion and, based on the estimated eligible grant percentage for each respondent, the estimated amount of programmatic WQIF point source funding needed through FY 2030 is $1.17 billion (Table 3.2).

Table 3.2: 2025 WQIF Needs Survey Results – WQIF Point Source Funding Need for 2026 to 2030

WQIF Grants	2026	2027-2028 Biennium		2029-2030 Biennium		Total Need (2026 – 2030)
	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	
Applicant	$419,727,590	$401,889,942	$129,330,219	$105,165,103	$113,445,308	$1,169,558,162
TOTALS	**$419,727,590**	**$531,220,161**		**$218,610,411**		**$1,169,558,162**

In addition to the WQIF funding needs reported in this year's needs assessment, it is important to note the current state of the fund (see Table 3.3). The unobligated WQIF fund balance totals approximately $622 million. As of August 4, 2025, there are 12 active grant agreements, 6 draft grant agreements posted for public comment, and 2 funding applications under evaluation. The impact of these 8 future obligations to the fund is listed in Table 3.3 below in the row labeled "*WQIF Application Future Obligations*." Utilizing the WQIF funding needs reported in this year's assessment and estimated grant amounts from current applications not represented in the needs assessment, the estimated shortfall for WQIF point source projects through FY 2030 is approximately $669 million (see Table 3.3).

Table 3.3: Current WQIF Account Balance and Estimated WQIF Shortfall (FY 2026 – FY 2030)

Current Unobligated WQIF Balance	$622 million
WQIF Application Future Obligations (based on estimated grant application amounts not represented in needs assessment)	($794 million)
WQIF Needs Assessment Eligible Projects (based on estimated grant amounts in the needs survey)	($497 million)
Projected WQIF Shortfall	**($669 million)**

Chapter 4 - Stormwater Local Assistance Fund (SLAF) Requests Estimates Report

The purpose of the Stormwater Local Assistance Fund (SLAF) is to provide matching grants to local governments for the planning, design, and implementation of stormwater best management practices and for nonpoint source nutrient credit purchases. In accordance with § 62.1-44.15:29.2 of the *Code of Virginia*, DEQ in consultation with stakeholders including representatives of the Virginia Municipal Stormwater Association (VAMSA), local governments, and conservation organizations, is required to annually determine an estimate of the amount of stormwater local assistance matching grants expected to be requested by local governments for projects that are related to planning, designing, and implementing stormwater best management practices (BMPs) and nonpoint source nutrient credit purchases that are eligible for funding from SLAF.

For Fiscal Years (FY) 2026 to 2030, it is estimated that approximately $236 million could be requested from the SLAF program (see Figure 4.1). Because SLAF is a matching grant program, this total represents up to 50% of the total funds expended on stormwater BMPs and nonpoint source nutrient credit purchases, with the other portion being made up by financial contributions from localities.

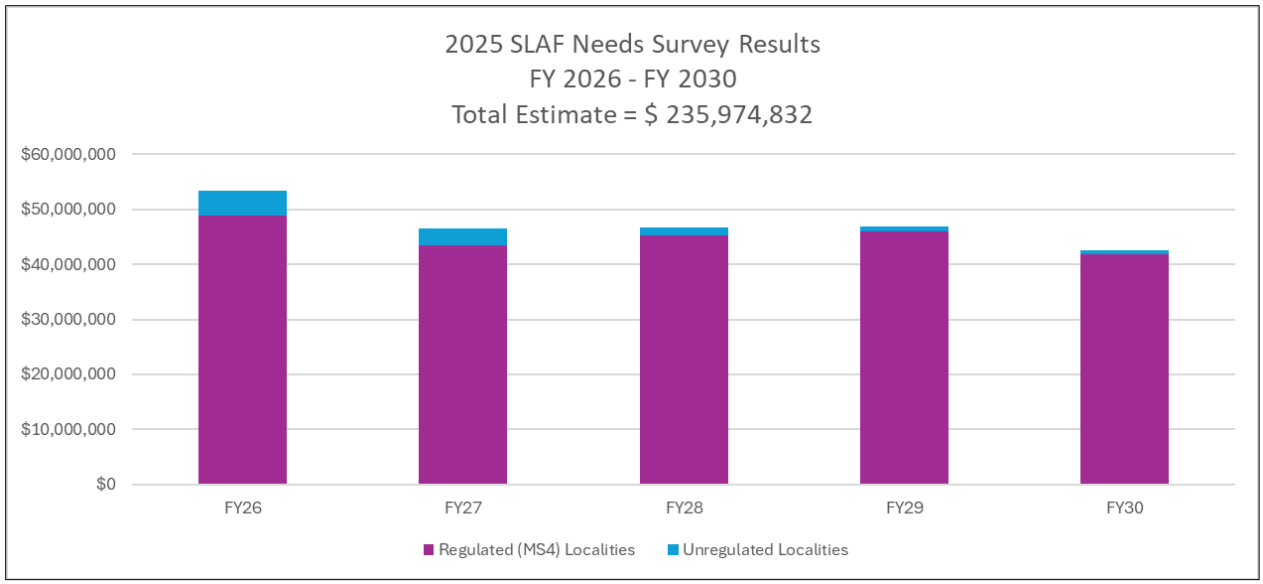

Figure 4.1: 2025 SLAF Needs Survey Results (FY 2026 – 2030)

In addition to the SLAF funding needs reported in this year's needs assessment, it is important to note the current unobligated SLAF fund balance totals approximately $22.6 million. DEQ expects to fully obligate the remainder of these funds this fiscal year based on the anticipated number of applications to be received during the SLAF solicitation period, between August 1 and October 1, 2025.

The methodology for estimating the amount of SLAF matching grants expected to be requested by local governments was established by DEQ in consultation with stormwater stakeholders, including VAMSA, Virginia Municipal League (VML), Virginia Association of Counties (VACO), Chesapeake Bay Foundation (CBF), Northern Virginia Regional Commission (NVRC), Hampton Roads Planning District Commission (HRPDC), and the James River Association (JRA). An electronic survey was created in consultation with these stakeholders and distributed to localities. The survey requested: general, programmatic, and project specific information from localities. General information included the locality name and contact information. Programmatic information was requested on future SLAF funding needs over a five-year time horizon (FY 2026 to FY 2030). This timeframe was selected because it generally aligns with the time horizons of typical local Capital Improvement Plans (CIP), Municipal Separate Storm Sewer System (MS4) Permit terms, and Total Maximum Daily Load (TMDL) Action Plans. Project specific information supporting the FY 2026 SLAF funding need was requested based on the assumption that planning or design information would be available for projects that are likely to be the subject of an FY 2026 SLAF grant application.

This year's SLAF needs survey ran from April 1 through May 16, 2025. A total of 33 complete responses to the survey were received. All 33 localities identified a programmatic funding need over the five-year time horizon, with 30 responses coming from regulated MS4 Permit holders. Responses from 26 of those localities identified project specific funding needs for FY 2026 totaling $53,391,104.

The total amount of SLAF funding needed through FY 2030 to fully fund all needs identified in the survey is $235,974,832 (see Table 4.1). The following is a breakdown of funding need by fiscal year:

Table 4.1: 2025 SLAF Needs Survey Results

Applicant	2026	2027-2028 Biennium		2029-2030 Biennium		Total Need
	FY26	FY27	FY28	FY29	FY30	
Regulated (MS4) Localities	$48,935,335	$43,494,528	$45,218,000	$45,979,118	$41,904,188	$225,531,169
Unregulated Localities	$4,455,769	$3,097,734	$1,436,254	$878,939	$573,967	$10,443,663
FY Totals	$53,391,104	$46,592,262	$46,654,254	$46,859,057	$42,478,155	$235,974,832
TOTALS	**$53,391,104**	**$93,246,516**		**$89,337,212**		**$235,974,832**

The survey format will remain consistent for next year to allow for multi-year comparisons, with updated questions relating to new regulatory changes.

Chapter 5 - Annual Funding Needs for Effective Implementation of Agricultural Best Management Practices

In accordance with subsection C of § 10.1-2128.1 of the Water Quality Improvement Act, the Department of Conservation and Recreation (DCR), in consultation with a stakeholder advisory group (SAG), including representatives of the agricultural community, the conservation community, and the Soil and Water Conservation Districts (SWCDs or Districts), determines the funding needs for effective SWCD technical assistance and implementation of agricultural best management practices (BMPs). Pursuant to § 2.2-1504 of the *Code of Virginia*, DCR must provide to the Governor the annual funding amount needed for each year of the ensuing biennial period. For Fiscal Years (FY) 2025-2032 a revised estimate of over $1.7 billion may be required from state and federal funds, as well as farmer financial contributions, to meet water quality goals (Figure 5.1 and Table 5.1). Approximately 46% of this total (nearly $791 million) could be needed from State sources for direct funding of the Virginia Agricultural Cost-Share (VACS) Program, associated technical assistance and operational support for SWCDs that implement the VACS program.

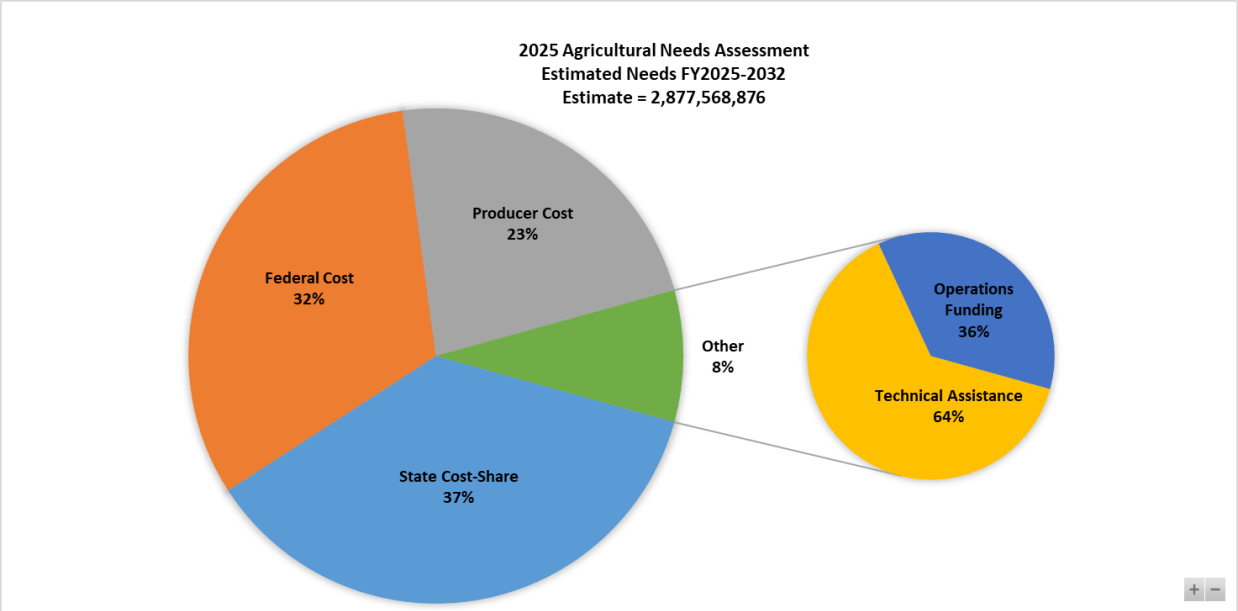

Figure 5.1: 2025 Agricultural Needs Assessment Summary

Virginia's Phase 3 Chesapeake Bay Total Maximum Daily Load (TMDL) Watershed Implementation Plan (WIP III) was finalized on August 23, 2019. The methodology for the Agricultural Needs Assessment was revised in 2020 to accurately reflect the commitments made by Virginia in WIP III. Although Virginia made excellent progress towards the 2025 nutrient reduction goals as of the FY 2024 progress report, significant investments in agricultural BMP implementation continue to be needed. Most notably, ongoing funding for annual BMPs, such as nutrient management and cover crops, is needed to maintain and expand the progress Virginia has made through FY 2024. Practices such as animal waste storage livestock stream exclusion, and both grass and forested riparian buffers continue to demonstrate significant gaps in

achieving implementation goals. Both animal waste management and livestock stream exclusion practices are suspected of having high numbers of implemented practices that are not included in our BMP tracking systems. As the completeness of Virginia's data improves through various efforts, including a survey of farmers conducted by Virginia Cooperative Extension and improvements to NRCS data reporting, the needs assessment will be adjusted.

The Agricultural Needs Assessment for FY 2024-2032 uses recent BMP cost data from Virginia and where BMP cost data was lacking in Virginia, from the Chesapeake Bay Program (CBP). DCR used the implementation progress made by Virginia through FY 2024, which has been accepted by EPA, to calculate the additional practices needed to fulfill the WIP III agricultural BMPs goals and achieve the expected reductions for the agricultural sector.

For the Southern Rivers areas, the needs assessment is based on the Chesapeake Bay annual cost estimates and a split of 70% to the Chesapeake Bay watershed and 30% to lands outside of the Chesapeake Bay watershed (the Southern Rivers watershed). Implementation in the Southern Rivers is not affected by the 2025 deadline associated with the Chesapeake Bay TMDL or by Virginia's 2027 goal WIP completion date enacted in Chapters 735 and 736 of the 2023 Session Acts of Assembly. TMDL implementation plans for local rivers and streams in the Southern Rivers area require significant implementation of agricultural BMPs to help address those local water quality impairments. The 70/30 split used to estimate Southern Rivers agricultural needs has been determined to be sufficient through 2027. Upon full implementation of the WIP in the Chesapeake Bay, a reassessment of this split or modified approach to estimate Southern Rivers implementation costs will be needed.

The total annual implementation costs are then divided between the various funding sources: federal (35% [assumed]), state (40%) and agricultural producer (25%). In developing the Agricultural Needs Assessment, the Agricultural Needs Assessment Workgroup held significant discussion and raised concerns about the divisions between the funding sources. In 2024, there was a nearly $97 million shortfall between the estimated financial support needed from federal sources and the projected federal funding to Virginia NRCS; this significant shortfall has continued for FY 2025 The Workgroup discussed reducing the percentage of funding that is assumed from federal sources or including the "federal gap" between the estimated need and the actual funding received in the state's portion of the Assessment. However, for this Assessment the federal shortfall is left as a federal responsibility, as no consensus about how to address this gap was reached by the Workgroup.

Table 5.1 below has been modified to show the calculated federal funding needs for each biennium as well as the estimated federal gap for 2025. Regardless of federal funding levels, Virginia is responsible for achieving the Chesapeake Bay WIP III goals. With that in mind, future federal funding shortfalls may need to be accounted for at the state level.

Costs through June 2024 were not adjusted and reflect actual program allocations; however, estimated costs for all remaining agricultural practices needed through FY 2032 were determined as follows:

- The agricultural BMP implementation "delta" between CBP approved FY 2024 progress and the WIP III Agricultural BMPs was determined.

- Remaining implementation for each BMP was divided equally among the three years left to the 2027 WIP completion timeline for all practices. The 2027 goal WIP completion date was based on the changes enacted in Chapters 735 and 736 of the 2023 Session Acts of Assembly.
- Practice costs were calculated for all remaining implementation using 2021-2023 VACS average costs or the Virginia Soil and Water Conservation Board-approved increased practice rates where applicable, with an additional 2.54% inflation adjustment based on 2025 projected inflation.
- The actual FY 2025-2026 VACS Program funding was received and actual federal 2024 and projected 2025 funding was documented.
- A 3% annual repair and replacement rate for all structural practices was assumed.
- The technical assistance funding was calculated at a rate of 15%.

Table 5.1: 2025 Agricultural Needs Assessment – Biennial Needs Summary with All Data

2025 Agricultural Needs Assessment - Biennial Needs Summary with All Data

Estimated Costs							2025-2026 Biennium		2027-2028 Biennium		2029-2030 Biennium		2031-2032 Biennium	
									2027 Target Year					
2019-2032	**FY19 Funding***	**FY20 Funding***	**FY 21 Funding***	**FY 22 Funding***	**FY 23 Funding***	**FY 24 Funding***	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
CHESAPEAKE BAY STATE COST SHARE	**$14,384,534**	**$39,486,279**	**$26,466,959**	**$48,860,000**	**$86,052,479**	**$87,220,000**	**$172,688,551**	**$178,968,404**	**$185,380,037**	**$49,847,702**	**$49,847,702**	**$49,847,702**	**$49,847,702**	**$49,847,702**
CHESAPEAKE BAY TECHNICAL ASSISTANCE	**$2,141,348**	**$6,367,656**	**$3,883,068**	**$6,351,800**	**$11,185,143**	**$11,338,600**	**$25,903,283**	**$26,845,261**	**$27,807,006**	**$7,477,155**	**$7,477,155**	**$7,477,155**	**$7,477,155**	**$7,477,155**
CHESAPEAKE BAY PRODUCER PORTION							$107,930,345	$111,855,253	$115,862,523	$31,154,814	$31,154,814	$31,154,814	$31,154,814	$31,154,814
CHESAPEAKE BAY FEDERAL PORTION	$15,960,273	$15,401,409	$20,641,081	$22,174,025	$30,713,325	$39,847,180	$151,102,482	$156,597,354	$162,207,532	$43,616,739	$43,616,739	$43,616,739	$43,616,739	$43,616,739
OCB STATE COST SHARE	**$9,613,603**	**$17,608,120**	**$12,697,099**	**$20,940,000**	**$36,881,589**	**$37,380,000**	**$74,009,379**	**$76,700,745**	**$79,448,587**	**$21,363,301**	**$21,363,301**	**$21,363,301**	**$21,363,301**	**$21,363,301**
OCB TECHNICAL ASSISTANCE	**$1,431,125**	**$2,890,794**	**$1,966,931**	**$2,722,200**	**$4,793,887**	**$4,859,400**	**$11,101,407**	**$11,505,112**	**$11,917,288**	**$3,204,495**	**$3,204,495**	**$3,204,495**	**$3,204,495**	**$3,204,495**
OCB PRODUCER PORTION							$46,255,862	$47,937,965	$49,655,367	$13,352,063	$13,352,063	$13,352,063	$13,352,063	$13,352,063
OCB FEDERAL PORTION	$18,964,850	$19,008,462	$15,739,229	$23,572,978	$24,481,880	$34,203,129	$64,758,207	$67,113,152	$69,517,514	$18,692,888	$18,692,888	$18,692,888	$18,692,888	$18,692,888
STATEWIDE WFA COST SHARE AND TECHNICAL ASSISTANCE					**$7,502,616**	**$22,600,000**								
SWCD OPERATIONS FUNDING	**$6,209,091**	**$6,209,091**	**$6,209,091**	**$6,209,091**	**$9,809,091**	**$9,809,091**	**$12,809,091**	**$12,809,091**	**$12,809,091**	**$12,809,091**	**$12,809,091**	**$12,809,091**	**$12,809,091**	**$12,809,091**
	* Actual state and federal funding in FFY19-24 has been updated.													
TOTALS	$68,704,824	$106,971,811	$87,603,458	$130,830,094	$211,420,010	$247,257,400	$666,558,607	$690,332,335	$714,604,945	$201,518,247	$201,518,247	$201,518,247	$201,518,247	$201,518,247
CS + TA STATE NEEDS	**$27,570,610**	**$66,352,849**	**$45,014,057**	**$78,874,000**	**$146,415,714**	**$163,398,000**	**$283,702,620**	**$294,019,521**	**$304,552,918**	**$81,892,653**	**$81,892,653**	**$81,892,653**	**$81,892,653**	**$81,892,653**

Deposits to VNRCF	
FY24 amendments	**$286,714,688**
FY25 deposits	**$199,266,628**
Total	**$485,981,316**
Available Funds	
Remaining after PY25 and PY26 allocations	**$18,504,560**
Remaining PY24 funds returned to Department	**$16,740,578**
FY27/FY28 Recordation TA	**$2,600,000**
Anticipated FY27 /FY28 Base TA	**$9,100,000**
Total Unallocated Balance	**$46,945,138**

	FY25 VACS Allocated	FY26 VACS Allocated
Bay CS	**$106,833,675**	**$118,612,366**
OCB CS	**$45,785,859**	**$50,833,871**
WFA Set Aside	**$53,571,429**	**$53,000,000**
Bay & OCB TA	**$31,354,825**	**$33,428,001**
Total CS+TA	**$237,545,788**	**$255,874,238**
Carry Forward through PY2024	**$29,488,409**	
Admin & OPS	**$12,809,091**	**$12,809,091**
CS + TA Gap	**$16,668,423**	**$27,828,382**
2025-2026 Funding Gap	**State Gap**	**$44,496,805**
	2025 Federal Gap	**$166,390,590**
	2026 Federal Need	**$223,710,505**

Federal projected for 2025 is shown on the NRCS Funding tab and the 2025 Federal Gap in 2025 shown above is added to the 2027-2028 Federal Need.

Revised state cost share and technical assistance (15% of CS starting in 2025) needs and federal funding need will be adjusted annually based on actual budgets and gaps.

2027-2028 State Funding Need	
State Gap	$44,496,805
2027-2028 CS + TA	$386,445,571
2027-2028 State Funding Need	**$430,942,376**
Unallocated Balance	**$46,945,138**
FY2027-2028 Remaining Need	**$383,997,238**

2029-2030 State Funding Need	
State Gap	$0
2029-2030 CS + TA	$163,785,305
2029-2030 State Funding Need	**$163,785,305**

2031-2032 State Funding Need	
State Gap	$0
2029-2030 CS + TA	$163,785,305
2029-2030 State Funding Need	**$163,785,305**

2027-2028 Federal Need	**$460,425,264**

2029-2030 Federal Need	**$124,619,254**

2031-2032 Federal Need	**$124,619,254**

AG BMP FUNDING NEEDED TO MEET WIP III			**FY25**	**FY26**	**FY27**	**FY28**	**FY29**	**FY30**	**FY31**	**FY32**	
CHESAPEAKE BAY CUMULATIVE BMP COST			**$366,056,600**	**$377,038,298**	**$388,349,447**	**$49,518,609**	**$49,518,609**	**$49,518,609**	**$49,518,609**	**$49,518,609**	Bay Total Costs based on 2024 Progress and WIP III calculated in 2025
CHESAPEAKE BAY ANNUAL BMP COST			**$65,664,778**	**$70,382,712**	**$75,100,645**	**$75,100,645**	**$75,100,645**	**$75,100,645**	**$75,100,645**	**$75,100,645**	
CHESAPEAKE BAY STATE SHARE 40%		0.4	$172,688,551	$178,968,404	$185,380,037	$49,847,702	$49,847,702	$49,847,702	$49,847,702	$49,847,702	
CHESAPEAKE BAY PRODUCER PORTION 25%		0.25	$107,930,345	$111,855,253	$115,862,523	$31,154,814	$31,154,814	$31,154,814	$31,154,814	$31,154,814	
CHESAPEAKE BAY FEDERAL PORTION 35%		0.35	$151,102,482	$156,597,354	$162,207,532	$43,616,739	$43,616,739	$43,616,739	$43,616,739	$43,616,739	
TOTAL OCB BMP COST	**30/70**	**0.428571429**	**$185,023,448**	**$191,751,861**	**$198,621,468**	**$53,408,252**	**$53,408,252**	**$53,408,252**	**$53,408,252**	**$53,408,252**	Total OCB cost based on 30%/70% WIP need calculated in 2025
OCB STATE SHARE 40%		0.4	$74,009,379	$76,700,745	$79,448,587	$21,363,301	$21,363,301	$21,363,301	$21,363,301	$21,363,301	
OCB PRODUCER PORTION 25%		0.25	$46,255,862	$47,937,965	$49,655,367	$13,352,063	$13,352,063	$13,352,063	$13,352,063	$13,352,063	
OCB FEDERAL PORTION 35%		0.35	$64,758,207	$67,113,152	$69,517,514	$18,692,888	$18,692,888	$18,692,888	$18,692,888	$18,692,888	

Annual BMPs include tillage, cover crops, nutrient management, poultry litter transport

DCR has two Professional Engineers (PE), three Engineering Specialists and a Lead Trainer/Engineering Specialist to assist SWCDs and farmers. The total cost related to providing these services is part of the DCR budget and therefore has been excluded from the revised agricultural needs assessment.

During the 2020 General Assembly, a base technical assistance amount of $4.55 million was provided to SWCDs as part of the SWCDs' reoccurring base budget. This budget action recognized consistent funding is necessary for SWCDs to adequately provide technical assistance to their agricultural producers. During the 2024 General Assembly Special Session 1, an additional $3.6 million in administration and operational funding was provided to SWCDs, bringing the annual total to $12.8 million. These stable funds will allow SWCDs to hire additional employees, including administrative employees, provide appropriate training for employees, and address increased expenses related to the day-to-day operations.

Significant deposits to the Virginia Natural Resources Commitment Fund (VNRCF) in recent years, along with generous funding for district operations, together totaling more than $750 million have demonstrated significant commitments toward meeting the FY2024-2032 agricultural BMP implementation goals and district support needs. The 2025 Needs Assessment indicates that with the current deposits to the VNRCF, along with an estimated $8.9 million from recordation fees in FY 2026, the $4.55 million in base technical assistance and $12.8 million district operations funding for FY 2027, additional funding is required to fully satisfy the needs in FY2026. There is nearly $47 million in unallocated balances that are available to offset a state gap of approximately $44.5 million from the FY 2025-2026 biennium. Based on the 2025 Needs Assessment, the estimated funding needed for FY2027 and FY 2028 is $431 million. The 2027-2028 biennial need is estimated at $384 million. Please note, the 2027-2028 needs will change based on the 2026 Needs Assessment updates.

Chapter 6 - 2014 Chesapeake Bay Watershed Agreement Progress Report

State of the Chesapeake Bay Program Report to the Chesapeake Bay Executive Council, August 2025

Pursuant to § 2.2-220.1

The Chesapeake Bay Program (CBP) is a regional partnership that works across state lines to protect and restore the Chesapeake Bay watershed. The partners include the U.S. Environmental Protection Agency, the Chesapeake Bay Commission, the District of Columbia, and all six watershed states. Through the Bay Program, federal, state, and local agencies, non-profit organizations, academic institutions, and citizens come together to secure a brighter future for the Bay region. Learn more at www.chesapeakebay.net.

The CBP is guided by the goals and outcomes of the *Chesapeake Bay Watershed Agreement*. Signed on June 16, 2014, this agreement commits the partners to protecting and restoring the Bay, its tributaries, and the lands that surround them. Our environment is an interconnected system and achieving the goals and outcomes of this agreement will support improvements in the health of the watershed and the people who live here.

2025 marked a significant milestone for the 2014 Chesapeake Bay Watershed Agreement. Throughout the calendar year, the CBP worked to revise the Agreement, resulting in an amended version that was approved by the Chesapeake Executive Council on December 2, 2025. The amended Agreement contains 4 goals: Thriving Habitat, Fisheries and Wildlife; Clean Water; Healthy Landscapes; and Engaged Communities. The amendment Agreement contains 21 outcomes: Blue Crabs; Brook Trout; Fish Habitat; Fish Passage; Oysters; Stream Health; Submerged Aquatic Vegetation; Wetlands; Reducing Excess Nitrogen, Phosphorus and Sediment; Toxic and Emerging Contaminants; Water Quality, Standards Attainment and Monitoring; Adapting to Changing Environmental Conditions; Healthy Forests and Trees; Land Use Planning and Decision Support; Protected Lands; Local Government Leadership; Public Access; School District Environmental Literacy Planning; Stewardship; Student Environmental Literacy Experiences; and Workforce. Each outcome contains multiple targets, or specific metrics for measuring progress.

As the CBP prepares for this next phase of work and updates reporting mechanisms, track progress toward the *Chesapeake Bay Watershed Agreement* at www.chesapeakeprogress.com.

The Chesapeake Bay watershed is a dynamic ecosystem. Tracking changes in its health over time allows scientists to understand the effects of management actions and progress toward meeting health and restoration goals. The data in this report reflect just some of the conditions that are monitored to better understand the Bay and how to protect and restore it.