Virginia Nonpoint Source Pollution Management Program

2020 Annual Nonpoint Source Report

July 1, 2019 through June 30, 2020

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Virginia Department of Environmental Quality
Division of Water Planning, Office of Watershed and Local Government Assistance Programs
1111 East Main Street ~ Richmond, Virginia 23219
804-698-4000 ~ (toll-free in Virginia) 800-592-5482
www.deq.virginia.gov

2020 Virginia Nonpoint Source Annual Report

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2020 Virginia Nonpoint Source Annual Report

Executive Summary

This report fulfills the Virginia Department of Environmental Quality's (DEQ) legislative requirement under § 319(h)(8) and (11) of the Federal Clean Water Act (33 USC 1329). It describes Nonpoint Source (NPS) Pollution Management Program activities undertaken by DEQ and cooperating agencies during Virginia fiscal year 2020 (FY2020), which covers a period from July 1, 2019 through June 30, 2020. In addition, it communicates the success of Virginia's NPS pollution management program to the citizens of the Commonwealth and elected officials.

DEQ and its partners made significant progress in addressing the five programmatic NPS goals identified in the 2019-2024 Virginia Nonpoint Source Pollution Management Plan. This included documentation of pollution reductions for nitrogen (14 million pounds), phosphorous (five-million pounds), and sediment (one-million tons); the development of two Implementation plans addressing 16 impairments and the documented installation of 4,129 BMPs in 79 of these IP areas in FY2020, resulting in the exclusion of livestock from 236 miles of stream and the creation of 1,734 acres of riparian buffers. DEQ and its agency partners utilized over $82 million of state and federal (319(h)) sources of funding to implement BMPs throughout the Commonwealth.

Virginia made significant progress in planning for how nonpoint source pollution in the Commonwealth would be addressed through the completion of the state's Chesapeake Bay Watershed Implementation Plan – Phase III (Phase 3 WIP) and 2019-2024 Virginia Nonpoint Source Pollution Management Program Plan, and in reporting the state's progress in addressing water quality issues through the issuance of both the 2020 305(b)/303(d) Water Quality Assessment Integrated Report and the 2020 Chesapeake Bay and Virginia Waters Cleanup Report.

State agency partners demonstrated their commitment to addressing sources of nonpoint source pollution through their robust implementation of policies and programs. FY2020 accomplishments included:

- Virginia Department of Forestry and its partners permanently protected 27,868 acres of open space and more than 118 miles of water courses through 10 conservation easements. Four of the easements comprising 1,789 acres were within the Chesapeake Bay watershed.
- Virginia Department of Conservation and Recreation reported that total urban areas with nutrient management now exceed 32,343 acres, and that there are over 353,762 active agriculture nutrient management planned acres in the Commonwealth developed by DCR staff.
- Virginia Department of Mines, Minerals, and Energy's Abandoned and Orphaned Mine Land Programs have prioritized and remediated 19 sites across Virginia between March 2019 and March 2020.
- An MOU was developed between Virginia and North Carolina for the continued and expanded coordination and cooperation among key partners in the Albemarle-Pamlico National Estuary Partnership (APNEP) Comprehensive Conservation and Management Plan (CCMP).

Chapter 1: Virginia's Nonpoint Source Management Program

1.1 What is the Virginia NPS Pollution Management Program and Plan?

Virginia's Nonpoint Source (NPS) Pollution Management Program is a diverse network of state and local government programs that collectively promotes and funds local watershed planning efforts, stream and wetland restoration and protection, education and outreach, and other measures. The Program's goal is to reduce NPS pollution and prevent it from impacting the Commonwealth's lakes, rivers, and streams to help restore their health and prevent further water quality degradation. The 2019 Nonpoint Source Pollution Management Plan (will be referred to as the "Plan"), developed by DEQ in cooperation with other state, federal, regional, and local agencies and other organizations was approved by EPA in March 2020 and summarizes the Commonwealth's strategy and programs to prevent and control NPS pollution. The Plan is a comprehensive blueprint to addressing sources of NPS pollution within the Commonwealth of Virginia for the next five years, 2019-2024. The Plan also describes other Virginia initiatives that work toward common goals, such as the implementation of the Chesapeake Bay Watershed Implementation Plan (WIP).

1.2 What is the Virginia 2020 Nonpoint Source Annual Report?

The 2020 Virginia Nonpoint Source Program Annual Report describes the achievements of Virginia's Nonpoint Source Pollution (NPS) Management Program, where the Virginia Department of Environmental Quality (DEQ) and its partners address NPS pollution during the reporting period of July 2019 through June 2020 (FY2020). This is accomplished by implementing the Virginia Nonpoint Source Pollution Management Program Plan. This report fulfills the legislative requirement under § 319(h)(8) and (11) of the Federal Clean Water Act (33 USC 1329). In addition, it communicates the success of Virginia's NPS pollution management programs to the citizens of the Commonwealth and elected officials.

1.3 Accomplishments of the Virginia Nonpoint Source Pollution Management Program

As demonstrated in this report, Virginia's NPS program is highly successful and incorporates efforts from many partners across many sectors. The program has a long history of significant accomplishments, from implementation plan development to Success Stories. This reporting year continued that tradition, and DEQ anticipates continued growth of the program and achievement of its goals.

Progress in Addressing Key Nonpoint Source Program Goals

In the Plan, DEQ identified five programmatic goals for the NPS program. As described below, DEQ is pleased to report substantial progress on each of these goals. Through their efforts in each of the component programs in the Plan, DEQ and its partners have made significant advancements in reducing NPS pollution. Table 1.1 below provides examples of this progress, while the respective sections in Chapter 2 provide greater detail.

Table 1.1: Progress on achieving NPS goals

Goal 1 – Address NPS Pollutants: *Eliminate or reduce priority pollutants and causes*
• Progress was made in addressing bacteria and benthic impairments as illustrated in the over 14 million pounds of nitrogen, 5 million pounds of phosphorus, and 1 million tons of sediment reduced from agricultural sources during FY2020. Implementation of Chesapeake-Bay-focused initiatives have resulted in significant progress toward meeting 2025 load reduction goals (Figures 1.1-1.3 below). Within watershed-based plan areas, 4,129 BMPs were installed that resulted in bacterial pollution reductions of 7.15E+16 CFU. • **Chapter 2 References: Sections 2.1-2.8**
Goal 2 – Watershed Planning & Implementation*: Develop and implement TMDLs and watershed-based plans (WBP's)*
• Progress was made in the development and implementation of TMDLs and watershed-based plans (WPBs). To date 1,087 TMDL equations and 95 watershed plans addressing 588 impairments have been completed. The residential septic and agricultural BMPOs implemented within WBP areas in FY2020 resulted in the protection and exclusion of 236 miles of stream from livestock access, creating 1,734 acres of riparian buffer. In addition, 339 homes had their septic systems pumped or had straight pipes or failing septic systems addressed. • **Chapter 2 References: Sections 2.1, 2.3, and 2.4**
Goal 3 – Document Improvement*: Focus effort to document pollutant reductions and water quality improvements.*
• Progress has been made in documenting water quality and programmatic improvements as seen in the 2020 Integrated Report and associated water quality delistings and success stories. For FY2020, VA has produced 10 updated implementation plan project reports and has been granted EPA-approval on three Success Stories. In addition to the approval of those for Deep Creek, Middle River, and Little Cub Creek, a Success Story for South Fork Back Creek was submitted in 2020 and is awaiting EPA-approval. Future Success Stories may come from any of the 14 segments within six implementation plans covering 38.36 miles that are proposed for delisting (See Table 2.12). • **Chapter 2 References: Sections 2.1-2.4, 2.6 and 2.7**
Goal 4 – Public Awareness: *Increase public awareness of NPS pollutants and causes of impairments and encourage individuals to adopt behaviors to reduce NPS pollutants*
• Every program addressed in Chapter 2 included significant education and outreach components aimed at increasing public awareness and involvement in nonpoint source reduction needs and activities. This included hundreds of events, trainings, stewardship programs, and meetings held through June 2020 in an effort to increase public engagement. • **Chapter 2 References: Section 2.1-2.8**
Goal 5 – NPS Funding: *Identify and effectively leverage financial and technical resources.*
• Agency partners within the Commonwealth of Virginia expended or committed more than $100 million in state and federal resources (not including USDA-NRCS funding) to restore or protect our aquatic and natural resources from sources of nonpoint source pollution. This included $3.07 million in federal Section 319(h) funds from EPA, 74% of which went out to grants and contracts for on-the-ground activity and technical assistance. In addition, over $61 million in state resources funded agricultural BMPs and associated technical assistance, and over $18 million of state funds were committed for the installation of stormwater BMPs. • **Chapter 2 References: Sections 2.1-2.4 and 2.7**

Progress in Addressing Nonpoint Source Pollution within the Chesapeake Bay

A major accomplishment in Virginia that addresses nonpoint source pollution is the August 2019 completion and subsequent EPA approval of the Chesapeake Bay Watershed Implementation Plan – Phase III (Phase 3 WIP). Virginia's Phase III WIP was completed to achieve nutrient and sediment reductions needed to restore the Chesapeake Bay and its tidal tributaries. This roadmap details best management practices and programmatic actions necessary to achieve state basin planning targets for nitrogen and phosphorus to meet the Chesapeake Bay TMDL goals. Figures 1.1, 1.2, and 1.3 show Virginia's progress in addressing annual load reductions of nitrogen, phosphorous, and sediment, respectfully, within the Chesapeake Bay from 2009 through 2019, as well as projecting the load reductions to be achieved with the implementation of the Phase III WIP goals.

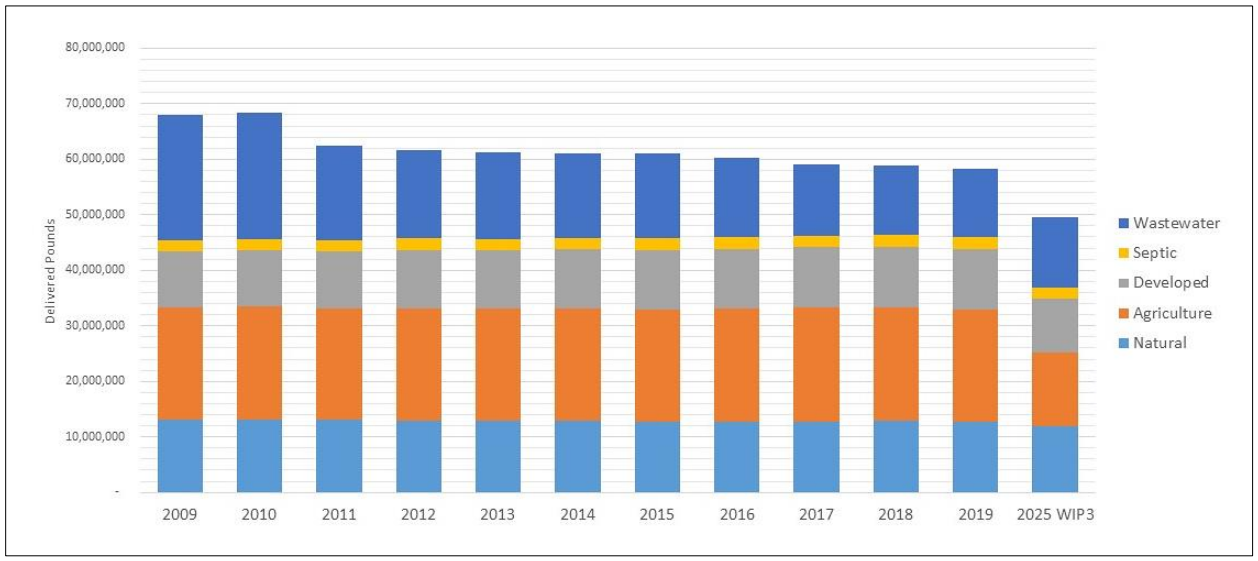

Figure 1.1: Virginia's progress with annual nitrogen load reductions within the Chesapeake Bay, 2009-2019 with WIP III planned 2025 loads

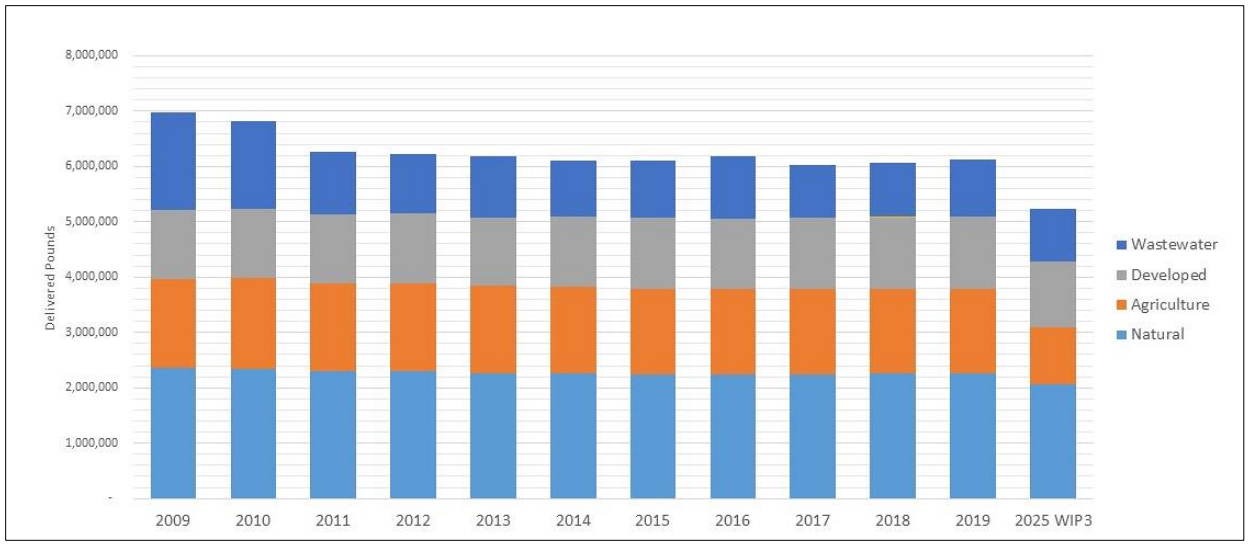

Figure 1.2: Virginia's progress with annual phosphorous load reductions within the Chesapeake Bay, 2009-2019 with WIP III planned 2025 loads

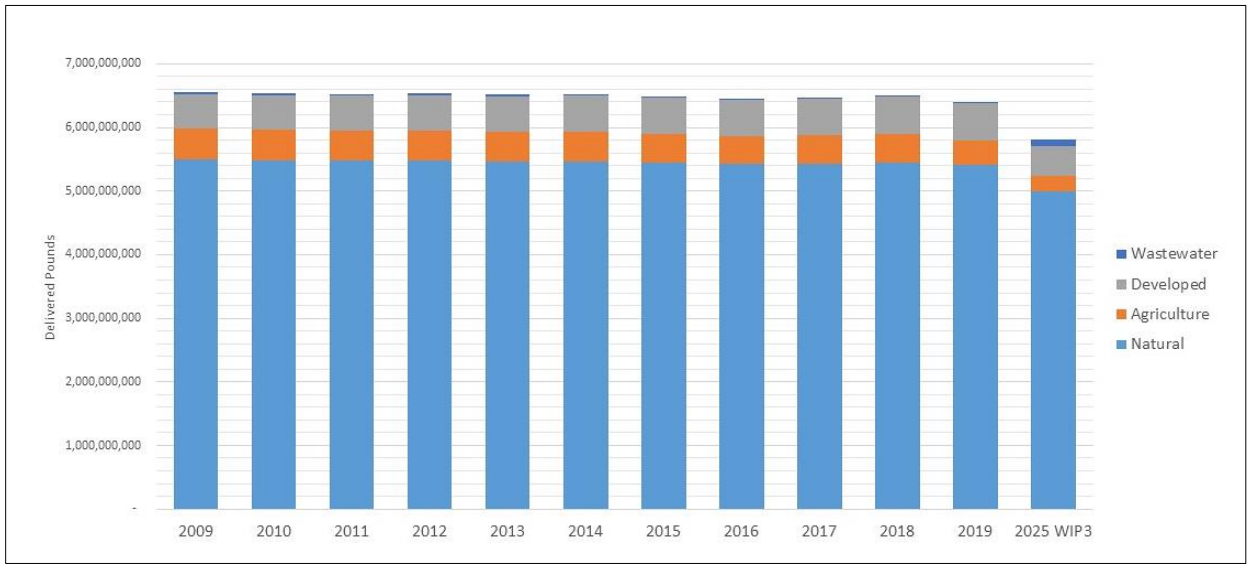

Figure 1.3: Virginia's progress with annual sediment load reductions within the Chesapeake Bay, 2009-2019 with WIP III planned 2025 loads

1.4 Challenges for Virginia's Nonpoint Source Pollution Management Program

As incredible as this last year has been in terms of accomplishments; DEQ has also identified challenges facing the NPS program that could affect the Commonwealth's ability to continue on this successful path.

Challenge #1: Resources

Like many other states, Virginia is facing a growing list of activities to be completed with a fixed or dwindling pool of federal resources. Over the long term, this can impact Virginia's ability to meet all of its NPS goals, objectives, and milestones.

Challenge #2: Scope of NPS problems

NPS pollution is often considered the biggest remaining component of water pollution that needs to be controlled. Given that many of the sources are diffuse, difficult to locate, or are in sectors that are unregulated, addressing nonpoint sources is a continual challenge. In a state as large and varied as Virginia, we have a significant workload ahead of us, and it only seems to grow as time passes. Virginia will continue to use all available tools and strategies (e.g., prioritization, continued implementation of the WIP III) to address NPS pollution.

Challenge #3: COVID

The pandemic has inhibited our ability to work with landowners, meet with the public, develop documents, conduct outreach, collect monitoring data, and many other essential tasks. The economic impacts to the NPS budget are undetermined. At a minimum, much of our work has been slowed, making annual targets and milestones less likely to be reached. The effects of the pandemic will be felt for many years to come.

1.5 Future Opportunities for the Virginia Nonpoint Source Pollution Management Program

In recent years, DEQ has undertaken several long-range planning efforts and has examined its programmatic priorities. As we move toward implementing these strategies, the opportunities are exciting. DEQ envisions continued success in forging partnerships, leveraging various programs, and improving water quality. DEQ also continues to strive to identify more efficient ways to accomplish these goals. The NPS program is now mature, and that experience can be used to identify even greater successes, such as large-scale implementation planning, developing alternative approaches, and acquiring new funding sources. Other opportunities with specific goals may also arise, such as the integration of hazard mitigation planning with water quality planning.

1.6 About This Document

This report fulfills the Virginia Department of Environmental Quality's (DEQ) legislative requirement under § 319(h)(8) and (11) of the Federal Clean Water Act (33 USC 1329). The format of this report meets the annual reporting requirements outlined in the most recent EPA § 319(h) guidance "Nonpoint Source Program and Grants Guidelines for States and Territories" that was issued on April 12, 2013. It provides

- A brief summary of progress toward meeting approved milestones and the short- and long-term goals and objectives identified in the state NPS management program.
- A table of relevant information on milestones from the current year.
- A summary of the available information on NPS pollutant reductions achieved as a result of NPS program implementation.
- A summary of the available information on the improvement in water quality as a result of NPS program implementation.
- Brief case studies of any particularly successful NPS control efforts.
- Information on increased public awareness of NPS pollution and engagement.
- Successful efforts to integrate and align Clean Water Act programs to better deliver water quality results, or other especially successful partnerships.

Chapter 2: Summary of FY2020 NPS Program Activities of this document contains information on all of the progress and achievements of the various programs and statewide partners; it is the substance of the programmatic activity for the past year. Chapter 2 outlines the many layers of programmatic planning and activities. To present this information in a logical way, this report follows the structure of the *Virginia Nonpoint Source Pollution Management Program Plan (referred hence forth as "2019 Plan" or "Plan").* Within each program element (e.g., water planning, agriculture), there are *objectives* that lay out the different segments and work to achieve the goals. Within each objective, there are specific *activities* that the NPS program performs; these are the day-to-day tasks that make the program work. Each of these activities can be quantified in one of the *milestones*, which provide a way to measure our progress.

Chapter 3: Virginia 2019-2024 Nonpoint Source Program Milestones summarizes the progress on the individual milestones that Virginia made a commitment to address in the 2019 Plan. This chapter includes a summary of an associated milestone tracking tool used to help monitor progress.

Chapter 2: Summary of FY2020 NPS Program Activities

This chapter highlights state and local agency initiatives, accomplishments, and implementation of goals for every program that contributed to Virginia's 2019-2024 Nonpoint Source Pollution Management Program Plan. For key plan areas, the original objectives and accomplishments related to program activities are presented. More detailed implementation information is provided in Chapter 3: Virginia 2019-2024 Nonpoint Source Program Milestones

2.1 Watershed Planning and Implementation

Virginia's Watershed Programs include the development of Total Maximum Daily Loads and TMDL Implementation Plans, as well as Nonpoint Source Implementation. The goal is to implement targeted, on-the-ground actions (e.g., best management practices (BMPs), education and outreach, technical assistance) identified in TMDLs and implementation plans, which will result in water quality improvements, attainment of water quality standards, and the subsequent delisting of impaired waters. Table 2.1 summarizes the relationships among the Water Planning Programs' objectives, activities, and milestones, as well as which NPS Plan goals they address.

Table 2.1: Water Planning Program Objectives

Water Planning Programs Objectives	Goals	Activities	Milestones
A: Watershed Assessment and TMDL Development	1-3	1-4	W01, W07
B: Implementation Plan Development	2	5-6	W02
C: Watershed Implementation Project	1-5	7-11	W03, W06, W08, W09
D: Compliant NPS Pollution Management Program	1-5	12	W00
E: Water Quality Improvement	1-5	13-15	W010, W011, W012, W013

Objective A: Watershed Assessment and TMDL Development
Summary: Based on the 2020 Integrated Report, Virginia estimates that 8,383 miles of rivers, 77,054 acres of lakes, and 2,055 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 (NPS) 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.
Activity 1: Biennially assess NPS pollution potential and indicators for prioritizing NPS corrective actions. The 2020 305(b)/303(d) Water Quality Assessment Integrated Report, approved by EPA in December 2020, includes chapter 5 "Nonpoint Source Assessment." This report assesses data and information through December 31, 2018.

Activity 2: Complete plans to address priority impaired waters so that 100% of our priority areas for 2016-2022 are met by September 2022.

Between July 2019 and June 2020, 12 new TMDL equations, each representing a watershed area draining to impaired surface waters, were EPA-approved. Figure 2.1 shows the number of TMDL equations by pollutant set across Virginia since the inception of the TMDL program. DEQ is implementing the national 303(d) Vision, which promotes the prioritization of impaired waters for TMDL or TMDL alternative development. In May 2019, DEQ revised (and EPA approved) its 2016-2022 priorities to promote all benthic impairments that were previously internal priorities, not committed to EPA, in place of bacteria impairment priorities. This revision was necessary to reflect changes in program resources and priorities. The remaining 2016-2022 TMDL program priorities can be found on Virginia's TMDL website.

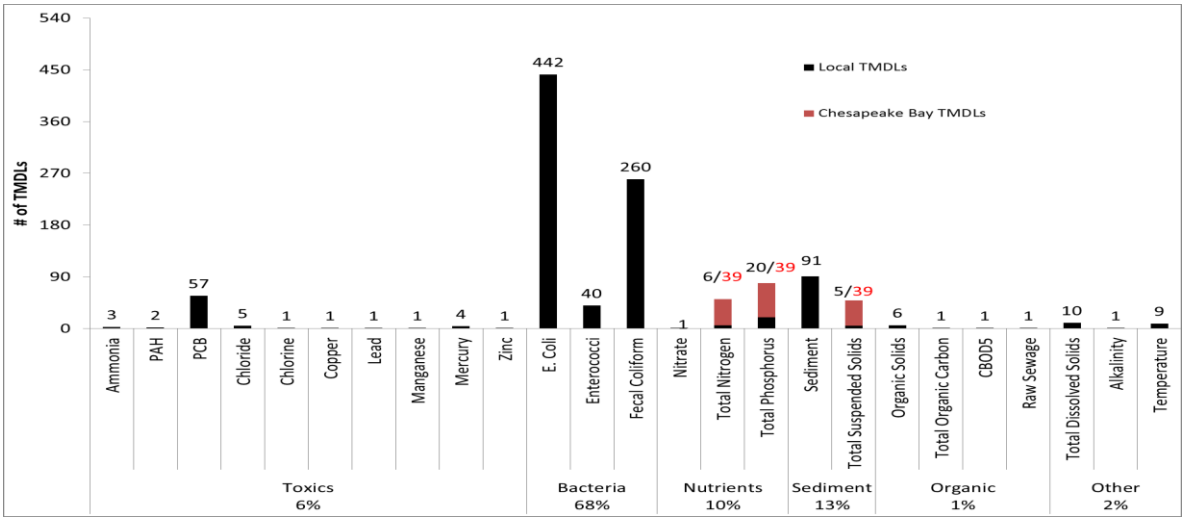

Figure 2.1: TMDL equations by pollutant since inception of TMDL program[1]

Activity 3: Establish a new set of priority waters for 2023-2029.

DEQ is working to identify priority watersheds to be included in the next cycle of the Vision. This process includes identifying internal priorities by pollutant, waterbody type, geographic location, and other factors. DEQ sought initial public input to inform the process of identifying types of water quality impairments and other strategic measures to develop a list of priority waters for TMDL or TMDL alternative development for the projected 2022-2028 cycle. DEQ will again solicit public comment in 2021 and publish its final priorities in the 2022 Integrated Report.

Activity 4: Continue to develop TMDLs to work toward meeting 100% of priority areas for 2023-2029.

These priority areas have not yet been identified; there is nothing further to report at this time.

[1] 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.

Objective B: Implementation Plan Development

Summary: To address the load allocations prescribed in TMDLs, TMDL implementation plans (IPs) or watershed-based plans (WBP) are developed, which describe actions (i.e., best management practices) to address water quality impairments. To maximize the use of resources, DEQ has developed and is implementing a long-term prioritization process for IP development to mirror its TMDL prioritization process and has also identified geographic priority areas for IP development.

Activity 5: Develop approximately three (3) implementation plans (IPs) per year that address twelve (12) total impaired waterbody segments.

In FY 2020, DEQ and partners completed two IPs covering 16 impairments. Five additional IPs covering 54 impairments were under development at the end of the fiscal year. Since 2001, Virginia has completed 95 IPs, addressing 588 impairments. Figure 2.2 summarizes IP development since 2001.

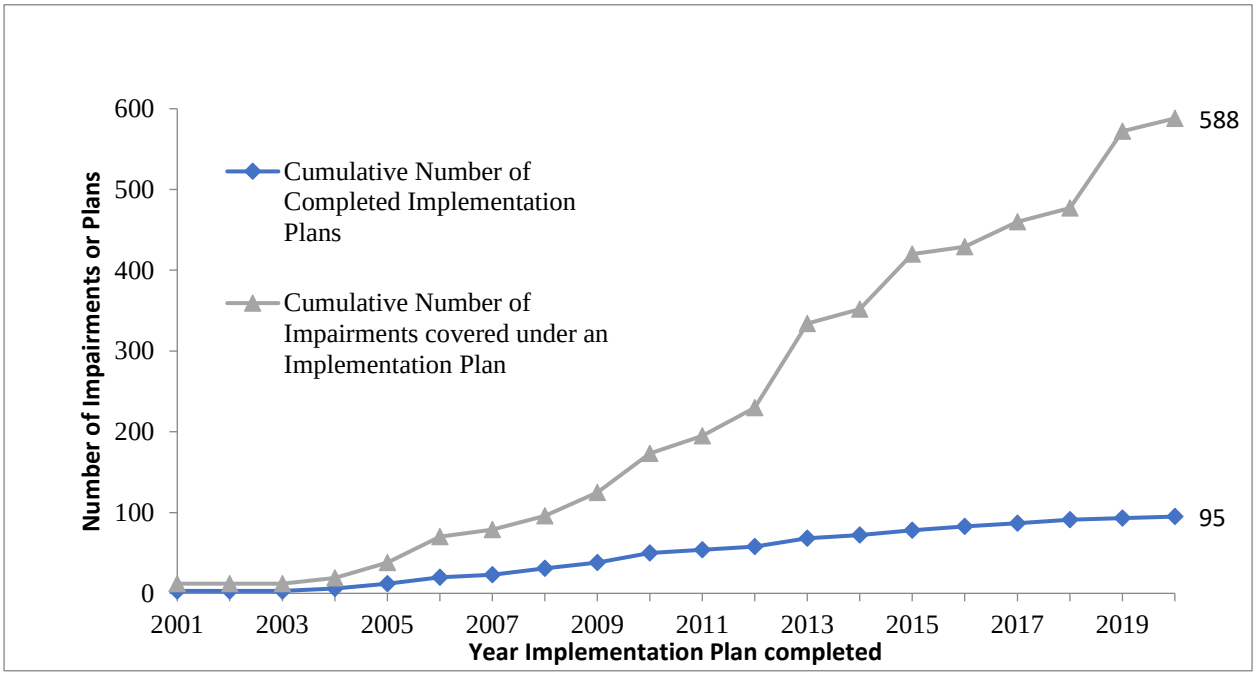

Figure 2.2: Cumulative summary of implementation plan development (July 2001 – June 2020)

In FY2020, DEQ has achieved 13% of the FY2024 goal for number of plans completed and 27% of the goal for number of impairments addressed. Table 2.2 summarizes progress toward meeting five-year goals.

Table 2.2: Progress of implementation planning based on FY2024 NPS goals and milestones

Goal	FY2020 Actual	FY2024 Goal	% Progress of FY2024 Goal
# of Implementation and Watershed Plans Completed	2	15	13%
# of Impairments Addressed by Implementation Plans	16	60	27%

Bacteria and sediment continue to be the most common pollutants addressed through implementation planning. A list of plans completed in FY2020 can be found in Table 2.3; a list of all completed Implementation Plans through June 2020 can be found on DEQ's Implementation Planning webpage.

Table 2.3: Completed implementation plans (July 2019 – June 2020)

Watershed (# of impairments / # of impaired segments)	Location (county or city)	Impairment[2]	Fiscal Year Completed
North Fork Catoctin (2/2)	Loudoun	Be (sed)	2020
Mattaponi River (14/14)	Caroline, King and Queen, Spotsylvania	Bc	2020
Yeocomico River (13/13)	Northumberland, Westmoreland	Bc	UD*
Accotink Creek (3/3)	Fairfax, Fairfax County	Chloride	UD*
McClure River (6/6)	Dickenson	Bc	UD*
Buffalo River (13/12)	Amherst, Nelson	Bc, Be	UD*
Mountain and Muddy Run, Lower Hazel (19/13)	Culpeper	Bc, Be	UD*

*UD = under development

Activity 6: Develop a long-term prioritization process for IP development and a biennial prioritized list of existing TMDLs to be addressed by IPs.

DEQ continues to evaluate the prioritization methods of implementation plan development. More efforts are being placed on producing joint TMDL-IP reports (i.e., where an IP is developed alongside each TMDL), aligning with TMDL priorities and the WIP III, exploring TMDL alternatives, evaluating larger watershed areas, pursuing more watershed-based plans, and simplifying modeling efforts. These efforts have allowed the implementation planning program to seek new opportunities including performing more development work in-house. A full prioritization process is under development but has not been completed by the close of FY2020.

Objective C: Watershed Implementation Projects

Summary: The goal of the NPS Implementation Program is to implement targeted actions identified in implementation plans, which will result in water quality improvements, attainment of water quality standards, and the subsequent delisting of impaired waters. To meet this goal, DEQ maintains up-to-date BMP guidelines, funds implementation, and tracks and reports BMPs installed, funds spent, and associated pollution reductions. A mix of federal (319(h) and CBIG) grants and state resources are used to support project management and technical support (from both DEQ and partner staff), as well as to fund a cost-share program for BMP implementation.

Activity 7: Continually fund 10-15 implementation projects annually.

Requests for Applications (RFA) were issued in August of 2019 and June of 2020 to identify candidates for Section 319(h) funding. The 2019 RFA resulted in the projects included in the 2020 Section 319(h) EPA award application awarded in August 2020. The 2020 RFA was issued in June 2020 and closed August 31, 2020; applications are currently under review. The results of this RFA will be used to develop Virginia's application for 2021 funding. The NPS Management Plan had a goal for the 2020-2024 period to provide 319(h) funding

[2] *Impairment types: Bc = bacteria, Be = Benthic, P = phosphorus, TSS = Total suspended solids, TDS = Total dissolved solids, Sed = sediment. *IP has been approved by USEPA, but not yet approved by the State Water Control Board.*

for active implementation projects in 38 of the approved IP areas and have by 2024 some level of implementation (by state and 319(h) funding) in 73 IPs. During FY2020, Virginia had BMP implementation in 83% (68/82) of approved IPs (83% (79/95), including not EPA-approved) (Table 2.4). Virginia is on target to meet or exceed the goal that by 2024, 80% of all IPs and 90% of approved IPs would have had some level of implementation (with and without 319(h) funding) between 2001 and 2024.

Table 2.4: Implementation project activity in completed IPs; a comparison between planning cycles

Timing of Implementation Activity	# IP Reports	# IP Watersheds
IPs Completed by June 30, 2020	95	347
IPs Approved by EPA, as of June 30, 2020	82	312
• **Target: IPs with 319(h)-funded Implementation Projects, 2020-2024**	38	195
○ **Actual: IPs with 319(h)-funded Projects During FY2020**	**23 (61%)**	**76 (39%)**
• **Target: Cumulative Implementation Activity, 2001-2024**	73	284
○ **Actual Cumulative Implementation Activity, 2001-2020**	**87 (119%)**	**275 (87%)**
▪ BMP Activity in all Completed IPs During FY2020	79 (83%)	223
▪ BMP Activity in Approved IP Areas During FY2020	68 (83%)	206

Saince the NPS Implementation Program began in 2001, a total of 74 NPS projects have been actively targeting implementation in completed TMDL IPs (Figure 2.3) with some IPs having more than one active project at one time, thereby addressing different source sectors or subwatersheds within the same IP (Figure 2.4). Approximately 30% of these projects were funded exclusively with state resources, the remaining 70% of the projects were funded with a combination of state and federal 319(h) funding. Since July 2001 (FY2002), 56% (52) of IPs have or had strategic implementation projects and 95% (87) of completed IPs have had some level of BMP implementation (with or without specific projects). In FY2020, 83% (79) of completed IPs had BMPs installed within 223 individual IP watersheds. During FY2020, 23 approved implementation plans had 25 active 319(h)-funded projects.

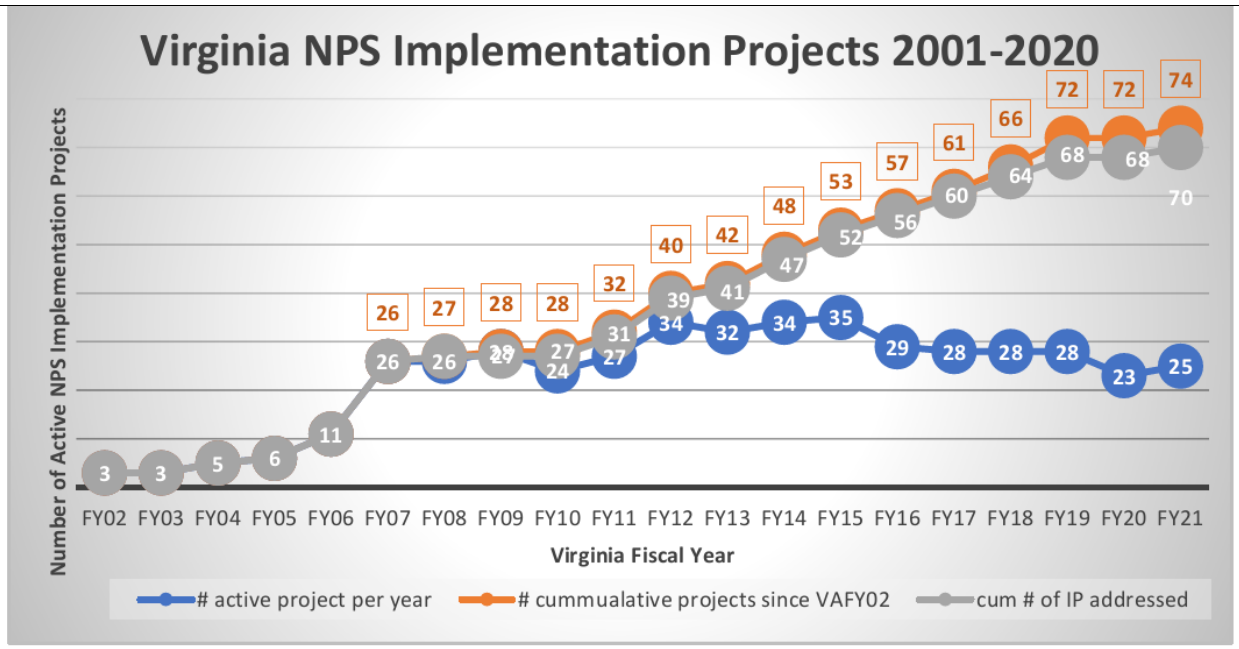

Figure 2.3: Summary of Virginia NPS implementation projects, 2001-2020

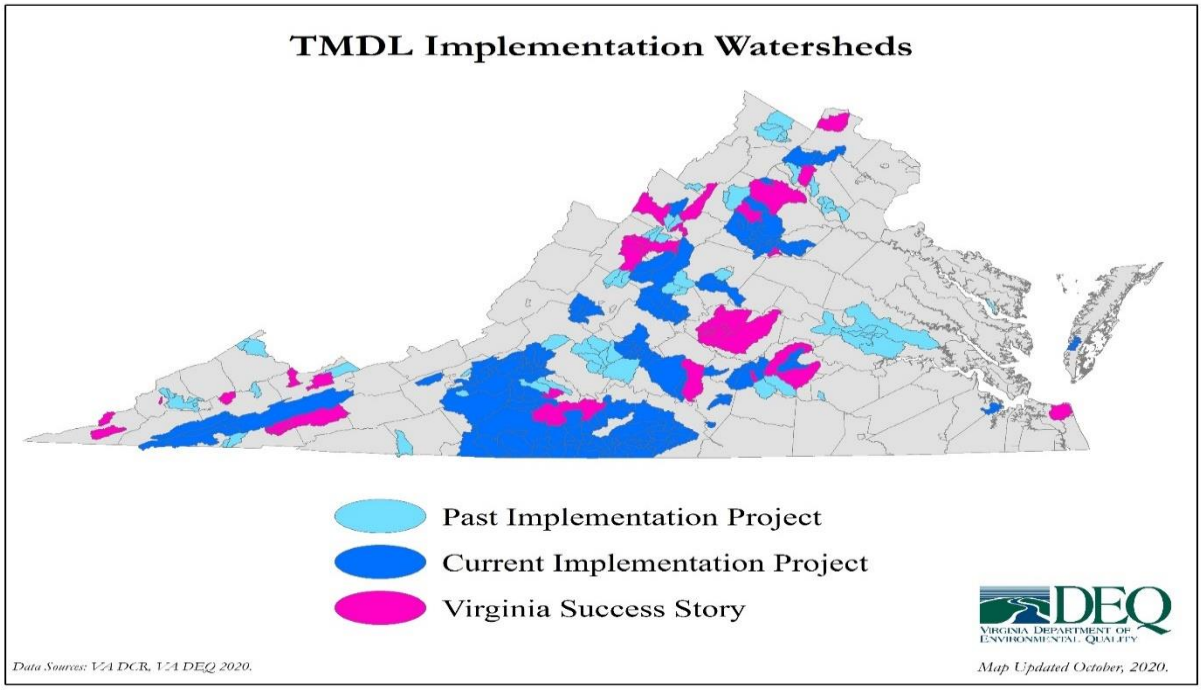

Figure 2.4: Map of Virginia TMDL implementation watersheds

In FY2020, DEQ funded 25 individual projects covering 23 separate implementation plan areas with Section 319(h) funds. Other state and federal funds administered by either DEQ or DCR were also available. Collectively, 4,129 residential septic and agricultural BMPs were installed within 79 IP areas addressing 223 IP

watersheds (see Table 2.5). These BMPs cost a total of $22,921,761, of which $16,112,876 was provided by DEQ and DCR in the form of either state or federal cost-share assistance (not including funds from USDA).

Table 2.5: Comparison of key measures of implementation, FY2020 vs the NPS program (FY2002-2020)

Metric	FY2020	FY2002-2020
# Active Implementation Plans with BMP Installation	79	87
# IP Watersheds with BMP Installation	223	275
#BMPs Installed in IP Areas	4,129	32,320
Total BMP Cost	$22,921,761	$163,858,641
Total Cost-share Paid	$16,112,876	$108,545,284
Total 319(h) Cost-share Paid (does not include funds for technical assistance, outreach or BMP design)	$1,174,678	$14,499,386

Activity 8: Update DEQ TMDL BMP Cost-share Guidelines biannually.

DEQ updated its NPS BMP Guidelines and associated BMP specifications in June 2020. These guidelines provide the framework by which project partners implement BMPs associated with implementation projects using Section 319(h) funds and are the basis by which operation and maintenance plans are developed, which provide assurance that intended water quality benefits could be achieved by the installed BMPs.

Activity 9: Estimate and report annual reductions in nitrogen, phosphorous, sediment, and bacteria achieved via BMP implementation.

In FY2020, DEQ funded 25 individual projects covering 22 separate implementation plan areas with Section 319(h) funds. Other state and federal funds administered by either DEQ or DCR were also available. Collectively, 4,129 residential septic and agricultural BMPs were installed within 79 completed implementation plan areas (addressing 223 IP watersheds). (Table 2.6)

Table 2.6: Comparison of key measures of implementation, FY2020 vs the NPS program (FY2002-2020)

Metric	FY2020	FY2002-2020
# Active Implementation Plans	79	87
# IP Watersheds	223	275
#BMPs Installed	4,129	32,320
Total BMP Cost	$22,921,761	$163,858,641
Total Cost-share Paid	$16,112,876	$108,545,284
Total 319(h) Cost-share Paid (does not include funds for technical assistance, outreach or BMP Design)	$1,174,678	$14,499,386

The residential septic and agricultural BMPs implemented within IP areas in FY2020 (Table 2.7) resulted in the protection and exclusion of 236 miles (1,245,709 linear feet) of stream from livestock access, excluding 15,251 animal units, and creating 1,734 acres of riparian buffer. In addition, 339 homes had their septic systems pumped or had straight pipes or failing septic systems addressed.

Table 2.7: Comparison of BMP outputs of implementation, FY2020 vs the NPS program (FY2002-2020)

Metric	VA FY2020	FY 2002-2020
# Active Implementation Plans	79	87
# IP Watersheds	223	275
#BMPs Installed	4,129	32,320
Stream Protected (Linear Feet)	1,245,709	11,013,191
Buffer Created (Acres)	1,734	10,366
Animal Units Excluded	15,251	127,389
Residential Septic Systems	339	n/a
Bacteria (CFU)	7.15E+16	5.06E+17
Total Nitrogen (lbs/yr)	3,074,754	15,217,416
Total Phosphorous (Lbs/yr)	92,185	289,638
Total Sediment (Tons/yr)	126,901	352,486

DEQ has calculated that these BMPs resulted in the reduction of 3.1 million pounds of nitrogen, 92,185 pounds of phosphorous, 126,901 tons of sediment, and 7.15E+16 CFU of bacteria in IP areas. A detailed listing of BMP activity within IP areas is shown in Table 2.8. Virginia also reported all Section 319(h)-funded BMPs and pollution reductions in the Grants Reporting and Tracking System (GRTS) by February 28, 2020 (for BMPs installed by 12/31/2019), and DEQ continues to work with EPA to see that non-Section-319-funded BMPs for select implementation plans are provided to EPA for entry into the Watershed Plan Tracker (WPT), a separate module within GRTS. Please note that these values only account for specific BMPs within IP areas and do not address all agricultural or septic BMPs installed throughout the Commonwealth which may be addressed in other parts of this report.

Table 2.8: BMP installation within IP areas in FY2020 (July 1, 2019-June 30, 2020)

BMP Name	# BMPs	Extent Installed	Unit
Alternative or Extension of Watering System	22	963	Acres
Animal Waste or Composter Facilities	27	27	Count
Cover Crops	2354	102,285	Acres
Farm Road, Animal Travel Lane, Heavy Use Area Stabilization	2	0.5	Acres
Loafing Lot Management System	4	4	Count
Long Term or Permanent Cover	98	3,076	Acres
No-Till or Minimal Till	797	27,813	Acres
Pasture or Grazing Land Management	34	3,389	Acres
Riparian, Forested or Vegetated Buffer	76	188	Acres
Roof Runoff Management System	2	23,022	Sq. Feet
Sediment Retention, Erosion or Water Control Structures	6	6	Count
Septic Connection to Public Sewer	1	1	Count
Septic System Alternative system	13	13	Count
Septic system Repair	65	65	Count
Septic System Replacement	62	62	Count
Septic Tank Pump-out	198	198	Count
Stream Crossing and Hardened Access	2	2	Count

Stream Exclusion, Grazing Land Management or Stream Protection	350	1,245,709	Lin. Feet
Tree Planting (crop, hay and pasture)	16	257	Acres

Activity 10: Report on the progress of meeting goals and milestones of select number of implementation plans.

DEQ calculates the pollution reductions (nitrogen, phosphorus, sediment, and bacteria) resulting from the BMPs installed in IP areas. See Activity 9 for more information. Annually, DEQ reports on a select number of implementation plans regarding their status of meeting goals and milestones. Generally these are related to implementation plans that received Section 319(h) funds, but occasionally these status reports may reflect implementation plans that have had a significant level of implementation that was not funded by Section 319(h). DEQ plans to report on 50% of the actively Section-319(h)-funded implementation plans annually. The table below reflects the schedule for reports based upon currently active projects. A provided hyperlink of the latest report (whether FY2019 or FY2020) will contain the full individual report. For FY2020, VA has produced 10 updated implementation plan project reports. As new implementation plan projects are funded, this table will be amended. Generally, implementation plans will first be reported in the year after the project started and will continue for one year after the project's funding has ended (to allow for one year of post-implementation water quality monitoring data). Table 2.9 provides the schedule of individual progress reports for the 5-year management plan reporting cycle. A listing of all current and past implementation projects with progress reports can be found on DEQ's Implementation Projects webpage.

Table 2.9: Schedule of Individual implementation plan summary reports included in the NPS Annual Report, FY2019 through FY2024

IP Report Name	FY2020 Active Projects	FY19 AR	FY20 AR	FY21 AR	FY22 AR	FY23 AR	FY24 AR
Banister River, Winn Creek, and Terrible Creek	1	1	-	1	Final	-	-
Buffalo, Colliers, and Cedar Creeks Watershed	1	1	-	Final	-	-	-
Clinch River and Cove Creek- Copper and Molls Creeks	1	1	1	-	1	-	1
Flat, Nibbs, Deep and West Creeks	1	1	-	1	-	1	-
Hardware and North Fork Hardware River	1	1	1	-	Final	-	-
James River and Tributaries - City of Richmond	1	-	-	1	-	1	-
Linville Creek	-	1	Final	-	-	-	-
Little Dark Run and Robinson River	1	1	-	1	-	1	-
North Fork Holston River: Scott, Smyth and Washington Counties	3	1	1	-	1	-	1
Slate River and Rock Island Creek	1	1	1	-	1	-	1
Smith River and Blackberry Creeks	1	1	-	-	Final	-	-
South River Watershed and Christians Creek	1	1	-	Final	-	-	-
Spring, Briery, and Saylers Creeks and Bush and Little Sandy Rivers	1	1	-	1	-	1	-
The Gulf, Barlow, Mattawoman, Jacobus and Hungars Creeks	1	1	-	1	-	1	-
Tye River, Hat Creek, Rucker Run and Piney River Watershed	1	1	1	-	1	-	1
Upper Clinch River Watershed	1	1	-	1	-	1	-
Upper Goose Creek, Cromwells Run and Little River Watershed	1	1	-	1	-	1	-
Upper Hazel River, Hughes River, Rush River and Thornton River	1	1	1	-	-	1	-
Upper Rapidan River	1	1	1	-	1	-	1
Upper Roanoke River - Part 1: Mudlick, Glade and Tinker Creeks	2	1	1	-	1	-	1

Upper York River Watershed (Orange County Portions)	1	1	1	-	1	-	1
Sub-total	**23**	**19**	**10**	**11**	**9**	**8**	**7**

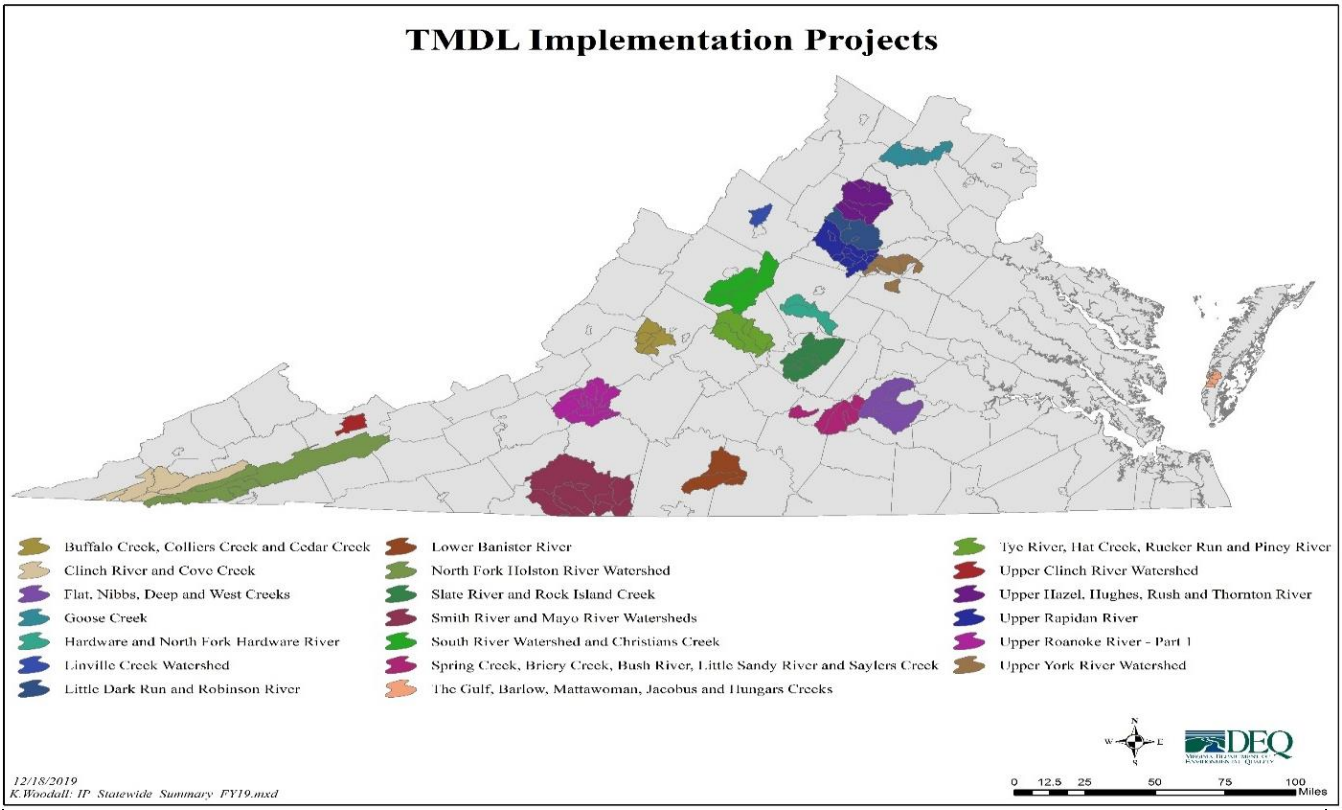

Figure 2.5: Map of implementation projects completed or under development

Activity 11: Further develop databases and tools to track implementation progress.

In fall of 2019, DEQ contracted for the development of a requirements document that would create the methodology and plan to address any system issues and updates related to the BMP Warehouse and various modules within DEQ's Comprehensive Environmental Data System, CEDS (including Water Quality Assessment, TMDL, and TMDL IP modules), as well as the creation of the Section 319(h) grant program management module. In early 2020, DEQ contracted to make substantial edits to several existing modules within CEDS, as well as edits to the BMP Warehouse. Development of user interface components will address a variety of functionality requirements. By June 2020, 50 percent of the 15 individual updates were completed. These integrated the Water Quality Assessment, TMDL, and TMDL IP modules related to tracking impairments and assessment units. The TMDL IP module and the BMP Warehouse were also updated to better assist in the tracking of BMPs related to Implementation efforts.

Objective D: Compliant NPS Pollution Management Program

Summary: DEQ is currently working under the EPA-approved 2019 Virginia Nonpoint Source Pollution Management Program Plan, which is effective through September 2024.

Activity 12: Update VA's NPS management plan every five years.

The 2019 Plan, approved in Spring 2020, does not expire until 2024. Work on developing the next version of the management plan will not start in earnest until 2023. However, during the development of the 2020 Annual Report, a few small errors or omissions were found in the document. A modified version will be submitted to EPA in 2021.

Objective E: Water Quality Improvement

Summary: Water quality improvements achieved through BMP implementation are evaluated through the monitoring of selected NPS implementation watersheds with active BMP installation. Successes are reported through the development of water quality success stories that address either delisting or water quality.

Activity 13: Support the monitoring of key implementation plan watersheds with active BMP installation. DEQ has a robust water quality monitoring program. The annual monitoring plan encompasses all monitoring needs including monitoring within implementation plan areas to gauge the impact of implementation. DEQ utilizes Section 319(h) funding for formal "post-implementation monitoring;" however, any of its six or seven other funding sources (see Figure 2.6 and Figure 2.7) also provides critical water quality monitoring information in IP areas. DEQ's monitoring plan is based on the calendar year. As such, the reporting period of FY2020 coincides with two separate water quality monitoring plans. Table 2.10 shows the number of monitoring stations within IP areas including a subset of those stations that were specifically funded with 319(h) resources for calendar year 2019 and 2020. A total of 339 stations with 67 IP areas (149 IP watersheds) are planned to be monitored from January 1, 2020 through December 31, 2020.

Table 2.10: Comparison of DEQ water quality monitoring within IP areas in calendar years 2019 and 2020

Metric	Calendar Year 2019	Calendar Year 2020
Total # of WQM Stations within IP Areas	344	339
# of IP Reports with Monitoring	68	67
# of IP Watersheds with Monitoring	147	149
# of WQM Stations Funded with 319(h)	28	64
# of IP Reports with 319(h)-Funded Monitoring	9	19
# of IP Watersheds with 319(h)-Funded Monitoring	16	38

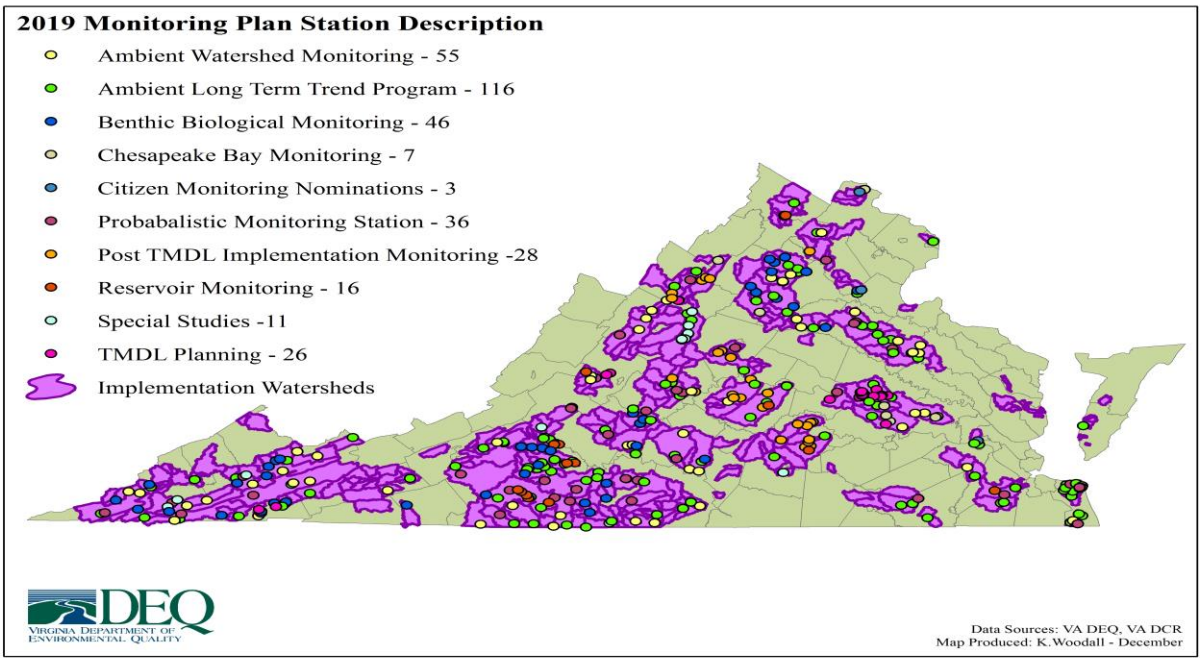

Figure 2.6: Calendar year 2019 DEQ monitoring stations within implementation plan areas

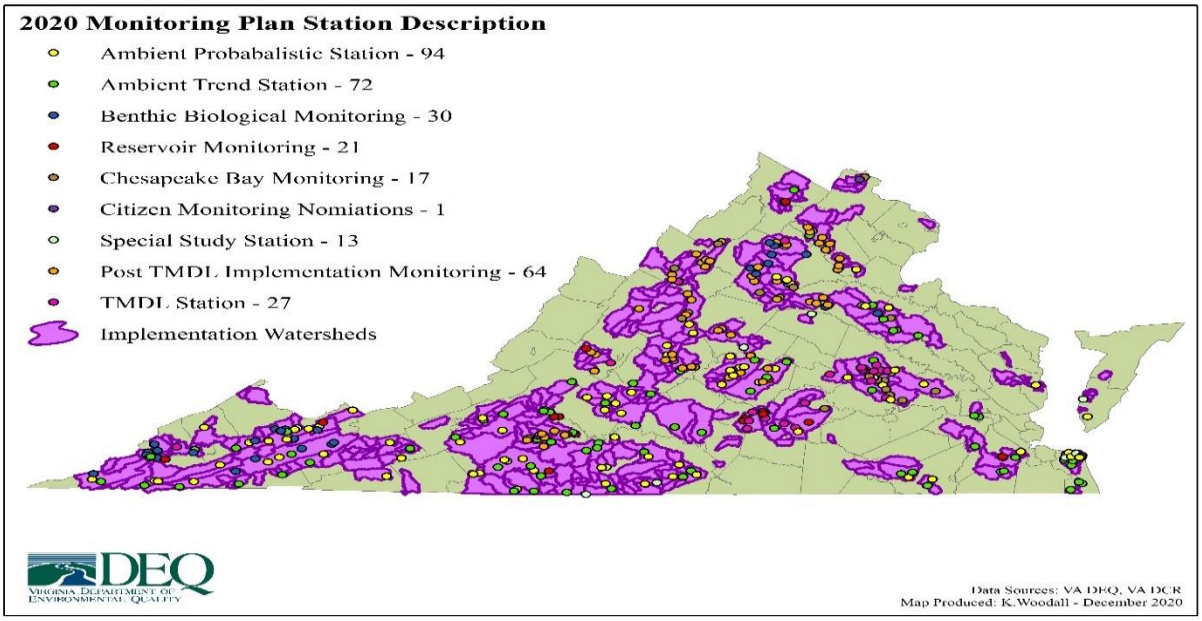

Figure 2.7: Calendar year 2020 DEQ monitoring stations within implementation plan areas

In addition, DEQ monitored for bacteria in the four designated National Water Quality Initiative (NWQI) watersheds; NRCS/USGS monitored for other parameters (nutrients, etc.)

Activity 14: Identify waterbodies in state's 303(d) list and integrated report that are primarily impaired by NPS pollutants and demonstrate a significant trend of improved water quality.

In FY2020, success stories were completed for three delisted segments (Table 2.11). Since 2002, Virginia's Nonpoint Source Management Program and its partners have written 29 success stories that address

delisting and/or water quality improvement of 42 impaired stream segments. These stories are classified into two types: Type 1 stories are related to partial or full restoration (delisting of impairments), Type 2 indicates significant water quality improvement.

Table 2.11: Virginia TMDL Success Stories (2001 – 2020)

Type	# Segments delisted or WQ improved	Name of Success Story	Year Reported to EPA	Year Approved by EPA
1	1	Deep Creek	2019	2020
1	1	Middle River	2019	2020
1	1	Little Cub Creek	2019	2020
1	2	South Fork Back Creek	2020	Approval pending

The map below shows the location of success stories in Virginia (Figure 2.8). These stories can be found on the Virginia's Nonpoint Source Pollution Success Stories page. Reviewing the data from the 2020 305(b)/303(d) Water Quality Assessment Integrated Report and comparing it to the list of completed implementation plans, it was determined that there were 14 delisted segments within six implementation plans covering 38.36 miles that are proposed for delisting. These identified segments listed in Table 2.12 below may become the basis of future success stories. Four of the six IPs identified have received Section 319(h) funding. All have received state resources for the installation of agricultural BMPs (with one receiving significant state resources to implement septic BMPs).

Figure 2.8: Virginia success stories (2002 – Present)

Table 2.12: 2020 Delistings within completed IP areas (based upon WQ data through December 2018)

IP Name	ID305B	Sub-watershed Name	Category	Partial or Full	Cause	Miles
Flat, Nibbs, Deep and West Creeks	VAP-J11R_DPC01B00	Deep Creek	2C	F	*Escherichia coli*	11.55
Greenvale, Paynes and Beach Creeks	VAP-E25E_GEE02A06	Greenvale Crk.	4A	P	Fecal Coliform	0.01
Piankatank River, Gwynns Island, Milford Haven (Piankatank et al.)	VAP-C03E_COB02B20	Cobbs Creek	5D	P	Fecal Coliform	0.04
Piankatank et al.	VAP-C03E_FER01B20	Ferry Creek	5D	P	Fecal Coliform	0.03
Piankatank et al.	VAP-C03E_HEA01B20	Healy Creek	5D	P	Fecal Coliform	0.02
Piankatank et al.	VAP-C03E_PNK01A02	Piankatank River (PR)	5D	P	Fecal Coliform	0.56
Piankatank et al.	VAP-C03E_PNK07B08	PR, UT	5D	P	Fecal Coliform	0.01
Piankatank et al.	VAP-C03E_PNK08B08	PR, UT	5D	P	Fecal Coliform	0.00
Piankatank et al.	VAP-C03E_WLT01B20	Wilton Creek	5D	P	Fecal Coliform	0.02
Powell River and Tributaries	VAS-P18R_PLL01A98	South Fork Powell River	4A	P	Benthic	3.84
Powell River and Tributaries	VAS-P21R_TOW01A06	Town Creek	2A	F	*Escherichia coli*	2.69
Slate River and Rock Island Creek	VAP-H22R_TPN01A08	Turpin Creek	2A	F	*Escherichia coli*	7.31
Spring Creek, Briery Creek, Bush River, Little Sandy River and Saylers Creek (Spring, et al.)	VAP-J04R_MTC01B20	Mountain Creek	4A	P	Benthic	6.80
Spring, et al.	VAP-J02R_SPA01A02	Spring Creek	2C	F	*Escherichia coli*	5.47

Activity 15: Hold interagency meetings with target agency programs to further water quality improvement opportunities.

DEQ continued its effort to strengthen its relationships with other agencies to further nonpoint source efforts. During FY2020, DEQ staff engaged in or participated in at least two agency/partner meetings or events per month for a total of a minimum of 24 in the last year. This included:

- 16 meetings with DCR (to discuss interagency priorities and agricultural programs and practices);
- 3 meetings with VDH (to discuss new septic requirements);
- 2 meetings with DMME (to identify priorities in resource extraction);
- 2 with VDEM (to identify opportunities to integrate water quality and hazard planning); and
- 1 meeting with SERCAP (to discuss continued partnership and opportunities for septic program).

DEQ NPS staff also regularly engage with other programs within DEQ, such as the Clean Water Finance (to integrate revolving fund programs) and Coastal Zone Management.

2.2 Agricultural and Nutrient Management Programs

Guided by an annual Agricultural Needs Assessment, Virginia's agricultural programs use funding from the Virginia General Assembly to help meet water quality goals established in the Chesapeake Bay Watershed Implementation Plan, the Virginia NPS Pollution Management Plan, and the Chesapeake Bay and Virginia Waters Clean-up Plan. DCR administers funds for conservation programs that SWCDs deliver to the agricultural community. These programs include the Virginia Agricultural BMP Cost-Share Program (VACS), Virginia Resource Management Planning (RMP),the BMP Tax Credit Program, the Conservation Reserve Enhancement Program (CREP), and the Virginia Nutrient Management Program. Another Virginia agricultural NPS pollution control program is the Agricultural Stewardship Act (ASA) Program,

administered by the Virginia Department of Agriculture and Consumer Services. Table 2.13 summarizes the Agricultural and Nutrient Management Programs' objectives, activities, milestones, and NPS Goals.

Table 2.13: Agricultural and Nutrient Management Programs Objectives

Agricultural and Nutrient Management Programs Objectives	Goals	Activities	Milestones
A: Agricultural BMP Implementation	1-5	1-6	A01, A02, A03, A05, A08, A09
B: Nutrient Management	1,3,4	7-9	A04
C: Resource Management Planning	1,3,4	10-11	A05, A06
D: Agricultural Stewardship Act Program	1,3,4	12-14	A07

Objective A: Agricultural BMP Implementation

Summary: Administered by DCR through local SWCDs, the Virginia Agricultural BMP Cost-Share Program (VACS) provides cost-share and technical assistance to promote implementation of cost-effective agricultural BMPs to reduce NPS pollution and improve water quality across the Commonwealth. The Program prioritizes BMPs that provide the greatest reductions of nutrients and sediment with implementation targeted in TMDL watersheds including the Chesapeake Bay TMDL goals.

Activity 1: Complete an annual Agricultural Needs Assessment to guide funding and program allocation decisions.

As reported in the FY2020 Chesapeake Bay and Virginia Waters Clean-up Plan, the most recent Agricultural Needs Assessment projects that for the fiscal years 2020– 2030, an estimated $2.7 billion may be required from state and federal funds as well as farmer financial contributions to meet water quality goals (Figure 2.9). Approximately 40% of this total (nearly $1.1 billion) could be needed from State sources, the vast majority of which is direct funding of the Virginia Agricultural Cost-Share (VACS) Program and funding support for Soil and Water Conservation Districts that implement the VACS program.

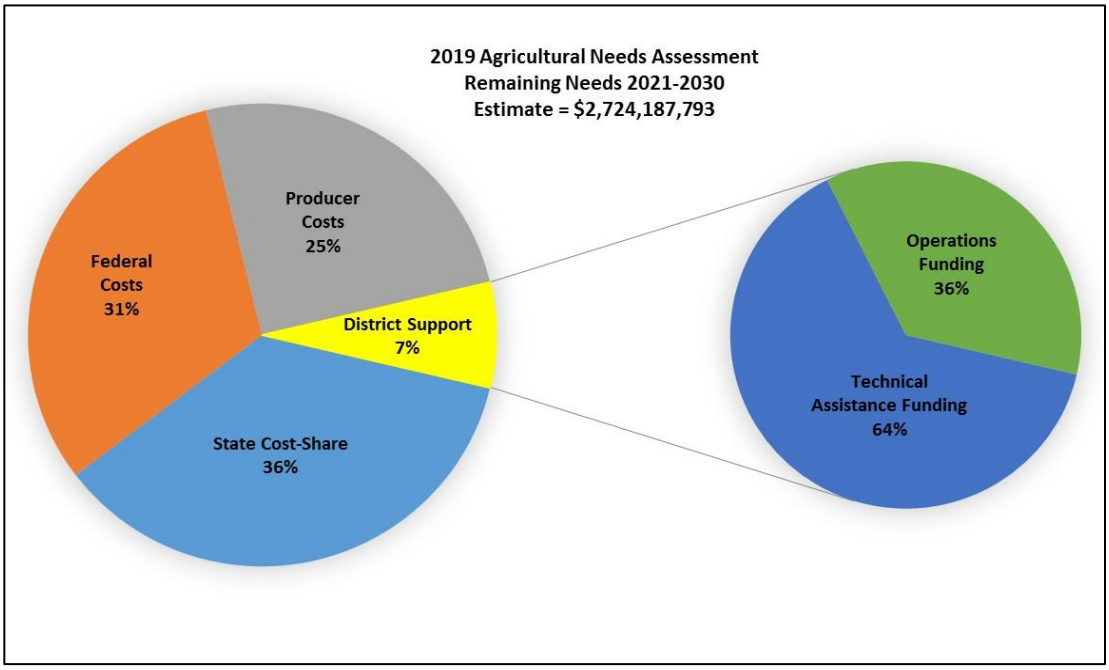

Figure 2.9: Summary of 2019 Agricultural Needs Assessment

Activity 2: Foster widespread adoption of cost-effective agricultural BMPs

Cost-share funds promote BMP implementation for pollution reduction while easing financial burden on producers. Hydrologic units with the highest potential to contribute agricultural NPS pollution to surface and ground waters receive the greatest amounts of cost-share funds, which are then prioritized by SWCDs for projects that maximize local water quality benefit (Table 2.14). Pollution reductions from FY2020 state funding are summarized in Table 2.15.

Table 2.14: Cost data for agricultural BMPs completed in FY2020

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
$37,227,875	$30,896,095	$30,462,038	$434,056	$858,088	$5,473,692	$539,295

Table 2.15: Pollutant reductions from agricultural BMP implementation in FY2020 – state funding only[3]

Nitrogen Reduction (lbs/year)*	Phosphorus Reduction (lbs/year)**	Sediment Reduction (tons/year)
14,189,231	5,164,684	1,067,314

Further progress has been made on the priority funding, which has provided 100% state-funded livestock stream exclusion for applications accepted from January 2013 through June 2015. As of June 2019, partially due to a supplemental appropriation by the Virginia General Assembly of $5.2 million, a total of approximately $95.2 million has been provided by the Commonwealth for this initiative including $50 million to producers within Virginia's Chesapeake Bay watershed. Once all 100% reimbursed SL-6 practices have been installed, they will include almost 9.5 million feet of stream excluded (Table 2.16).

Table 2.16: Benefits achieved by 100% cost-share on livestock exclusion initiative

Location	Streambank Protected (linear ft.)	Animals Excluded
Chesapeake Bay Watershed	≈5.6 million	≈65,000
Statewide Total	≈9.5 million	≈112,000

Activity 3: Implement the five-priority agricultural BMPs in the Chesapeake Bay watershed in order to meet the Commonwealth's nutrient and sediment pollution goals.

DCR's emphasis on agricultural BMP implementation focuses on efficient nutrient and sediment reduction and includes priority practices. In FY2020 within the Chesapeake Bay area, a total of 14,561 priority agricultural BMPs were installed including 363,178 acres of nutrient management plans written or revised and 172,225 acres of cover crop installed (Table 2.17).

Table 2.17: Priority agricultural BMPs installed within the Bay area using state cost-share, FY2020

Nutrient Management Plans	Animal Waste Facilities	Cover Crops	Riparian Buffers	Livestock Exclusion
363,178 acres	46 systems	172,225 acres	2,516 acres	1,719,400 linear ft

Activity 4: Provide funding and technical assistance to Virginia's 47 Soil and Water Conservation Districts to deliver technical assistance to implement cost-share program.

[3] Pollution reductions are calculated for all agricultural BMPS installed throughout the Commonwealth of Virginia. In addition all Nitrogen and Phosphorous numbers now include estimates for Nutrient Management BMPs.

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. During the 2020 General Assembly, a base technical assistance amount of $4.55 million was provided to Districts as part of the their recurring base budget. This budget action recognized consistent funding is necessary for Districts to adequately provide technical assistance to their agricultural producers. State financial support for FY2020 was $61 million including BMP funding and associated technical assistance. As the lead agency in TMDL implementation, DEQ utilized federal Section 319(h) to provide additional funding to SWCDs for agricultural BMP implementation. For more information, refer to Watershed Planning and Implementation Activity 7.

Activity 5: Develop Agricultural NPS Assessment Data.

Since 1986, agricultural pollution loads have been biennially evaluated for the potential for water quality degradation due to nonpoint sources of pollution on a per hydrologic unit basis. Data have also been collected on some indicators of where such degradation might have its greatest negative impact. Results are reported in the NPS Chapter of the Virginia Water Quality Assessment (305b) Report.

Activity 6: Implement policies outlined in the Phase III WIP for the Chesapeake Bay.

The 2020-2021 Programmatic Milestones and 2020-2021 Numeric Milestones were submitted to EPA on June 1, 2020. The EPA submitted their revised final evaluation of Virginia's 2018-2019 milestone progress and 2020-2021 milestone commitments to the Virginia Secretary of Natural Resources on July 29, 2020. Virginia will report an evaluation of progress on these milestones starting in January 2021.

Objective B: Nutrient Management

Summary: DCR administers a comprehensive nutrient management program in which plans for hundreds of thousands of acres are developed or revised by DCR staff and certified private planners each year. In addition to increasing the acreage under nutrient management planning, the program aims to provide technical and financial assistance to producers while also educating producers and the public about nutrient management BMPs.

Activity 7: Manage urban and agricultural nutrients found in fertilizers, manure, biosolids, and other sources.

As required by §10.1-104.5 of the Code of Virginia, all golf courses have obtained and are implementing nutrient management plans. DCR continues to work with golf courses to ensure the nutrient management plans are updated and revised as required by law. Total urban areas with nutrient management now exceed 32,343 acres. Currently, there are over 353,762 active agriculture nutrient management planned acres in the Commonwealth that were developed by DCR staff (Table 2.18).

Table 2.18: DCR Nutrient Management Planning, as of 2020

Location	Crop Acres	Hay Acres	Pasture Acres	Specialty Acres	Total Acres
Chesapeake Bay Watershed	135,218	54,745	44,497	2,332	236,792
Outside the Chesapeake Bay Watershed	66,936	26,895	22,868	270	116,969
Totals	**202,154**	**81,640**	**67,365**	**2,602**	**353,761**

Utilizing the additional funding from the 2019 and 2020 General Assembly sessions, DCR has expanded the poultry litter transport program to include Accomack County while maintaining programs in Page and

Rockingham counties. As a strategy in WIP III, poultry litter transported from these three key counties must increase from 5,000 – 6,000 tons annually to approximately 89,000 tons annually by year 2025.
Activity 8: Train staff and public in the development of nutrient management plans. Funding appropriated by the 2019 and 2020 General Assembly will provide $900,000 for direct-pay grant opportunities for certified nutrient management planners. These funds will pay for the development, revision, and verified implementation of nutrient management plans, particularly in counties with fewer plans, which will assist the Commonwealth in reaching its water quality goals. DCR continues to maintain a robust nutrient management training and certification program. This includes the ongoing production of numerous training and educational opportunities related to nutrient management planning.
Activity 9: Continue to develop and implement programs to address unpermitted dairies, precision nutrient management planning, etc. To continue progress toward meeting goals for the Chesapeake Bay TMDL, DCR has dedicated certain certified nutrient management staff to work exclusively with small dairies and other small farms to develop nutrient management plans. There are 511 dairies in Virginia. Seventy-two permitted and 244 unpermitted dairies have nutrient management plans. Sixty-six of these permitted operations have current nutrient management plans; 11 have expired plans that are being renewed.

Objective C: Resource Management Planning
Summary: The Virginia Resource Management Planning (RMP) program encourages farmers to voluntarily implement BMPs that improve both farming operations and water quality. In return for full implementation, the plan holder can be assured that they are in compliance with any new state nutrient, sediment, and water quality standards and, in particular, with regulations related to the Chesapeake Bay and all local stream segment TMDLs. The primary objective of the program is to encourage implementation of additional agricultural BMPs and increase reporting and verification of voluntary BMPs.
Activity 10: Encourage the implementation of additional agricultural BMPs and promote increased reporting and verification of voluntary BMPs. DCR continues to work on ways to better track and encourage reporting of voluntary BMPs. DCR recorded the installation of 2,054 voluntary or tax-credit only BMPs throughout the Commonwealth in FY2020. Collectively, these BMPs amounted to $3,008,804 of conservation practices on the ground. This included 54,328 linear feet of stream excluded from livestock access and 1,112 acres of cover crop.
Activity 11: Achieve widespread implementation of the RMP Program by agricultural producers. The Commonwealth's Resource Management Plan (RMP) Program provides a voluntary way to promote the use of best management practices that improve water quality and agricultural operations. As of July 1, 2020, 126 RMPs have been certified as fully implemented. The certified RMPs are all located within the Chesapeake Bay watershed and include over 35,000 acres. Over 64,000 additional acres within the Chesapeake Bay watershed are included in an RMP that is currently being implemented. There are approximately 8,000 acres outside of the Chesapeake Bay watershed that are included in an RMP that is currently being implemented. So, there are a total of 107,000 acres included in RMP areas across Virginia.

Objective D: Agricultural Stewardship Act Program
Summary: The Virginia Department of Agriculture and Consumer Services (VDACS) administers the Agricultural Stewardship Act (ASA) Program. The ASA program objective is to work with farmers and local SWCDs to resolve in a timely and commonsense manner water quality problems concerning nutrients, sediment, and toxins from agricultural activities that are reported to VDACS. Farmers involved in the complaint and correction process are generally cooperative in meeting the deadlines set by the ASA, but corrective orders may occasionally be issued or civil penalties may be assessed. The VDACS-ASA program also provides support to DEQ agricultural program staff on a Small Animal Feeding Operation (AFO) Evaluation and Assessment Strategy. With an increasing number of plans required to address water pollution issues, prioritization is crucial to remain effective and efficient.
Activity 12: Identify water quality problems and help farmers correct them in a commonsense manner that accommodates both the farmer and the environment. The ASA program received numerous inquiries regarding possible agricultural pollution during the program year of April 1, 2019 through March 31, 2020. Forty-eight of these cases became official complaints. The outcomes of the complaints are summarized in table 2.19.

Table 2.19: Outcomes of ASA complaints, April 2019 – March 2020

Complaint Outcome	Number	Percent of Total Inquiries
Founded; required agricultural stewardship plans to address water pollution problems	15	31
Unfounded; lack of evidence	18	38
Dismissed	15	31

In general, farmers involved in the complaint and correction process were cooperative in meeting the deadlines set up by the ASA, and it was not necessary to assess any civil penalties. There were no corrective orders issued for failure to submit a stewardship plan, implement an approved stewardship plan, or maintain the measures included in an approved stewardship plan.

Activity 13: Respond to all water quality complaints in a timely fashion.

The ASA requires that for complaints investigated by a local Soil and Water Conservation District (District) the investigation must be completed within twenty-one days of the Commissioner of Agriculture and Consumer Services' (Commissioner) receipt of the complaint. The ASA does not specify a length of time in which the Commissioner or his staff must complete the investigation; however, it is the Commissioner's policy that investigations conducted by him or his staff are completed within that time period where possible. If the District conducts the investigation, the District will send its findings to the Commissioner, so that he can determine whether a plan is necessary.

Activity 14: Provide programmatic outreach and education to Soil and Water Conservation Districts, farmers, and the general public.

DCR plays a role, providing technical and financial assistance to Soil and Water Conservation Districts, institutions of higher education, and individuals for nonpoint source pollution controls. Trainings were impacted by COVID 19; however, eight events were held.

2.3 Forestry Program

The Virginia Department of Forestry (VDOF) continues to focus on improving water quality by providing technical services, education opportunities, information on best management practices, and silvicultural activity enforcement on the Commonwealth's forest watersheds, non-tidal wetlands and riparian areas. Table 2.20 summarizes the relationships among the Forestry Programs' objectives, activities, and milestones, as well as which NPS Plan goals they address.

Table 2.20: Forestry Programs Objectives

Forestry Programs Objectives	Goals	Activities	Milestones
A: General Forestry Program	1,2,4	1	F01, F04
B: Forestry BMP Implementation	1-5	2-7	F01, F04
C: Riparian Buffer Initiative	1,2,4,5	8-10	F02, F03, F04
D: Urban Forestry Initiative	11-13	11-13	F04

Objective A: General Forestry Program

Summary: In addition to facilitating forestry BMP implementation, the Virginia Department of Forestry (VDOF) also improves and protects watersheds through project management and land conservation with a

focus on conserving land permanently, establishing and maintaining riparian buffer zones, planting trees on non-forested open land, and increasing urban forest canopy by planting trees.

Activity 1: Provide technical services, best management practices information, and silvicultural activity enforcement on the Commonwealth's forest watersheds, non-tidal wetlands and riparian areas to help ensure the quality of drinking and recreational waters from these areas for future generations.

VDOF 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. In FY2020, VDOF recorded over 1,500 pre-harvest forest plans for 91,000 acres in the Bay Watershed. Forest management plans lead to implementation of forest management practices. VDOF field staff provide technical assistance and administer financial assistance programs in implementing some of these practices. In FY2020, VDOF recorded over 900 forest management projects on approximately 32,000 acres in the Bay Watershed. More specifically, VDOF reported tree planting on over 600 sites on approximately 22,000 acres in the Bay Watershed. Of this, over 400 acres were established on previously non-forested open land. VDOF provides a variety of services on these lands including oversight of forestry BMP implementation, inspection of harvest sites, and programs in riparian and urban forestry that collectively protect water quality.

Objective B: Forestry BMP Implementation

Summary: VDOF foresters are given regulatory authority under the Virginia Silvicultural Water Quality Law. Additionally, water quality programs focus on protecting streams from sedimentation by funding and increasing compliance with BMPs, best forest harvesting operations, inspecting harvest sites, educating loggers about BMPs, and monitoring streams for sedimentation.

Activity 2: Provide cost-share to implement forestry BMPs.

VDOF offers tree-planting grants using the Virginia Trees for Clean Water (VTCW) Program promoted through an RFP process. The 2020 cycle has allocated $172,946 to 28 projects in 25 different HUC12 watersheds utilizing funds from the Commonwealth's WQIF. To date, VDOF has assisted in completing 178 projects resulting in more than 53,000 trees being planted in Virginia communities. For Tax Year 2019, VDOF issued Riparian Forest Buffer tax credits on 112 applications covering 1,795 acres of retained forested buffers. The tax benefit to forest landowners was $738,721 on timber valued at $3,258,227. Forty stream protection projects were funded in FY2019 that are using portable bridges to provide stream crossing protection across the site during and after harvesting. See also Forestry Programs Activities 11 and 12 below.

Activity 3: Protect and enhance water quality by increasing compliance with BMPs on forest harvest sites.

In FY 2020, VDOF field personnel conducted 20,197 inspections on 4,623 timber harvest sites across Virginia totaling 204,877 acres.

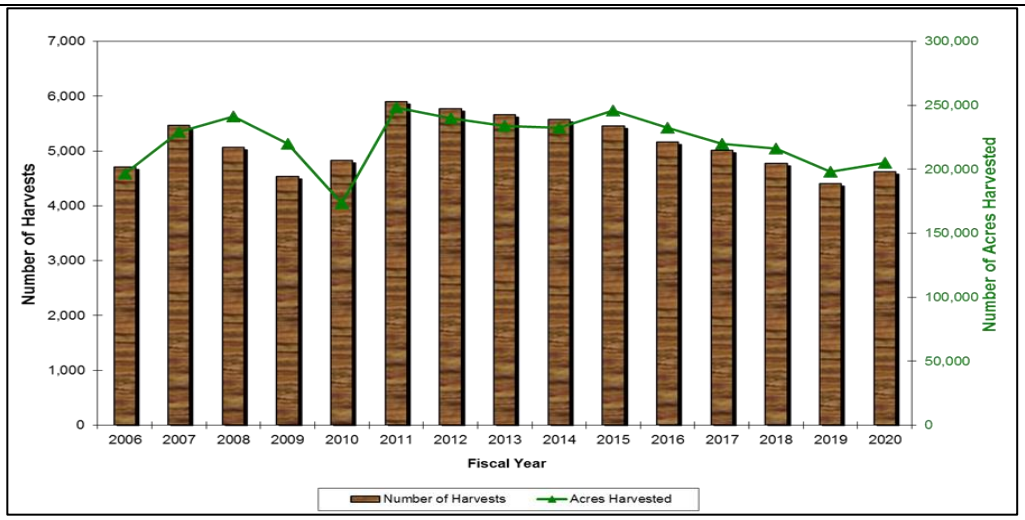

Figure 2.10: Number of harvests inspected and total number of acres harvested: 2006 through 2020

Activity 4: Maintain robust Harvest Inspection and Logger Education Programs.

VDOF was involved in 21 Logger education programs in FY2020, educating 604 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 VDOF to assist in training 10,317 harvesting professionals in 347 programs relating to water quality protection since its inception. Figure 2.11 shows the historical data on logger education programs:

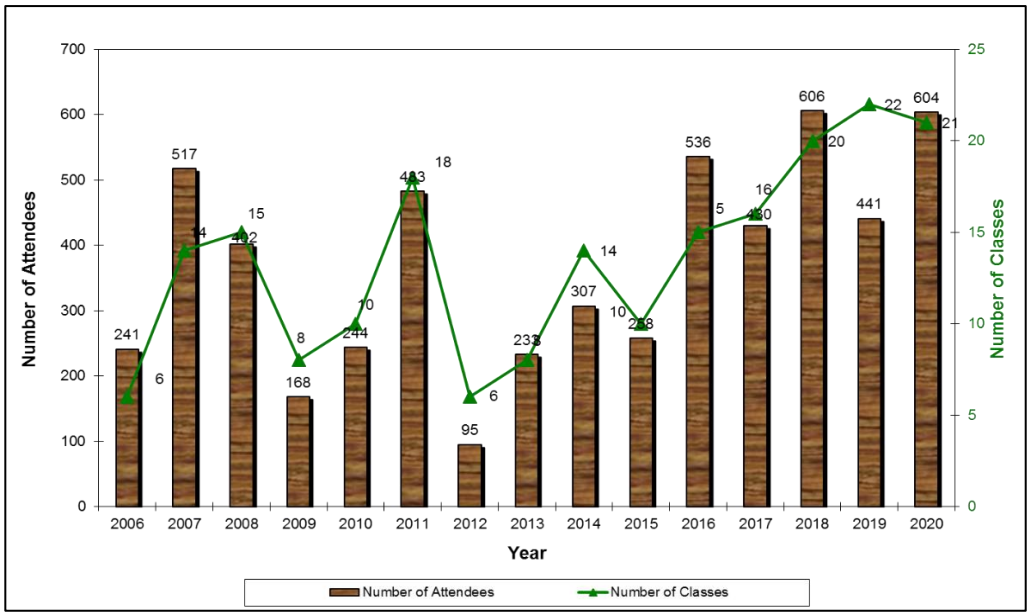

Figure 2.11: VDOF logger education: 2006 through 2020

Activity 5: Utilize and support the water quality law enforcement program.

State foresters continue to enforce the Virginia Silvicultural Water Quality Law. In FY2020, VDOF was involved in 120 water quality actions, though none resulted in a Special Order nor an Emergency Special Order being issued for violations of the law. Additionally, there were 29 failure to notify violations by timber harvesting contractors.

Activity 6: Monitor streams for sediment deposition.

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 VDOF's IFRIS (Integrated Forest Resource Information System) enterprise database system. The information compiled serves as the basis for VDOF reporting under Virginia's WIP. In calendar year 2019, 96.9 percent of the timber harvest acres in Virginia conducted within the boundaries of the Bay watershed were under BMPs, and 95 percent of the timber harvest acres statewide were under BMPs. The audit also showed that none of the sites visited had any signs of active sedimentation present after the closeout of a harvesting operation. The BMP goal for WIP III is to achieve a 95 percent implementation rate by 2025.

Activity 7: Implement state policies outlined in Phase III WIP for the Chesapeake Bay.

The 2020-2021 Programmatic Milestones and 2020-2021 Numeric Milestones were submitted to EPA on June 1, 2020. The EPA submitted their revised final evaluation of Virginia's 2018-2019 milestone progress and 2020-2021 milestone commitments to the Virginia Secretary of Natural Resources on July 29, 2020. Virginia will report an evaluation of progress on these milestones starting in January 2021.

Objective C: Riparian Buffer Initiative

Summary: The main goal of this activity is to conserve forest resources through voluntary agreements with landowners and qualified conservation organization or public entities.

Activity 8: Increase the amount of forestland protected and/or established in Virginia watersheds.

VDOF administers a conservation easement program with a focus on keeping the forest land base intact, and in more manageable and functional acreages. VDOF holds 194 conservation easements in 60 counties and the City of Suffolk that permanently protect over 84,000 acres of vital forestland. Of these, 117 easements consisting of 30,230 acres lie within the Chesapeake Bay watershed. In FY2020, the VDOF permanently protected 27,868 acres of open space and more than 118 miles of water courses through 10 conservation easements. Four of the easements comprising 1,789 acres were within the Chesapeake Bay watershed (Table 2.21).

Table 2.21: VDOF conservation easement totals

Location	Number of easements	Total Acres Protected
Statewide	194	>84,000
Chesapeake Bay Watershed	117	30,230

In Tax Year 2019, VDOF issued Riparian Forest Buffer Tax Credits to retain 1,795 acres of forest buffers retained. (Table 2.22)

Table 2.22: VDOF Riparian Forest Buffer Tax Credits, tax year 2019

Applications Awarded	Acres Forest Buffer Retained	Total Landowner Tax Benefit	Total Value of Timber Retained
112	1,795	$738,7201	$3,258,227

Activity 9: Work with partners, agencies, and groups to establish new buffers as outlined in the Riparian Forest Buffer Implementation Plan.

VDOF foresters meet with landowners, assess sites, develop site-specific recommendations, and coordinate with contractors and owners to successfully establish buffers through tree planting or natural means. In FY2020, VDOF recorded riparian forest buffer establishment on 257 sites acres in the Bay watershed.

Activity 10: Provide educational opportunities aimed at promoting an increase in riparian plantings and educating landowners on the importance of forests for water quality.

From July 2019 to February 2020, Project Learning Tree (PLT) held 32 in-person professional development trainings, of which 16 had a strong focus on supporting Meaningful Watershed Educational Experiences (MWEE) and watershed education. Due to COVID-19, all professional development has been virtual; the PLT State Coordinator has developed six different blended workshops with synchronous and asynchronous components. See also Forestry Programs Activity 4 above.

Objective D: Urban Forestry Initiative

Summary: This objective supports development and maintenance of a positive urban forest environment.

Activity 11: Mitigate the water quality impacts of urban and suburban stormwater and impervious surfaces.

The Virginia Urban Tree Canopy program assists communities by providing both cost-share funding and technical assistance to plant and maintain more trees on both public and private land, as well as support in data collection and analysis to encourage better management of existing canopy. With the newly added Tree Planting – Canopy BMPs for the WIP III, an innovative project tracking application entitled, "My Tree Counts" is tracking projects of multiple scales from individual tree to partner group multi-acre. Funding will also be used to educate communities on how to use the platform for tracking and reporting. See also Activities 12 and 13 below.

Activity 12: Develop and implement programs that encourage the implementation of tree planting projects and forest management strategies.

VDOF professional foresters prepare multi-resource forest management plans that address forests, timber, wildlife habitat, water quality, soils, and recreation to meet the needs of landowners as well as the broader resource objectives of the Commonwealth. One of the flagship programs for these plans is the Forest Stewardship Program, a cooperative effort with the U. S. Forest Service, Cooperative Forestry section. In FY2020, VDOF recorded over 1,500 plans for 91,000 acres in the Bay Watershed.

VDOF also offers tree-planting grants using the Virginia Trees for Clean Water (VTCW) Program promoted through an RFP process. The 2020 cycle has allocated $172,946 to 28 projects in 25 different HUC12 watersheds utilizing funds from the Commonwealth's WQIF. The majority of the projects funded are in highly urbanized parts of the state including Richmond, Virginia Beach, Fredericksburg, and Northern Virginia. Technical assistance by VDOF ISA Certified Arborist staff was also provided. Projects funded included tree planting for establishment of riparian forest buffers, school and park plantings, and stormwater retrofits that incorporated the use of trees.

To date, VDOF has assisted in completing 178 projects resulting in more than 53,000 trees being planted in Virginia communities. These projects include riparian buffer tree plantings, community and street tree plantings and a Turf to Trees program. VDOF field staff provide technical assistance and administer financial assistance programs in implementing some practices in forest management plans. They are action-based plans designed to meet landowner and resource needs including water quality improvement. In FY2020, VDOF recorded over 900 forest management projects on approximately 32,000 acres in the Bay Watershed. More specifically, VDOF reported tree planting on over 600 sites on approximately 22,000 acres in the Bay Watershed. Of this, over 400 acres were established on previously non-forested open land.

Activity 13: Encourage municipalities to include the use of forests and trees as a stormwater BMP.
Encouragement of localities to utilize trees and urban forests as a BMP is evidenced by Virginia Tech's (VT) continued support of the Virginia Urban Tree Canopy program (VUTC) which was an product of the Virginia Street Tree Assessment Project, through a partnership with DOF. The VAUTC program assists communities by providing both cost-share funding and technical assistance to plant and maintain more trees on both public and private land. These trees will provide green stormwater infrastructure benefits, thereby improving water quality across Virginia and specifically in the Chesapeake Bay. The website is "intended for urban planners, engineers, urban foresters, tree boards or commissions and others concerned with their community forests. Our aim is to help localities create a data–driven plan to set canopy goals and implement effective tree planting and preservation."

2.4 Onsite Sewage Programs

The mission of the Virginia Department of Health's (VDH) Division of Onsite Sewage and Water Services is to protect public health and groundwater quality. The program provides guidance, training, technical assistance, and administrative support while focusing on developing regulatory and associated implementation guidance. Table 2.23 summarizes the relationships among the Onsite Sewage Programs' objectives, activities, and milestones, as well as which NPS Plan goals they address.

Table 2.23: Onsite Sewage Programs Objectives

Onsite Sewage Programs Objectives	Goals	Activities	Milestones
A: General Onsite Sewage and Water Program	1-5	1	S02
B: Regulation Implementation	1,3,4	2	S02
C: Support BMP Installation	1,2,3,4	3	S01, S03
D: DEQ Grants and Programs	1,2,5	4-6	S01, S02, S03

Objective A: General Onsite Sewage and Water Program

Summary: The mission of VDH's Office of Environmental Health Services, Onsite Sewage and Water Services Program (Onsite Program) is to protect public health and groundwater quality. The Onsite Program is responsible for adopting and implementing regulations for private wells and onsite wastewater treatment and disposal. The program provides guidance, training, technical assistance, and administrative support to over 300 field staff. In addition, the program fosters and maintains communication with an onsite community of contractors, engineers, soil scientists, pumpers, academics, manufacturers, builders, real estate agents, and most critically, homeowners.

Activity 1: Protect public health and surface and groundwater quality.
The VDH Office of Environmental Health Services, including 35 local health districts, implements and oversees the state onsite wastewater program to protect public health and groundwater quality. In 2020 VDH-OEHS conducted several web-based trainings for licensed Onsite Sewage Ssystem Operators to utilize new technology to conduct and report operation and maintenance reports for alternative onsite septic systems. Guidance about COVID-19 and onsite septic systems was also developed and provided for 2020.

Objective B: Regulation Implementation
Summary: The Sewage Handling and Disposal Regulations (12 VAC 5610) and Regulations for Alternative Onsite Sewage Systems (12 VAC 5-613) require a multiple step process to ensure compliance with design and operation standards. That process includes construction permit issuance for onsite sewage systems, designer and installer verification of approved design compliance, operation permit issuance, and operation and maintenance (O&M) reports for alternative systems.
Activity 2: Maintain and develop programs that implement both the Sewage Handling and Disposal Regulations (12 VAC 5-610) and Regulations for Alternative Onsite Sewage Systems (12 VAC 5-613). The regulations protect public health, groundwater, and surface waters of the Commonwealth by establishing effective and appropriate minimum standards for the safe and sanitary collection, transport, treatment and disposal of wastewater, as such activities relate to sewage disposal on private and residential parcels of land and other places. They include a framework for allowing alternative sewage treatment systems for single family dwellings located where conventional septic systems will not work. Across the state, there are approximately 1.1 million onsite sewage systems including approximately 30,000 alternative onsite sewage systems (AOSS). Roughly 550,000 of the total onsite sewage systems in Virginia are located in the Chesapeake Bay watershed. VDH has been involved with a variety of legislative initiatives aimed at decreasing pollution from onsite sewage systems across the Commonwealth. HB 2322 (2019 Va. Acts Ch. 429) passed in the General Assembly and was signed by Governor Northam. The bill directs VDH to develop a plan for the oversight and enforcement by VDH of requirements related to the inspection and pump-out of onsite sewage treatment systems. Another piece of legislation, HB 2811 (2019 Va. Acts Ch. 441) amended § 58.1-3660 of the *Code of Virginia* to designate VDH as a "state certifying authority." This bill encourages the use of community onsite systems over individual system installations, which increases pollution reduction. GMP # 2020-01, which implements HB 2811 has gone through public comment process and became effective March 19, 2020. So far, VDH has provided certification of tax exemption for two projects: the Town of White Stone Sewage Collection and Treatment System Phase I project and the Catlett Calverton Community Wastewater System project

Objective C: Support BMP Installation
Summary: VDH's strategic vision is to shift evaluation and design services for onsite sewage systems and private wells from VDH to the private sector. This shift in services will allow VDH to focus its limited resources on health monitoring, data collection and sharing, providing quality assurance inspections of private sector work, developing policies to improve health, and providing reasonable enforcement and programmatic oversight. However, VDH continues to serve as a technical resource for Section-319(h)-funded projects implementing residential septic programs and will serve as a technical resource on DEQ's Residential Septic Stakeholder Advisory Committee.
Activity 3: Work to document and report the number of septic pump-outs, connections to public sewers, repairs, replacements, and alternative septic systems installed. In 2019, the Secretaries of Natural Resources, Health and Human Resources, and Commerce and Trade worked together to form the Wastewater Infrastructure Work Group (Work Group) consisting of representatives of DEQ, VDH, Virginia Department of Housing and Community Development, and Virginia Resources Authority. The goal of the work group is to coordinate and maximize grants to landowners and localities to protect water quality, human health, and economically disadvantaged communities from

inadequate, failing, or failed wastewater systems. The Center for Coastal Resources Management at the College of William & Mary Virginia Institute of Marine Science (VIMS) with partnership and resources from VDH used regulatory system permit data to create a map identifying areas in the Chesapeake Bay watershed with consistently high rates of septic system failures. The Work Group intends to use this map to help identify areas where grant resources could be used with the greatest impact. Additionally, the Work Group has provided recommendations for initiatives, research, and data needs to more comprehensively and effectively assess and address wastewater infrastructure needs in the Commonwealth.

Objective D: DEQ Grants and Programs

Summary: 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 plan areas. DEQ provides funding from grant and landowner contributions to pump out septic systems, repair or replace failing septic systems, or remove straight pipes. DEQ generally disburses funds through SWCDs; however, in a few cases, nonprofits, planning district commissions, and localities assist with these TMDL implementation projects. DEQ also provides financial assistance through the Chesapeake Bay Implementation Grant to low-to-moderate income homeowners within Chesapeake Bay preservation areas to address the requirements of a local government's septic tank pump-out program, pursuant to the Chesapeake Bay Preservation Act.

Activity 4: Implement the septic pump-out requirements of the Chesapeake Bay Preservation Act.

Chesapeake Bay Preservation Act (CBPA) compliance reviews continued to be conducted for the Tidewater localities subject to the CBPA. DEQ Local Government Assistance Program staff have been working to ensure that a periodic (every five years) compliance review is completed for all local programs in the 84 CBPA localities. As part of the compliance review process, localities are required to submit annual reports on their continued implementation of the CBPA. Based on the 2019 annual report cycle (January 1, 2019 – December 31, 2019), 19,780 septic systems were pumped out.

Activity 5: Provide funding and technical services to initiate projects to address straight pipes and failing or failed residential onsite sewage systems identified in local NPS Implementation Plans.

DEQ runs a very robust residential septic program in conjunction with both its Non-agricultural Nonpoint Water Quality Improvement Fund Program as well as its Section 319(h) Nonpoint Program. These programs made available funds for grantees to provide technical services to implement on-the-ground septic BMP projects. In addition, during FY2020, a total of $1,518,228 in state and federal funding combined with landowner contributions was expended to install 429 septic BMPs. This resulted in the removal of 5,063 pounds of nitrogen and 8.28E+12 CFU of bacteria. About 82% (350 total) of the BMPs were installed in the Chesapeake Bay watershed (Table 2.25). Seventy-nine percent (79%) of the septic BMPs funded by DEQ were funded within local NPS Implementation Plans (IPs) with 100% of the septic BMPs installed outside of the Chesapeake Bay watershed being within EPA-approved IPs (Table 2.24) Table 2.26 shows that a total of 429 septic BMPs were implemented in FY2020 at a total cost of $1,518,229.

Table 2.24: Residential septic BMPs installed within IP areas (7/1/2019 – 6/30/2020)

Name of BMP	BMP Practice Code	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	240	672	1.20E+12	$46,824	$82,173
RB-2	Connection to Public Sewer	3	92	1.49E+11	$25,477	$47,104
RB-3	Septic Tank System Repair	32	739	1.19E+12	$64,051	$131,011
RB-3R	Conventional Onsite Sewage Systems Full Inspection and Non-permitted Repair	52	1,202	1.94E+12	$42,379	$76,818
RB-4	Septic Tank System Replacement	63	1,456	2.35E+12	$253,240	$490,577
RB-4P	Septic Tank System Installation/Replacement with Pump	21	485	7.83E+11	$140,136	$294,715
RB-5	Installation of Alternative Waste Treatment System	18	416	6.71E+11	$225,604	$395,83
Total	--	**429**	**5,063**	**8.28E+12**	**$797,709**	**$1,518,229**

*CFU = colony forming units

Table 2.25: Residential septic BMPs for waters outside the Chesapeake Bay watershed and waters inside the Chesapeake Bay from 7/1/2019 – 6/30/2020

Watershed Basin	Number of BMPs Installed within IP areas	Number of BMPs Installed outside IP area	Total	Percent of Total within IP area
Chesapeake Bay	260	90	350	74%
Outside of Chesapeake Bay	79	0	79	100%
Total	**339**	**90**	**429**	**79%**

Table 2.26: Residential Septic Program grant-funded BMPs (7/1/2019 – 6/30/2020)

Drainage	River Basin	# of BMPs	Total BMP Cost
Chesapeake Bay	James-Appomattox	31	$115,274
Chesapeake Bay	James-Rivanna	14	$62,336
Chesapeake Bay	Middle James	80	$310,045
Chesapeake Bay	Potomac-Shenandoah	87	$284,475
Chesapeake Bay	Rappahannock	109	$436,551
Chesapeake Bay	Upper James	1	$9,500
Chesapeake Bay	York	28	$150,249
Chesapeake Bay	**Sub-total**	**350**	**$1,368,430**
Outside Chesapeake Bay	Big Sandy	0	N/A
Outside Chesapeake Bay	New River	0	N/A
Outside Chesapeake Bay	Roanoke-Dan	7	$24,733
Outside Chesapeake Bay	Tennessee-Clinch	0	N/A
Outside Chesapeake Bay	Tennessee-Holston	48	$61,151
Outside Chesapeake Bay	Upper Roanoke	24	$63,915
Outside Chesapeake Bay	**Sub-total**	**79**	**$149,799**

Activity 6: Pursue other sources of funding to address failing on-site sewage systems including, but not limited to Revolving Loan Funds, Water Quality Improvement Fund, etc.

To assist in the repair of failing onsite sewage systems, VDH was awarded $300,000 from the Virginia Environmental Endowment (VEE) with an additional $200,000 from the Smithfield Foundation, the philanthropic arm of Smithfield Foods, Inc., for a total of $500,000. These funds are being used to repair failing septic systems and remediate illicit sewage discharges (straight pipes) from homes. In the first year of the grant, funding was available to homeowners in the Yarmouth Creek and Morris Creek watersheds in

James City County, the Pagan River and Lawnes Creek watersheds in Isle of Wight County, and the Lawnes Creek watershed in Surry County with a household income of 200 percent or less of the Federal Poverty Guidelines (FPG) and a failing septic system. In April 2020, the program was expanded to include any portion of James City County, Isle of Wight, or Surry located within the James River watershed. The program was also expanded to all income levels. VDH is currently working with 11 property owners to repair failing onsite sewage systems with nitrogen reducing systems or sewer connections. See also Activity 3.

2.5 Resource Extraction Programs

The Department of Mines Minerals and Energy (DMME) NPS Programs continue to address the identification, management, and reclamation of abandoned sites that may contribute NPS pollution to waterways. The Division of Mined Land Reclamation (DMLR) oversees the Abandoned Mine Land Program, which assists with the reclamation of abandoned coal mines. The Division of Mineral Mining manages the Orphaned Mine Land Program to address un-reclaimed mineral mines. Each division has a program that through a mix of regulatory, financial, and technical assistance addresses NPS pollution from abandoned and orphaned sites. Table 2.27 summarizes the relationships among the Resource Extraction Programs' objectives, activities, and milestones, as well as which NPS Plan goals they address.

Table 2.27: Resource Extraction Programs Objectives

Resource Extraction Programs Objectives	Goals	Activities	Milestones
A: General Resource Extraction	1-4	1-5	M01, M02, M05
B: Enforcement of Laws	1	6	M01-M05
C: Identifying Sources of Water Quality Degradation	7-9	1-4	M01, M03, M04
D: Implementation of Abandoned and Orphaned Mined Land Programs	10	2,3	M03

Objective A: General Resource Extraction

Summary: Virginia's Department of Mines Minerals and Energy (DMME) works to reduce water quality impacts associated with resource extraction activities through site inventories, data collection, site planning, site prioritization for reclamation and best management practice implementation. DMME additionally enforces state law, which requires operators of active mines to implement management practices that control the release of sediment from the sites and reclaim sites to a stable condition once the activity is complete. DMME NPS programs additionally address the identification, prioritization, management, and reclamation of extraction sites abandoned before such laws existed.

Activity 1: Reduce water quality impacts associated with resource extraction activities by proper site planning and best management practice implementation.

Between October 2019 and September 2020, DMLR's Water Quality Section performed 462 water-quality-related plan reviews.

Activity 2: Reduce NPS pollution from abandoned and orphaned mined land.

The Abandoned and Orphaned Mine Land Programs have expended a cumulative $3,837,076 from the interest on the Minerals Reclamation Fund to prioritize and remediate sites across Virginia that pose environmental and safety hazards. A total of 19 sites were remediated between March 2019 and March 2020. Ongoing progress is summarized in Table 2.28 below.

Table 2.28: Summary of hazardous mine site remediation in Virginia

Hazardous sites identified	Sites prioritized for reclamation	% prioritized for reclamation	Total sites remediated	% sites remediated	total acres mined land reclaimed
1,119	175	15.6	134	12.0	834.4

Activity 3: Include water quality goals in prioritization of areas for reclamation activities.
This inventory of hazardous sites and prioritization for reclamation allows for the targeting of impaired waters in TMDL watersheds.

Activity 4: Document and report reclamation of active, orphaned, and abandoned mine sites.
All inventoried site reports are available on DMME's web map.

Activity 5: Enhance coordination between DEQ and DMME to collect and report data on BMPs installed on active mine sites as well as reclamation of active, abandoned, and orphaned mines.
DEQ participates annually in the Virginia Orphaned Lands Advisory Committee (OLAC) coordinated by DMME. DMME collaborates with DEQ on NPS Annual Reports and reports BMPS in DEQ's BMP Warehouse.

Objective B: Enforcement of Laws

Summary: The Department of Mines Minerals and Energy (DMME) is the primary state agency involved with the regulation of resource extraction activities in Virginia.
On active mining sites, all water discharges including surface and groundwater discharges must flow through a National Pollutant Discharge Elimination System (NPDES) permitted discharge point and are by definition a "point source." State law requires operators of active mines to implement management practices that control the release of sediment from the sites and meet current state and federal effluent standards for point source discharges.

Activity 6: DMME will interpret and enforce Virginia mining laws consistently and review mining and drilling permits, taking appropriate action to ensure compliance.
All active sites must be reclaimed to a stable condition once the resource extraction activity is complete.

Objective C: Identifying Sources of Water Quality Degradation

Summary: DMME administers the Orphaned Mine Land Program. "Orphaned" mineral mined lands are those areas disturbed by the mining of all minerals, except coal, which were not required by law to be reclaimed or have not been reclaimed.

Activity 7: DMME will inventory, monitor, and report areas contributing significant sediments and mine water discharges to the water resources of Virginia and consider the pollution as part of the selection process for determining which sites will be reclaimed.
As of September 21, 2020, 3,171 orphaned mineral mined sites have been inventoried in 576 (46.2%) of Virginia's 1,247 hydrologic units (HUC). Of the inventoried sites:

- 1,049 sites were identified as safety hazards.
- 228 sites were identified as environmental hazards.
- 158 sites were identified as *both* safety and environmental hazards.

In addition to reclamation activities, pollutant reductions are achieved through the agency's BMPs and offset approach to TMDL implementation in its joint mining and discharge permitting processes.

Activity 8: DMME will investigate reported occurrences of NPS pollution and when appropriate take action to eliminate, abate, or prevent water resource degradation

DMME's program goals include: the reduction of NPS pollution on abandoned mined land; development of water quality goals in prioritization of areas for reclamation activities; enhanced coordination between DEQ and DMME to collect and report BMPs installed on active mine sites, as well as reclamation of active and abandoned mines; and documentation and reporting of reclamation of active and abandoned mine sites.

Objective D: Implementation of Abandoned and Orphaned Mined Land Programs
Summary: DMME receives funding from the Section 319(h) NPS Program to conduct inventories of orphaned mine land to assist in prioritizing sites for reclamation. This inventory has been an important DMME priority, as it provides the capacity to target impaired waterbodies (as well as headwaters) known to support high quality or healthy waters. DMME has prioritized reclamation sites identified in the various inventories based on identified TMDL waters. The mine land inventories provide an ongoing basis for prioritizing and assessing program effectiveness.
Activity 9: Continue to inventory abandoned and orphaned mine land sites to provide the capability to target impaired waterbodies and to provide an ongoing basis for prioritizing and assessing program effectiveness. DMME will continue to inventory abandoned mineral mine land (AMML) sites and link those sites to impaired waters and TMDLs. See Resource Extraction Activities 2 and 7 above.

2.6 Resource Protection Programs

Virginia has a wide range of programs that seek to protect aquatic resources through identification of critical water supply, coastal and healthy aquatic resources and implementation of proven management measures. Reported herein is annual progress in the Healthy Waters Program, Chesapeake Bay Preservation Act, Coastal Zone Management Program, and Source Water Protection Program. Table 2.29 summarizes the relationships among the Resource Protection Programs' objectives, activities, and milestones, as well as which NPS Plan goals they address.

Table 2.29: Resource Protection Programs Objectives

Resource Protection Programs Objectives	Goals	Activities	Milestones
A: Healthy Waters Program	1,2,5	1	P01
B: Chesapeake Bay Preservation Act Program	1,4	2	P02
C: Coastal Nonpoint Source Program	1,3,4	3	P04
D: Source Water Protection Program	1,4	4	P03

Objective A: Healthy Waters Program
Summary: In close cooperation and collaboration with Virginia Commonwealth University (VCU) and DEQ, DCR- Natural Heritage Program (NHP) manages the Healthy Waters Program (HWP). The Program seeks to identify and protect important segments of land (and the associated waterbodies) to prevent water quality degradation and promote the protection of aquatic communities.
Activity 1: Implement Healthy Waters Program, partially through 319(h) funds. DEQ has provided significant data and funding from Section 319(h), CBIG, and NOAA CZM to support the Program and broaden its applicability through ongoing partnerships with VDOF, NGOs, and the private sector. Highlights of activities include:

- Expansion of *ConserveVirginia*, to include the Water Quality Improvement category, which identifies 790,112 acres of the highest priority lands for conservation.
- VCU and NHP are working to integrate the HWP and INSTAR data to enhance the *ConserveVirginia* tool with two new inputs: 1) *Healthy Waters Conservation Opportunity Areas*, which would assist in identifying those highest priority lands for improving water quality to maintain confirmed healthy waters data; and 2) the highest priority lands for targeting agricultural BMP efforts to improve water quality for lower-scoring INSTAR reaches with the goal of elevating those scores. DCR and DEQ have met to discuss the inclusion of additional DEQ-collected water quality data to create an additional input based on a broader suite of parameters. Due to budgetary constraints and limited capacity, the conclusion was to delay the development of that additional input and evaluate the process once the two new inputs were integrated.
- NHP is developing a watershed-based conservation model to achieve a Chesapeake Bay Program goal of 100 percent of state-identified (in 2014) currently healthy waters and watersheds to remain healthy by 2025. The modeling process will identify priority areas for protection.
- The NHP is evaluating the change to an NHDPlus-HR catchment area similar to that used in the watershed-based conservation planning model to refine those areas to be considered as part of project review. Tentatively the new area units will be called the Stream Conservation Sites.
- The Virginia Secretary of Natural Resources Office requested NHP and the HWP Manager facilitate the development and implementation of a memorandum of understanding for the continued and expanded coordination and cooperation among key partners in the Albemarle-Pamlico National Estuary Partnership (APNEP) Comprehensive Conservation and Management Plan (CCMP). The MOU is available here.

Objective B: Chesapeake Bay Preservation Act Program

Summary: The Bay Act program recognizes that local governments have the primary responsibility for land use decisions, expanding local government authority to manage water quality, and establishing a more specific relationship between water quality protection and local land use decision-making. The Program provides funding as well as technical assistance to local governments through DEQ's Chesapeake Bay liaison staff and the conduction of compliance reviews of local programs performed every five years help to ensure success.

Activity 2: Continue to undertake regulatory compliance evaluations and provide technical assistance to support implementation of the Chesapeake Bay Preservation Act.

Chesapeake Bay Preservation Act (CBPA) compliance reviews continued to be conducted for the Tidewater localities subject to the CBPA. DEQ Local Government Assistance Program staff have been striving for all 84 CBPA localities to be in the position of completing the periodic (every five years) compliance review of their local program by the end of calendar year 2019.

Table 2.30 includes a summary of compliance review status for CBPA localities and reported implementation based on the 2019 annual report cycle (January 1, 2019 – December 31, 2019). See also Residential Sewage Activity 4.

Table 2.30: Summary of CBPA compliance reviews, 2019

Localities w/Completed Compliance Review	Localities scheduled for compliance review	Soil and water quality assessments on ag land	Septic systems pumped out
76	8	143	19,780

Objective C: Coastal Nonpoint Source Program

Summary: Virginia's Coastal Nonpoint Source Program is facilitated through the Virginia Coastal Zone Management (CZM) Program and is implemented by CZM agency partners including DEQ with state and federal grants including 319(h) funding. *Section 306/306A of the Coastal Zone Management Act (CZMA) provides federal funds to implement federally-approved CZM Programs. Section 309 of the CZMA is known as the Coastal Zone Enhancement Program.* The Program focuses on pollution prevention and encourages efforts at a local level, particularly improvements to land use planning and zoning practices to protect coastal water quality through completion of its Coastal Needs Assessment and subsequent creation and implementation of its Five-Year Section 309 Coastal Enhancement Strategies and Strategic Planning. Additionally, the Program's Section 309 Ocean Resources Management Strategy includes initiatives to implement the Virginia Marine Debris Reduction Plan.

Activity 3: Implement components of the Coastal NPS Program through the Virginia Coastal Zone Management Program including cumulative and secondary impacts to water resources.

Virginia is awarded funds based on the size of its coastal population and the length of its tidal shoreline; the commonwealth currently receives about $3 million annually from the National Oceanic and Atmospheric Administration (NOAA), Office for Coastal Management (OCM) under Sections 306, 306A, 309 and 310.

Specific accomplishments from these funds include:

- **Implementation of the Virginia CZM Program** – Section 306: Funding for the implementation of the Virginia CZM Program.
    - Section 306 Focal Areas for grantees during FY2017-2019 were living shorelines and land acquisitions. The Virginia Institute of Marine Science (VIMS) continues to work on a project using the existing Shoreline Inventory and Shoreline Management Model (SMM) to identify potential areas for living shorelines to provide stabilization and generate nutrient removal credits for the Chesapeake Bay TMDL.
    - Section 306 Focal Areas (FY2020-2022): Beginning in early 2019, CZM began working with the Coastal Policy Team (CPT) to develop the next three-year grant Focal Areas. Preliminary discussions between CPT representatives at a meeting on September 12, 2019 led to the selection of a Climate Adaptation & Resiliency theme. CZM will fund four projects including two with water quality benefits, implement the Commonwealth's Coastal Resiliency Master Plan, and improve resiliency at the local level.
- **Acquisition and Construction Projects – Section 306A:** Funding for the acquisition of fee-simple and other interests (e.g., easements) inland, low-cost construction projects (e.g., public access improvements), or habitat restoration projects.
    - Under Section 306A Land Acquisitions during FY2019, one land acquisition by CZM and DCR - a 20.9-acre addition to the existing Cape Charles Natural Area Preserve (NAP) in Northampton County on the Eastern Shore - will convert farmland to migratory bird habitat and prevent nutrient and sediment runoff after vegetative cover is restored. Non-tidal wetlands will also be restored on the site, resulting in water quality improvements.

- **Creation of New Enforceable Coastal Policies – Section 309:** Funding for coastal zone enhancement projects which propose creation of new enforceable policies in any of nine identified areas.
    - As part of the current five-year Section 309 (Coastal Zone Enhancement Grants) Strategies for FY2016-2020, CZM will continue to focus on projects and policy development for the areas of Cumulative & Secondary Impacts of Growth & Development (CSI), Coastal Hazards, and Ocean Resources. Coastal Hazards and Marine Debris Strategies for FY2021-2025 will serve as the main mechanisms for addressing nonpoint source pollution and improving coastal water quality through new enforceable policies or research directed toward informing such policies.
- **Implementation of the Virginia Coastal Nonpoint Source Pollution Program – Section 310:** Currently the Coastal Nonpoint Source Pollution Program is not funded.

Other accomplishments include:

Locality Stormwater Management

- Stormwater Local Assistance Fund (SLAF) continued to provide matching grants to Fairfax County for the Difficult Run Stream Restoration for nutrient reduction and improved habitat. This partnership will continue in FY2020 though the Bear Branch Stream Restoration project in the Town of Vienna.
- Localities had significant accomplishments this year, such as distributing grant funds and launching outreach campaigns.

DEQ Regulatory Review

- CZM continued to review NPS pollution aspects of projects as part of their Federal consistency review / Environmental Impact Review (EIR)process. This effort will continue in FY2020.

Objective D: Source Water Protection Program

Summary: The Virginia Department of Health (VDH) Office of Drinking Water (ODW) is the designated office within VDH tasked with implementing the Safe Drinking Water Act (SDWA) in Virginia. VDH-ODW performs Source Water Assessments (SWA) as a baseline inventory of potential contamination threats to drinking water sources. VDH-ODW administers a voluntary Source Water Protection Program financed by the Drinking Water State Revolving Fund (DWSRF) to enhance eligible waterworks' abilities to guarantee long-term capacity to produce safe drinking water and protect source waters.

Activity 4: The Source Water Protection Program will continue to focus on education, empowerment, and financing initiatives through its various programs and partnerships.

One goal of the assistance program is to spread source water awareness and educate waterworks and communities on measures they can implement to protect their sources. Tetra Tech was contracted to complete tasks to support source water protection plan development and implementation for 42 water systems. A programmatic goal was set to complete six SWPP per year. Activity reported at the end of the 2019-2020 amounted to four finalized SWPP documents covering 27 individual systems, one completed draft SWPP for one individual system, and seven plans in draft or under development covering 11 individual systems. Contractors contacted 125 systems to inquire about the implementation status of their SWPPs

and about both the 2014 and the draft 2017 definitions of substantial implementation. Of the responding systems, 93 appeared to meet the 2014 definition; 14 systems were marked as meeting the 2017 definition.

2.7 Urban and Developed Lands Programs

Though stormwater captured though a confined or discrete conveyance to a waterbody is permitted as a point source, there are opportunities to address stormwater and developed lands through non-regulatory programs. This includes urban nutrient management as well as stormwater activities that do not directly implement a NPDES permit. DEQ addresses both of these categories of activities using Section 319(h) funds. Table 2.31 summarizes the relationships among the Urban and Developed Lands Programs' objectives, activities, and milestones, as well as which NPS Plan goals they address.

Table 2.31: Urban and Developed Lands Programs Objectives

Urban and Developed Lands Programs Objectives	Goals	Activities	Milestones
A: Urban Nutrient Management	1	1	U01
B: Stormwater and Developed Lands	1-5	2-4	U01

Objective A: Urban Nutrient Management

Summary: Section 3.2-3602.1 of the *Code of Virginia* addresses the application of regulated products (fertilizer) to nonagricultural property. It calls for training requirements, establishment of proper nutrient management practices, and reporting requirements for contract-applicators who apply fertilizer to more than 100 acres, as well as for employees, representatives or agents of state agencies, localities, or other governmental entities who apply fertilizer to nonagricultural lands. The activity for this NPS Management Plan focuses specifically on state-owned land.

Activity 1: Increase nutrient management planning to include 85% of all applicable state-owned land.

Notifications are sent annually to all state agencies reminding them of the need to have current plans according to the *Code of Virginia*. As required by § 10.1-104.5 of the *Code of Virginia*, all golf courses have obtained and are implementing nutrient management plans. DCR continues to work with the golf courses to ensure nutrient management plans are updated and revised as required by law. Total urban areas with nutrient management now exceed 32,343 acres. This total of urban acres with nutrient management is not reflective of the actual amount of urban acres with nutrient management. DCR estimates the additional acreage is roughly 115,000 acres with nutrient management plans including golf courses, localities with DEQ municipal separate storm sewer system (MS4s) permits, and state-owned land, which covers the majority of fertilization of nonagricultural land in the state that is managed by professionals. See also Agriculture and Nutrient Management Activity 7.

Objective B: Stormwater and Developed Lands

Summary: The Virginia NPS program allows many opportunities to address stormwater runoff that is not regulated by permits including BMPs identified in EPA-approved implementation plans that address urban sources of pollution and mitigation of the water quality impact of urban and suburban stormwater and impervious surfaces by encouraging and implementing tree planting projects, riparian buffer establishment, rain gardens and other infiltration (bio infiltration) practices, and forest management strategies.

Activity 2: Control NPS pollution from developed sites to protect downstream properties and local health. From July 2019 through June 2020, a main focus of DEQ central and regional office staff has been assisting local governments with the implementation of their local stormwater management programs, which includes addressing erosion and sediment control.

Ninety-four (94) local governments continued to implement their previously approved local stormwater management programs with the assistance of DEQ central and regional office staff. In addition, DEQ central office staff and local governments continued to process coverage under the Construction General Permits 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, modification, transfer, and termination of Construction General Permit coverage.

DEQ central office staff performed six local government erosion and sediment control program audits. DEQ regional office staff continued to visit small and large construction activities to perform site inspections for compliance with the 2019 Construction General Permit, which includes addressing erosion and sediment control in a manner that is consistent with the Erosion and Sediment Control Law and attendant regulations.

In order 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 Fund 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 FY2020, DEQ authorized $18,000,000 in funding for 22 projects and one nutrient credit purchase from 15 localities utilizing $10,000,000 in bond authorization from the General Assembly and $8,000,000 in carryover funds. As of June 30, 2020, the six funding cycles of SLAF grants have resulted in 37 localities that signed grant agreements to implement 138 projects totaling $63,630,146 in cost-share.

The Virginia Conservation Assistance Program (VCAP) is administered by the Virginia Association of Soil and Water Conservation Districts. Districts with qualified, trained, and experienced staff implement the voluntary stormwater BMPs and cost-share program for public, private, and nonprofit landowners. During the 2019 General Assembly Session, $1 million in state funds was provided to VCAP, which was established to assist the Commonwealth in meeting its reduction targets for urban and residential areas as established in the Chesapeake Bay TMDL including localities with Municipal Separate Storm Sewer Systems (MS4). An additional $500,000 in state funding was provided for VCAP during the 2020 General Assembly Session. It provides cost-share and technical assistance to address natural resource and stormwater concerns by assisting in the voluntary installation of certain BMPs on land for which there is no other cost-share program assistance available. VCAP is also intended to retrofit existing infrastructure.

Activity 3: Implement state policies outlined in Virginia's Phase III Watershed Implementation Plan for the Chesapeake Bay TMDL.

The 2020-2021 Programmatic Milestones and 2020-2021 Numeric Milestones were submitted to EPA on June 1, 2020. The EPA submitted their revised final evaluation of Virginia's 2018-2019 milestone progress and 2020-2021 milestone commitments to the Virginia Secretary of Natural Resources on July 29, 2020. Virginia will report an evaluation of progress on these milestones starting in January 2021.

Activity 4: Fund, where possible, urban components of EPA-approved implementation plans for activities not directly implementing a permit.

Many of the EPA-approved implementation plans call for the installation of BMPs addressing unregulated components of urban areas. All requests for applications (RFA) that are issued utilizing either Section 319(h) nonpoint source funding or non-agricultural NPS Water Quality Improvement Funds (WQIF) have the ability to fund urban activities.

Although not specifically targeted for implementation plan areas, the aforementioned funding programs, SLAF and VCAP (in 2.7 Activity 3) may also result in BMP installation within approved IP areas. When possible this information is included in any progress reporting on the implementation success.

2.8 Watershed Roundtable Programs

As of 2019, Virginia has 11 active and funded watershed roundtable organizations. Roundtables provide watershed-based forums for stakeholders to participate in defining critical watershed needs, targeting problems for solutions, and providing input on potential management options to restore and protect water quality. Table 2.32 summarizes the relationships among the Watershed Roundtable Programs' objective, activities, and milestones, as well as which NPS Plan goals they address.

Table 2.32: Watershed Roundtable Programs Objectives

Watershed Roundtable Objectives	Goals	Activities	Milestones
A: Watershed Roundtable Initiative	1-5	1,2	R01

Objective A: Watershed Roundtable Program

Summary: DEQ provides various funding opportunities for watershed roundtable activities in Virginia to help them achieve water quality improvement goals. Generally, Section 319(h) funds roundtable activity outside of the Chesapeake Bay, and the Chesapeake Bay Implementation Grant funds roundtable activity within the Bay.

Activity 1: Establish watershed roundtables for priority river basins to provide watershed-based forums for stakeholders to participate in defining critical watershed needs, targeting problems for solutions, and providing input on potential management options to restore and protect water quality.

During FY2020, out of the 14 river basins with historic watershed roundtables statewide, 11 (79%) roundtables were active (Table 2.33); however, some of the roundtables were not as active as is typical due to COVID-19. For 2020, Virginia exceeded its goal for the 2020-2024 period to have active watershed roundtables in at least 60% of the river basins.

Table 2.33: Summary of past and current watershed roundtables in Virginia as of 2020

River Basins	Status as of June 2020 plus funding source	Within Chesapeake Bay
Albemarle-Chowan Watershed	Not Active or Funded	No
Big Sandy River Basin	Not Active or Funded	No
Dan River Basin	Active but not funded	No
Eastern Shore Watersheds	Active, CBIG funding	Yes
Lower James River	Active, CBIG funding	Yes
Middle James River	Active, CBIG funding	Yes
New River Basin	Active, 319(h) funding	No

River Basins	Status as of June 2020 plus funding source	Within Chesapeake Bay
Potomac River Basin	Active, CBIG funding	Yes
Rappahannock River Basin	Active, CBIG funding	Yes
Shenandoah River Basin	Active, CBIG funding	Yes
Upper James River	Active, CBIG funding	Yes
Upper Roanoke River	Active, 319(h) funding	No
Upper Tennessee River	Active, 319(h) funding	No
York and Small Coastal Basins	Active, CBIG funding	Yes

Activity 2: Provide funding for at least eight watershed roundtables annually (through Section 319(h)) for Southern Rivers and Chesapeake Bay Implementation Grant for Bay roundtables.

During FY2020, out of the 14 historic watershed roundtables statewide, 11 (79%) roundtables were funded (Table 2.33): eight within the Chesapeake Bay and funded with Chesapeake Bay Implementation Grant funds (CBIG) and three outside of the Chesapeake Bay (a.k.a. Southern Rivers) funded with Section 319(h). DEQ exceeded the NPS Management plan activity goal of funding 8 of the 14 possible roundtables (57%) annually.

Chapter 3: Virginia 2019-2024 Nonpoint Source Program Milestones

This chapter summarizes the accomplishments of the NPS Implementation Milestones for 2020, tracking back to the original milestones from 2019-2024 Virginia NPS Pollution Management Plan.

3.1 Virginia Milestone History and Background

There were forty (40) original milestones when the 2019-2024 NPS Management Plan was developed. Individual milestones were associated with at least one of the five individual NPS Program Goals and further assigned to specific objectives and activities associated with one of the eight program areas described in Chapter 2: Summary of FY2020 NPS Program Activities.

These milestones were developed based upon information provided by program and agency partners, prior milestones from the last management plan (2014-2019), and typical performance metrics. DEQ developed an internal Tracking and Reporting Tool that collected critical information for milestones and activities identified in the 2019 NPS Management Plan.

A full and complete output report of the Tracking and Reporting Tool will be provided separately to EPA. A summary of the milestone information is provided here, and summarized information related to activities is provided in each relevant section of Chapter 2: Summary of FY2020 NPS Program Activities.

3.2 FY2020 Virginia Milestone Summary

During the development of this FY2020 NPS Annual Report, it was determined that some the original 40 milestones needed to be split into “sub-milestones” based upon different reporting units or metrics. For example, if the original milestone included any lists of different items (e.g., separate BMPs or activities) DEQ subsequently developed a sub-milestone that would allow us to track all relevant information. As a result, 75 different milestones and sub-milestones were tracked and reported on for the FY2020 NPS Annual Report.

The Tracking and Reporting Tool provides the details of all of these 75 different milestones. Table 3.1 contains highlights and a summary of the FY2020 accomplishments for the milestones.

Table 3.1 – FY2020 Virginia Nonpoint Source Program Milestone Progress

VA NPS Milestone Reporting Tool			Report for activity through 6/30/2020					
NPS Plan Component	Milestone #	2019-2024 Milestone Description	Reporting Agencies	Detailed Goal Description	Milestone Reporting Unit	Amount completed	Milestone Status	Reporting Comment
Agriculture	A01	Conduct periodic agricultural needs assessment for General Assembly to determine resource needs for agricultural BMP implementation.	DCR	Agricultural Needs Assessment Conducted and Reported	Agricultural Needs Assessment	1	Active	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, determines the funding needs for effective Soil and Water Conservation District technical assistance and implementation of agricultural best management practices. For the fiscal years 2020–2030 a revised estimate of $2.7 billion may be required from state and federal funds as well as farmer financial contributions to meet water quality goals (Figure 1 and Table 1). Approximately 40% of this total (nearly $1.1 billion) 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 Soil and Water Conservation Districts who implement the VACS program.
Agriculture	A02	Implementation of priority agricultural BMPs (nutrient management plans, animal waste facilities, cover crops, riparian buffers, livestock exclusion), as well as poultry litter transport out of targeted counties	DCR	Priority Agricultural BMPs reported	Report	1	Active	DCR administers funds for conservation programs that Soil and Water Conservation Districts deliver to the agricultural community. Some of these programs include the Virginia Agricultural Best Management Practices Cost-Share, Agricultural BMP Tax Credit, and Conservation Reserve Enhancement Programs.
Agriculture	A02	Implementation of priority agricultural BMPs (nutrient management plans, animal waste facilities, cover crops, riparian buffers, livestock exclusion), as well as poultry litter transport out of targeted counties	DCR	Acres of Nutrient Management Plans reported	report	1	Active	Currently, there are over 353,762 active nutrient management planned acres in the Commonwealth that were developed by DCR staff
Agriculture	A02	Implementation of priority agricultural BMPs (nutrient management plans, animal waste facilities, cover crops, riparian buffers, livestock exclusion), as well as poultry litter transport out of targeted counties	DCR	Number of Priority BMPs Reported	BMPs	14,561	Active	In FY20 within the Bay area a total of 14,561 priority agricultural BMPs were installed, including 363,178 acres of Nutrient management plans written or revised and 172,225 instances of cover crop installed.
Agriculture	A02	Implementation of priority agricultural BMPs (nutrient management plans, animal waste facilities, cover crops, riparian buffers, livestock exclusion), as well as poultry litter transport out of targeted counties	DEQ/DCR	Number of Animal Waste Facilities Installed	Systems	46	Active	46 animal waste facilities installed within the Bay watershed area

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VA NPS Milestone Reporting Tool			Report for activity through 6/30/2020					
NPS Plan Component	Milestone #	2019-2024 Milestone Description	Reporting Agencies	Detailed Goal Description	Milestone Reporting Unit	Amount completed	Milestone Status	Reporting Comment
Agriculture	A02	Implementation of priority agricultural BMPs (nutrient management plans, animal waste facilities, cover crops, riparian buffers, livestock exclusion), as well as poultry litter transport out of targeted counties	DCR	Acres of Cover Crops Installed	acres of cover crops	172,225	Active	DCR's emphasis for agricultural BMP implementation focuses on efficient nutrient and sediment reduction and includes priority practices such as cover crops. 172,225 acre figure includes all forms of cover crops completed within the bay area.
Agriculture	A02	Implementation of priority agricultural BMPs (nutrient management plans, animal waste facilities, cover crops, riparian buffers, livestock exclusion), as well as poultry litter transport out of targeted counties	DCR	Acres of Riparian Buffers Installed	acres	2,516	Active	collectively 2,516 acres of riparian buffer were created and/or installed within the Chesapeake Bay in FY2020
Agriculture	A02	Implementation of priority agricultural BMPs (nutrient management plans, animal waste facilities, cover crops, riparian buffers, livestock exclusion), as well as poultry litter transport out of targeted counties	DCR	Linear Ft of Livestock Stream Exclusion	Linear Feet	1,719,400	Active	1,719,400 linear feet of stream exclusion were installed in FY20 within the Chesapeake Bay
Agriculture	A02	Implementation of priority agricultural BMPs (nutrient management plans, animal waste facilities, cover crops, riparian buffers, livestock exclusion), as well as poultry litter transport out of targeted counties	DCR	Tons of Poultry Litter addressed	report	1	Active	During the 2019 and 2020 General Assembly Session, funding was provided for nonpoint source reduction projects including the poultry litter transport incentive program. Utilizing the additional funding provided, DCR has expanded the transport program to include Accomack County while still maintaining programs in Page and Rockingham counties. An agreement with the Virginia Poultry Federation allows DCR to leverage the state funding provided. 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.
Agriculture	A03	Develop Agricultural NPS Assessment Data.	DEQ/DCR	NPS Assessment Report Submitted	Assessment Report	1	Active	Agricultural pollution loads have been evaluated for the potential for water quality degradation due to nonpoint sources (NPS) of pollution biennially since 1986 on a per hydrologic unit basis along with some indicators of where such degradation might have its greatest negative impact. Results are reported in the NPS Chapter of the Virginia Water Quality Assessment (305b) Report
Agriculture	A04	Widespread adoption of nutrient management planning, including on private and state-owned land	DCR	Report of Nutrient Management Program	Report	1	Active	DCR works to manage both urban and agricultural nutrients found in fertilizers, manure, biosolids and other sources so that they retain their efficient use yet don't impair the quality of Virginia's ground and surface waters.

VA NPS Milestone Reporting Tool			Report for activity through 6/30/2020					
NPS Plan Component	Milestone #	2019-2024 Milestone Description	Reporting Agencies	Detailed Goal Description	Milestone Reporting Unit	Amount completed	Milestone Status	Reporting Comment
Agriculture	A04	Widespread adoption of nutrient management planning, including on private and state-owned land	DCR	Acres of Nutrient Management Plans reported	# of acres	353,761	Active	Currently, there are over 353,762 active nutrient management planned acres in the Commonwealth that were developed by DCR staff
Agriculture	A04	Manage urban and agricultural nutrients found in fertilizers, manure, biosolids, and other sources.	DCR	Report on Nutrient management program	Report	1	Active	As required by § 10.1-104.5 of the Code of Virginia, all golf courses have obtained and are implementing nutrient management plans. 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 35,235 acres.
Agriculture	A04	Continue to develop and implement programs to address unpermitted dairies, precision nutrient management planning, etc.	DCR	Report on Nutrient management program	Report	1	Active	In order to continue progress toward meeting goals for the Chesapeake Bay TMDL, DCR has dedicated certain certified nutrient management staff to work exclusively with small dairies and other small farms to develop nutrient management plans. There are 512 dairies in Virginia. Seventy-two permitted and 245 unpermitted dairies have nutrient management plans. Sixty-six of these permitted operations have current nutrient management plans, although 22 have expired plans that are being renewed.
Agriculture	A04	Activity 8: Train staff and public in the development of nutrient management plans.	DCR	Number of NM Planners trained and/or certified.	Number trained or certified (cumulative; goals starts with 2020)	400	Active	In order to continue progress toward meeting goals for the Chesapeake Bay TMDL, DCR has dedicated certified nutrient management staff to work exclusively with small dairies and other small farms to develop nutrient management plans. A total of 400 NM planners are trained and certified.
Agriculture	A05	Encourage the implementation of agricultural BMPs and increase the reporting and verification of voluntary BMPs	DEQ/DCR	Number of Agricultural BMPs Installed	# BMPS	2,054	Active	DCR continues to work on ways to better track and encourage reporting of voluntary BMPs. DCR recorded the installation of 2,054 voluntary or tax-credit only BMPs throughout the Commonwealth in FY2020. Collectively these BMPs amounted to $3,008,804 of conservation practices on the ground. This included 54,328 linear feet of stream excluded from livestock access and 1,112 acres of cover crop.
Agriculture	A06	Document the implementation of the Resource Management Program by Agricultural Producers	DCR	Status of the Virginia RMP program Reported	Report	1	Active	The Commonwealth's Resource Management Plan (RMP) Program provides a voluntary way to promote the use of best management practices that improve water quality and the agricultural operations. RMPs are designed to encourage producers to implement a high level of BMPs to reduce pollution and to increase the producer's profitability, in many instances.
Agriculture	A06	Document the implementation of the Resource Management Program by Agricultural Producers	DCR	Acres of land in RMP	# acres (cumulative; goals starts with 2020)	72,000	Active	As of July 1, 2020, 126 RMPs have been certified as fully implemented. The certified RMPs are all located within the Chesapeake Bay watershed and include over 35,000 acres. Over 64,000 additional acres within the Chesapeake Bay watershed are included in an RMP that is currently being implemented. There are approximately 8,000 acres outside of the Chesapeake Bay watershed that are included in an RMP that is currently being implemented.

VA NPS Milestone Reporting Tool			Report for activity through 6/30/2020					
NPS Plan Component	Milestone #	2019-2024 Milestone Description	Reporting Agencies	Detailed Goal Description	Milestone Reporting Unit	Amount completed	Milestone Status	Reporting Comment
Agriculture	A07	Respond to all Agricultural Stewardship Act water quality complaints	VDACS	Report on Virginia Agricultural Stewardship Act including # of complaints and # response/actions	Report	1	Active	The ASA program received numerous inquiries regarding possible agricultural pollution during the program year of April 1, 2019, through March 31, 2020. Forty-eight of these cases became official complaints.
Agriculture	A07	Activity 14: Provide programmatic outreach and education to Soil and Water Conservation Districts, farmers, and the general public.	DCR	Educational support	Number of trainings, meetings or events.	8	Active	The Department of Conservation and Recreation (DCR) plays a role, providing technical and financial assistance to Soil and Water Conservation Districts, institutions of higher education, and individuals for nonpoint source pollution controls. Trainings were impacted by COVID 19.
Agriculture	A07	Activity 12: Identify water quality problems and help farmers correct them in a commonsense manner that accommodates both the farmer and the environment.	VDACS	Report on agricultural stewardship act program	Report	1	Active	The ASA program received numerous inquiries regarding possible agricultural pollution during the program year of April 1, 2019, through March 31, 2020. Forty-eight of these cases became official complaints.
Agriculture	A08	Fund Agricultural BMPs as part of NPS Implementation Plan Projects	DEQ/DCR	Number of Agricultural BMPS associated with NPS Implementation Plan Projects	# of AG BMPs in IPs	3,790	Active	A total of 3,790 agricultural BMPs were installed within IP areas
Agriculture	A08	Activity 4: Provide funding and technical assistance to Virginia's 47 Soil and Water Conservation Districts to deliver technical assistance to implement cost-share program.	DCR	Report on Funding and technical assistance support to SWCDs	Report on Funding	1	Active	This Policy and Procedures document specifies the Virginia Soil and Water Conservation Board's (Board) process by which funds are to be allocated by the Department of Conservation and Recreation (Department) to the Commonwealth's 47 local Soil and Water Conservation Districts (Districts) for cost-share and technical assistance (Fiscal Year 2020 or FY20). The Policy also highlights the water quality emphasis of the Virginia Agricultural Best Management Practices Cost-share Program and the targeted use of allocated cost-share funding.
Agriculture	A09	Implement state policies outlined in Virginia's Phase III Watershed Implementation Plan for the Chesapeake Bay TMDL	DEQ/ Partners	Biannual Chesapeake Bay WIP III Milestone Status Reported	Milestone Report	1	Active	Virginia submitted its draft Chesapeake Bay TMDL Phase III Watershed Implementation Plan to EPA on April 5, 2019. The final plan was submitted to EPA on August 23, 2019. Virginia agencies are wrapping up the 2018-2019 WIP milestones period and drafting the 2020-2021 WIP milestones.

VA NPS Milestone Reporting Tool			Report for activity through 6/30/2020					
NPS Plan Component	Milestone #	2019-2024 Milestone Description	Reporting Agencies	Detailed Goal Description	Milestone Reporting Unit	Amount completed	Milestone Status	Reporting Comment
Forestry	F01	Provide cost-share to implement forestry BMPs (assuming funds are available) (Number of Forestry BMPs installed)	DOF	# of Forestry BMPs funded	# BMPs	28	Active	VDOF also offers tree-planting grants using the Virginia Trees for Clean Water (VTCW) Program promoted through an RFP process. The 2020 cycle has allocated $172,946.00 to 28 projects in 25 different HUC12 watersheds utilizing funds from the Commonwealth's WQIF.
Forestry	F01	Provide cost-share to implement forestry BMPs (assuming funds are available) (Number of Forestry BMPs installed)	DOF	Report on overall Forestry BMP Program	Report	1	Active	Forty stream protection projects were funded [with cost share] in FY 2019.
Forestry	F02	Increase the establishment of riparian forest buffers through promotion of incentive programs and tracking of the acres of buffers installed	DOF	Acres of Riparian Buffers Installed	Acres riparian buffers installed	257	Active	VDOF foresters meet with landowners, assess sites, develop site-specific recommendations, and coordinate with contractors and owners to successfully establish buffers through tree planting or natural means. In FY 2020, VDOF recorded riparian forest buffer establishment on 257 sites acres in the Bay watershed.
Forestry	F03	Permanently conserved forestland through permanent conservation easements of acquisition; report of acres of conservation easements	DOF	Acres forests protected by easement	Acres Easement (cumulative ; goals starts with 2020)	84,000	Active	VDOF administers a conservation easement program to assure a sustainable forest resource. Because larger blocks of forest potentially provide the greatest range of functions and values, VDOI easements focus on keeping the forest land base intact, unfragmented, keeping the forest in larger, more manageable and functional acreages. VDOF holds 194 conservation easements in 60 counties and the City of Suffolk that permanently protecting over 84,000 acres of vital forestland. Of these, 117 easements consisting of 30,230 acres lie within the Chesapeake Bay watershed.
Forestry	F04	Implement state policies outlined in Virginia's Phase III Watershed Implementation Plan for the Chesapeake Bay TMDL	DOF	Biannual Chesapeake Bay WIP III Milestone Status Reported	Milestone Report	1	Active	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 VDOF's IFRIS (Integrated Forest Resource Information System) enterprise database system. The information compiled serves as the basis for VDOF reporting under Virginia's WIP. In calendar year 2019, 96.9 percent of the timber harvest acres i Virginia conducted within the boundaries of the Bay Watershed were under BMPs and 95 percent of the timber harvest acres statewide were under BMPs. The audit also showed that none of th sites visited had any signs of active sedimentation present after the closeout of a harvesting operation. The BMP goal for WIP III is to achieve a 95 percent implementation rate by 2025

VA NPS Milestone Reporting Tool			Report for activity through 6/30/2020					
NPS Plan Component	Milestone #	2019-2024 Milestone Description	Reporting Agencies	Detailed Goal Description	Milestone Reporting Unit	Amount completed	Milestone Status	Reporting Comment
Onsite Sewage	S01	Work with local governments and recipients of DEQ funding to capture and report the number of residential septic systems addressed through grant projects completed throughout Virginia.	VDH/DCR /DEQ	Number of Septic BMPs funded	# BMPs	429	Active	During FY 2020, DEQ provided $1,518,229 from State and Federal funding and landowner contributions to address failing or failed septic systems
Onsite Sewage	S02	Implement state policies outlined in Virginia's Phase III Watershed Implementation Plan for the Chesapeake Bay TMDL	VDH/DCR /DEQ	Biannual Chesapeake Bay WIP III Milestone Status Reported	Milestone Report	1	Active	Roughly 550,000 of the total onsite sewage systems in Virginia are located in the Chesapeake Bay Watershed. VDH has been involved with a variety of legislative initiatives aimed at decreasing pollution from onsite sewage systems across the Commonwealth.
Onsite Sewage	S03	Report reductions of NPS pollutants from Section 319-funded activities in pounds of nitrogen (N), pounds of phosphorous (P), tons of sediment (S), and colony forming units of bacteria (B).	DEQ	Report on the status of the 319-funded BMP program	Report	1	Active	DEQ continues to work with organizations and localities across Virginia to fund projects that correct failing septic systems or straight-pipes.
Onsite Sewage	S03	Report reductions of NPS pollutants from Section 319-funded activities in pounds of nitrogen (N), pounds of phosphorous (P), tons of sediment (S), and colony forming units of bacteria (B).	DEQ	Pounds of Nitrogen reduced as result of 319-h funded activity as reported in GRTS	N Lbs./yr.	5,063	Active	A majority of these projects are part of larger watershed restoration and implementation efforts in TMDL implementation areas. During FY 2019, DEQ provided $859,292 from State and Federal funding and landowner contributions to address failing or failed septic systems. 5,063 Pounds of Nitrogen Removed
Onsite Sewage	S03	Report reductions of NPS pollutants from Section 319-funded activities in pounds of nitrogen (N), pounds of phosphorous (P), tons of sediment (S), and colony forming units of bacteria (B).	DEQ	Bacteria pollution reductions as reported in GRTS'	B CFU	8.28E+12	Active	A majority of these projects are part of larger watershed restoration and implementation efforts in TMDL implementation areas. During FY 2019, DEQ provided $859,292 from State and Federal funding and landowner contributions to address failing or failed septic systems. 8.28E+12 CFU* of Bacteria Reduced

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NPS Plan Component	Milestone #	2019-2024 Milestone Description	Reporting Agencies	Detailed Goal Description	Milestone Reporting Unit	Amount completed	Milestone Status	Reporting Comment
Resource Extraction	M01	Document and report reclamation of active, orphaned, or abandoned mine sites.	DMME	Report on Orphaned and Abandoned Mine Land Program	Report	1	Active	DMME regulates resource extraction through the Division of Mineral Mining and the Division of Mined Land Reclamation. Each division has a program that through a mix of regulatory, financial, and technical assistance addresses NPS pollution from abandoned and orphaned sites. The Division of Mined Land Reclamation oversees the Abandoned Mine Land Program, which assists with the reclamation of abandoned coal mines. The Division of Mineral Mining manages the Orphaned Mine Land Program to address un-reclaimed mineral mines.
Resource Extraction	M01	Document and report reclamation of active, orphaned, or abandoned mine sites.	DMME	# of OML reclamation sites	# sites reclaimed (cumulative ; goals starts with 2020)	134	Active	Of the 1,119 hazardous sites, 175 (15.6%), have been prioritized for reclamation. To date, $3,837,076 from the interest on the Minerals Reclamation Fund has been expended on environmental and safety hazard remediation on 134 sites, which represent 10.7% of the total identified hazardous sites. Through 2020, a total of 834.4 acres of mined land have been reclaimed.
Resource Extraction	M01	Document and report reclamation of active, orphaned, or abandoned mine sites.	DMME	Type of reclamation sites	report	1	Active	Of the 1,119 hazardous sites, 175 (15.6%), have been prioritized for reclamation. To date, $3,837,076 from the interest on the Minerals Reclamation Fund has been expended on environmental and safety hazard remediation on 134 sites, which represent 10.7% of the total identified hazardous sites. Through 2020, a total of 834.4 acres of mined land have been reclaimed.
Resource Extraction	M02	Reduce water quality impacts associated with resource extraction activities by proper site planning and BMP implementation land in prioritization of areas for reclamation activities.	DMME	Number of WQ related plans/reviews conducted	# Plans or reviews	462	Active	For the time period of October 2019 - September, 2020 the Division of Mined Land Reclamation's Water Quality Section performed 462 water quality-related plan reviews.
Resource Extraction	M03	Inventory, monitor, and report areas contributing significant sediment and mine water discharges to waterbodies and consider pollution as part of the selection process for determining which sites will be reclaimed.	DMME	Number of Orphaned Mine Lands inventoried	# OML sites	3,171	Active	As of September 21, 2020, 3,171 sites have been inventoried in 576 (46.2%) of Virginia's 1,247 hydrologic units (HUC). Of the inventoried sites: • 1,049 sites were identified as safety hazards. • 228 sites were identified as environmental hazards. • 158 sites were identified as both safety and environmental hazards.
Resource Extraction	M04	DMME investigates reported occurrences of environmental pollution including NPS pollution and, when appropriate, takes jurisdictional action to eliminate, abate, or prevent water resource degradation.	DMME	Number of investigations conducted	# Investigations	462	Active	For the time period of October 2019 - September, 2020 the Division of Mined Land Reclamation's Water Quality Section performed 462 water quality-related plan reviews.
Resource Extraction	M05	Enhance coordination between DEQ and DMME to collect and report data on BMPs installed on active mine sites as well as reclamation of active, abandoned, and orphaned mines.	DEQ/DMME	Number of Meetings and Events held	# Meetings and events	2	Inactive (not started)	Several virtual meetings were conducted between DCR and DMME during FFY20; however a majority of coordination activity was postponed due to the global pandemic.

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Resource Protection	P01	Implement Healthy Waters Program, partially through 319 funds	DEQ/DCR	Report on the Healthy Waters Program	Report	1	Active	DEQ has provided significant data and funding from USEPA Section 319, CBIG and NOAA CZM to support the Program with ongoing partnerships with VDOF, NGOs and the private sector assisting in broadening the applicability of the Program. VCU has provided the majority of the significant technical, field data collection, model development and data management services. This partnership continues to grow a comprehensive aquatic resource assessment program to identify and protect the most biologically diverse and valuable aquatic resources in the Commonwealth.
Resource Protection	P02	Implement Chesapeake Bay Preservation Act and Coastal Zone Management Programs	DEQ	Report on the Chesapeake Bay Preservation Act Program	Report	1	Active	DEQ Local Government Assistance Program staff have been striving for all 84 CBPA localities to be in the position of completing the periodic (every five years) compliance review of their local program by the end of calendar year 2019. With 76 localities now through the compliance review process, and being found fully compliant or working to resolve conditions under a Corrective Action Agreement, 8 localities remain scheduled to undergo a compliance review in the near future.
Resource Protection	P02	Implement Chesapeake Bay Preservation Act and Coastal Zone Management Programs	DEQ	Report on the Coastal Zone Management Program	Report	1	Active	As part of the current 5-year Section 309 (Coastal Zone Enhancement Grants) Strategies for 2016FY2016-2020, the Virginia Coastal Zone Management Program (CZM) will continue to focus on projects and policy development for the areas of Cumulative & Secondary Impacts of Growth & Development, (CSI), Coastal Hazards, and Ocean Resources.
Resource Protection	P03	The Source Water Protection strategy improve its education and, empowerment, and financing initiatives through its various programs and partnerships.	VDH	Number of Meetings held to address the Source Water Protection Strategy	Meetings	1	Active	One goal of the assistance program is to spread source water awareness and educate waterworks and communities on measures they can implement to protect their sources. Tetra Tech was contracted to complete tasks to support source water protection plan development and implementation for 42 water systems. A programmatic goal was set to complete 6 SWPP/year. Activity reported at the end of the 2019-2020 amounted to 4 finalized SWPP documents covering 27 individual systems, 1 completed draft SWPP for one individual system and 7 plans in draft or under development covering 11 individual systems.
Resource Protection	P04	Implement portions of the Coastal Nonpoint Source program through initiatives identified by the Virginia Coastal Zone Management Program 5-year strategy	DEQ	Report on Progress of the Virginia Coastal Nonpoint Source Program	Report	1	Active	Coastal Hazards and Marine Debris Strategies for FY2021-2025 will serve as the main mechanisms for addressing non-point source pollution and improving coastal water quality through new enforceable policies or research directed toward informing such policies. Five Year Strategy Developed
Urban & Developed Lands	U01	Implement state policies outlined in Virginia's Phase III Watershed Implementation Plan for the Chesapeake Bay TMDL	DEQ	Biannual Chesapeake Bay WIP III Milestone Status Reported	Milestone Report	1	Active	In FY 2020, DEQ authorized $18,000,000 in funding for 22 projects and one nutrient credit purchase from 15 localities utilizing $10,000,000 in bond authorization from the General Assembly and $8,000,000 in carryover funds.

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Water Planning	W00	Update the NPS Pollution Management Plan on a five-year cycle.	DEQ	Update the NPS Pollution Management Plan on a five-year cycle.	Plan Update	-	Inactive (not started)	The Plan was finally approved in Spring 2020. No work has begun on the update of the 5-year plan which expires in 2024. However during the development of the 2020 Annual Report a few small errors or omissions were found in the document. a modified version will be submitted to EPA by the end of 2020 early 2021. Work on developing the next version of the management plan will not start in earnest until 2023.
Water Planning	W01	Develop a new prioritization schedule (Vision) for TMDL Development for 2023-2028	DEQ	Develop a new prioritization schedule (Vision) for TMDL Development for 2023-2028	List	-	Inactive (not started)	As of June 2020, 12 new TMDL equations, each representing a watershed area draining to impaired surface waters, have been EPA approved since July 2019. Figure 8 shows the number of TMDL equations by pollutant set across Virginia since the inception of the TMDL program. The Virginia Department of Environmental Quality (DEQ) is implementing the national 303(d) Vision, which promotes the prioritization of impaired waters for TMDL or TMDL alternative development. In May 2019, DEQ revised (and EPA approved) its 2016-2022 priorities to promote all benthic impairments that were previously internal priorities, not committed to EPA, to be formal priorities that are committed to EPA. The bacteria priorities that were previously formal priorities were then moved to be internal priorities. This revision was necessary to reflect changes in program resources. The remaining 2016-2022 TMDL program priorities can be found on Virginia's TMDL website. DEQ is beginning the process of identifying types of water quality impairments and other strategic measures to develop a list of priority waters for TMDL or TMDL alternative development for the projected 2022-2028 cycle.
Water Planning	W02	Develop and implement a 6-year prioritization process for IP development (~ 3 IPs annually addressing an average of 4 impaired waterbody segments per IP, depending on resources).	DEQ	Develop 6 year Prioritization for IP Development	report	1	Active	DEQ is continuing to evaluate the prioritization methods of developing implementation plans, as well as how these plans are written. More efforts are being placed on producing joint TMDL-IP reports, exploring TMDL alternatives, evaluating larger watershed areas, pursuing more watershed-based plans and simplifying modeling efforts. These efforts have allowed the implementation planning program to seek new opportunities, including performing more development work in-house.
Water Planning	W02	Develop and implement a 6-year prioritization process for IP development (~ 3 IPs annually addressing an average of 4 impaired waterbody segments per IP, depending on resources).	DEQ	Develop 3 IPs annually	IPs	2	Active	In FY 2020, DEQ and partners completed two IPs covering 16 impairments. In addition, five IPs covering 54 impairments were under development at the end of the fiscal year. Since 2001, Virginia has completed 95 IPs, addressing 588 impairments (Figure 9).
Water Planning	W02	Develop and implement a 6-year prioritization process for IP development (~ 3 IPs annually addressing an average of 4 impaired waterbody segments per IP, depending on resources).	[Lead]	Annually address 12 impaired waterbody segments with IP	Segments	16	Active	In FY 2020, DEQ and partners completed two IPs covering 16 impairments. In addition, five IPs covering 54 impairments were under development at the end of the fiscal year. Since 2001, Virginia has completed 95 IPs, addressing 588 impairments (Figure 9).
Water Planning	W03	Every 2 years, issue Request for Applications for implementation projects (5-10 new projects every 2 years, and 15-20 active projects annually (from overlapping EPA awards), depending on resources)	DEQ	Issue a 3 Request for Applications over the course of 5 years	RFA	2	Active	An RFA was issued in August of 2019 and June of 2020. The 2019 RFA resulted in the projects included in the 2020 Section 319 EPA award application submitted May 2020. The 2020 RFA closed August 31, 2020 and the applications are currently under review. The results of this RFA will be used to develop Virginia's application for 2021 funding.

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Water Planning	W03	Every 2 years, issue Request for Applications for implementation projects (5-10 new projects every 2 years, and 15-20 active projects annually (from overlapping EPA awards), depending on resources)	DEQ	Report the number of active projects (15-20) annually from all 319 funding	# active projects	23	Active	In FY20 VA funded 23 active implementation projects with Section 319(h) funding (FFY15-FFY19) within 20 approved IP areas. As of June 30, 2020 Virginia has completed 96 implementation plans covering 347 individual watersheds compared to 92 plans completed as of the development of the Management Plan (December 31, 2018) (Table 2-5). Of these plans, 82 have been approved by EPA. The NPS Management plan had a goal for the 2020-2024 period to fund implementation in 38 of the approved IP areas and address 195 of the IP watersheds. During VAFY20 Virginia had active BMP implementation in 68 IPs covering 206 IP watershed areas. (Table 2-5). Virginia is on target to meet or exceed the that by 2024 73 of the 95 implementation plans completed as of June 30, 2020 will have had some type of NPS Implementation project at some time between 2001 and 2024.
Water Planning	W03	Every 2 years, issue Request for Applications for implementation projects (5-10 new projects every 2 years, and 15-20 active projects annually (from overlapping EPA awards), depending on resources)	DEQ	Develop and implement 2-5 new implementation projects every year	# new projects	2	Active	Most projects selected in the recent RFAs have been continuing projects; projects requesting funding for an additional two to three years. The 2018-2019 RFA had one project selected that that started new in FY20; an urban project located in the James River and Tributaries IP within the City of Richmond and surrounding counties. Two new projects (Dan River and Chestnut Creek) selected in the 2019 RFA did not start until after July 2020. DEQ issued a new agreement to continue the work on the Upper Clinch Watershed.
Water Planning	W04	At least every 2 years update DEQ TMDL BMP Cost-share Guidelines. Align issuance with release of RFA grant awards.	DEQ	At least every 2 years update DEQ TMDL BMP Cost-share Guidelines. Align issuance with release of	Guidelines	1	Active	The DEQ NPS BMP guidelines and specifications were updated and published in June 2020 with a corresponding public webinar given discussing all changes.
Water Planning	W05	Continue improving DEQ Nonpoint Source BMP Database (BMP Warehouse).	DEQ	Continue improving DEQ Nonpoint Source BMP Database (BMP Warehouse).	# Updates	1	Active	In fall of 2019 DEQ contracted for the development of a requirements document that would create the methodology and plan to address any system issues and updates related to the BMP Warehouse. In early 2020 DEQ entered into a procured contract with GeoDecisions, a division of Gannet Fleming to make substantial edits to several databases, including BMP Warehouse. By June 2020 improvements were made to the data base to improve the administrative functionality to better track BMP implementation.
Water Planning	W06	Continue enhancing DEQ's Comprehensive Environmental Data System (CEDS) to integrate Implementation Plan data.	DEQ	Continue enhancing DEQ's Comprehensive Environmental Data System (CEDS) to integrate Implementation Plan data.	# Updates	2	Active	In fall of 2019 DEQ contracted for the development of a requirements document that would create the methodology and plan to address any system issues and updates related to the Water Quality Assessment, TMDL and TMDL IP modules as well as the creation of 319(h) grant program management module. In early 2020 DEQ entered into a procured contract with GeoDecisions, a division of Gannet Fleming to make substantial edits to several databases (Releases 1-4). The Contractor will develop and deliver a fully tested and approved application, including all task items and functionality described below. Development of user interface components will address a variety of functionality requirements. By June 2020 Releases 1 and 2 were complete. These integrated the WQA, TMDL and TMDL IP modules related to tracking impairments and assessment units. TMDL IP module and the BMP Warehouse were also updated to better assist in the tracking of BMPs related to Implementation efforts.

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Water Planning	W07	Complete Nonpoint Source Assessment chapters for the 2020, 2022, and 2024 Integrated 303(d) 305(b) reports.	DEQ	Complete Nonpoint Source Assessment chapters for the 2020, 2022, and 2024 Integrated	Report	1	Active	The Draft 2020 305(b)/303(d) Water Quality Assessment Integrated Report was released on June 8, 2020 drafted and this includes chapter 5 "Nonpoint Source Assessment". The document can be found here: https://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/WaterQualityAssessments/2020305(b)303(d)IntegratedReport.aspx
Water Planning	W08	Report reductions of NPS pollutants from Section 319-funded activities in pounds of nitrogen (N), pounds of phosphorous (P), tons of sediment (S), and colony forming units of bacteria (B).	DEQ	Annually report PR data in GRTS for 319(h) funded projects	GRTS Report	1	Active	VA DEQ entered pollution reduction information in GRTS to meet the February 28, 2020 deadline. This included information for N, P, S and bacteria
Water Planning	W08	Report reductions of NPS pollutants from Section 319-funded activities in pounds of nitrogen (N), pounds of phosphorous (P), tons of sediment (S), and colony forming units of bacteria (B).	DEQ	Report in GRTS Annual Nitrogen reductions from all IP projects annually	lbs./year	3,074,754	Active	Tracking both BMP implementation and water quality improvements in TMDL watersheds is critical to properly assess both progress and needs in watershed restoration and thereby measure TMDL Implementation Program success. BMP installations in FY20 resulted in the reduction of 3,074,754 pounds of nitrogen, 92,185 pounds of phosphorous,126,901 tons of sediment, and 7.15E+16 colony forming units (CFU) of fecal coliform bacteria. Tables xxx provides a summary of the estimated BMP pollutant reductions achieved, classified by associated BMP funding source and the extent of each BMP installed.
Water Planning	W08	Report reductions of NPS pollutants from Section 319-funded activities in pounds of nitrogen (N), pounds of phosphorous (P), tons of sediment (S), and colony forming units of bacteria (B).	DEQ	Report in GRTS Annual Phosphorus reductions from all IP projects annually	lbs./year	92,185	Active	Tracking both BMP implementation and water quality improvements in TMDL watersheds is critical to properly assess both progress and needs in watershed restoration and thereby measure TMDL Implementation Program success. BMP installations in FY20 resulted in the reduction of 3,074,754 pounds of nitrogen, 92,185 pounds of phosphorous,126,901 tons of sediment, and 7.15E+16 colony forming units (CFU) of fecal coliform bacteria. Tables xxx provides a summary of the estimated BMP pollutant reductions achieved, classified by associated BMP funding source and the extent of each BMP installed.
Water Planning	W08	Report reductions of NPS pollutants from Section 319-funded activities in pounds of nitrogen (N), pounds of phosphorous (P), tons of sediment (S), and colony forming units of bacteria (B).	DEQ	Report in GRTS Sediment reductions from all IP projects annually	tons/year	126,901	Active	Tracking both BMP implementation and water quality improvements in TMDL watersheds is critical to properly assess both progress and needs in watershed restoration and thereby measure TMDL Implementation Program success. BMP installations in FY20 resulted in the reduction of 3,074,754 pounds of nitrogen, 92,185 pounds of phosphorous,126,901 tons of sediment, and 7.15E+16 colony forming units (CFU) of fecal coliform bacteria. Tables xxx provides a summary of the estimated BMP pollutant reductions achieved, classified by associated BMP funding source and the extent of each BMP installed.
Water Planning	W08	Report reductions of NPS pollutants from Section 319-funded activities in pounds of nitrogen (N), pounds of phosphorous (P), tons of sediment (S), and colony forming units of bacteria (B).	DEQ	Report in GRTS Bacteria reductions from all IP projects annually	CFU	7.15E+16	Active	Tracking both BMP implementation and water quality improvements in TMDL watersheds is critical to properly assess both progress and needs in watershed restoration and thereby measure TMDL Implementation Program success. BMP installations in FY20 resulted in the reduction of 3,074,754 pounds of nitrogen, 92,185 pounds of phosphorous,126,901 tons of sediment, and 7.15E+16 colony forming units (CFU) of fecal coliform bacteria. Tables xxx provides a summary of the estimated BMP pollutant reductions achieved, classified by associated BMP funding source and the extent of each BMP installed.

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Water Planning	W09	Annually report on BMP installation and other implementation progress for selected active IPs in accordance with the milestone goals and timelines established in approved plans and current grant agreements. Data for BMPs funded by 319(h) are entered into GRTS, BMP data for non-319 funded practices for select IPs reported annually into Watershed Plan Tracker.	DEQ	Provide annual progress reports for 5 to 10 319-funded implementation projects active in a given year	Project Progress Report	9	Active	Annually VA DEQ reports on a select number of implementation plans regarding their status of meeting goals and milestones. Generally these are related to implementation plans that received Section 319(h) funds but occasionally these status reports may reflect implementation plans that have had a significant level of implementation that was not funded by Section 319(h). VA DEQ is looking to produce these report on 50% of the actively 319(h)-funded implementation plans annually. The table below reflects the schedule for reports based upon projects that are currently active. A hyperlink of the latest report (whether VAFY2019 or VAFy2020) is included that will contain the full individual report. For FY2020 VA has produced nine (9) updated implementation plan project reports. As new implementation plan projects come on board this table will be amended. Generally implementation plans will begin to be reported in the year after the project started and will continue for one year after a project's funded has ended (to allow for one year of post-implementation water quality monitoring data).
Water Planning	W09	Annually report on BMP installation and other implementation progress for selected active IPs in accordance with the milestone goals and timelines established in approved plans and current grant agreements. Data for BMPs funded by 319(h) are entered into GRTS, BMP data for non-319 funded practices for select IPs reported annually into Watershed Plan Tracker.	DEQ	Annually enter BMP data into GRTS by February 28 for 319(h) funded projects	GRTS Data entry	1	Active	for 2020 VA has worked with EPA to clean up some of the information that is in WPT. This effort, especially as it has to do with the names of drainage basins and BMP goals, is still ongoing and will be completed by December 2020. As such no BMP data/information
Water Planning	W09	Annually report on BMP installation and other implementation progress for selected active IPs in accordance with the milestone goals and timelines established in approved plans and current grant agreements. Data for BMPs funded by 319(h) are entered into GRTS, BMP data for non-319 funded practices for select IPs reported annually into Watershed Plan Tracker.	DEQ	Annually report BMP data for all IP projects	report	1	Active	In VAFY20 DEQ funded 25 individual projects covering 22 separate implementation plan areas with Section 319(h) funds. Other state and federal funds administered by either DEQ or DCR were also available. Collectively 4,129 residential septic and agricultural BMPs were installed within 79 completed implementation plan areas (addressing 223 IP watersheds). These BMPs collectively resulted in the protection and exclusion of 236 miles (1,245,709 linear feet) of stream from livestock access, excluding 15,251 animal unites and creating 1,734 acres of riparian buffer. In addition XXX homes had their septic systems pumped or had straight pipes or failing septic systems addressed. These BMPs resulted and the reduction of 3.1 million pounds of Nitrogen, 92,185 pounds of Phosphorous and 126,901 tons of sediment. These BMPs cost a total of $22,921,761, of which $16,112,876 was provided by DEQ and DCR in the form of either state or federal cost-share assistance. Since June 2001 $162,971,404 has been spent on BMPS in IP watersheds, including $107,661,590 in state and federal cost-share (not USDA) (See figure "funds spent on BMP installation within IP in VA VAFY2002-2020".
Water Planning	W09	Annually report on BMP installation and other implementation progress for selected active IPs in accordance with the milestone goals and timelines established in approved plans and current grant agreements. Data for BMPs funded by 319(h) are entered into GRTS, BMP data for non-319 funded practices for select IPs reported annually into Watershed Plan Tracker.	DEQ	Annually provide EPA BMP report for WPT entry	WPT Data	-	Inactive (not started)	For 2020 VA has worked with EPA to clean up some of the information that is in WPT. This effort, especially as it has to do with the names of drainage basins and BMP goals, is still ongoing and will be completed by December 2020. As such no BMP data/information will be provided to EPA until the system has been fully QA/QC'd. It is anticipated that a full data submission will be given to EPA in February/march 2021 that will cover past years through December 31, 2020.

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Water Planning	W10	Maintain 319 funding for water quality monitoring of NPS implementation project areas. Report on the parameters and frequency of stations monitored and the number of implementation projects with monitoring	DEQ	Submit data to Storet Help Desk every year by 1/31 for 319-funded DEQ data	Report	1	Active	This was not confirmed until spring 2020 so the first time will be January 2021 for monitoring data collected in calendar year 2020. DEQ has a robust water quality monitoring program in the Commonwealth of Virginia. Every year it creates a monitoring plan for the calendar year which encompasses all monitoring needs, including monitoring within implementation plan areas to gauge the impact of implementation. DEQ utilizes Section 319(h) funding for formal "post-implementation monitoring" however any of its six or seven other funding sources (see Maps X and Y) also provide critical water quality monitoring information with IP areas. Table XX compares the number of monitoring stations within IP areas, including a subset of those stations that were specifically funded with 319(h) resources. A total of 339 stations with 67 IP areas (149 IP watersheds) are planned to be monitored from January 1, 2020 through December 31, 2020. Calendar Year 2019 # of WQM stations w/in IP areas 344 # of IP Reports with monitoring 68 # of IP Watersheds with monitoring 147 # of WQM Stations funded with 319(h) 28 # of IP Reports with 319(h)-funded monitoring 9 # of IP Watersheds with 319(h)-funded monitoring 16 Calendar Year 2020 # of WQM stations w/in IP areas 339 # of IP Reports with monitoring 67 # of IP Watersheds with monitoring 149 # of WQM Stations funded with 319(h)64 # of IP Reports with 319(h)-funded monitoring 19 # of IP Watersheds with 319(h)-funded monitoring 38
Water Planning	W11	Continue water quality monitoring for watersheds associated with USDA's National Water Quality Initiative.	DEQ	Report on NWQI in Virginia	Report	1	Active	Submitted NWQI report to EPA on 11/9/20
Water Planning	W11	Continue water quality monitoring for watersheds associated with USDA's National Water Quality Initiative.	DEQ	Number of NWQI sites monitored Annually	# Sites	4	Active	DEQ monitored for bacteria in the 4 designated NWQI watersheds; NRCS/USGS monitored for other parameters (nutrients, etc.)
Water Planning	W12	Waterbodies identified in VA's Integrated report (IR) as primarily NPS-impaired that are partially or fully-restored or that show water quality improvements	DEQ	Waterbodies identified in VA's Integrated report (IR) as primarily NPS-impaired that are partially or fully-restored or that show water quality improvements	Report and segments	14	Active	Reviewing the data from the Draft 2020 Draft 2020 305(b)/303(d) Water Quality Assessment Integrated Report and comparing it to the list of completed implementation plans it was determined that there were 14 delisted segments, within 6 implementation plans covering 38.36 miles that are proposed for delisting. These identified segments listed in Table XX below may become the basis of future success stories. Four of the 6 IPs identified have received Section 319(h) funding for targeted implementation. All six have received significant state resources for the implementation of agricultural BMPs (with one receiving significant state resources to implement septic BMPs).

VA NPS Milestone Reporting Tool			Report for activity through 6/30/2020					
NPS Plan Component	Milestone #	2019-2024 Milestone Description	Reporting Agencies	Detailed Goal Description	Milestone Reporting Unit	Amount completed	Milestone Status	Reporting Comment
Water Planning	W12	Waterbodies identified in VA's Integrated report (IR) as primarily NPS-impaired that are partially or fully-restored or that show water quality improvements	DEQ	3 success stories per year, 15 by 2024. Report delisting in integrated report (2020, 2022, and 2024)	Success Stories	3	Active	2 Stories covering 3 delisted segments were written and submitted to EPA. Little Cu Creek was submitted and published by EPA and South Fork Back Creek was submitted but is currently under review by EPA. Since 2002 Virginia's Nonpoint Source Management Program and associated TMDL Implementation Program and it partners have written 29 success stories that address delisting and/or water qualit improvement of 42 impaired stream segments. Table 13 lists the success stories completed 2001-2020 and the map (Figure 13) shows the distribution throughout Virginia. All success stories can be found on Virginia's Nonpoint source Pollution Success Stories website. https://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/Wa erQualitySuccessStories.aspx
Water Planning	W13	Office of Watershed Program will strive to improve the relationship with target agency programs (e.g., VDH, DMME, SERCAP, DCR, etc.) to further water quality improvement opportunities	DEQ	Number of interagency meetings	meetings	24	Active	DEQ continued its effort to strengthen its relationships with other agencies to further nonpoint source efforts. During VAFY20 VA DEQ staff engaged in or participated in at least 2 agency/partner meetings or events per months, for a total of a minimum of 24 in the last year. This included 16 with DCR, 2 with DMME, 1 with SERCAP, 2 with VDEM, and 3 with VDH,
Watershed Roundtable	R01	Maintain watershed roundtables for priority river basins to provide watershed-based forums for stakeholders to participate in defining critical watershed needs, targeting problems for solutions, and providing input on potential management options to restore and protect water quality.	DEQ	Status Report on Virginia Watershed Roundtable Support Activity	Report	1	Active	A status report on Watershed Roundtables was provided. During FY2020, out of the 14 river basins with historic watershed roundtables statewide, 11 (79%) roundtables were active