

SFY  
2023

Maryland's  
CWA §319  
Nonpoint Source Program  
Annual Report

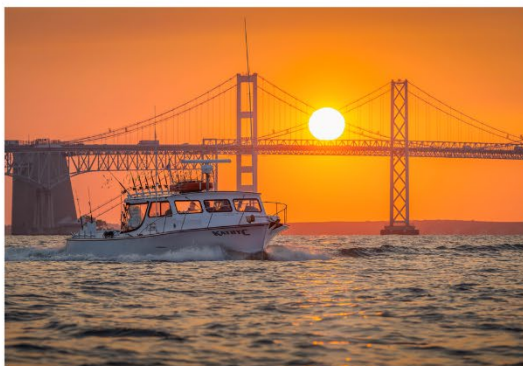
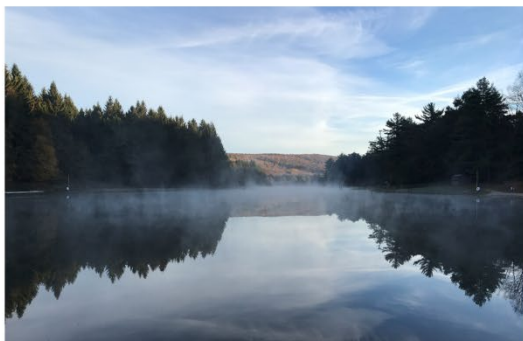


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**Maryland**  
Department of  
the Environment



# Acknowledgements

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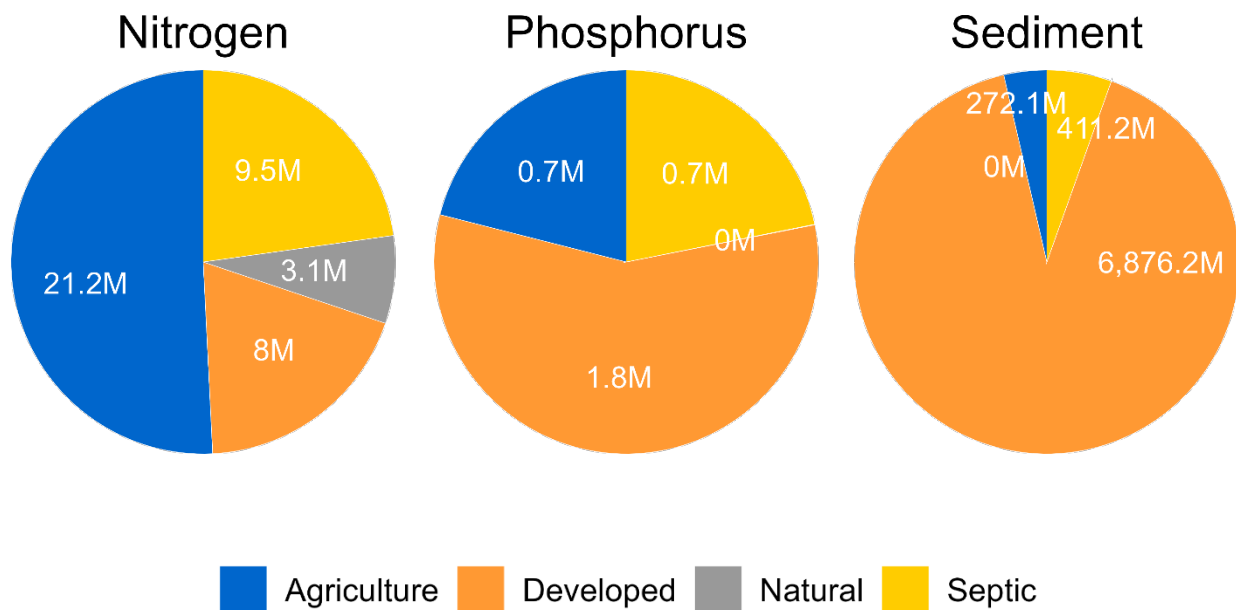
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## Nonpoint Source Pollution in Maryland | Tracking and Mitigation

### *Nonpoint Source Pollution Threatens Maryland's Waterways*

Water is inextricably tied to Maryland's identity and culture. The State is traversed by innumerable rivers and streams that provide residents with drinking water, places for recreation, and critically important habitat for Maryland's abundant wildlife. The Chesapeake Bay supports a vibrant fishing industry that provides over 50% of the annual United States blue crab harvest. The primary nonpoint source pollutants that threaten this resource are excess nitrogen and phosphorus.

Nonpoint Source (NPS) pollution threatens the health of Maryland's waterways and comes from both agricultural and developed areas (**Figure 1**). Natural loads include anthropogenic impacts within the natural system, like erosion flows from stormwater runoff that can scour stream banks, as well as true natural sources of nitrogen and phosphorus, such as forests and wetlands. While the NPS pollution focus for Maryland's Chesapeake Bay watershed includes nitrogen, phosphorus, and sediment, those same watersheds are also impaired by other NPS pollution, such as acid mine drainage and toxic contaminants. Approximately 95% of the land in Maryland is part of the Chesapeake Bay watershed.<sup>1</sup> Any nutrient and sediment loads from the other 5% are considered negligible and is not included in this report. Further information about those loads is reported by the Chesapeake Bay Program.



**Figure 1:** Maryland's nitrogen, phosphorus, and sediment loads from NPS delivered to Chesapeake Bay in 2022 (million pounds/year).

<sup>1</sup> <https://www.chesbay.us/library/public/documents/Fact-Sheets/Bay-Factoids-FINAL.pdf>

NPS pollution is costly to manage because it originates from diffuse sources across wide areas. The high cost and difficulty of managing this pollution is challenging for local governments that must balance local needs with protecting and restoring aquatic resources.

Reducing NPS pollution is accomplished through implementing best management practices (BMPs). This generic name for pollution reduction practices covers a collection of actions, policies, and physical structures that are used to reduce pollution entering waterways<sup>2</sup>. Funding for BMPs comes from local, state, federal, and NGO funding sources, including the §319(h) Grant.

### *Watershed Modeling*

Maryland uses the Chesapeake Assessment and Scenario Tool (CAST) outputs to estimate its load reductions/increases as more of a “real time” assessment of how our efforts are going. CAST uses a number of data inputs that can affect the loads in our watersheds, BMP implementation being only one of them. Consequently, even with increased BMP implementation the model may assign greater loads to a watershed which offset any reductions achieved through BMP implementation. This variability may be reflected in the tables, graphs, and watershed profiles in this report.

Another clarification is that the load calculations data used for this report that come from CAST include that data up to SFY22, which ended on June 30, 2022. Data from SFY23 is still being finalized at the time this report is due. As such, load calculations data from SFY23 will be reported in the next annual report. Typically, our model inputs submission is due Dec. 1<sup>st</sup> of the following SFY so that there is time allowed to collect information, provide adequate quality assurance/control of the data, and to make sure there are no errors in the modeling results.

### *Overall Load Reductions for Nitrogen, Phosphorus, and Sediment*

Maryland tracks nutrient and sediment reductions since 2010 to align with the start of the Chesapeake Bay Restoration Blueprint. Decreases in nitrogen, phosphorus, and sediment loads can be attributed to land use changes and the implementation of BMPs, including BMPs funded by the §319(h) Grant (**Figure 2**).

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<sup>2</sup> Examples of BMPs – Maryland's Chesapeake Cleanup Center:  
<https://mde.maryland.gov/programs/Water/TMDL/TMDLImplementation/Pages/pollution-in-the-chesapeake.aspx>

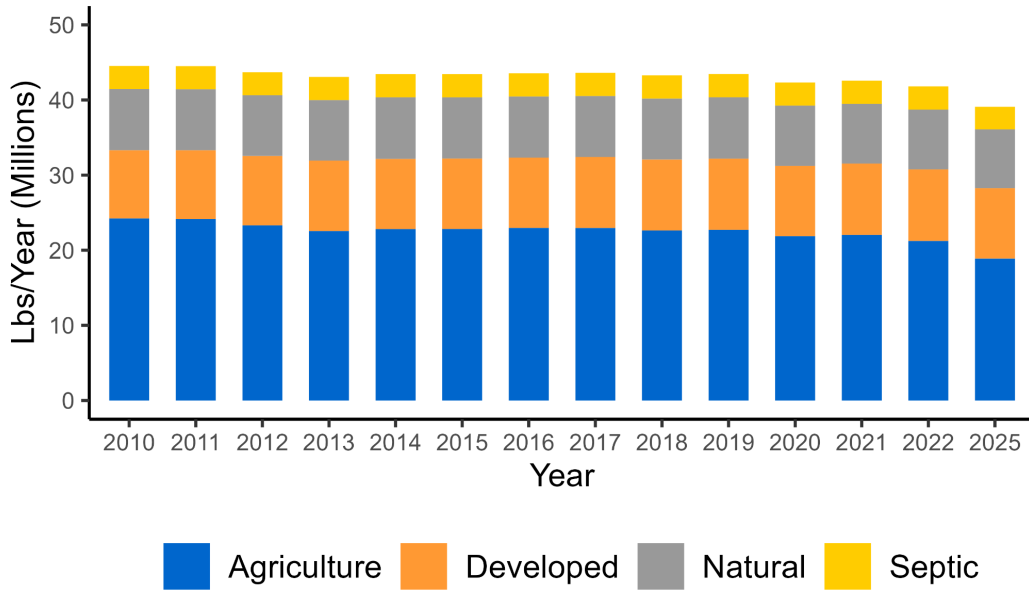


Figure 2a: Maryland's total nitrogen reduction progress (NPS sources only) towards its 2025 Chesapeake Bay cleanup target

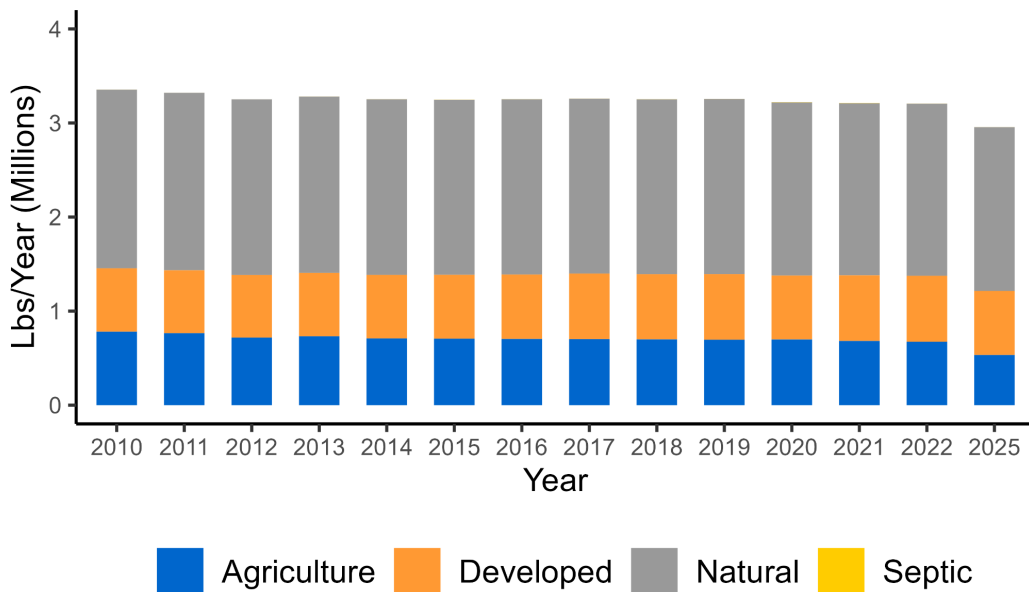


Figure 2b: Maryland's total phosphorus reduction progress (NPS sources only) towards its 2025 Chesapeake Bay cleanup target

Progress toward target reductions in nutrient loads derived from NPS sources is calculated using the CAST model and is separated by sector. The total 2025 target loads from NPS sources entering the Chesapeake Bay are 39,091,583 pounds per year and 2,955,951 pounds per year for nitrogen and phosphorus, respectively. Maryland has made strides toward these goals with loads from NPS sources for 2022 calculated to be 41,815,580 pounds per year for nitrogen and 3,096,362 pounds per year for phosphorus.

## Program Highlights | Maryland's NPS Management Program

### Overview: Maryland's Clean Water Act Section 319 Nonpoint Source Management

Maryland's Nonpoint Source Management Program is required by the Federal Clean Water Act (CWA) Section 319 to protect the State's waterways from nonpoint source pollution. Maryland has aligned this program with its commitments and responsibilities in the Chesapeake Bay Agreement<sup>3</sup>, the Chesapeake Bay Total Maximum Daily Load (TMDL)<sup>4</sup>, and Maryland's Phase III Chesapeake Bay Watershed Implementation Plan (WIP)<sup>5</sup>. This annual FY23 report covers §319 project implementation from July 1, 2022, through June 30, 2023.

### Program Administration

Maryland's NPS Management Program, including the §319(h) Grant Program, is administered by Maryland Department of the Environment (MDE) with the assistance of the Maryland Departments of Agriculture and Natural Resources; implementation is carried out by Maryland's local governments. MDE coordinates with local partners to provide grant funding for in-ground projects and report annual progress to EPA.

### *Annual Reporting for Maryland's 319 Program*

EPA requires MDE to produce annual reports demonstrating progress of Maryland's 319 NPS Management Program that show how the State meets §319(h) Grant conditions while maintaining consistency with the U.S. Environmental Protection Agency (EPA) FY2022-2026 Strategic Plan Goal #5 "Ensure Clean and Safe Water for All Communities", and Objective 5.2 "Protect and Restore Waterbodies and Watersheds."

MDE simplified BMP accounting by tracking projects by funding date rather than project completion date. Further, this report now tracks funds allocated to projects rather than project expenditures to more accurately reflect the funds given to a particular watershed for restoration.

This approach was approved in the FFY19 annual report submission. Our modeling/loading results only include actual implementation. In the future we will still do this for overall expenditures in watersheds, but actual reductions will be from completed projects.

### *Project Selection*

To receive 319(h) Grant funding, projects must be implemented within a 319 Priority Watershed (**Figure 3**) that has an A-I Watershed Plan approved by the U.S. Environmental Protection Agency (EPA). A-I plans are submitted to EPA by any combination of Maryland State Agencies, local governments, and non-government organizations.

<sup>3</sup> Chesapeake Bay Agreement: [https://www.chesapeakebay.net/what/what\\_guides\\_us/watershed\\_agreement](https://www.chesapeakebay.net/what/what_guides_us/watershed_agreement)

<sup>4</sup> Chesapeake Bay TMDL: <https://www.epa.gov/chesapeake-bay-tmdl/chesapeake-bay-tmdl-document>

<sup>5</sup> MD P3 WIP: <https://mde.maryland.gov/programs/Water/TMDL/TMDLImplementation/Pages/Phase3WIP.aspx>



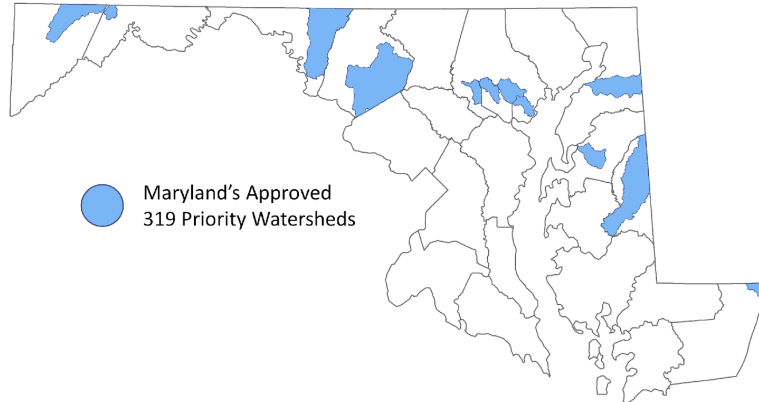


Figure 3: Maryland's §319 Priority Watersheds

*Funding: Federal and State Contributions*

Maryland has spent approximately \$50.5 million dollars in State grants over the past 19 years<sup>6</sup> along with about \$13.5 million additional dollars from the 319(h) Grant to fund projects within §319 watersheds (Figure 4).

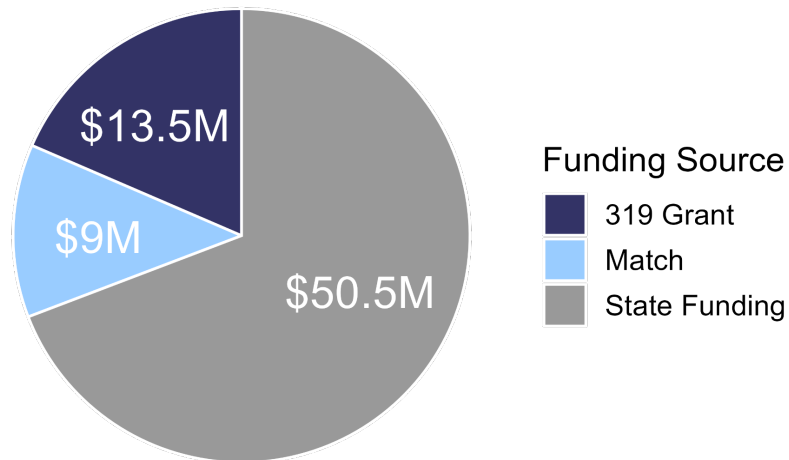


Figure 4: Funding spent on NPS pollution in §319 watersheds from SFY2004 - SFY2023.

While the §319(h) Grant is a small part of Maryland's total spending on NPS pollution (Figure 5), it helps local governments leverage limited funds. Helping local governments maximize their potential resources is a core component of Maryland's Chesapeake Bay Phase III WIP, which was designed to be locally driven and achievable. For detailed funding information, see the *Priority Watersheds* section of this report (page 9).

<sup>6</sup>Maryland's first A-I Plan (*Corsica River*) was accepted in 2004.

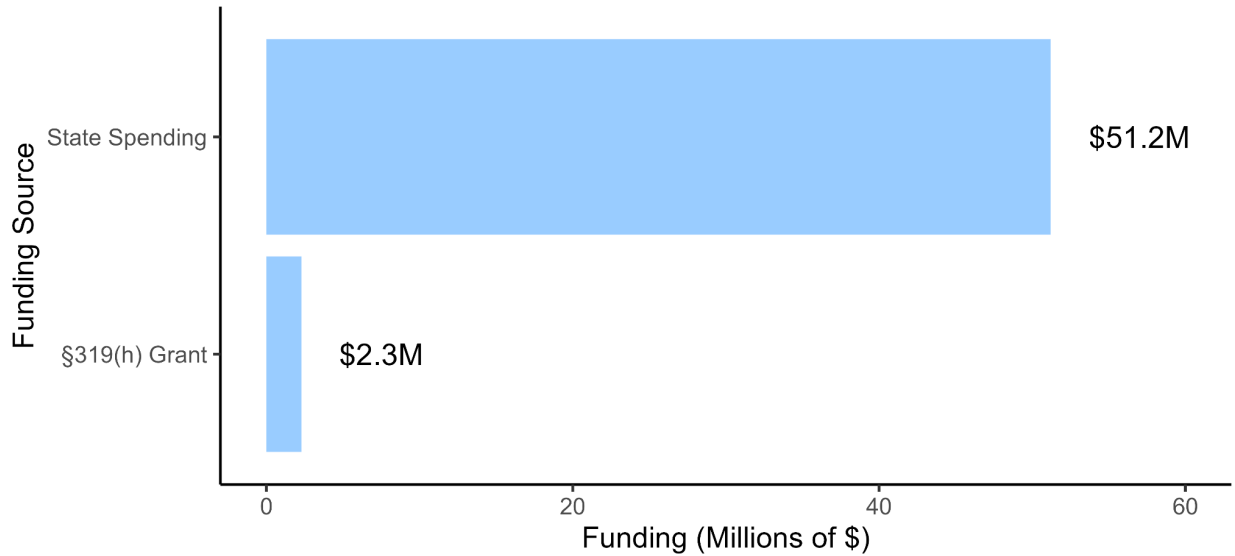


Figure 5: Funding spent on projects addressing NPS pollution across the state of Maryland in SFY2023.

*Integration of Environmental Justice Principles in the §319(h) Grant Program*

The Commission on Environmental Justice and Sustainable Communities (CEJSC) defines environmental justice (EJ) as follows:

*“Environmental justice seeks equal protection from environmental and public health hazards for all people regardless of race, income, culture and social class. Additionally, environmental justice means that no group of people including racial, ethnic or socioeconomic groups should bear a disproportionate share of the negative environmental consequences resulting from industrial, land-use planning and zoning, municipal and commercial operations or the execution of federal, state, local and municipal programs and policies.”*

Maryland’s §319(h) Grant Program is committed to addressing issues related to DEIJ by providing special consideration and technical assistance to underserved communities. These communities are often especially vulnerable to nonpoint source pollution, as they frequently have limited capacity and resources to implement appropriate Best Management Practices (BMPs).

Areas of focus within Maryland that could be considered underserved communities have been identified using MDE’s EJ Screening Tool<sup>7</sup>. MDE has partnered with organizations that work directly with citizens in these communities, including those in Caroline County and Baltimore County and are striving to develop relationships with other entities in Allegany County and Garrett County. See the list below for examples

<sup>7</sup> <https://mdewin64.mde.state.md.us/EJ/>

of projects that have been funded in the last 5 years<sup>8</sup> that are located in census tracts which are rated within the 50th percentile or higher (Final EJ Score, distribution across Maryland).

- FFY2018 Project #7 “Baltimore County Scotts Level at Upper Scotts Level Park Stream Restoration” - An implementation project that was partially funded with the 319(h) grant, which restored 3,383 linear feet of the middle reaches of Scotts Level Branch, a tributary of the Gwynns Falls watershed.
- FFY2020 Project #9 “Design of North County Park Water Quality and Best Management Practices” and FFY2022 Project #6 “North County Park Construction of Water Quality and Best Management Practices” - Two related projects that funded the design and partially funded the construction of a stream restoration, which included the installation of approximately 2.5 acres of Delmarva Bay wetlands, 560 feet of regenerative stormwater conveyance, 700 linear feet of stream restoration, 222 feet of log boulder structures, 320 feet of riffle grade control, and 9,750 square feet of bioretention.
- FFY2020 Project #11 “Worcester County, Assawoman Bay, Greys Creek Living Shoreline” - A project that funded the extension of an existing living shoreline restoration; once completed, this project will restore approximately 300 feet of tidal shoreline, 9,000 square feet of tidal wetlands, and install approximately 15,000 square feet of riparian buffer.
- FFY2020 Project #13 “Engagement, Capacity Building, and Implementation in a Disenfranchised Community in the Lower Choptank Watershed” - A project that funded the implementation of stormwater BMPs, septic upgrades, and community outreach and engagement in the community of Jonestown.
- FFY2021 Project #10 “Adding Capacity to Increase Implementation of Restoration Projects throughout the Choptank Watershed” - An outreach project that built local capacity and cooperation in these communities to assist with identification of additional community projects that would meet Maryland’s nonpoint source pollution objectives.
- FFY2021 Project #11 “Jonestown Community Park Implementation Project” - This project funded the installation of two rain gardens and conservation plantings in the Jonestown Community Park that will provide improved management and filtration of stormwater runoff before it reaches adjacent non-tidal wetlands and a tributary of the Choptank River, as well as demonstrating green, scalable, stormwater best management practices to the residents of the community of Jonestown.
- FFY2022 Project #6 “Hamilton Run Urban Stream Restoration, City of Hagerstown” - An implementation project that funded the restoration of 1,858 linear feet of Hamilton Run, a tributary of the Antietam Creek watershed.

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<sup>8</sup> Although this list is shown in past tense, some of these projects may not have been completed at the time of the submission of this report. However, all of these projects’ legal paperwork has been executed, and any updates will be reported in future Semi-Annual Progress Reports.

*Incorporation of Climate Resiliency in Maryland's NPS Management Program*

At the state level, the State of Maryland charges the Maryland Commission on Climate Change (MCCC) with advising the Governor and General Assembly "on ways to mitigate the causes of, prepare for, and adapt to the consequences of climate change." An executive order established the MCCC in 2007 and the State codified it into law in 2015. The State expects the MCCC, in concert with the Governor's Chesapeake Bay Cabinet, to play a central role in advancing Maryland's Chesapeake Bay climate adaptation actions.

Maryland's Climate Pollution Reduction Plan was published by MDE's Climate Change Program staff on December 28, 2023.<sup>9</sup> The Plan established a framework to reduce statewide greenhouse gas emissions by 60% by 2031 and reach net-zero emissions by 2045.

The §319(h) Grant Program has integrated climate resiliency into the criteria that is used to rank and select project proposals. Additional consideration is given to projects that address the impacts of climate change.

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<sup>9</sup> <https://mde.maryland.gov/programs/air/ClimateChange/Pages/Maryland's-Climate-Pollution-Reduction-Plan.aspx>

## Progress | Maryland’s §319 NPS Management Program

### How Maryland Tracks Progress for its NPS Management Program

The State’s §319 Priority Watersheds continue to make steady progress in reducing nitrogen and phosphorus loads (**Table 1**); **Appendix A** tracks all NPS pollution in greater detail. For detailed information on individual watershed progress, please see the *Priority Watersheds* section of this report (*page 9*).

Table 1: Overall 2022 NPS pollution reductions in §319 Priority Watersheds (Million Pounds/Year)<sup>10</sup>

	Target Reduction	Current Reduction	Percent Progress
<b>Nitrogen</b>	1.86M	0.490M	26%
<b>Phosphorus</b>	0.11M	0.02M	16%
<b>Sediment</b>	203M	-1.37M	-1%

Overall, Maryland and its partners made significant progress in addressing the seven programmatic NPS goals identified in the 2021-2025 Maryland Nonpoint Source Pollution Management Plan. This includes citing pollutant load reductions of 490,932 pounds per year of nitrogen, 16,452 pounds per year of phosphorus, and -1,370,187 pounds per year of sediment resulting from the implementation of all reported structural best management practices (BMPs) in 319 priority watersheds with EPA-accepted watershed-based plans (WBPs), regardless of funding source. The negative sediment load reductions (i.e. load gains) were most likely caused by variation in the CAST model, with the majority of the negative load reductions associated with the Upper Choptank and Antietam Creek watersheds.

### §319 Success Story

Section 319 nonpoint source pollution success stories highlight water bodies identified by states as being primarily nonpoint source-impaired and having achieved documented water quality improvements. Projects leading to Success Stories received funding from CWA §319 and/or other funding sources dedicated to solving NPS impairments. These stories also describe innovative strategies used to reduce NPS pollution, the growth of partnerships, and a diversity of funding sources.

The success stories offer an opportunity for states to highlight where their restoration efforts have resulted in water quality improvements in NPS-impaired water bodies. Developing the stories also allows EPA to track the number of NPS-impaired water bodies that are partially or fully restored—which

<sup>10</sup> This is not solely an evaluation of installed BMPs that were funded by the §319(h) grant but an assessment of all modeled aspects of a watershed, including land use change, animal numbers, septic counts, etc. CAST was used to produce these data. This includes everything nonpoint source related that is also within CAST and specifically for the watersheds identified in this report. The reductions are for FY22, as FY23 progress is not made available until after this report is due.

is a key measure in the effort to document how NPS restoration efforts are improving water quality on a segment basis across the nation.

Each year, Maryland is required to demonstrate a minimum of one successful watershed restoration project. The two FY23 success stories that Maryland published were entitled, "Baltimore County Project restores stream channel on Roland Run" and "Washington County Soil Conservation District Rehabilitates Winders Farm Property." These can be found posted, once available, on MDE's §319 website or on [EPA's national website](#).

## Additional Funding Information

In addition to §319(h) Grant funds, Maryland supplies significant State resources to finance programs and projects designed to reduce NPS pollution. In particular, Maryland's Chesapeake and Atlantic Coastal Bays Trust Fund (Trust Fund) is one of the State’s primary funding sources for reducing NPS pollution. Maryland’s Trust fund provides grant money to local governments and nonprofit organizations for implementing NPS pollution water quality restoration projects. For further information, see the [Chesapeake and Atlantic Coastal Bays Trust Fund website](#).

### *Maintenance of Effort (MOE) vs Federal §319(h) Grant Funds*

Maryland contributes more State funds to NPS pollution reduction on an annual basis compared to what it receives through §319(h) Grant funding. In SFY 2023, Maryland’s NPS pollution control expenditures totaled over \$51 million which is much greater than EPA’s required minimum of \$8.4 million in Maintenance of Effort spending. See **Table 2** for more information on historic §319 Grant Funding.

*Table 2: State and Federal funding contributing to Maryland’s §319 Grant each year*

State Fiscal Year	§319(h) Grant	Non-Federal Match	Total State and Federal Funds
1990 - 2003	\$24,876,369	\$16,584,247	\$41,460,616
2004	\$1,343,290	\$895,527	\$2,238,817
2005	\$1,852,568	\$1,235,045	\$3,087,613
2006	\$2,675,598	\$1,783,730	\$4,459,328
2007	\$2,666,655	\$1,777,776	\$4,444,431
2008	\$2,598,600	\$1,732,401	\$4,331,001
2009	\$2,653,500	\$1,769,000	\$4,422,500
2010	\$2,575,782	\$1,717,188	\$4,292,970
2011	\$2,922,783	\$1,948,522	\$4,871,305
2012	\$2,283,639	\$1,522,426	\$3,806,065
2013	\$2,090,997	\$1,393,998	\$3,484,995
2014	\$1,990,999	\$1,327,333	\$3,318,332
2015	\$2,119,118	\$1,412,745	\$3,531,863
2016	\$2,084,277	\$1,389,518	\$3,473,795
2017	\$2,109,728	\$1,406,486	\$3,516,214
2018	\$2,236,500	\$1,491,000	\$3,727,500

2019	\$2,129,000	\$1,419,335	\$3,548,335
2020	\$2,129,000	\$1,419,335	\$3,548,335
2021	\$2,241,500	\$1,494,334	\$3,735,834
2022	\$2,272,200	\$1,514,800	\$3,787,000
2023	\$2,271,300	\$1,514,200	\$3,785,500
<b>Post 2004 Totals</b>	<b>\$45,247,034</b>	<b>\$30,164,699</b>	<b>\$75,411,733</b>



## Maryland's §319 Priority Watersheds

MDE tracks progress for §319(h) Grant implementation funding and NPS pollution reductions in its §319 Priority Watersheds. As of SFY 2023, twelve watersheds had accepted A-I Watershed Plans and were eligible for §319(h) Grant funding. An additional two watersheds are developing A-I plans to be eligible for future funding through the §319(h) Grant Program. Four watersheds received §319(h) Grant Project funding in SFY 2023: Antietam Creek, Upper Back River, Upper Choptank, and Lower Choptank.

MDE tracks nitrogen, phosphorus, and sediment reductions for all watersheds regardless of the watershed plan specifications; for all NPS pollution tracking and detailed nitrogen, phosphorus, and sediment loads tracking, see **Appendix A**. For specific information on load reductions for each §319(h) Grant funded project, see [EPA's Nonpoint Source \(NPS\) Watershed Projects Data Explorer](#), which is an interface for data uploaded to the [Grants Reporting and Tracking System](#) (GRTS).

### §319(h) Grant Funding

Maryland tracks annual §319(h) Grant federal vs state contributions since 1990 (**Table 3**). However, tracking Priority Watershed progress did not begin until the first watershed plan for Corsica River was approved in 2004.

*Table 3<sup>11</sup>: Cumulative spending by funding source for each §319 Priority Watershed*

Priority Watershed	Plan Start Date	Chesapeake and Atlantic Bays Trust Fund	State Revolving Fund	Total Non-319 Funds	319(h) Grant	Total Funds
Antietam Creek	2012	\$1,088,659	\$424,600	\$1,513,259	\$3,923,809	\$5,437,068
Assawoman Bay	2020	-	-	-	-	-
Back River: Tidal	2010	\$6,031,605	\$0	\$6,031,605	\$556,443	\$6,588,048
Back River: Upper	2008	\$0	\$12,724,100	\$12,724,100	\$1,198,905	\$13,923,005
Casselman River	2011	\$6,440	\$0	\$6,440	\$83,619	\$90,059
Choptank River: Upper	2010	\$1,119,810	\$0	\$1,119,810	\$2,044,542	\$3,164,352
Corsica River	2004	\$1,659,485	\$0	\$1,659,485	\$2,137,406	\$3,796,891
Gwynns Falls: Middle	2014	\$4,248,000	\$9,546,741	\$13,794,741	\$1,383,944	\$15,178,685
Jennings Run: Upper	2019	-	-	-	-	-
Jones Falls: Lower	2008	\$6,823,090	\$100,664	\$6,923,754	\$462,309	\$7,386,063
Monocacy River: Lower	2008	\$1,789,565	\$0	\$1,789,565	\$1,143,305	\$2,932,870
Sassafras River	2009	\$4,893,316	\$0	\$4,893,316	\$425,748	\$5,319,064
<b>Watershed Totals</b>		<b>\$27,659,971</b>	<b>\$22,796,105</b>	<b>\$50,456,076</b>	<b>\$13,456,030</b>	<b>\$63,912,106</b>

<sup>11</sup> The funding for Back River: Tidal and Upper is linked due to project overlap, even though it is separated in this table.

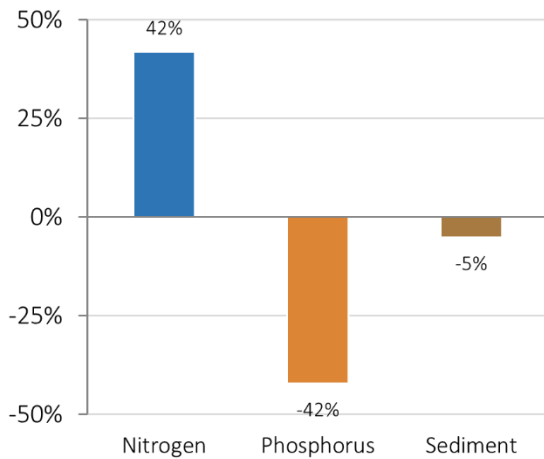
# Watershed Profile

## Antietam Creek



### Percent Progress Towards Target

Nitrogen, Phosphorus, Sediment



\*Watershed plan includes bacteria – See Appendix B

### Land Use



Total Acres | **119K**

Agriculture | **39%**

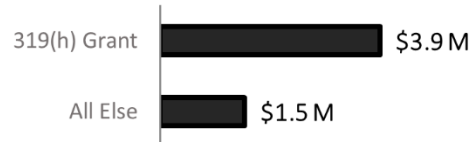
Developed | **22%**

Natural | **38%**

### NPS Reduction Progress

From 2012 to 2022, Antietam Creek is 42% toward its 127K lbs/yr nitrogen reduction goal, -42% toward its 5K lbs/yr phosphorus reduction goal, and -5% toward its 71.3 M lbs/yr sediment reduction goal.

### Watershed Funding | SFY12 – SFY23



### Cumulative NPS Reductions

Funding Source	Nitrogen   lbs/yr	Phosphorus   lbs/yr	Sediment   lbs/yr
319(h) Grant	1.9K	1.0K	0.0M
All Else	51.1K	-3.2K	-3.7M
<b>Total</b>	<b>53.0K</b>	<b>-2.2K</b>	<b>-3.7M</b>

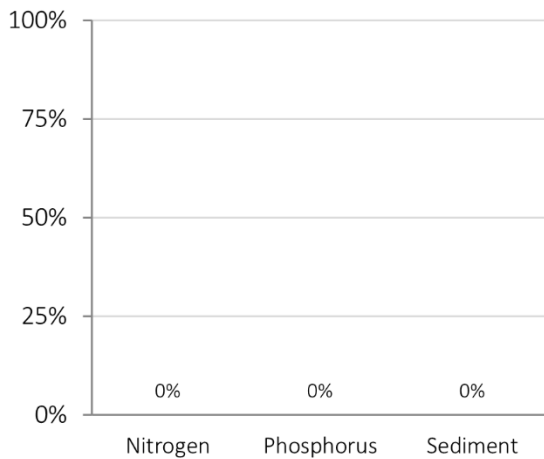
# Watershed Profile

## Assawoman Bay

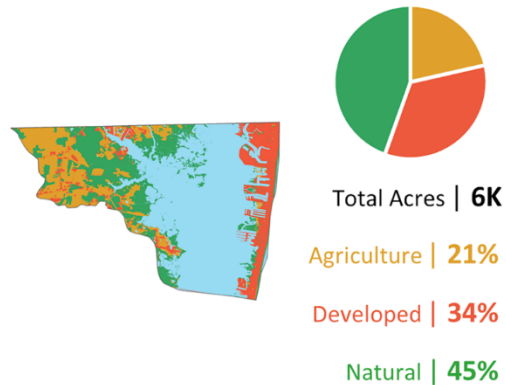


### Percent Progress Towards Target

Nitrogen, Phosphorus, Sediment



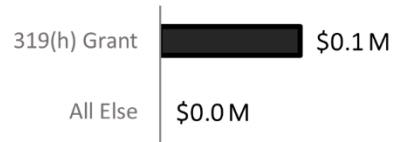
### Land Use



### NPS Reduction Progress

The Assawoman Bay watershed plan was conditionally approved in 2020. The first implementation project has not been installed yet, but we expect to report NPS reductions in the next Annual Report.

### Watershed Funding | SFY20 – SFY23



### Cumulative NPS Reductions

Funding Source	Nitrogen   lbs/yr	Phosphorus   lbs/yr	Sediment   lbs/yr
319(h) Grant	0.1K	0.0K	0.0M
All Else	12.9K	0.7K	0.9M
<b>Total</b>	<b>13.0K</b>	<b>0.7K</b>	<b>0.9M</b>

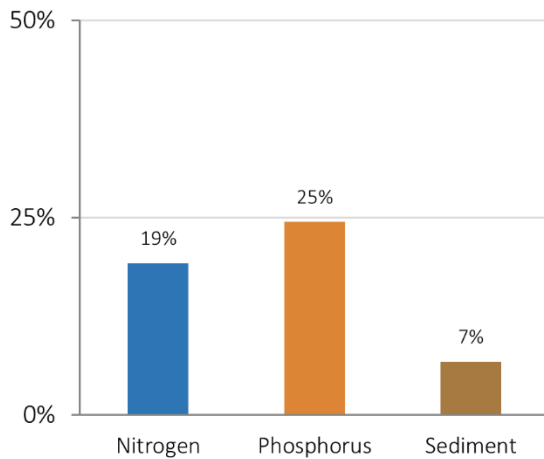
# Watershed Profile

*Back River: Tidal*



## Percent Progress Towards Target

Nitrogen, Phosphorus, Sediment



## Land Use



Total Acres | **16K**  
 Agriculture | **3%**  
 Developed | **65%**  
 Natural | **33%**

## NPS Reduction Progress

From 2010 to 2022, Back River (Tidal) is 19% toward its 15K lbs/yr nitrogen reduction goal, 25% toward its 2K lbs/yr phosphorus reduction goal, and 7% toward its 13.3 M lbs/yr sediment reduction goal.

## Watershed Funding\* | SFY10 – SFY23



\*Funding linked to Back River: Upper due to project overlaps

## Cumulative NPS Reductions

Funding Source	Nitrogen   lbs/yr	Phosphorus   lbs/yr	Sediment   lbs/yr
319(h) Grant	0.3K	0.1K	0.0M
All Else	2.6K	0.4K	0.9M
<b>Total</b>	<b>2.9K</b>	<b>0.5K</b>	<b>0.9M</b>

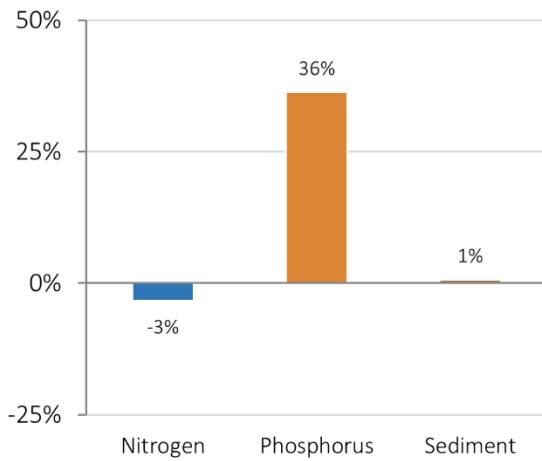
# Watershed Profile

*Back River: Upper*



## Percent Progress Towards Target

Nitrogen, Phosphorus, Sediment



## Land Use



Total Acres | **20K**

Agriculture | **0%**

Developed | **85%**

Natural | **15%**

## NPS Reduction Progress

From 2008 to 2022, Upper Back River is -3% toward its 24K lbs/yr nitrogen reduction goal, 36% toward its 3K lbs/yr phosphorus reduction goal, and 1% toward its 32.6 M lbs/yr sediment reduction goal.

## Watershed Funding\* | SFY08 – SFY23



\*Funding linked to Back River: Tidal due to project overlaps

## Cumulative NPS Reductions

Funding Source	Nitrogen   lbs/yr	Phosphorus   lbs/yr	Sediment   lbs/yr
319(h) Grant	1.0K	0.3K	0.0M
All Else	-1.8K	0.7K	0.2M
<b>Total</b>	<b>-0.8K</b>	<b>1.0K</b>	<b>0.2M</b>

# Watershed Profile

## Casselman River



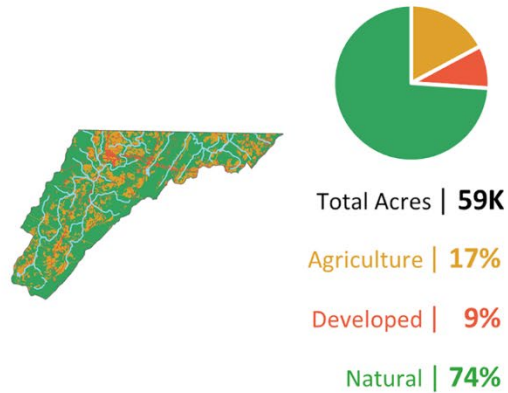
### NPS Reduction Progress

The watershed-based plan for the Casselman River only addresses pH impairment. From 2011 to 2022, there has only been one project funded in this watershed greater than \$10k, which was the implementation of limestone sand in multiple locations to address pH impairment. The cause of any reductions in nitrogen, phosphorus, and sediment loads is unknown and may result from natural variations or projects that were funded by organizations not recorded in this report.

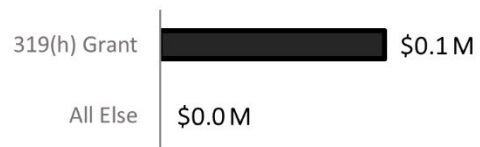


Snyder Sand Application Site  
 Photo courtesy of MDE, Abandoned Mine Lands Division

### Land Use



### Watershed Funding | SFY11 – SFY23



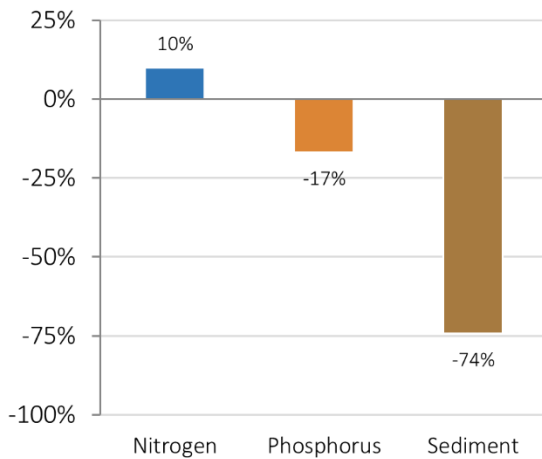
# Watershed Profile

## Choptank River: Upper



### Percent Progress Towards Target

Nitrogen, Phosphorus, Sediment



### Land Use



Total Acres | **154K**

Agriculture | **54%**

Developed | **11%**

Natural | **36%**

### NPS Reduction Progress

From 2010 to 2022, Upper Choptank River is 10% toward its 1.1M lbs/yr nitrogen reduction goal, -17% toward its 30K lbs/yr phosphorus reduction goal, and -74% toward its 23.6 M lbs/yr sediment reduction goal.

### Watershed Funding | SFY10 – SFY23



### Cumulative NPS Reductions

Funding Source	Nitrogen   lbs/yr	Phosphorus   lbs/yr	Sediment   lbs/yr
319(h) Grant	1.5K	0.6K	0.0M
All Else	104.1K	-5.6K	-17.6M
<b>Total</b>	<b>105.6K</b>	<b>-5.0K</b>	<b>-17.6M</b>

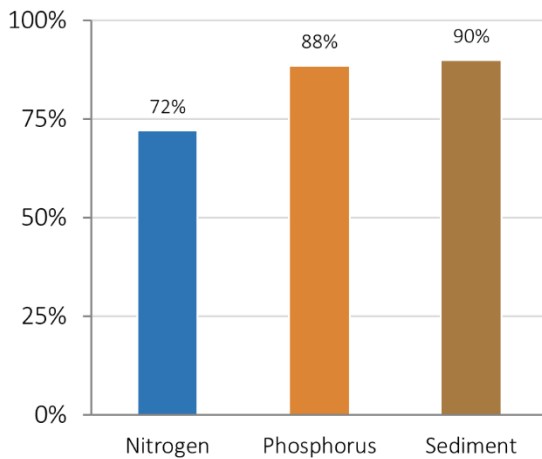
# Watershed Profile

## Corsica River



### Percent Progress Towards Target

Nitrogen, Phosphorus, Sediment



### Land Use



Total Acres | **23K**  
 Agriculture | **55%**  
 Developed | **12%**  
 Natural | **33%**

### NPS Reduction Progress

From 2004 to 2022, Corsica River is 72% toward its 72K lbs/yr nitrogen reduction goal, 88% toward its 5K lbs/yr phosphorus reduction goal, and 90% toward its 1.4 M lbs/yr sediment reduction goal.

### Watershed Funding | SFY04 – SFY23



### Cumulative NPS Reductions

Funding Source	Nitrogen   lbs/yr	Phosphorus   lbs/yr	Sediment   lbs/yr
319(h) Grant	4.9K	0.5K	0.0M
All Else	47.1K	4.1K	1.2M
<b>Total</b>	<b>52.0K</b>	<b>4.5K</b>	<b>1.2M</b>



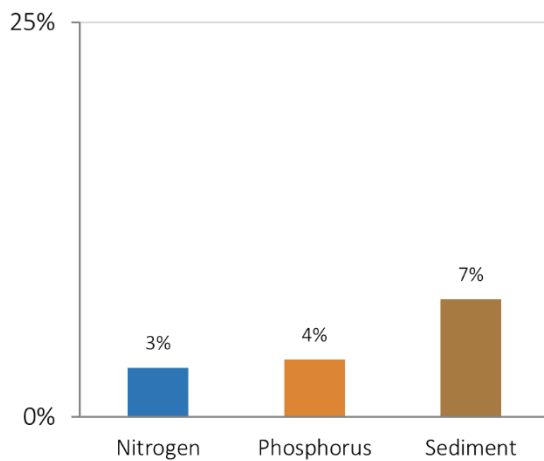
# Watershed Profile

## Gwynns Falls: Middle

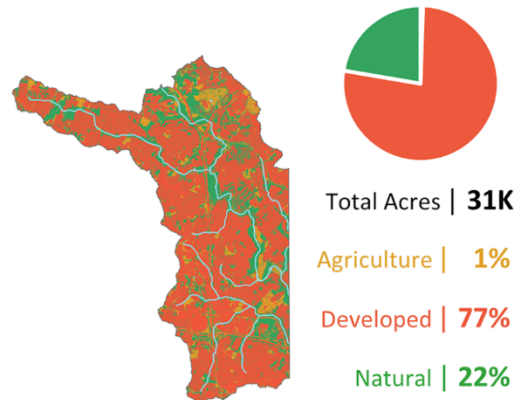


### Percent Progress Towards Target

Nitrogen, Phosphorus, Sediment



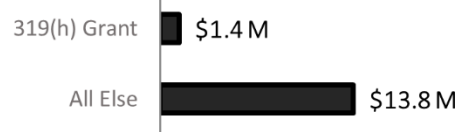
### Land Use



### NPS Reduction Progress

From 2014 to 2022, Middle Gwynns Falls is 3% toward its 89K lbs/yr nitrogen reduction goal, 4% toward its 12K lbs/yr phosphorus reduction goal, and 7% toward its 23.5 M lbs/yr sediment reduction goal.

### Watershed Funding\* | SFY14 – SFY23



\*Funding calculations include 2 projects starting in SFY2013. The watershed plan was being drafted in 2013 and was accepted by EPA in 2014.

### Cumulative NPS Reductions

Funding Source	Nitrogen   lbs/yr	Phosphorus   lbs/yr	Sediment   lbs/yr
319(h) Grant	4.3K	1.7K	0.0M
All Else	-1.5K	-1.3K	1.8M
<b>Total</b>	<b>2.8K</b>	<b>0.4K</b>	<b>1.8M</b>

# Watershed Profile

## Jennings Run: Upper



### NPS Reduction Progress

Currently, the watershed-based plan for the Upper Jennings Run only addresses pH impairment. From 2019 to 2022, there have been no implementation projects funded by the §319(h) grant or other state funding sources included in this report. The cause of any reductions in nitrogen, phosphorus, and sediment loads is unknown and may result from natural variations or projects that were funded by organizations not recorded in this report. MDE is working to establish relationships with the local government and other organizations in Allegany County to pursue future projects that may be funded by the §319(h) grant.

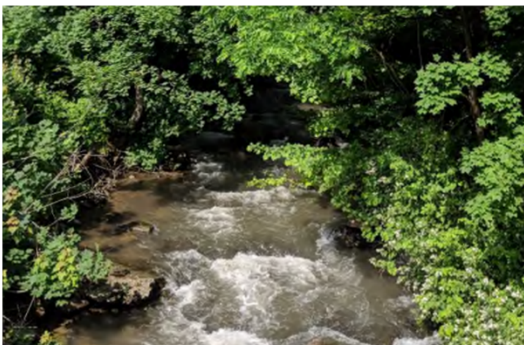
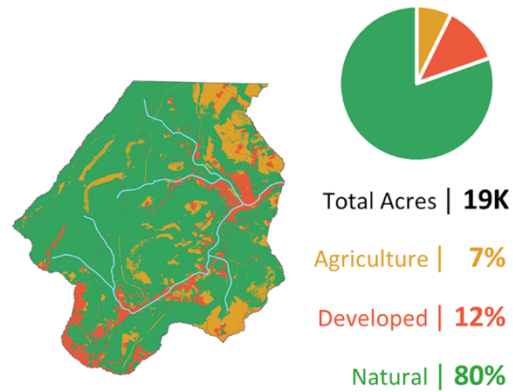


Photo courtesy of MDE, Upper Jennings Run Watershed Implementation Plan

### Land Use



### Watershed Funding | SFY19 – SFY23

319(h) Grant	\$0.0M
All Else	\$0.0M

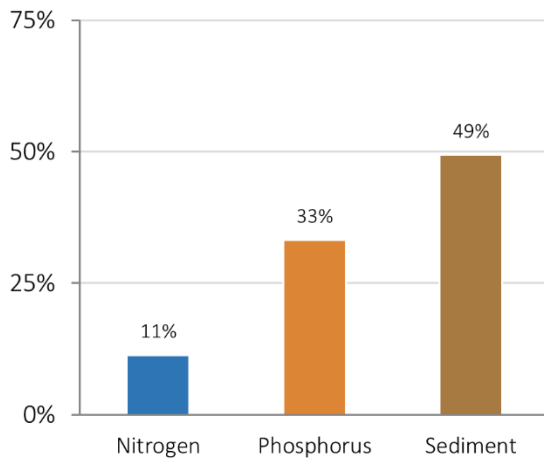
# Watershed Profile

*Jones Falls: Lower*



## Percent Progress Towards Target

Nitrogen, Phosphorus, Sediment



## Land Use



Total Acres | **37K**

Agriculture | **4%**

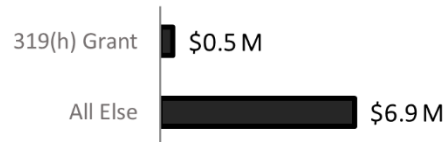
Developed | **67%**

Natural | **30%**

## NPS Reduction Progress


From 2008 to 2022, Lower Jones Falls is 11% toward its 103K lbs/yr nitrogen reduction goal, 33% toward its 8K lbs/yr phosphorus reduction goal, and 49% toward its 6.2 M lbs/yr sediment reduction goal.

## Watershed Funding | SFY08 – SFY23



## Cumulative NPS Reductions

Funding Source	Nitrogen   lbs/yr	Phosphorus   lbs/yr	Sediment   lbs/yr
319(h) Grant	0.1K	0.1K	0.0M
All Else	11.6K	2.7K	3.1M
<b>Total</b>	<b>11.7K</b>	<b>2.7K</b>	<b>3.1M</b>

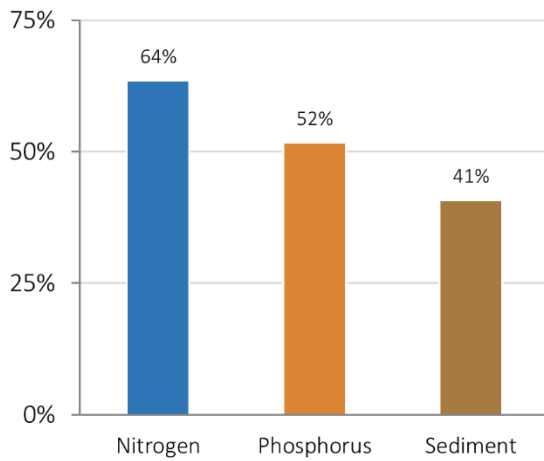


# Watershed Profile

## Monocacy River: Lower

### Percent Progress Towards Target

Nitrogen, Phosphorus, Sediment



### Land Use



Total Acres | **195K**

Agriculture | **34%**

Developed | **26%**

Natural | **39%**

### NPS Reduction Progress

From 2008 to 2022, Monocacy River: Lower is 64% toward its 283K lbs/yr nitrogen reduction goal, 52% toward its 30K lbs/yr phosphorus reduction goal, and 41% toward its 24.4 M lbs/yr sediment reduction goal.

### Watershed Funding | SFY08 – SFY23



### Cumulative NPS Reductions

Funding Source	Nitrogen   lbs/yr	Phosphorus   lbs/yr	Sediment   lbs/yr
319(h) Grant	0.7K	0.2K	0.0M
All Else	179.2K	15.2K	9.9M
<b>Total</b>	<b>179.9K</b>	<b>15.4K</b>	<b>9.9M</b>

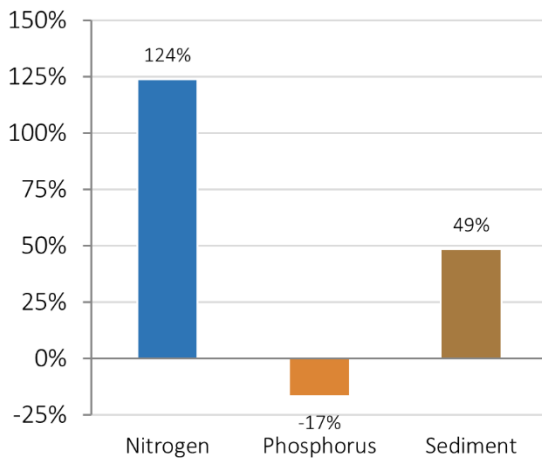
# Watershed Profile

## Sassafras River

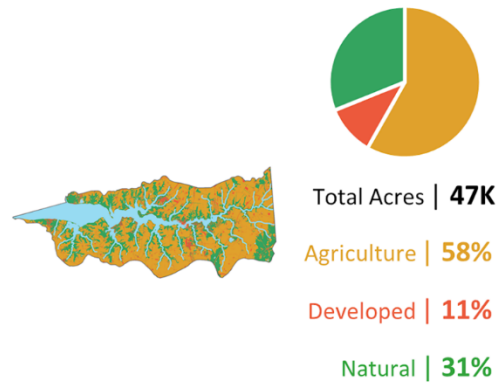


### Percent Progress Towards Target

Nitrogen, Phosphorus, Sediment



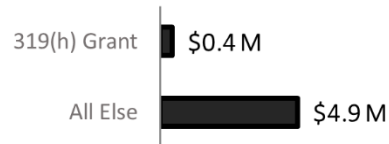
### Land Use



### NPS Reduction Progress

From 2009 to 2022, Sassafras River is 124% toward its 57K lbs/yr nitrogen reduction goal, -17% toward its 9K lbs/yr phosphorus reduction goal, and 49% toward its 3.8 M lbs/yr sediment reduction goal.

### Watershed Funding | SFY09 – SFY23



### Cumulative NPS Reductions

Funding Source	Nitrogen   lbs/yr	Phosphorus   lbs/yr	Sediment   lbs/yr
319(h) Grant	4.2K	0.3K	0.0M
All Else	66.8K	-1.9K	1.9M
<b>Total</b>	<b>71.0K</b>	<b>-1.6K</b>	<b>1.9M</b>

## Appendix A | NPS Load Tracking

### *Nutrient and Sediment Tracking*

Maryland tracks nutrient and sediment reductions for §319 Priority Watersheds using the Chesapeake Assessment Scenario Tool (CAST). In the following tables (**A - 1 to A - 3**), *Reduction Source Document* refers to how the *Percent Reduction Required* (PRR) was determined. All loads are reported as Edge of Stream: the nutrient and sediment entering directly into local waterbodies from the adjoining land.

The percent reduction for *Watershed Plan* was taken from the approved watershed plan. If no such number was given, PRR was calculated as the percent reduction of the watershed's Plan Start Date (PSD) NPS load necessary to achieve the watershed's TMDL for nitrogen, phosphorus, or sediment. If no TMDL was available, or the TMDL was exceeded, PRR was calculated as the percent reduction required of the watershed's PSD NPS load to achieve the watershed's Phase III WIP nutrient or sediment goals.

Maryland uses the Chesapeake Assessment and Scenario Tool (CAST) outputs to estimate its load reductions/increases as more of a "real time" assessment of how our efforts are going. CAST uses a number of data inputs that can affect the loads in our watersheds, BMP implementation being only one of them. Consequently, even with increased BMP implementation the model may assign greater loads to a watershed which offset any reductions achieved through BMP implementation. This variability is reflected in the tables and watershed profiles included in this section. Baseline loads were extracted directly from CAST and represent the load during a watershed's PSD. Target loads were calculated as  $((1 - PRR) * Baseline Loads)$ . Current Loads represent 2022 Progress loads in CAST for each watershed.

As previously mentioned, the load calculations data from CAST is up to SFY22, which ended on June 30, 2022. SFY23 progress has yet to be finalized at the time that this report is due. Progress in SFY23 will be included in the next annual report.

§319 Reductions come from the individual project calculations provided to MDE in the watershed work plans. Non-§319 Reductions are calculated as  $((PSD - Current Loads) - §319 Reductions)$ .

Negative values in the charts below connote increases in load. CAST is a dynamic model whose output may show variation from year to year due to BMP retirement or annual BMP variation that may increase loads in some areas based on land use conditions.

**Table A - 1: Nitrogen Tracking for 2022 (Edge of Stream loads - Pounds/Year)**

Priority Watershed	Plan Start Date	Reduction Source Document	Percent Reduction Required	Baseline Loads	Target Loads	Current Loads (2022)	319 Reductions	Non-319 Reductions	Total Reductions	Target Reductions	Percent Progress
Antietam Creek	2012	Phase III WIP	10%	1,319,242	1,192,629	1,266,256	1,855	51,131	52,986	126,613	42%
Assawoman Bay	2020										
Back River: Tidal	2010	Watershed Plan	15%	99,130	84,261	96,258	280	2,592	2,872	14,870	19%
Back River: Upper	2008	Watershed Plan	15%	162,869	138,439	163,690	975	-1,796	-821	24,430	-3%
Casselman River	2011	Phase III WIP									
Choptank River: Upper	2010	Watershed Plan	39%	2,723,478	1,661,321	2,617,887	1,529	104,061	105,591	1,062,156	10%
Corsica River	2004	Local TMDL	22%	324,679	252,431	272,672	4,873	47,134	52,007	72,248	72%
Gwynns Falls: Middle	2014	Watershed Plan	29%	308,514	219,045	305,687	4,340	-1,514	2,827	89,469	3%
Jennings Run: Upper	2019	Phase III WIP									
Jones Falls: Lower	2008	Watershed Plan	22%	459,856	356,849	448,203	90	11,564	11,654	103,008	11%
Monocacy River: Lower	2008	Phase III WIP	8%	3,356,264	3,073,151	3,176,386	726	179,153	179,879	283,113	64%
Sassafras River	2009	Watershed Plan	9%	629,276	572,012	558,325	4,204	66,747	70,951	57,264	124%
<b>Watershed Totals (Nitrogen)</b>				<b>9,950,377</b>	<b>8,045,363</b>	<b>9,460,441</b>	<b>18,922</b>	<b>471,013</b>	<b>489,935</b>	<b>1,905,014</b>	

**Table A - 2: Phosphorus Tracking for 2022 (Edge of Stream loads - Pounds/Year)**

Priority Watershed	Plan Start Date	Reduction Source Document	Percent Reduction Required	Baseline Loads	Target Loads	Current Loads (2022)	319 Reductions	Non-319 Reductions	Total Reductions	Target Reductions	Percent Progress
Antietam Creek	2012	Local TMDL	7%	72,427	67,231	74,620	957	-3,150	-2,193	5,196	-42%
Assawoman Bay	2020										
Back River: Tidal	2010	Watershed Plan	15%	13,304	11,309	12,814	94	396	490	1,996	25%
Back River: Upper	2008	Watershed Plan	15%	18,284	15,541	17,289	328	667	995	2,743	36%
Casselman River	2011	Phase III WIP									
Choptank River: Upper	2010	Watershed Plan	28%	106,500	76,680	111,538	594	-5,632	-5,038	29,820	-17%
Corsica River	2004	Phase III WIP	35%	14,447	9,353	9,940	458	4,050	4,508	5,094	88%
Gwynns Falls: Middle	2014	Watershed Plan	45%	26,821	14,725	26,378	1,690	-1,247	444	12,096	4%
Jennings Run: Upper	2019	Phase III WIP									
Jones Falls: Lower	2008	Watershed Plan	30%	27,966	19,716	25,228	91	2,647	2,738	8,250	33%
Monocacy River: Lower	2008	Phase III WIP	26%	114,254	84,463	98,842	169	15,243	15,412	29,791	52%
Sassafras River	2009	Watershed Plan	34%	27,862	18,417	29,457	254	-1,849	-1,595	9,445	-17%
<b>Watershed Totals (Phosphorus)</b>				<b>460,480</b>	<b>348,204</b>	<b>442,579</b>	<b>4,652</b>	<b>13,250</b>	<b>17,901</b>	<b>112,276</b>	

**Table A - 3: Sediment Tracking for 2022 (Edge of Stream loads - Pounds/Year)**

Priority Watershed	Plan Start Date	Reduction Source Document	Percent Reduction Required	Baseline Loads	Target Loads	Current Loads (2022)	319 Reductions	Non-319 Reductions	Total Reductions	Target Reductions	Percent Progress
Antietam Creek	2012	Watershed Plan	52%	137,562,959	66,281,690	141,231,542	11,918	-3,680,502	-3,668,584	71,281,269	-5%
Assawoman Bay	2020										
Back River: Tidal	2010	Local TMDL	68%	19,490,971	6,237,111	18,583,955	428	906,588	907,016	13,253,861	7%
Back River: Upper	2008	Local TMDL	68%	47,994,452	15,358,225	47,783,325	203	210,924	211,127	32,636,227	1%
Casselman River	2011	Phase III WIP	18%								
Choptank River: Upper	2010	Phase III WIP	31%	76,132,326	52,485,476	93,703,121	1,375	-17,572,171	-17,570,795	23,646,850	-74%
Corsica River	2004	Phase III WIP	12%	11,026,744	9,658,555	9,796,899	1,520	1,228,325	1,229,845	1,368,188	90%
Gwynns Falls: Middle	2014	Local TMDL	37%	63,591,505	40,062,648	61,827,582	3,768	1,760,155	1,763,923	23,528,857	7%
Jennings Run: Upper	2019	Phase III WIP									
Jones Falls: Lower	2008	Watershed Plan	8%	76,178,609	69,931,963	73,095,600	173	3,082,836	3,083,009	6,246,646	49%
Monocacy River: Lower	2008	Phase III WIP	9%	270,862,477	246,503,526	260,921,940	75	9,940,462	9,940,537	24,358,951	41%
Sassafras River	2009	Watershed Plan	15%	25,829,495	22,006,729	23,972,677	187	1,856,630	1,856,817	3,822,765	49%
<b>Watershed Totals (Sediment)</b>				<b>850,668,538</b>	<b>630,786,829</b>	<b>856,525,270</b>	<b>19,649</b>	<b>-5,876,381</b>	<b>-5,856,732</b>	<b>219,881,709</b>	

*Other NPS Pollution – Bacteria*

MDE does not currently have a system for tracking bacteria reductions within priority watersheds. Bacteria concentrations and loads tend to be highly variable and difficult to track, particularly when assessing the effectiveness of restoration. The State will continue to evaluate new tools, technologies, and monitoring designs to track progress towards applicable bacteria TMDLs in the future. This largely applies to the Antietam Creek priority watershed plan, which addresses the Bacteria TMDL for the watershed.

*Other NPS Pollution – pH Impairments*

The Casselman River and Upper Jennings Run priority watershed plans were developed to address the low pH impairment listings due to acid mine drainage. Rather than directly tracking pH, Maryland tracks pH remediation by evaluating how many streams within these watersheds have been successfully delisted for a pH impairment (**Table A - 4**), based on pre and post BMP implementation monitoring. Currently, four water quality segments within the Casselman River watershed have been delisted for pH.

In the Casselman River and Upper Jennings Run, restoration efforts to remediate low pH impairment listings are reported by MDE's Abandoned Mine Land program in an annual report.

*Table A - 4: Casselman River sub-watersheds delisted for pH impairments*

Casselman River   pH Delistings			
River Name	HUC-12 Watershed	Impairment	Listing Category
Alexander Run	050202040032	pH, Low	2 – Meets water quality criteria for the specified pollutant
Big Laurel Run	050202040033	pH, Low	2 – Meets water quality criteria for the specified pollutant
Spiker Run	050202040034	pH, Low	2 – Meets water quality criteria for the specified pollutant
Tarklin Run	050202040032	pH, Low	2 – Meets water quality criteria for the specified pollutant

*Estimating BMP Reductions*

The following tables provide information on active Best Management Practices that were accepted in the CAST tool. Many of the priority watersheds received funding and completed projects before any watershed plan was approved, and other BMPs will have been implemented through a number of different funding sources and partners. The results below use CAST BMP efficiency assumptions that have been altered by local delivery factors for the Priority watersheds to better simulate the potential reductions BMPs would be able to produce if no baseline changes altered. These tables also reflect active BMPs in SFY22 and will change in SFY23 as BMPs are not verified and no longer receive credit. The BMP implementation numbers are taken from CAST inputs, which may vary year to year as BMPs fail, do not get verified, new reporting partners come online, or get included in other model data inputs (e.g. tree planting BMPs become forests). Annual variability is to be expected.



Maryland's NPS Annual Report: SFY 2023 | Appendix A – NPS Load Tracking

MD-0207000410 - Antietam Creek Permit Approval 2012/Washington Co.	Duration	Unit	Measure	LBS Reduced		
				Nitrogen	Phosphorus	Sediment
<b>Agriculture Practices</b>						
<b>Nutrient Management</b>						
Core Nitrogen	annual	Acres	40,540.62	46,852.39	-	-
Rate Nitrogen	annual	Acres	7,250.62	2,816.36	-	-
Placement Nitrogen	annual	Acres	1,223.28	1,001.39	-	-
Timing Nitrogen	annual	Acres	687.06	565.46	-	-
Core Phosphorus	annual	Acres	40,540.62	-	2,728.79	-
Rate Phosphorus	annual	Acres	1,371.94	-	35.42	-
Placement Phosphorus	annual	Acres	1,099.83	-	13.90	-
Timing Phosphorus	annual	Acres	-	-	-	-
<b>TOTAL</b>				51,235.60	2,778.11	-
<b>Tillage Management</b>						
Conservation	annual	Acres	4,636.21	9,872.35	981.12	3,847,150.61
Continuous High Residue	annual	Acres	11,814.38	35,218.20	3,122.30	18,889,840.36
Low Residue	annual	Acres	-	-	-	-
<b>TOTAL</b>				45,090.55	4,103.42	22,736,990.97
<b>Cover Crop</b>						
Traditional	annual	Acres	6,436.26	29,542.81	62.37	300,820.85
Commodity	annual	Acres	3,768.70	6,687.51	-	-
<b>TOTAL</b>				36,230.32	62.37	300,820.85
<b>Pasture Management</b>						
Alternative Watering	cumulative	Acres	2,270.26	1,174.59	221.49	3,040.54
Prescribed Grazing	cumulative	Acres	1,136.95	1,112.62	332.77	4,618.53
Horse Pasture Management	cumulative	Acres	11.11	-	2.73	59.93
Forest Buffers on Fenced Pasture Corridor	cumulative	Acres in Buffers	47.75	3,911.93	840.88	595,836.89
Grass Buffers on Fenced Pasture Corridor	cumulative	Acres in Buffers	15.99	1,278.78	277.26	199,161.97
<b>TOTAL</b>				7,477.92	1,675.12	802,717.86
Forest Buffers	cumulative	Acres in Buffers	647.81	25,049.96	298.66	1,516,664.56
Wetland Restoration	cumulative	Acres	15.58	473.59	9.36	30,822.59
Wetland Creation	cumulative	Acres	3.86	64.93	1.23	4,659.23
Wetland Enhancement and Rehabilitation	cumulative	Acres	-	-	-	-
Land Retirement to Open Space	cumulative	Acres	468.29	5,774.96	-	607,465.38
Land Retirement to Pasture	cumulative	Acres	165.76	5,154.53	29.28	399,137.75
Grass Buffers	cumulative	Acres in Buffers	93.07	2,894.11	16.44	224,103.21
Tree Planting	cumulative	Acres	240.73	3,405.77	43.25	262,188.61
Alternative Crops	cumulative	Acres	-	-	-	-
Soil and Water Conservation Plan	cumulative	Acres	22,022.48	19,939.37	1,018.54	5,036,819.38
Crop Irrigation Management	cumulative	Acres	-	-	-	-
Manure Incorporation	annual	Acres	1,862.69	3,357.70	184.69	-
Capture & Reuse	annual	Acres	-	-	-	-
Non Urban Stream Restoration	cumulative	Feet	6,331.04	429.94	274.13	887,841.64
Non Urban Shoreline Management	cumulative	Feet	-	-	-	-
<b>TOTAL</b>				66,544.86	1,875.58	8,969,702.36
<b>Agricultural Drainage Management</b>						
Denitrifying Ditch Bioreactors	cumulative	Acres	49.82	212.52	-	-
Saturated Buffer	cumulative	Acres	49.82	2,605.94	-	99,896.02
Sorbing Materials in Ag Ditches	cumulative	Acres	49.82	-	8.18	-
Water Control Structures	cumulative	Acres	49.82	219.01	-	-
<b>TOTAL</b>			199.28	3,037.47	8.18	99,896.02
<b>Animal Waste Management Systems</b>						
Broiler Mortality Freezers	annual	Dry Tons (Carcasses)	-	-	-	-
Barnyard Runoff Control & Loading Lot Management	cumulative	Acres	48.44	7,180.29	309.61	131,988.91
Ag Stormwater Management	cumulative	Acres Treated	-	-	-	-
Manure Transport	annual	Dry Tons	0.04	0.01	0.01	-
Dairy Precision Feeding	annual	Animal Units	0.29	0.67	0.08	17.87
Ammonia Emission Reductions (Litter Amendments)	annual	Animal Units	-	-	-	-
Ammonia Emission Reductions (Biofilters)	cumulative	Animal Units	-	-	-	-
Ammonia Emission Reductions (Lagoon Covers)	cumulative	Animal Units	-	-	-	-
<b>TOTAL</b>				7,180.97	309.70	132,006.77
<b>Urban/Suburban Practices</b>						
<b>Stormwater Management</b>						
Runoff Reduction Performance Standard	cumulative	Acres Treated	849.67	2,833.45	91.76	-
Storm Water Treatment Performance Standard	cumulative	Acres Treated	163.49	551.90	53.97	109,524.06
Wet Ponds & Wetlands	cumulative	Acres Treated	0.19	0.38	0.05	120.89
Floating Treatment Wetlands	cumulative	Acres Treated (Wet Pond)	-	-	-	-
Dry Ponds	cumulative	Acres Treated	2,483.26	515.14	92.06	199,493.95
Extended Dry Ponds	cumulative	Acres Treated	2,667.27	1,195.34	220.10	349,003.26
Infiltration Practices	cumulative	Acres Treated	506.42	908.45	83.58	397,575.93
Filtering Practices	cumulative	Acres Treated	74.77	553.06	52.30	92,938.65
BioRetention	cumulative	Acres Treated	271.28	972.92	133.97	283,958.05
BioSwale	cumulative	Acres Treated	4.77	24.92	2.68	4,676.04
Permeable Pavement	cumulative	Acres Treated	0.04	0.27	0.03	45.62
Vegetated Open Channel	cumulative	Acres Treated	-	-	-	-
Urban Filter Strips	cumulative	Acres Treated	-	-	-	-
Grey Infrastructure (IDDE)	annual	Acres Treated	-	-	-	-
Impervious Disconnection	cumulative	Acres Treated	-	-	-	-
Conservation Landscaping Practices	cumulative	Acres Treated	-	-	-	-
<b>TOTAL</b>				7,555.84	730.49	1,437,336.44
Erosion and Sediment Control	annual	Acres	63.46	258.79	15.58	-
Impervious Surface Reduction	cumulative	Acres	0.00	-	-	16.51
Urban Forest Buffers	cumulative	Acres in Buffers	16.41	81.70	-	36,656.12
Urban Tree Planting	cumulative	Acres	80.86	703.94	104.37	96,366.15
Urban Forest Planting	cumulative	Acres	-	-	-	-
Urban Nutrient Management	annual	Acres	16,802.39	111,534.25	15,307.31	10,620,979.19
Urban Stream Restoration	cumulative	Feet	0.36	1.04	0.04	-
Storm Drain Cleanout	annual	Lbs of Sediment	-	-	-	-
Street Sweeping	annual	Acres	-	-	-	-
<b>Urban Shoreline Management</b>	cumulative	Feet	-	-	-	-
Septic Connections	cumulative	No. Systems	2.00	0.17	0.12	327.28
Septic Denitrification	cumulative	No. Systems	213.64	2,666.94	-	-
Septic Pumping	annual	No. Systems	-	-	-	-
<b>Resource Practices</b>						
Forest Harvesting Practices	annual	Acres	174.05	758.79	3.42	42,647.44
Dirt&Gravel Road E&S	cumulative	Feet	-	-	-	-
Non-Tidal Algal Flow-way	annual	Acres	-	-	-	-
Tidal Algal Flow-way	annual	Acres	-	-	-	-
<b>TOTAL</b>				116,005.62	15,430.85	10,796,992.69
<b>GRAND TOTAL</b>				340,359.14	26,973.83	45,276,463.97

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MD-020600030703 - Tidal Back River (Hawk Cove) Permit Approval 2010/Baltimore City	Duration	Unit	Measure	LBS Reduced		
				Nitrogen	Phosphorus	Sediment
<b>Agriculture Practices</b>						
<b>Nutrient Management</b>						
Core Nitrogen	annual	Acres	225.94	-	-	-
Rate Nitrogen	annual	Acres	86.93	-	-	-
Placement Nitrogen	annual	Acres	6.19	-	-	-
Timing Nitrogen	annual	Acres	7.15	-	-	-
Core Phosphorus	annual	Acres	225.94	-	-	-
Rate Phosphorus	annual	Acres	1.52	-	-	-
Placement Phosphorus	annual	Acres	5.51	-	-	-
Timing Phosphorus	annual	Acres	-	-	-	-
TOTAL				-	-	-
<b>Tillage Management</b>						
Conservation	annual	Acres	34.89	-	-	-
Continuous High Residue	annual	Acres	150.29	-	-	-
Low Residue	annual	Acres	-	-	-	-
TOTAL				-	-	-
<b>Cover Crop</b>						
Traditional	annual	Acres	51.01	-	-	-
Commodity	annual	Acres	26.40	-	-	-
TOTAL				-	-	-
<b>Pasture Management</b>						
Alternative Watering	cumulative	Acres	17.21	-	-	-
Prescribed Grazing	cumulative	Acres	2.65	-	-	-
Horse Pasture Management	cumulative	Acres	0.55	-	-	-
Forest Buffers on Fenced Pasture Corridor	cumulative	Acres in Buffers	0.09	-	-	-
Grass Buffers on Fenced Pasture Corridor	cumulative	Acres in Buffers	-	-	-	-
TOTAL				-	-	-
Forest Buffers	cumulative	Acres in Buffers	5.88	-	-	-
Wetland Restoration	cumulative	Acres	0.37	-	-	-
Wetland Creation	cumulative	Acres	0.03	-	-	-
Wetland Enhancement and Rehabilitation	cumulative	Acres	-	-	-	-
Land Retirement to Open Space	cumulative	Acres	0.96	-	-	-
Land Retirement to Pasture	cumulative	Acres	2.18	-	-	-
Grass Buffers	cumulative	Acres in Buffers	5.88	-	-	-
Tree Planting	cumulative	Acres	0.28	-	0.01	9.84
Alternative Crops	cumulative	Acres	-	-	-	-
Soil and Water Conservation Plan	cumulative	Acres	400.08	-	-	-
Crop Irrigation Management	cumulative	Acres	-	-	-	-
Manure Incorporation	annual	Acres	1.75	-	-	-
Capture & Reuse	annual	Acres	-	-	-	-
Non Urban Stream Restoration	cumulative	Feet	998.86	63.43	55.99	148,074.39
Non Urban Shoreline Management	cumulative	Feet	-	-	-	-
TOTAL				63.43	56.00	148,084.22
<b>Agricultural Drainage Management</b>						
Denitrifying Ditch Bioreactors	cumulative	Acres	0.35	-	-	-
Saturated Buffer	cumulative	Acres	0.35	-	-	-
Sorbing Materials in Ag Ditches	cumulative	Acres	0.35	192.62	15.90	1,137.72
Water Control Structures	cumulative	Acres	0.35	-	-	-
TOTAL				192.62	15.90	1,137.72
<b>Animal Waste Management Systems</b>						
Broiler Mortality Freezers	annual	Dry Tons (Carcasses)	-	-	-	-
Barnyard Runoff Control & Loafing Lot Management	cumulative	Acres	0.23	-	-	-
Ag Stormwater Management	cumulative	Acres Treated	-	-	-	-
Manure Transport	annual	Dry Tons	0.62	-	-	-
Dairy Precision Feeding	annual	Animal Units	-	-	-	-
Ammonia Emission Reductions (Litter Amendments)	annual	Animal Units	-	-	-	-
Ammonia Emission Reductions (Biofilters)	cumulative	Animal Units	-	-	-	-
Ammonia Emission Reductions (Lagoon Covers)	cumulative	Animal Units	-	-	-	-
TOTAL				-	-	-
<b>Urban/Suburban Practices</b>						
<b>Stormwater Management</b>						
Runoff Reduction Performance Standard	cumulative	Acres Treated	143.52	378.80	42.53	69,001.53
Storm Water Treatment Performance Standard	cumulative	Acres Treated	1,271.97	1,959.40	296.71	570,320.47
Wet Ponds & Wetlands	cumulative	Acres Treated	0.05	0.08	0.02	36.77
Floating Treatment Wetlands	cumulative	Acres Treated (Wet Pond)	-	-	-	-
Dry Ponds	cumulative	Acres Treated	75.87	27.83	5.45	8,894.47
Extended Dry Ponds	cumulative	Acres Treated	532.78	783.20	76.60	374,762.66
Infiltration Practices	cumulative	Acres Treated	1.73	10.50	1.06	1,927.14
Filtering Practices	cumulative	Acres Treated	0.22	0.66	0.10	209.66
BioRetention	cumulative	Acres Treated	0.86	3.68	0.42	754.85
BioSwale	cumulative	Acres Treated	0.88	4.51	0.48	823.00
Permeable Pavement	cumulative	Acres Treated	0.02	0.06	0.01	13.62
Vegetated Open Channel	cumulative	Acres Treated	-	-	-	-
Urban Filter Strips	cumulative	Acres Treated	-	-	-	-
Grey Infrastructure (IDDE)	annual	Acres Treated	-	-	-	-
Impervious Disconnection	cumulative	Acres Treated	-	-	-	-
Conservation Landscaping Practices	cumulative	Acres Treated	-	-	-	-
TOTAL				3,168.71	423.38	1,026,744.16
Erosion and Sediment Control	annual	Acres	6.30	-	-	11.15
Impervious Surface Reduction	cumulative	Acres	5.90	22.42	-	8,171.25
Urban Forest Buffers	cumulative	Acres in Buffers	0.24	1.42	0.28	202.92
Urban Tree Planting	cumulative	Acres	68.85	-	-	-
Urban Forest Planting	cumulative	Acres	-	-	-	-
Urban Nutrient Management	annual	Acres	4,722.36	-	-	-
Urban Stream Restoration	cumulative	Feet	2,809.16	178.38	157.45	416,439.07
Storm Drain Cleanout	annual	Lbs of Sediment	19,343.29	44.30	9.48	11,562.65
Street Sweeping	annual	Acres	-	-	-	-
Urban Shoreline Management	cumulative	Feet	784.78	67.74	47.89	128,704.24
Septic Connections	cumulative	Number of Systems	77.50	537.26	-	-
Septic Denitrification	cumulative	Number of Systems	7.08	32.44	-	-
Septic Pumping	annual	Number of Systems	-	-	-	-
<b>Resource Practices</b>						
Forest Harvesting Practices	annual	Acres	5.19	14.30	-	740.20
Dirt&Gravel Road E&S	cumulative	Feet	-	-	-	-
Non-Tidal Algal Flow-way	annual	Acres	-	-	-	-
Tidal Algal Flow-way	annual	Acres	-	-	-	-
TOTAL				898.26	215.10	565,831.48
<b>GRAND TOTAL</b>				<b>4,323.02</b>	<b>710.39</b>	<b>1,741,797.59</b>

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MD-020600030702 - Upper Back River (Redhouse Creek) Permit Approval 2009/Baltimore City	Duration	Unit	Measure	LBS Reduced		
				Nitrogen	Phosphorus	Sediment
<b>Agriculture Practices</b>						
<b>Nutrient Management</b>						
Core Nitrogen	annual	Acres	4.15	-	-	-
Rate Nitrogen	annual	Acres	1.45	-	-	-
Placement Nitrogen	annual	Acres	0.10	-	-	-
Timing Nitrogen	annual	Acres	0.12	-	-	-
Core Phosphorus	annual	Acres	4.15	-	-	-
Rate Phosphorus	annual	Acres	0.03	-	-	-
Placement Phosphorus	annual	Acres	0.09	-	-	-
Timing Phosphorus	annual	Acres	-	-	-	-
TOTAL			-	-	-	-
<b>Tillage Management</b>						
Conservation	annual	Acres	0.57	-	-	-
Continuous High Residue	annual	Acres	2.44	-	-	-
Low Residue	annual	Acres	-	-	-	-
TOTAL			-	-	-	-
<b>Cover Crop</b>						
Traditional	annual	Acres	0.57	-	-	-
Commodity	annual	Acres	-	-	-	-
TOTAL			-	-	-	-
<b>Pasture Management</b>						
Alternative Watering	cumulative	Acres	0.54	-	-	-
Prescribed Grazing	cumulative	Acres	0.08	-	-	-
Horse Pasture Management	cumulative	Acres	0.02	-	-	-
Forest Buffers on Fenced Pasture Corridor	cumulative	Acres in Buffers	-	-	-	-
Grass Buffers on Fenced Pasture Corridor	cumulative	Acres in Buffers	-	-	-	-
TOTAL			-	-	-	-
Forest Buffers	cumulative	Acres in Buffers	3.26	-	-	-
Wetland Restoration	cumulative	Acres	0.01	-	-	-
Wetland Creation	cumulative	Acres	-	-	-	-
Wetland Enhancement and Rehabilitation	cumulative	Acres	-	-	-	-
Land Retirement to Open Space	cumulative	Acres	0.02	-	-	-
Land Retirement to Pasture	cumulative	Acres	0.04	-	-	-
Grass Buffers	cumulative	Acres in Buffers	0.03	-	-	-
Tree Planting	cumulative	Acres	-	-	-	-
Alternative Crops	cumulative	Acres	-	-	-	-
Soil and Water Conservation Plan	cumulative	Acres	3.24	-	-	-
Crop Irrigation Management	cumulative	Acres	-	-	-	-
Manure Incorporation	annual	Acres	0.02	-	-	-
Capture & Reuse	annual	Acres	-	-	-	-
Non Urban Stream Restoration	cumulative	Feet	592.46	37.62	33.21	87,827.70
Non Urban Shoreline Management	cumulative	Feet	-	-	-	-
TOTAL			-	37.62	33.21	87,827.70
<b>Agricultural Drainage Management</b>						
Denitrifying Ditch Bioreactors	cumulative	Acres	0.01	-	-	-
Saturated Buffer	cumulative	Acres	0.01	-	-	-
Sorbing Materials in Ag Ditches	cumulative	Acres	0.01	5.45	0.45	32.19
Water Control Structures	cumulative	Acres	0.01	-	-	-
TOTAL			-	5.45	0.45	32.19
<b>Animal Waste Management Systems</b>						
Broiler Mortality Freezers	annual	Dry Tons (Carcasses)	-	-	-	-
Barnyard Runoff Control & Loafing Lot Management	cumulative	Acres	0.01	-	-	-
Ag Stormwater Management	cumulative	Acres Treated	-	-	-	-
Manure Transport	annual	Dry Tons	0.02	-	-	-
Dairy Precision Feeding	annual	Animal Units	-	-	-	-
Ammonia Emission Reductions (Litter Amendments)	annual	Animal Units	-	-	-	-
Ammonia Emission Reductions (Biofilters)	cumulative	Animal Units	-	-	-	-
Ammonia Emission Reductions (Lagoon Covers)	cumulative	Animal Units	-	-	-	-
TOTAL			-	-	-	-
<b>Urban/Suburban Practices</b>						
<b>Stormwater Management</b>						
Runoff Reduction Performance Standard	cumulative	Acres Treated	52.50	138.55	15.56	25,238.58
Storm Water Treatment Performance Standard	cumulative	Acres Treated	147.71	227.54	34.46	66,229.89
Wet Ponds & Wetlands	cumulative	Acres Treated	62.13	91.34	20.24	43,704.18
Floating Treatment Wetlands	cumulative	Acres Treated (Wet Pond)	-	-	-	-
Dry Ponds	cumulative	Acres Treated	29.72	10.90	2.14	3,483.76
Extended Dry Ponds	cumulative	Acres Treated	81.28	119.48	11.69	57,170.25
Infiltration Practices	cumulative	Acres Treated	0.50	3.03	0.31	555.59
Filtering Practices	cumulative	Acres Treated	0.52	1.54	0.23	490.63
BioRetention	cumulative	Acres Treated	2.58	11.06	1.28	2,266.96
BioSwale	cumulative	Acres Treated	1.97	10.14	1.07	1,848.72
Permeable Pavement	cumulative	Acres Treated	0.15	0.51	0.05	121.32
Vegetated Open Channel	cumulative	Acres Treated	-	-	-	-
Urban Filter Strips	cumulative	Acres Treated	-	-	-	-
Grey Infrastructure (IDDE)	annual	Acres Treated	-	-	-	-
Impervious Disconnection	cumulative	Acres Treated	-	-	-	-
Conservation Landscaping Practices	cumulative	Acres Treated	-	-	-	-
TOTAL			-	614.08	87.00	201,109.88
Erosion and Sediment Control	annual	Acres	0.87	-	-	1.54
Impervious Surface Reduction	cumulative	Acres	1.00	3.79	-	1,381.67
Urban Forest Buffers	cumulative	Acres in Buffers	0.14	0.82	0.16	116.93
Urban Tree Planting	cumulative	Acres	128.08	-	-	-
Urban Forest Planting	cumulative	Acres	-	-	-	-
Urban Nutrient Management	annual	Acres	8,014.46	-	-	-
Urban Stream Restoration	cumulative	Feet	1,239.08	78.68	69.45	183,685.42
Storm Drain Cleanout	annual	Lbs of Sediment	303.28	0.69	0.15	181.29
Street Sweeping	annual	Acres	-	-	-	-
Urban Shoreline Management	cumulative	Feet	10.11	0.87	0.62	1,658.04
Septic Connections	cumulative	Number of Systems	5.44	37.73	-	-
Septic Denitrification	cumulative	Number of Systems	2.28	10.47	-	-
Septic Pumping	annual	Number of Systems	0.86	0.31	-	-
<b>Resource Practices</b>						
Forest Harvesting Practices	annual	Acres	1.06	2.93	-	151.45
Dirt&Gravel Road E&S	cumulative	Feet	10.40	-	-	17.25
Non-Tidal Algal Flow-way	annual	Acres	-	-	-	-
Tidal Algal Flow-way	annual	Acres	-	-	-	-
TOTAL			-	136.29	70.38	187,193.59
<b>GRAND TOTAL</b>				<b>793.43</b>	<b>191.04</b>	<b>476,163.35</b>

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MD-0206000502 - Upper Choptank River Permit Approval 2010/Talbot, Caroline, & Queen Anne's Co.	Duration	Unit	Measure	LBS Reduced		
				Nitrogen	Phosphorus	Sediment
<b>Agriculture Practices</b>						
<b>Nutrient Management</b>						
Core Nitrogen	annual	Acres	26,856.51	70,747.80	92.05	-
Rate Nitrogen	annual	Acres	9,123.13	7,437.53	-	-
Placement Nitrogen	annual	Acres	4,170.22	8,567.52	-	-
Timing Nitrogen	annual	Acres	4,572.71	7,931.10	-	-
Core Phosphorus	annual	Acres	26,856.51	-	6,702.61	-
Rate Phosphorus	annual	Acres	381.01	-	49.11	-
Placement Phosphorus	annual	Acres	2,075.48	-	130.06	-
Timing Phosphorus	annual	Acres	-	-	-	-
<b>TOTAL</b>				94,683.95	6,973.83	-
<b>Tillage Management</b>						
Conservation	annual	Acres	10,098.66	11,361.50	2,605.92	1,514,141.34
Continuous High Residue	annual	Acres	31,329.76	105,742.33	11,718.73	9,051,134.40
Low Residue	annual	Acres	-	-	-	-
<b>TOTAL</b>				117,103.83	14,324.65	10,565,275.75
<b>Cover Crop</b>						
Traditional	annual	Acres	17,662.46	110,240.07	204.78	30,058.10
Commodity	annual	Acres	6,712.05	17,009.69	-	-
<b>TOTAL</b>				127,249.76	204.78	30,058.10
<b>Pasture Management</b>						
Alternative Watering	cumulative	Acres	95.87	49.92	14.21	188.83
Prescribed Grazing	cumulative	Acres	61.07	56.67	25.84	367.09
Horse Pasture Management	cumulative	Acres	11.27	-	4.02	90.23
Forest Buffers on Fenced Pasture Corridor	cumulative	Acres in Buffers	3.00	153.47	49.03	23,466.99
Grass Buffers on Fenced Pasture Corridor	cumulative	Acres in Buffers	0.03	1.66	0.53	232.07
<b>TOTAL</b>				261.73	93.63	24,345.21
Forest Buffers	cumulative	Acres in Buffers	132.64	11,206.72	283.51	101,016.26
Wetland Restoration	cumulative	Acres	429.20	23,174.33	906.66	253,308.07
Wetland Creation	cumulative	Acres	5.51	183.56	8.52	2,136.05
Wetland Enhancement and Rehabilitation	cumulative	Acres	2.43	10.07	0.87	80.14
Land Retirement to Open Space	cumulative	Acres	133.69	3,465.33	43.35	46,379.00
Land Retirement to Pasture	cumulative	Acres	70.40	1,824.74	22.83	34,396.89
Grass Buffers	cumulative	Acres in Buffers	1,293.48	84,845.78	1,730.39	976,830.85
Tree Planting	cumulative	Acres	105.79	3,036.76	126.61	37,453.36
Alternative Crops	cumulative	Acres	297.54	8,168.36	105.65	106,009.81
Soil and Water Conservation Plan	cumulative	Acres	25,414.69	49,847.94	3,730.86	1,997,026.94
Crop Irrigation Management	cumulative	Acres	-	-	-	-
Manure Incorporation	annual	Acres	3,698.95	10,130.32	650.47	-
Capture & Reuse	annual	Acres	-	-	-	-
Non Urban Stream Restoration	cumulative	Feet	1,092.17	67.45	57.86	62,462.73
Non Urban Shoreline Management	cumulative	Feet	-	-	-	-
<b>TOTAL</b>				195,961.35	7,667.57	3,617,100.09
<b>Agricultural Drainage Management</b>						
Denitrifying Ditch Bioreactors	cumulative	Acres	378.50	2,135.55	-	-
Saturated Buffer	cumulative	Acres	378.50	31,327.62	146.40	138,006.05
Sorbing Materials in Ag Ditches	cumulative	Acres	378.50	-	162.49	-
Water Control Structures	cumulative	Acres	378.50	3,135.99	-	-
<b>TOTAL</b>				36,599.17	308.89	138,006.05
<b>Animal Waste Management Systems</b>						
Broiler Mortality Freezers	annual	Dry Tons (Carcasses)	-	-	-	-
Barnyard Runoff Control & Loafing Lot Management	cumulative	Acres	10.38	2,412.61	123.24	583.51
Ag Stormwater Management	cumulative	Acres Treated	0.66	267.32	21.88	64.37
Manure Transport	annual	Dry Tons	339.83	415.66	154.12	-
Dairy Precision Feeding	annual	Animal Units	2.81	6.64	0.61	124.17
Ammonia Emission Reductions (Litter Amendments)	annual	Animal Units	-	-	-	-
Ammonia Emission Reductions (Biofilters)	cumulative	Animal Units	-	-	-	-
Ammonia Emission Reductions (Lagoon Covers)	cumulative	Animal Units	-	-	-	-
<b>TOTAL</b>				3,102.23	299.85	772.04
<b>Urban/Suburban Practices</b>						
<b>Stormwater Management</b>						
Runoff Reduction Performance Standard	cumulative	Acres Treated	7.35	43.80	3.43	546.95
Storm Water Treatment Performance Standard	cumulative	Acres Treated	10.82	37.55	3.97	1,343.14
Wet Ponds & Wetlands	cumulative	Acres Treated	-	-	-	-
Floating Treatment Wetlands	cumulative	Acres Treated (Wet Pond)	-	-	-	-
Dry Ponds	cumulative	Acres Treated	2.36	1.30	0.19	35.24
Extended Dry Ponds	cumulative	Acres Treated	2.83	6.23	0.45	199.24
Infiltration Practices	cumulative	Acres Treated	0.30	2.72	0.20	43.09
Filtering Practices	cumulative	Acres Treated	0.28	1.22	0.13	42.51
BioRetention	cumulative	Acres Treated	1.06	6.78	0.57	145.04
BioSwale	cumulative	Acres Treated	1.09	8.38	0.64	150.99
Permeable Pavement	cumulative	Acres Treated	0.02	0.11	0.01	2.71
Vegetated Open Channel	cumulative	Acres Treated	-	-	-	-
Urban Filter Strips	cumulative	Acres Treated	-	-	-	-
Grey Infrastructure (IDDE)	annual	Acres Treated	-	-	-	-
Impervious Disconnection	cumulative	Acres Treated	-	-	-	-
Conservation Landscaping Practices	cumulative	Acres Treated	-	-	-	-
<b>TOTAL</b>				108.08	9.59	2,508.90
Erosion and Sediment Control	annual	Acres	0.0009	-	-	0.67
Impervious Surface Reduction	cumulative	Acres	-	-	-	-
Urban Forest Buffers	cumulative	Acres in Buffers	2.62	27.50	3.10	559.38
Urban Tree Planting	cumulative	Acres	0.12	0.13	0.02	12.19
Urban Forest Planting	cumulative	Acres	-	-	-	-
Urban Nutrient Management	annual	Acres	8,068.56	6,785.00	344.05	278,475.82
Urban Stream Restoration	cumulative	Feet	-	-	-	-
Storm Drain Cleanout	annual	Lbs of Sediment	-	-	-	-
Street Sweeping	annual	Acres	-	-	-	-
Urban Shoreline Management	cumulative	Feet	-	-	-	-
Septic Connections	cumulative	Number of Systems	2.49	24.41	-	94.03
Septic Denitrification	cumulative	Number of Systems	192.52	1,219.18	-	-
Septic Pumping	annual	Number of Systems	-	-	-	-
<b>Resource Practices</b>						
Forest Harvesting Practices	annual	Acres	64.51	292.61	8.85	1,227.68
Dirt&Gravel Road E&S	cumulative	Feet	-	-	-	-
Non-Tidal Algal Flow-way	annual	Acres	-	-	-	-
Tidal Algal Flow-way	annual	Acres	-	-	-	-
<b>TOTAL</b>				8,348.83	356.02	280,369.78
<b>GRAND TOTAL</b>				583,418.92	30,238.80	14,658,435.92

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MD-020600020409 - Corsica River Permit Approval 2006/Queen Anne's Co.	Duration	Unit	Measure	LBS Reduced		
				Nitrogen	Phosphorus	Sediment
<b>Agriculture Practices</b>						
<b>Nutrient Management</b>						
Core Nitrogen	annual	Acres	12,401.02	23,280.30	-	-
Rate Nitrogen	annual	Acres	4,018.22	2,359.54	-	-
Placement Nitrogen	annual	Acres	2,171.56	3,147.85	-	-
Timing Nitrogen	annual	Acres	671.05	834.42	-	-
Core Phosphorus	annual	Acres	12,401.02	-	2,592.06	-
Rate Phosphorus	annual	Acres	48.85	-	3.33	-
Placement Phosphorus	annual	Acres	1,299.10	-	43.60	-
Timing Phosphorus	annual	Acres	-	-	-	-
TOTAL				29,622.12	2,638.98	-
<b>Tillage Management</b>						
Conservation	annual	Acres	3,359.92	2,919.47	542.26	552,305.33
Continuous High Residue	annual	Acres	8,524.69	22,221.55	1,921.04	2,700,050.88
Low Residue	annual	Acres	-	-	-	-
TOTAL				25,141.02	2,463.30	3,252,356.20
<b>Cover Crop</b>						
Traditional	annual	Acres	6,485.43	31,256.90	30.62	7,653.45
Commodity	annual	Acres	1,178.37	2,389.94	-	-
TOTAL				33,646.84	30.62	7,653.45
<b>Pasture Management</b>						
Alternative Watering	cumulative	Acres	51.17	22.87	5.38	8.07
Prescribed Grazing	cumulative	Acres	16.83	13.72	6.20	6.64
Horse Pasture Management	cumulative	Acres	4.56	-	1.44	2.40
Forest Buffers on Fenced Pasture Corridor	cumulative	Acres in Buffers	1.14	60.45	18.76	10,682.47
Grass Buffers on Fenced Pasture Corridor	cumulative	Acres in Buffers	0.47	24.21	7.58	4,430.48
TOTAL				-	-	-
Forest Buffers	cumulative	Acres in Buffers	70.67	5,101.33	78.57	58,653.53
Wetland Restoration	cumulative	Acres	117.69	5,274.73	141.23	80,859.30
Wetland Creation	cumulative	Acres	24.48	630.97	19.82	10,503.37
Wetland Enhancement and Rehabilitation	cumulative	Acres	-	-	-	-
Land Retirement to Open Space	cumulative	Acres	164.66	3,095.83	8.26	65,226.00
Land Retirement to Pasture	cumulative	Acres	28.58	537.32	1.43	11,320.80
Grass Buffers	cumulative	Acres in Buffers	646.75	36,047.94	401.51	536,092.81
Tree Planting	cumulative	Acres	11.78	260.86	7.36	4,611.18
Alternative Crops	cumulative	Acres	3.11	65.61	0.36	1,233.76
Soil and Water Conservation Plan	cumulative	Acres	6,551.50	10,081.71	512.07	572,690.36
Crop Irrigation Management	cumulative	Acres	-	-	-	-
Manure Incorporation	annual	Acres	721.05	1,455.92	67.04	-
Capture & Reuse	annual	Acres	-	-	-	-
Non Urban Stream Restoration	cumulative	Feet	-	-	-	-
Non Urban Shoreline Management	cumulative	Feet	-	-	-	-
TOTAL				62,552.24	1,237.65	1,341,191.12
<b>Agricultural Drainage Management</b>						
Denitrifying Ditch Bioreactors	cumulative	Acres	32.33	140.88	-	-
Saturated Buffer	cumulative	Acres	32.33	2,073.53	4.29	13,069.95
Sorbing Materials in Ag Ditches	cumulative	Acres	32.33	-	7.36	-
Water Control Structures	cumulative	Acres	32.33	209.40	-	-
TOTAL				2,423.81	11.65	13,069.95
<b>Animal Waste Management Systems</b>						
Broiler Mortality Freezers	annual	Dry Tons (Carcasses)	-	-	-	-
Barnyard Runoff Control & Loafing Lot Management	cumulative	Acres	2.18	402.48	35.78	582.72
Ag Stormwater Management	cumulative	Acres Treated	10.11	3,252.97	463.81	4,685.89
Manure Transport	annual	Dry Tons	366.68	934.07	35.24	-
Dairy Precision Feeding	annual	Animal Units	43.21	93.59	12.79	3,569.17
Ammonia Emission Reductions (Litter Amendments)	annual	Animal Units	-	-	-	-
Ammonia Emission Reductions (Biofilters)	cumulative	Animal Units	-	-	-	-
Ammonia Emission Reductions (Lagoon Covers)	cumulative	Animal Units	-	-	-	-
TOTAL				4,683.12	547.63	8,837.79
<b>Urban/Suburban Practices</b>						
<b>Stormwater Management</b>						
Runoff Reduction Performance Standard	cumulative	Acres Treated	1.83	9.38	1.18	404.64
Storm Water Treatment Performance Standard	cumulative	Acres Treated	2.69	8.04	1.36	553.93
Wet Ponds & Wetlands	cumulative	Acres Treated	-	-	-	-
Floating Treatment Wetlands	cumulative	Acres Treated (Wet Pond)	-	-	-	-
Dry Ponds	cumulative	Acres Treated	0.58	0.26	0.06	16.88
Extended Dry Ponds	cumulative	Acres Treated	0.70	1.24	0.14	121.65
Infiltration Practices	cumulative	Acres Treated	0.07	0.54	0.06	20.42
Filtering Practices	cumulative	Acres Treated	0.07	0.24	0.04	15.89
BioRetention	cumulative	Acres Treated	0.26	1.35	0.18	56.86
BioSwale	cumulative	Acres Treated	0.27	1.66	0.20	62.35
Permeable Pavement	cumulative	Acres Treated	0.01	0.02	0.00	1.03
Vegetated Open Channel	cumulative	Acres Treated	-	-	-	-
Urban Filter Strips	cumulative	Acres Treated	-	-	-	-
Grey Infrastructure (IDDE)	annual	Acres Treated	-	-	-	-
Impervious Disconnection	cumulative	Acres Treated	-	-	-	-
Conservation Landscaping Practices	cumulative	Acres Treated	-	-	-	-
TOTAL				22.73	3.22	1,253.65
Erosion and Sediment Control	annual	Acres	-	-	-	-
Impervious Surface Reduction	cumulative	Acres	-	-	-	-
Urban Forest Buffers	cumulative	Acres in Buffers	2.14	18.30	3.29	593.85
Urban Tree Planting	cumulative	Acres	0.49	0.48	0.08	44.53
Urban Forest Planting	cumulative	Acres	-	-	-	-
Urban Nutrient Management	annual	Acres	1,940.24	1,207.90	85.76	-
Urban Stream Restoration	cumulative	Feet	-	-	-	-
Storm Drain Cleanout	annual	Lbs of Sediment	-	-	-	-
Street Sweeping	annual	Acres	-	-	-	-
Urban Shoreline Management	cumulative	Feet	-	-	-	-
Septic Connections	cumulative	Number of Systems	0.53	4.35	-	-
Septic Denitrification	cumulative	Number of Systems	45.74	240.83	-	-
Septic Pumping	annual	Number of Systems	-	-	-	-
<b>Resource Practices</b>						
Forest Harvesting Practices	annual	Acres	2.86	10.71	0.19	94.96
Dirt&Gravel Road E&S	cumulative	Feet	-	-	-	-
Non-Tidal Algal Flow-way	annual	Acres	-	-	-	-
Tidal Algal Flow-way	annual	Acres	-	-	-	-
TOTAL				1,482.57	89.32	733.34
<b>GRAND TOTAL</b>				<b>159,574.46</b>	<b>7,022.36</b>	<b>4,625,095.50</b>

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MD-020600030902 - Middle Gywnns Falls (Dead Run) Permit Approval 2014/Baltimore City	Duration	Unit	Measure	LBS Reduced		
				Nitrogen	Phosphorus	Sediment
<b>Agriculture Practices</b>						
<b>Nutrient Management</b>						
Core Nitrogen	annual	Acres	83.16	-	-	-
Rate Nitrogen	annual	Acres	30.81	-	-	-
Placement Nitrogen	annual	Acres	2.19	-	-	-
Timing Nitrogen	annual	Acres	2.53	-	-	-
Core Phosphorus	annual	Acres	83.16	-	-	-
Rate Phosphorus	annual	Acres	0.54	-	-	-
Placement Phosphorus	annual	Acres	1.95	-	-	-
Timing Phosphorus	annual	Acres	-	-	-	-
TOTAL			-	-	-	-
<b>Tillage Management</b>						
Conservation	annual	Acres	11.52	-	-	-
Continuous High Residue	annual	Acres	49.62	-	-	-
Low Residue	annual	Acres	-	-	-	-
TOTAL			-	-	-	-
<b>Cover Crop</b>						
Traditional	annual	Acres	16.84	-	-	-
Commodity	annual	Acres	8.72	-	-	-
TOTAL			-	-	-	-
<b>Pasture Management</b>						
Alternative Watering	cumulative	Acres	8.19	-	-	-
Prescribed Grazing	cumulative	Acres	1.26	-	-	-
Horse Pasture Management	cumulative	Acres	0.26	-	-	-
Forest Buffers on Fenced Pasture Corridor	cumulative	Acres in Buffers	0.02	-	-	-
Grass Buffers on Fenced Pasture Corridor	cumulative	Acres in Buffers	-	-	-	-
TOTAL			-	-	-	-
Forest Buffers	cumulative	Acres in Buffers	3.38	-	-	-
Wetland Restoration	cumulative	Acres	0.14	-	-	-
Wetland Creation	cumulative	Acres	0.01	-	-	-
Wetland Enhancement and Rehabilitation	cumulative	Acres	-	-	-	-
Land Retirement to Open Space	cumulative	Acres	0.32	-	-	-
Land Retirement to Pasture	cumulative	Acres	0.72	-	-	-
Grass Buffers	cumulative	Acres in Buffers	0.69	-	-	-
Tree Planting	cumulative	Acres	0.08	-	-	2.83
Alternative Crops	cumulative	Acres	-	-	-	-
Soil and Water Conservation Plan	cumulative	Acres	62.80	-	-	-
Crop Irrigation Management	cumulative	Acres	-	-	-	-
Manure Incorporation	annual	Acres	0.49	-	-	-
Capture & Reuse	cumulative	Acres	-	-	-	-
Non Urban Stream Restoration	cumulative	Acres	1,523.37	96.73	85.38	225,829.37
Non Urban Shoreline Management	cumulative	Feet	-	-	-	-
TOTAL			-	96.73	85.38	225,832.20
<b>Agricultural Drainage Management</b>						
Denitrifying Ditch Bioreactors	cumulative	Acres	0.13	-	-	-
Saturated Buffer	cumulative	Acres	0.13	-	-	-
Sorbing Materials in Ag Ditches	cumulative	Acres	0.13	72.27	5.97	426.88
Water Control Structures	cumulative	Acres	0.13	-	-	-
TOTAL			-	72.27	5.97	426.88
<b>Animal Waste Management Systems</b>						
Broiler Mortality Freezers	annual	Dry Tons (Carcaasses)	-	-	-	-
Barnyard Runoff Control & Loafing Lot Management	cumulative	Acres	0.09	-	-	-
Ag Stormwater Management	cumulative	Acres Treated	-	-	-	-
Manure Transport	annual	Dry Tons	0.24	-	-	-
Dairy Precision Feeding	annual	Animal Units	-	-	-	-
Ammonia Emission Reductions (Litter Amendments)	annual	Animal Units	-	-	-	-
Ammonia Emission Reductions (Biofilters)	cumulative	Animal Units	-	-	-	-
Ammonia Emission Reductions (Lagoon Covers)	cumulative	Animal Units	-	-	-	-
TOTAL			-	-	-	-
<b>Urban/Suburban Practices</b>						
<b>Stormwater Management</b>						
Runoff Reduction Performance Standard	cumulative	Acres Treated	221.48	584.54	65.63	106,479.45
Storm Water Treatment Performance Standard	cumulative	Acres Treated	612.01	942.77	142.76	274,411.71
Wet Ponds & Wetlands	cumulative	Acres Treated	0.01	0.02	0.00	7.38
Floating Treatment Wetlands	cumulative	Acres Treated (Wet Pond)	-	-	-	-
Dry Ponds	cumulative	Acres Treated	707.11	259.35	50.83	82,897.11
Extended Dry Ponds	cumulative	Acres Treated	1,380.83	2,029.85	198.52	971,288.87
Infiltration Practices	cumulative	Acres Treated	1.27	7.69	0.78	1,411.97
Filtering Practices	cumulative	Acres Treated	2.00	5.87	0.87	1,873.17
BioRetention	cumulative	Acres Treated	2.11	9.05	1.04	1,855.95
BioSwale	cumulative	Acres Treated	5.18	26.64	2.81	4,856.81
Permeable Pavement	cumulative	Acres Treated	5.00	17.16	1.81	4,105.75
Vegetated Open Channel	cumulative	Acres Treated	-	-	-	-
Urban Filter Strips	cumulative	Acres Treated	-	-	-	-
Grey Infrastructure (IDDE)	annual	Acres Treated	-	-	-	-
Impervious Disconnection	cumulative	Acres Treated	-	-	-	-
Conservation Landscaping Practices	cumulative	Acres Treated	-	-	-	-
TOTAL			-	3,882.95	465.07	1,449,188.17
Erosion and Sediment Control	annual	Acres	7.71	-	-	13.64
Impervious Surface Reduction	cumulative	Acres	14.17	53.83	-	19,618.00
Urban Forest Buffers	cumulative	Acres in Buffers	0.27	1.61	0.32	231.27
Urban Tree Planting	cumulative	Acres	194.32	-	-	-
Urban Forest Planting	cumulative	Acres	-	-	-	-
Urban Nutrient Management	annual	Acres	11,009.57	-	-	-
Urban Stream Restoration	cumulative	Feet	3,488.21	221.50	195.51	517,104.05
Storm Drain Cleanout	annual	Lbs of Sediment	2,319.32	5.31	1.14	1,386.40
Street Sweeping	annual	Acres	-	-	-	-
Urban Shoreline Management	cumulative	Feet	1.10	0.09	0.07	179.66
Septic Connections	cumulative	Number of Systems	42.70	296.01	-	-
Septic Denitrification	cumulative	Number of Systems	9.12	41.79	-	-
Septic Pumping	annual	Number of Systems	-	-	-	-
<b>Resource Practices</b>						
Forest Harvesting Practices	annual	Acres	4.43	12.21	-	632.16
Dirt&Gravel Road E&S	cumulative	Feet	1.60	-	-	2.65
Non-Tidal Algal Flow-way	annual	Acres	-	-	-	-
Tidal Algal Flow-way	annual	Acres	-	-	-	-
TOTAL			-	632.36	197.04	539,167.84
<b>GRAND TOTAL</b>				<b>4,684.32</b>	<b>753.46</b>	<b>2,214,615.09</b>

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MD-N24510WM0_3650_0001 - Lower Jones Falls Permit Approval 2008/Baltimore City & Co.	Duration	Unit	Measure	LBS Reduced		
				Nitrogen	Phosphorus	Sediment
<b>Agriculture Practices</b>						
<b>Nutrient Management</b>						
Core Nitrogen	annual	Acres	-	-	-	-
Rate Nitrogen	annual	Acres	-	-	-	-
Placement Nitrogen	annual	Acres	-	-	-	-
Timing Nitrogen	annual	Acres	-	-	-	-
Core Phosphorus	annual	Acres	-	-	-	-
Rate Phosphorus	annual	Acres	-	-	-	-
Placement Phosphorus	annual	Acres	-	-	-	-
Timing Phosphorus	annual	Acres	-	-	-	-
TOTAL			-	-	-	-
<b>Tillage Management</b>						
Conservation	annual	Acres	-	-	-	-
Continuous High Residue	annual	Acres	-	-	-	-
Low Residue	annual	Acres	-	-	-	-
TOTAL			-	-	-	-
<b>Cover Crop</b>						
Traditional	annual	Acres	-	-	-	-
Commodity	annual	Acres	-	-	-	-
TOTAL			-	-	-	-
<b>Pasture Management</b>						
Alternative Watering	cumulative	Acres	-	-	-	-
Prescribed Grazing	cumulative	Acres	-	-	-	-
Horse Pasture Management	cumulative	Acres	-	-	-	-
Forest Buffers on Fenced Pasture Corridor	cumulative	Acres in Buffers	-	-	-	-
Grass Buffers on Fenced Pasture Corridor	cumulative	Acres in Buffers	-	-	-	-
TOTAL			-	-	-	-
Forest Buffers	cumulative	Acres in Buffers	-	-	-	-
Wetland Restoration	cumulative	Acres	-	-	-	-
Wetland Creation	cumulative	Acres	-	-	-	-
Wetland Enhancement and Rehabilitation	cumulative	Acres	-	-	-	-
Land Retirement to Open Space	cumulative	Acres	-	-	-	-
Land Retirement to Pasture	cumulative	Acres	-	-	-	-
Grass Buffers	cumulative	Acres in Buffers	-	-	-	-
Tree Planting	cumulative	Acres	-	-	-	-
Alternative Crops	cumulative	Acres	-	-	-	-
Soil and Water Conservation Plan	cumulative	Acres	-	-	-	-
Crop Irrigation Management	cumulative	Acres	-	-	-	-
Manure Incorporation	annual	Acres	-	-	-	-
Capture & Reuse	annual	Acres	-	-	-	-
Non Urban Stream Restoration	cumulative	Feet	-	-	-	-
Non Urban Shoreline Management	cumulative	Feet	-	-	-	-
TOTAL			-	-	-	-
<b>Agricultural Drainage Management</b>						
Denitrifying Ditch Bioreactors	cumulative	Acres	-	-	-	-
Saturated Buffer	cumulative	Acres	-	-	-	-
Sorbing Materials in Ag Ditches	cumulative	Acres	-	-	-	-
Water Control Structures	cumulative	Acres	-	-	-	-
TOTAL			-	-	-	-
<b>Animal Waste Management Systems</b>						
Broiler Mortality Freezers	annual	Dry Tons (Carcasses)	-	-	-	-
Barnyard Runoff Control & Loafing Lot Management	cumulative	Acres	-	-	-	-
Ag Stormwater Management	cumulative	Acres Treated	-	-	-	-
Manure Transport	annual	Dry Tons	-	-	-	-
Dairy Precision Feeding	annual	Animal Units	-	-	-	-
Ammonia Emission Reductions (Litter Amendments)	annual	Animal Units	-	-	-	-
Ammonia Emission Reductions (Biofilters)	cumulative	Animal Units	-	-	-	-
Ammonia Emission Reductions (Lagoon Covers)	cumulative	Animal Units	-	-	-	-
TOTAL			-	-	-	-
<b>Urban/Suburban Practices</b>						
<b>Stormwater Management</b>						
Runoff Reduction Performance Standard	cumulative	Acres Treated	30.09	78.11	8.47	13,041.15
Storm Water Treatment Performance Standard	cumulative	Acres Treated	48.29	73.17	10.70	19,518.58
Wet Ponds & Wetlands	cumulative	Acres Treated	-	-	-	-
Floating Treatment Wetlands	cumulative	Acres Treated (Wet Pond)	-	-	-	-
Dry Ponds	cumulative	Acres Treated	40.17	14.58	2.74	4,139.02
Extended Dry Ponds	cumulative	Acres Treated	2.36	3.42	0.32	1,456.11
Infiltration Practices	cumulative	Acres Treated	0.25	1.50	0.15	244.35
Filtering Practices	cumulative	Acres Treated	1.12	3.26	0.46	923.74
BioRetention	cumulative	Acres Treated	0.89	3.77	0.42	686.38
BioSwale	cumulative	Acres Treated	0.91	4.60	0.47	746.27
Permeable Pavement	cumulative	Acres Treated	0.02	0.06	0.01	12.32
Vegetated Open Channel	cumulative	Acres Treated	-	-	-	-
Urban Filter Strips	cumulative	Acres Treated	-	-	-	-
Grey Infrastructure (IDDE)	annual	Acres Treated	-	-	-	-
Impervious Disconnection	cumulative	Acres Treated	-	-	-	-
Conservation Landscaping Practices	cumulative	Acres Treated	-	-	-	-
TOTAL			-	182.46	23.73	40,767.91
Erosion and Sediment Control	annual	Acres	-	-	-	-
Impervious Surface Reduction	cumulative	Acres	0.02	0.09	(0.00)	31.57
Urban Forest Buffers	cumulative	Acres in Buffers	-	-	-	-
Urban Tree Planting	cumulative	Acres	98.75	10.23	1.96	1,585.42
Urban Forest Planting	cumulative	Acres	-	-	-	-
Urban Nutrient Management	annual	Acres	3,979.73	588.79	32.16	-
Urban Stream Restoration	cumulative	Feet	-	-	-	-
Storm Drain Cleanout	annual	Lbs of Sediment	-	-	-	-
Street Sweeping	annual	Acres	-	-	-	-
Urban Shoreline Management	cumulative	Feet	-	-	-	-
Septic Connections	cumulative	Number of Systems	-	-	-	-
Septic Denitrification	cumulative	Number of Systems	-	-	-	-
Septic Pumping	annual	Number of Systems	-	-	-	-
<b>Resource Practices</b>						
Forest Harvesting Practices	annual	Acres	-	-	-	-
Dirt&Gravel Road E&S	cumulative	Feet	-	-	-	-
Non-Tidal Algal Flow-way	annual	Acres	-	-	-	-
Tidal Algal Flow-way	annual	Acres	-	-	-	-
TOTAL			-	599.12	34.12	1,616.98
<b>GRAND TOTAL</b>				<b>781.58</b>	<b>57.85</b>	<b>42,384.90</b>

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MD-0207000907 - Lower Monocacy Permit Approval 2008/Fredrick Co.	Duration	Unit	Measure	LBS Reduced		
				Nitrogen	Phosphorus	Sediment
<b>Agriculture Practices</b>						
<b>Nutrient Management</b>						
Core Nitrogen	annual	Acres	20,438.12	27,495.41	-	-
Rate Nitrogen	annual	Acres	6,287.33	2,889.66	-	-
Placement Nitrogen	annual	Acres	529.01	496.83	-	-
Timing Nitrogen	annual	Acres	452.26	447.23	-	-
Core Phosphorus	annual	Acres	20,438.12	-	1,686.76	-
Rate Phosphorus	annual	Acres	272.92	-	10.22	-
Placement Phosphorus	annual	Acres	489.53	-	8.91	-
Timing Phosphorus	annual	Acres	-	-	-	-
<b>TOTAL</b>				31,329.12	1,705.89	-
<b>Tillage Management</b>						
Conservation	annual	Acres	3,459.32	9,340.89	725.14	2,384,340.24
Continuous High Residue	annual	Acres	11,917.28	45,045.42	3,229.94	15,826,991.33
Low Residue	annual	Acres	-	-	-	-
<b>TOTAL</b>				54,386.32	3,955.08	18,211,331.57
<b>Cover Crop</b>						
Traditional	annual	Acres	6,611.92	36,016.71	50.15	114,736.42
Commodity	annual	Acres	2,544.44	6,328.97	-	-
<b>TOTAL</b>				42,345.67	50.15	114,736.42
<b>Pasture Management</b>						
Alternative Watering	cumulative	Acres	1,560.32	792.41	118.65	1,483.11
Prescribed Grazing	cumulative	Acres	248.94	272.45	56.11	720.68
Horse Pasture Management	cumulative	Acres	18.19	-	3.41	69.89
Forest Buffers on Fenced Pasture Corridor	cumulative	Acres in Buffers	12.37	735.08	191.97	121,814.07
Grass Buffers on Fenced Pasture Corridor	cumulative	Acres in Buffers	12.37	706.95	186.07	121,789.64
<b>TOTAL</b>			2,506.88	556.20	245,877.39	
Forest Buffers	cumulative	Acres in Buffers	528.08	32,569.12	405.44	1,232,029.80
Wetland Restoration	cumulative	Acres	9.17	385.00	8.12	17,637.24
Wetland Creation	cumulative	Acres	-	-	-	-
Wetland Enhancement and Rehabilitation	cumulative	Acres	-	-	-	-
Land Retirement to Open Space	cumulative	Acres	403.43	6,935.17	19.37	478,664.17
Land Retirement to Pasture	cumulative	Acres	150.93	2,594.56	124.55	147,780.48
Grass Buffers	cumulative	Acres in Buffers	86.47	4,163.56	25.35	205,392.98
Tree Planting	cumulative	Acres	38.69	765.37	16.06	40,551.62
Alternative Crops	cumulative	Acres	-	-	-	-
Soil and Water Conservation Plan	cumulative	Acres	12,045.17	-	2,189.69	-
Crop Irrigation Management	cumulative	Acres	-	-	-	-
Manure Incorporation	annual	Acres	562.40	1,164.21	60.56	-
Capture & Reuse	annual	Acres	-	-	-	-
Non Urban Stream Restoration	cumulative	Feet	1,355.57	75.41	58.67	175,027.21
Non Urban Shoreline Management	cumulative	Feet	-	-	-	-
<b>TOTAL</b>			48,652.40	2,907.82	2,297,083.52	
<b>Agricultural Drainage Management</b>						
Denitrifying Ditch Bioreactors	cumulative	Acres	103.99	562.56	-	-
Saturated Buffer	cumulative	Acres	103.99	7,119.60	9.91	174,321.28
Sorbing Materials in Ag Ditches	cumulative	Acres	103.99	-	18.90	-
Water Control Structures	cumulative	Acres	103.99	614.47	-	-
<b>TOTAL</b>			8,296.63	28.82	174,321.28	
<b>Animal Waste Management Systems</b>						
Broiler Mortality Freezers	annual	Dry Tons (Carcasses)	-	-	-	-
Barnyard Runoff Control & Loafing Lot Management	cumulative	Acres	26.44	2,254.06	62.67	74,349.24
Ag Stormwater Management	cumulative	Acres Treated	-	-	-	-
Manure Transport	annual	Dry Tons	53.81	27.26	23.66	-
Dairy Precision Feeding	annual	Animal Units	363.07	847.23	58.22	15,061.36
Ammonia Emission Reductions (Litter Amendments)	annual	Animal Units	-	-	-	-
Ammonia Emission Reductions (Biofilters)	cumulative	Animal Units	-	-	-	-
Ammonia Emission Reductions (Lagoon Covers)	cumulative	Animal Units	-	-	-	-
<b>TOTAL</b>			3,128.54	144.55	89,410.60	
<b>Urban/Suburban Practices</b>						
<b>Stormwater Management</b>						
Runoff Reduction Performance Standard	cumulative	Acres Treated	528.94	1,911.09	127.89	327,966.74
Storm Water Treatment Performance Standard	cumulative	Acres Treated	1,372.55	2,900.12	260.89	792,886.43
Wet Ponds & Wetlands	cumulative	Acres Treated	2,500.51	5,496.38	733.88	1,851,037.77
Floating Treatment Wetlands	cumulative	Acres Treated (Wet Pond)	-	-	-	-
Dry Ponds	cumulative	Acres Treated	738.33	405.88	48.28	91,093.82
Extended Dry Ponds	cumulative	Acres Treated	1,494.61	3,285.30	195.46	1,106,403.45
Infiltration Practices	cumulative	Acres Treated	542.21	4,916.13	300.53	635,515.67
Filtering Practices	cumulative	Acres Treated	102.94	452.55	40.31	101,605.65
BioRetention	cumulative	Acres Treated	151.47	971.05	67.49	140,161.28
BioSwale	cumulative	Acres Treated	36.41	280.08	17.80	35,935.24
Permeable Pavement	cumulative	Acres Treated	0.85	4.34	0.28	730.91
Vegetated Open Channel	cumulative	Acres Treated	-	-	-	-
Urban Filter Strips	cumulative	Acres Treated	-	-	-	-
Grey Infrastructure (IDDE)	annual	Acres Treated	-	-	-	-
Impervious Disconnection	cumulative	Acres Treated	-	-	-	-
Conservation Landscaping Practices	cumulative	Acres Treated	-	-	-	-
<b>TOTAL</b>			20,622.91	1,792.81	5,083,336.96	
Erosion and Sediment Control	annual	Acres	140.48	-	-	1,002,612.15
Impervious Surface Reduction	cumulative	Acres	0.93	5.84	-	1,891.73
Urban Forest Buffers	cumulative	Acres in Buffers	10.14	105.03	10.10	10,584.28
Urban Tree Planting	cumulative	Acres	139.65	147.03	14.38	-
Urban Forest Planting	cumulative	Acres	-	-	-	-
Urban Nutrient Management	annual	Acres	16,258.62	13,377.10	554.42	-
Urban Stream Restoration	cumulative	Feet	6,942.63	386.22	300.48	896,413.36
Storm Drain Cleanout	annual	Lbs of Sediment	-	-	-	-
Street Sweeping	annual	Acres	-	-	-	-
Urban Shoreline Management	cumulative	Feet	-	-	-	-
Septic Connections	cumulative	Number of Systems	3.99	41.70	-	-
Septic Denitrification	cumulative	Number of Systems	284.87	1,923.29	-	-
Septic Pumping	annual	Number of Systems	-	-	-	-
<b>Resource Practices</b>						
Forest Harvesting Practices	annual	Acres	73.94	311.64	5.64	19,199.29
Dirt&Gravel Road E&S	cumulative	Feet	9,298.50	-	-	13,426.04
Non-Tidal Algal Flow-way	annual	Acres	-	-	-	-
Tidal Algal Flow-way	annual	Acres	-	-	-	-
<b>TOTAL</b>			16,297.85	885.02	1,944,126.85	
<b>GRAND TOTAL</b>			227,566.33	12,026.34	28,160,224.60	



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MD-0206000203 - Sassafras River Permit Approval 2010/Cecil & Kent Co.	Duration	Unit	Measure	LBS Reduced		
				Nitrogen	Phosphorus	Sediment
<b>Agriculture Practices</b>						
<b>Nutrient Management</b>						
Core Nitrogen	annual	Acres	20,900.57	26,208.70	-	-
Rate Nitrogen	annual	Acres	7,834.83	3,559.05	-	-
Placement Nitrogen	annual	Acres	1,717.50	1,707.05	-	-
Timing Nitrogen	annual	Acres	1,503.16	1,486.05	-	-
Core Phosphorus	annual	Acres	20,900.57	-	2,804.57	-
Rate Phosphorus	annual	Acres	138.85	-	7.37	-
Placement Phosphorus	annual	Acres	1,616.54	-	42.41	-
Timing Phosphorus	annual	Acres	-	-	-	-
<b>TOTAL</b>				32,960.84	2,854.36	-
<b>Tillage Management</b>						
Conservation	annual	Acres	3,947.59	3,917.27	686.07	1,129,476.99
Continuous High Residue	annual	Acres	13,478.69	33,213.96	3,181.97	7,430,816.30
Low Residue	annual	Acres	-	-	-	-
<b>TOTAL</b>				37,131.23	3,868.04	8,560,293.30
<b>Cover Crop</b>						
Traditional	annual	Acres	13,081.01	58,041.54	107.31	45,251.64
Commodity	annual	Acres	3,150.63	6,303.41	-	-
<b>TOTAL</b>				64,344.94	107.31	45,251.64
<b>Pasture Management</b>						
Alternative Watering	cumulative	Acres	179.37	84.46	24.90	91.61
Prescribed Grazing	cumulative	Acres	63.58	55.25	25.84	101.15
Horse Pasture Management	cumulative	Acres	2.33	-	0.78	4.88
Forest Buffers on Fenced Pasture Corridor	cumulative	Acres in Buffers	7.77	760.69	203.68	108,548.77
Grass Buffers on Fenced Pasture Corridor	cumulative	Acres in Buffers	2.41	137.74	35.64	21,021.56
<b>TOTAL</b>				1,038.15	290.84	129,767.96
Forest Buffers	cumulative	Acres in Buffers	121.88	7,577.51	118.89	160,430.73
Wetland Restoration	cumulative	Acres	82.80	3,518.10	94.54	95,046.96
Wetland Creation	cumulative	Acres	52.04	1,127.72	34.63	34,047.99
Wetland Enhancement and Rehabilitation	cumulative	Acres	0.00	0.01	0.00	0.12
Land Retirement to Open Space	cumulative	Acres	715.31	11,216.46	46.57	447,108.90
Land Retirement to Pasture	cumulative	Acres	66.75	1,046.63	4.35	41,720.49
Grass Buffers	cumulative	Acres in Buffers	483.34	23,124.18	195.68	636,098.46
Tree Planting	cumulative	Acres	70.69	1,309.11	34.65	42,072.65
Alternative Crops	cumulative	Acres	11.18	213.42	-	7,496.84
Soil and Water Conservation Plan	cumulative	Acres	19,388.02	24,856.25	1,402.79	2,567,376.76
Crop Irrigation Management	cumulative	Acres	-	-	-	-
Manure Incorporation	annual	Acres	1,568.22	2,693.63	147.21	-
Capture & Reuse	annual	Acres	-	-	-	-
Non Urban Stream Restoration	cumulative	Feet	785.82	51.84	43.03	84,640.05
Non Urban Shoreline Management	cumulative	Feet	-	-	-	-
<b>TOTAL</b>				76,734.84	2,122.35	4,116,039.94
<b>Agricultural Drainage Management</b>						
Denitrifying Ditch Bioreactors	cumulative	Acres	311.51	1,249.39	-	-
Saturated Buffer	cumulative	Acres	311.51	16,359.70	7.68	256,818.72
Sorbing Materials in Ag Ditches	cumulative	Acres	311.51	-	67.71	-
Water Control Structures	cumulative	Acres	311.51	1,723.17	-	-
<b>TOTAL</b>				19,332.26	75.39	256,818.72
<b>Animal Waste Management Systems</b>						
Broiler Mortality Freezers	annual	Dry Tons (Carcases)	-	-	-	-
Barnyard Runoff Control & Loafing Lot Management	cumulative	Acres	20.55	2,662.51	283.80	32,552.04
Ag Stormwater Management	cumulative	Acres Treated	-	-	-	-
Manure Transport	annual	Dry Tons	4,981.00	-	1,970.02	-
Dairy Precision Feeding	annual	Animal Units	573.65	1,250.17	203.54	38,713.13
Ammonia Emission Reductions (Litter Amendments)	annual	Animal Units	-	-	-	-
Ammonia Emission Reductions (Biofilters)	cumulative	Animal Units	-	-	-	-
Ammonia Emission Reductions (Lagoon Covers)	cumulative	Animal Units	-	-	-	-
<b>TOTAL</b>				3,912.68	2,457.36	71,265.17
<b>Urban/Suburban Practices</b>						
<b>Stormwater Management</b>						
Runoff Reduction Performance Standard	cumulative	Acres Treated	10.62	52.15	7.39	4,935.81
Storm Water Treatment Performance Standard	cumulative	Acres Treated	4.73	13.53	2.58	2,042.79
Wet Ponds & Wetlands	cumulative	Acres Treated	-	-	-	-
Floating Treatment Wetlands	cumulative	Acres Treated (Wet Pond)	-	-	-	-
Dry Ponds	cumulative	Acres Treated	3.31	1.41	0.35	206.04
Extended Dry Ponds	cumulative	Acres Treated	1.23	2.09	0.26	458.52
Infiltration Practices	cumulative	Acres Treated	18.57	130.10	16.66	10,979.17
Filtering Practices	cumulative	Acres Treated	0.12	0.41	0.08	59.86
BioRetention	cumulative	Acres Treated	0.52	2.57	0.37	241.62
BioSwale	cumulative	Acres Treated	2.92	17.39	2.32	1,456.13
Permeable Pavement	cumulative	Acres Treated	0.01	0.04	0.00	3.88
Vegetated Open Channel	cumulative	Acres Treated	-	-	-	-
Urban Filter Strips	cumulative	Acres Treated	-	-	-	-
Grey Infrastructure (IDDE)	annual	Acres Treated	-	-	-	-
Impervious Disconnection	cumulative	Acres Treated	-	-	-	-
Conservation Landscaping Practices	cumulative	Acres Treated	-	-	-	-
<b>TOTAL</b>				219.66	30.02	20,383.82
Erosion and Sediment Control	annual	Acres	5.98	-	-	24,909.65
Impervious Surface Reduction	cumulative	Acres	0.00	-	-	0.12
Urban Forest Buffers	cumulative	Acres in Buffers	2.66	22.00	4.35	1,528.53
Urban Tree Planting	cumulative	Acres	0.60	0.56	0.11	17.10
Urban Forest Planting	cumulative	Acres	0.00	0.00	0.00	0.00
Urban Nutrient Management	annual	Acres	3,714.53	2,334.40	185.23	-
Urban Stream Restoration	cumulative	Feet	-	-	-	-
Storm Drain Cleanout	annual	Lbs of Sediment	-	-	-	-
Street Sweeping	annual	Acres	-	-	-	-
Urban Shoreline Management	cumulative	Feet	11.99	1.04	0.73	1,966.87
Septic Connections	cumulative	Number of Systems	0.69	6.35	-	-
Septic Denitrification	cumulative	Number of Systems	125.00	740.97	-	-
Septic Pumping	annual	Number of Systems	-	-	-	-
<b>Resource Practices</b>						
Forest Harvesting Practices	annual	Acres	7.30	27.52	0.60	653.44
Dirt&Gravel Road E&S	cumulative	Feet	-	-	-	-
Non-Tidal Algal Flow-way	annual	Acres	-	-	-	-
Tidal Algal Flow-way	annual	Acres	-	-	-	-
<b>TOTAL</b>				3,132.83	191.03	29,075.71
<b>GRAND TOTAL</b>				238,807.43	11,996.69	13,228,896.27

## Appendix B | Milestones and BMP Goals

The following annual milestones coincide with Maryland’s NPS Management Program objectives presented in Chapter 2 of Maryland’s 2021-2025 Nonpoint Source Management Plan (Plan). The Management Plan is intended to achieve and maintain water quality standards and to maximize water quality benefits among other broad strategic goals presented in Chapter 1 of the Plan. These milestones, in concert with the Plan’s goals and objectives, address Key Component #1 of EPA’s Nonpoint Source Program and Grants Guidelines entitled, “Key Components of an Effective State Nonpoint Source Management Program” (November 2012).

Each year, the following tables are included in Maryland’s NPS Annual Report with updates to reflect annual progress. These results show what was accomplished in SFY2023 (unless otherwise noted).

Objective 3: Pollutants & Stressors	Lead	2023	Cumulative Progress
<b>Nitrogen Nonpoint Source Loads to Bay: (lbs/yr)</b>	MDE	41,815,580 (SFY2022)	-
<b>Nitrogen: For all watersheds with EPA-accepted plans, overall total annual reduction by NPS implementation completed during the past year: (Annual lbs/yr from plan start)</b>	MDE	1,568,435 (SFY2022)	-
<b>Phosphorus Nonpoint Source Loads to Bay: (lbs/yr)</b>	MDE	3,206,256 (SFY2022)	-
<b>Phosphorus: For all watersheds with EPA-accepted plans, overall total annual reduction by NPS implementation completed during the past year: (Annual lbs/yr from plan start)</b>	MDE	90,388 (SFY2022)	-

<b>Sediment: 319-funded projects estimated reductions in pounds of sediment to local water bodies (lbs/yr)</b>	MDE	19,649,000 (SFY2022)	-
<b>Sediment: For all watersheds with EPA-accepted plans, overall total annual reduction by NPS implementation completed during the past year: (Annual lbs/yr from plan start)</b>	MDE	35,215,869 (SFY2022)	-
<b>Bacteria: Annual Report on Monitoring Results for Maryland Beaches</b>	MDE	<a href="https://mde.maryland.gov/programs/water/Beaches/Documents/2023_MD_Beach_Report_final.pdf">https://mde.maryland.gov/programs/water/Beaches/Documents/2023 MD Beach Report final.pdf</a>	
<b>Bacteria: Conduct Annual Meetings of County Beach Management Programs</b>	MDE	Annual meetings conducted.	
<b>Bacteria: Conduct annual Shoreline Field Surveys near Shellfish Waters to identify pollutant sources of concern (part of a 7-year cycle).</b>	MDE	22 Surveys	51 Surveys
<b>Bacteria: Conduct annual Sanitary Surveys of relevant data for all shellfish growing areas. These are reviews of all potential pollution sources in a shellfish growing area, which are informed by Shoreline Field Surveys.</b>	MDE	49 Surveys/year	
<b>Chloride: Development of a Statewide Implementation Strategy in the form of a 5S plan to address chloride impairments in a consistent manner across the State. This</b>	MDE	A second draft of the 4b plan, addressing EPA Region 3's initial comments, was submitted for their review. This was followed by	-

<p>path was discussed with Region 3 staff, and MDE’s ultimate goal is a 4b plan.</p>		<p>another round of discussion.</p>	
<p><b>Chloride: Certify 150 individuals over the life of this 5-year NPS State Management Program Plan through the Annual Parking lots and Sidewalks Salt Application Management Training by MDE designee.</b></p>	<p>MDE</p>	<p>The Smart Salting pilot program began in November 2023 and will be completed in February 2024. MDE is partnering with UMD EFC to continue this program.</p>	<p>-</p>
<p><b>Chloride: Track and report the # of personnel trained through the Annual Road Salt Application Management Training by State Highway Administration.</b></p>	<p>MDE</p>	<p>91 People</p>	<p>266 People</p>
<p><b>Chloride: Update Maryland’s 319 Program webpage to summarize Maryland’s existing chloride mitigation activities, information about chloride pollution, and partnerships established within and outside of the State.</b></p>	<p>MDE</p>	<p>Updates ongoing;  <a href="https://mde.maryland.gov/programs/water/319NonPointSource/Pages/411-on-Salt.aspx">https://mde.maryland.gov/programs/water/319NonPointSource/Pages/411-on-Salt.aspx</a></p>	
<p><b>PCBs: Develop one new PCB TMDL over the life of this 5-year NPS State Management Program Plan.</b></p>	<p>MDE</p>	<p>Draft PCB TMDL for the Conowingo Pool and Lower Susquehanna River was completed in Fall 2023. MDE anticipates submitting the TMDL to EPA by Fall 2024.</p>	<p>TBD</p>

<b>Temperature: Update Maryland's 319 Program webpage to summarize state initiatives designed to reduce temperature. Project Summer 2022 for completion.</b>	MDE	Prettyboy Reservoir hydrology simulation was completed, and MDE is working on the temperature component and drafting the TMDL.	<a href="https://mde.maryland.gov/programs/water/TMDL/WaterQualityStandards/Pages/Protecting-Cold-Water-Resources-in-Maryland.aspx">https://mde.maryland.gov/programs/water/TMDL/WaterQualityStandards/Pages/Protecting-Cold-Water-Resources-in-Maryland.aspx</a>
<b>Trash: Update Maryland's 319 Program webpage to summarize status of TMDLs designed to reduce trash. Project Summer 2022 for completion.</b>	MDE	The work with Morgan State is ongoing.	<a href="https://mde.maryland.gov/programs/water/TMDL/DataCenter/Pages/TMDLMapTrash.aspx">https://mde.maryland.gov/programs/water/TMDL/DataCenter/Pages/TMDLMapTrash.aspx</a>

Objective 4: Pollutant Sources	Lead	2023	Cumulative Progress
<b>Maintain Annual Cover Crop Implementation Acreage Levels</b>	MDA	567,505 acres (SFY2022)	567,505 acres
<b>Maintain Annual Nutrient Management Plan Acreage Levels</b>	MDA	1,026,171 acres (SFY2022)	1,026,171 acres
<b>Maintain Annual Soil Conservation and Water Quality Plan Acreage Levels</b>	MDA	807,593 acres (SFY2022)	807,593 acres
<b>Maintain Annual Manure Transported out of Chesapeake Bay watershed (tons)</b>	MDA	Manure Transport out of the WS increased by 23,578 tons in FY22	Manure Transport out of the WS increased by 57,557 tons
<b>Maintain Annual Conservation Tillage (Inc. High Residue) Acreage Levels</b>	MDA	Conservation Tillage levels were maintained in FY22 at 855,099 acres.	855,099 acres
<b>Plant Riparian Forest Buffers (Acres/year; cumulative)</b>	MDA	19,125 ft. of buffer planted	19,125 ft. of buffer planted
<b>Wetland Restoration (Acres/year)</b>	MDA	84 acres created	354 acres created

<p><b>Phosphorus Management Tool – Maintain use of PMT for operations in the high-risk group, medium-risk group, and low-risk group. (# of operations utilizing the tool by risk group)</b></p>	<p>MDA</p>	<p>PMT is fully implemented with 20% of MD farm fields requiring use of the PMT at this time, which translates to roughly 200,000 acres of fields.</p>	
<p><b>Upgrade septic systems to nitrogen removal technology (systems/year; figures may vary from year to year due to edits to the BATMN database resulting from BAT units being replaced with sewer connection or conventional septic tanks, vacancy, catastrophe, error, etc.)</b></p>	<p>MDE</p>	<p>855 BAT upgrades</p>	<p>-</p>
<p><b>Stormwater retrofits of land without sufficient controls (cumulative pounds of nitrogen reduced/year). (May be refined in future Chesapeake Bay 2-Yr Milestones.)</b></p>	<p>MDE</p>	<p><a href="https://mde.maryland.gov/programs/water/stormwatermanagementprogram/pages/wprpfinancialassuranceplans.aspx">https://mde.maryland.gov/programs/water/stormwatermanagementprogram/pages/wprpfinancialassuranceplans.aspx</a></p>	
<p><b>Complete the redevelopment of the MS4 geodatabase that will aid MDE in the assessment of management programs and improve current Phase I MS4 stormwater data tracking, collection, and validation of BMPs:</b></p>	<p>MDE</p>	<p>The geodatabase structure has had its first test, and our local jurisdictions have started submitting data in the latest format. Minor updates may occur in the future.</p>	<p>-</p>
<p><b>Online BMP Reporting Tool for Non-MS4 local governments:</b></p>	<p>MDE</p>	<p>Complete: a tool has been created that can be used for these jurisdictions.</p>	
<p><b>SMART Homeowner BMP Tracking Tool: Track number of BMPs</b></p>	<p>UMD</p>	<p>251 BMPs</p>	<p>1179 BMPs</p>

<b>Online BMP Reporting Tools for Phase II MS4 and Non-MS4 local governments: Make the tool available to users.</b>	MDE	No Progress	No Progress
<b>Local Stormwater WLA Implementation Plans: Review Plans submitted as part of Phase I MS4 requirements. (Number of jurisdictions, which may include multiple plans for each jurisdiction) Anticipate salt plans in 2024.</b>	MDE	6 (18 plans)	-
<b>Erosion and Sediment site “inspection compliance rate” conducted by MDE (Source: Annual Enforcement &amp; Compliance Report)</b>	MDE	Report not yet published.	<a href="https://mde.maryland.gov/program/s/water/stormwatermanagementprogram/pages/wprpfinancialassurancesplans.aspx">https://mde.maryland.gov/program/s/water/stormwatermanagementprogram/pages/wprpfinancialassurancesplans.aspx</a>
<b>Lawn-to-Woodland Program: Track and report the number of landowners assisted and acres forested through the Lawn-to-Woodland Program, which provides landowners with trees, tools and technical assistance for planting and maintaining a healthy tree canopy that will support a myriad of environmental, economic and recreational benefits.</b>	DNR	The Lawn-to-Woodland program has not been funded in recent years, but by working with partners, such as Healthy Forests Healthy Waters and the Western MD Tree Planting Program, services that address tree planting opportunities have been implemented	<a href="https://dnr.maryland.gov/forests/Pages/tree-planting.aspx#:~:text=Lawn%20to%20Woodland%20helps%20Maryland,tree%20shelters%20by%20a%20contractor.">https://dnr.maryland.gov/forests/Pages/tree-planting.aspx#:~:text=Lawn%20to%20Woodland%20helps%20Maryland,tree%20shelters%20by%20a%20contractor.</a>
<b><a href="#">Maryland’s 5 million trees</a> by 2030 initiative (Report status of program and # of trees planted)</b>	MDE	180,460 trees	464,560 trees

<b>Sustainably manage forests on 38,000 acres (annually) by 2030 from baseline as part of Maryland’s revised 2021 Greenhouse Gas Reduction Act (GGRA) plan goals.</b>	DNR	43,943 acres	<a href="https://mde.maryland.gov/program/s/Air/ClimateChange/Pages/Greenhouse-Gas-Emissions-Reduction-Act-(GGRA)-Plan.aspx">https://mde.maryland.gov/program/s/Air/ClimateChange/Pages/Greenhouse-Gas-Emissions-Reduction-Act-(GGRA)-Plan.aspx</a>
<b>Coal Mining site “inspection coverage rate” conducted by MDE</b>	MDE	Report not yet published.	<a href="https://mde.maryland.gov/program/s/water/stormwatermanagementprogram/pages/wprpfinancialassuranceplans.aspx">https://mde.maryland.gov/program/s/water/stormwatermanagementprogram/pages/wprpfinancialassuranceplans.aspx</a>
<b>Non-Coal Mining site “inspection coverage rate” conducted by MDE</b>	MDE	Report not yet published.	<a href="https://mde.maryland.gov/program/s/water/stormwatermanagementprogram/pages/wprpfinancialassuranceplans.aspx">https://mde.maryland.gov/program/s/water/stormwatermanagementprogram/pages/wprpfinancialassuranceplans.aspx</a>
<b>Non-tidal wetlands and floodplains permit site “inspection coverage rate”</b>	MDE	Report not yet published.	<a href="https://mde.maryland.gov/program/s/water/stormwatermanagementprogram/pages/wprpfinancialassuranceplans.aspx">https://mde.maryland.gov/program/s/water/stormwatermanagementprogram/pages/wprpfinancialassuranceplans.aspx</a>
<b>Tidal wetlands permit site “inspection coverage rate”</b>	MDE	Report not yet published.	<a href="https://mde.maryland.gov/program/s/water/stormwatermanagementprogram/pages/wprpfinancialassuranceplans.aspx">https://mde.maryland.gov/program/s/water/stormwatermanagementprogram/pages/wprpfinancialassuranceplans.aspx</a>



Objective 5: Types of Waterbodies	Lead	2023
<b><u>Statewide Lakes and Reservoirs</u></b>		
Lakes/Reservoirs: Triadelphia and Liberty chlorides/temperature monitoring Study (Trends analysis to help determine if we can see drops in salt levels, started in 2019)	MDE	Data is being compiled up to December 2023; MDE is discussing internally the best analyses for this data.
Patuxent Reservoirs Annual Report of the Technical Advisory Committee	WSSC	<a href="#">2022 Annual Report</a>
<b><u>Central Maryland – Chesapeake Bay Drainage</u></b>	Watersheds with EPA-accepted watershed plans that are eligible for 319(h) Grant implementation funding.	
<b>Antietam Creek Watershed. Water quality goal is to reduce annual pollutant loads: 12,923 tons/yr sediment, approx. 3 million-billion E. coli MPN. (see the Washington County Soil Conservation District’s 2012 watershed plan Tables 8, 10, 13, 18, and 19)</b>		
Watershed plan milestones: Report progress in the 319 Annual Report.	WCSCD	MDE’s NPS program has funded 16 projects in this watershed, the most of any watershed in MD
Assess Implementation Progress toward sediment and bacteria reduction watershed plan milestones and update plan if needed.		Revisions are still under internal review at MDE, updates will be made if needed.
Update watershed implementation plan		MDE plans to submit a draft in 2024

<b>Back River – Tidal Watershed. Water quality goal is to reduce annual nutrient loads: 6,498 lbs/yr nitrogen and 679 lbs/yr phosphorus. (see Baltimore County’s 2010 watershed plan Table 3-2 and Appendix A-1)</b>		
Watershed plan milestones: Report progress in the 319 Annual Report.	Baltimore County	No new progress
Assess action items progress: Stormwater retrofit and Stream restoration		No action for 2023
<b>Back River – Upper Watershed. Water quality goal is to reduce annual nutrient loads: 48,189.6 lbs/yr nitrogen and 6,055.8 lbs/yr phosphorus. (see Baltimore County’s 2008 watershed plan Table 3-2 and Appendix A Table A-2)</b>		
Watershed plan milestones: Report progress in the 319 Annual Report.	Baltimore County	No new progress
Assess plan implementation progress, particularly: open space tree planting, impervious area removal on institutional land.		No action for 2023
<b>Choptank River – Upper Watershed. Water quality goal is to reduce nutrient loads from 2002 levels by 39% for nitrogen (704,000 lbs/yr) and 28% for phosphorus (34,5000 lbs/yr). (see Caroline County’s 2010 watershed plan, Table 11)</b>		
Watershed plan milestones: Report progress in the 319 Annual Report.	Caroline County	BMP implementation continues to diversify, with several new projects including the installation of rain gardens, septic upgrades, and streambank stabilization. MDA also plans to submit a proposal to the FFY24 RFP, which would provide funding to hire a grant coordinator and implement ag drainage

		<p>management BMPs.</p>
<p>Assess BMP implementation progress and update plan if needed.</p>		<p>The Jonestown SW BMP installations and septic upgrades have begun. A Technical Assistance Circuit Rider for the Choptank has been funded through 2025, which will result in a list of potential projects.</p>
<p>Greater Choptank Watershed Plan (Tuckahoe and Lower Choptank)</p>		<p>MDE submitted a draft of the WBP to EPA in 2023. A revised draft will be submitted in 2024, which will address any comments.</p>
<p>Jonestown SW BMP installation</p>		<p>EPA granted MDE permission to use "project" funds for this project, following the 2022 EPA EJ Memo. The paperwork was executed, and a design/build RFP was sent out in 2023. Construction is expected to start in 2024.</p>

<p>Technical Assistance Circuit Rider project</p>		<p>EPA granted MDE permission to use "project" funds for this project, following the 2022 EPA EJ Memo. The legal paperwork was executed and the TACR has been heavily involved in the development of several §319(h) grant funded projects in the Choptank. A list of potential future projects is currently being developed. CBF plans to submit a proposal to the FFY24 RFP, which would extend funding for the TACR through CY2027.</p>
<p><b>Conococheague Creek Watershed</b></p>		
<p>Plan is being drafted and will come to MDE for review. MDE anticipates review in Spring 2022 and submission to EPA in late summer of 2022 for review. Milestones for implementation will be added upon acceptance.</p>	<p>Washington County</p>	<p>Plan is undergoing county review after MDE sent the first round of comments</p>
<p><b>Corsica River Watershed. Water quality goal is to continue meeting the Corsica TMDL for nitrogen and phosphorus.</b></p>		
<p>Watershed plan milestones: Conduct outreach to the owners of this plan to increase 319 project implantation and Report progress in the 319 Annual Report.</p>	<p>Centreville</p>	<p>No response to RFP for FFY24 funding</p>
<p>Assess implementation progress for BMP goals and update plan if needed.</p>		<p>Monitoring to continue this year, but future projects are not expected. Frequency of monitoring will be reduced next year.</p>

<b>Gwynns Falls – Middle Watershed. Water quality goal for 2017 is to reduce annual nutrient loads: 35,350 lbs/yr nitrogen and 5,915 lbs/yr phosphorus. (see Baltimore County’s 2014 watershed plan Table 3-24 and Appendix A Table A-2)</b>		
Report implementation progress in the 319 Annual Report.	Baltimore County	Scott's Level Branch project was completed in 2023.
<b>Jones Falls – Lower Watershed. Water quality goal is to reduce annual pollutant loads: 23,146 lbs/yr nitrogen, 3,887 lbs/yr phosphorus, 204.9 tons/yr sediment. (see Baltimore County’s 2008 watershed plan Table 5.4)</b>		
Watershed plan milestones: Report progress in the 319 Annual Report.	Baltimore County	No new 319 projects in this watershed
<b>Monocacy River – Lower Watershed. Water quality goal is to reduce annual pollutant loads: 649,998 lbs/yr nitrogen, 68,952 lbs/yr phosphorus, 10,345 tons/yr sediment. (see Frederick County’s 2008 watershed plan page 16 and Table “X” p34)</b>		
Watershed plan milestones: Conduct outreach to the owners of this plan to increase 319 project implantation and Report progress in the 319 Annual Report.	Frederick County	Center for Watershed Protection plans to submit a project proposal to the FFY24 RFP which would fund the design of a step pool storm conveyance system.
Assess implementation progress and update plan if needed.		Recent increases in interest in \$319 grant funding may lead to additional future projects in the Monocacy watershed.
<b>Sassafras River Watershed. Water quality goal is to reduce annual pollutant loads: 462,225 lbs/yr nitrogen, 12,602 lbs/yr phosphorus, 1,143</b>		
tons/yr sediment. (see the Sassafras River Association’s 2009 watershed plan Table 5.4)		No response to RFP for FFY24 funding

<b>Central Maryland – Chesapeake Bay Drainage</b>	Plans not designed to seek 319(h) implementation funds.	
<b>Phase III Watershed Implementation Plan for the Chesapeake Bay TMDL.</b>		
Evaluate 2025 progress for pollutant load reductions to be achieved for nonpoint sources of nitrogen, phosphorus, and sediment. Report Annually.	MDE	FY22 NPS annual progress: All nonpoint sources pollutant loads decreased in Maryland due to BMP implementation.
<b>Western Maryland – Casselman River and Youghiogheny River</b>	Watersheds with EPA-accepted watershed plans that are eligible for 319(h) grant implementation funding.	
<b>Casselman River Watershed Management Plan Water quality goal is to meet the pH water quality standard. (see MDE’s 2011 watershed plan Chapter 3.2)</b>		
Watershed plan milestones: Report progress in the 319 Annual Report, including, number/percentage of pH-impaired stream segments, NPS Program Success Stories and implementation progress.	MDE	No new projects are expected to be funded by the §319(h) grant in the near future due to an influx of BIL money into the Abandoned Mine Lands program.
Percentage of impaired stream segments remediated and meet the State water quality standard for pH.[46] [47]	MDE	50%
Report 303(d) stream segments that achieve pH criteria via Maryland’s Integrated Report.	MDE	In text; complete
<b>Cherry Creek Watershed Protection Plan Water quality goal to be determined when the plan is finalized.</b>		

Plan completion anticipated in 2022. Potential milestones TBD.	MDE	Plan will not be submitted due to influx of BIL money into our Abandoned Mine Lands program (no projects to be funded by 319 grant in near future).
<b>Upper Jennings Run Watershed Plan Water quality goal to be determined when the plan is finalized.</b>		
Tentatively accepted pH mitigation Plan is being updated to include sediment. Report progress in the 319 Annual Report.	MDE	MDE will work with Allegany County if they want to update the WS Plan to include other sources of impairment. Sampling by MDE that is funded through the 319(h) grant will continue through 2024. MDE is looking at funding monitoring efforts through another source.
Coastal Region – Coastal Bays and Atlantic Ocean		
<b>Coastal Bays Conservation and Management Plan Water quality goal to be determined when plans are finalized.</b>		
Assawoman Bay is conditionally approved: Report progress in the 319 Annual Report.	MCBP	Legal paperwork for the Greys Creek project has been executed. Construction should start in 2024.
Next steps are to create plans for Assateague, Isle of Wight, Newport, and Sinepuxent Bays. Report progress on creation of these plans and incorporate updates to milestones for any new plans in updates to this NPS plan.	MCBP	MDE is gathering relevant data and information to formulate a draft of the Coastal Bays WBP.