State and District of Columbia Analyses

CHESAPEAKE BAY COMPREHENSIVE WATER RESOURCES AND RESTORATION PLAN

STATE CHAPTER

Commonwealth of Virginia

June 2018

US Army Corps of Engineers®

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SECTION 1

1.1 Introduction

The goal of the *Chesapeake Bay Comprehensive Water Resources and Restoration Plan* (CBCP) is to provide a single, comprehensive and integrated restoration plan that would assist with implementation of the *2014 Chesapeake Bay Watershed Agreement* (2014 Bay Agreement). The CBCP provides a "roadmap" of implementation actions that protect, restore, and preserve the Chesapeake Bay and actions that adopt and align with what organizations are doing without duplicating ongoing or planned actions. Additionally, the CBCP maximizes the use of existing information and identifies projects that can be implemented in each jurisdiction in the Chesapeake Bay Watershed.

The CBCP aligns with the vision established in the 2014 Bay Agreement:

"We envision an environmentally and economically sustainable [and resilient] Chesapeake Bay Watershed with clean water, abundant life, conserved lands and access to the water, a vibrant cultural heritage, and a diversity of engaged citizens and stakeholders."

To identify implementation actions to protect, restore, and preserve the Chesapeake Bay, geospatial analyses were conducted at a 1) baywide, 2) jurisdiction or state, and 3) watershed scale. The baywide analysis characterized problems, needs, and opportunities at a hydrologic unit code 10 (HUC 10) scale, hereafter referred to as subwatershed. CBCP analyses were based on a core set of questions formulated from the 2014 Bay Agreement goals and outcomes as well as stakeholder input. The baywide analysis resulted in a set of recommended implementation strategies that included locations (subwatersheds), potential management measures, a range of potential costs, benefits, potential project implementation agencies, and any sequencing or dependences that could affect implementation. The full results of the baywide analysis are described in the CBCP Main Report. The CBCP state analyses are the result of the baywide analysis "clipped" per each jurisdiction in the Chesapeake Bay Watershed (New York, Pennsylvania, West Virginia, Virginia, Maryland, Delaware, and the District of Columbia). The results of the Commonwealth of Virginia analysis are described in this section of the report. The portion of the Chesapeake Bay Watershed within Virginia is referred to as Virginia throughout this chapter.

The CBCP state-selected watershed analysis contains a more detailed investigation in each jurisdiction, with the goal of identifying more site-specific project-scale opportunities (with priorities defined by each jurisdiction) for implementation. The Piankatank (including Mobjack Bay) and the York River Watersheds were identified by the Commonwealth of Virginia as the state-selected watersheds for vegetative buffers, oyster bed restoration, and wetland creation/restoration. A number of agencies have identified the Piankatank and York River Watersheds as priorities including the National Fish and Wildlife Foundation (NFWF), The Nature Conservancy (TNC), and the U.S. Fish and Wildlife Service (USFWS). Additionally, the Oyster Restoration Outcome Management Strategy 2015-2025, v.1, dated June 2015 (available at: https://www.chesapeakebay.net/documents/22030/1b_oyster_ms_6-24-15_ff_formatted.pdf)

and the Chesapeake Bay Program's Oyster Restoration 2016-2017 Work Plan, dated December 2015 (available at: https://www.chesapeakebay.net/channel_files/23179/4.4_oyster_restoration_workplan_template_12-14-15_git.pdf) are strategic plans previously developed for assisting in the restoration of the Piankatank and the York River watersheds.

The following are reference maps displaying the boundaries, name (Figure 1), and number (Figure 2) of each HUC 10 subwatershed located in Virginia. Table 1 (all tables are provided following the report content) provides the number, name, size (acres), and drainage states of each HUC 10 subwatershed located in Virginia. Hereafter, HUC 10 subwatersheds are referred to simply as subwatersheds.

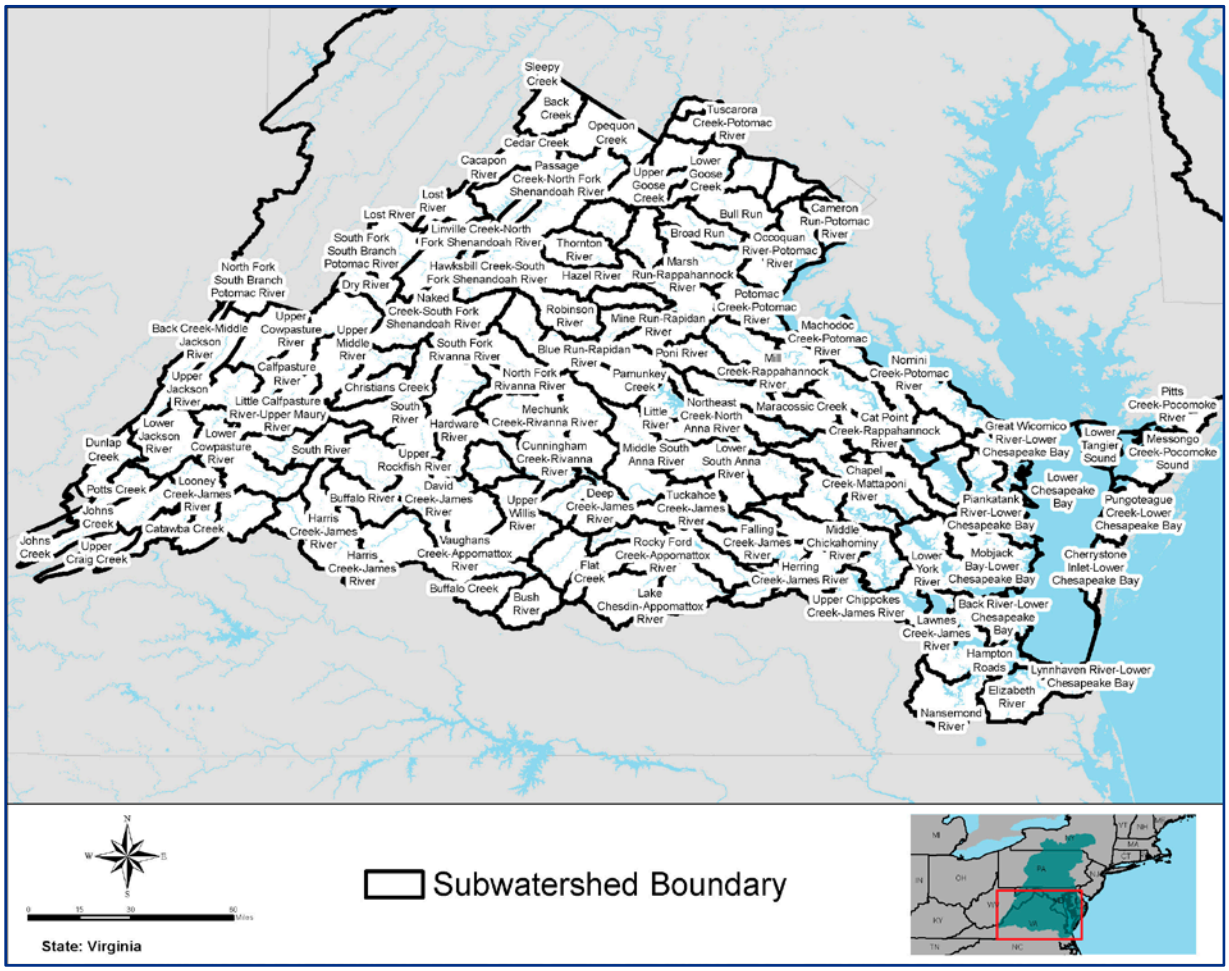

Figure 1. Hydrologic unit code (HUC) 10 subwatershed names in Virginia

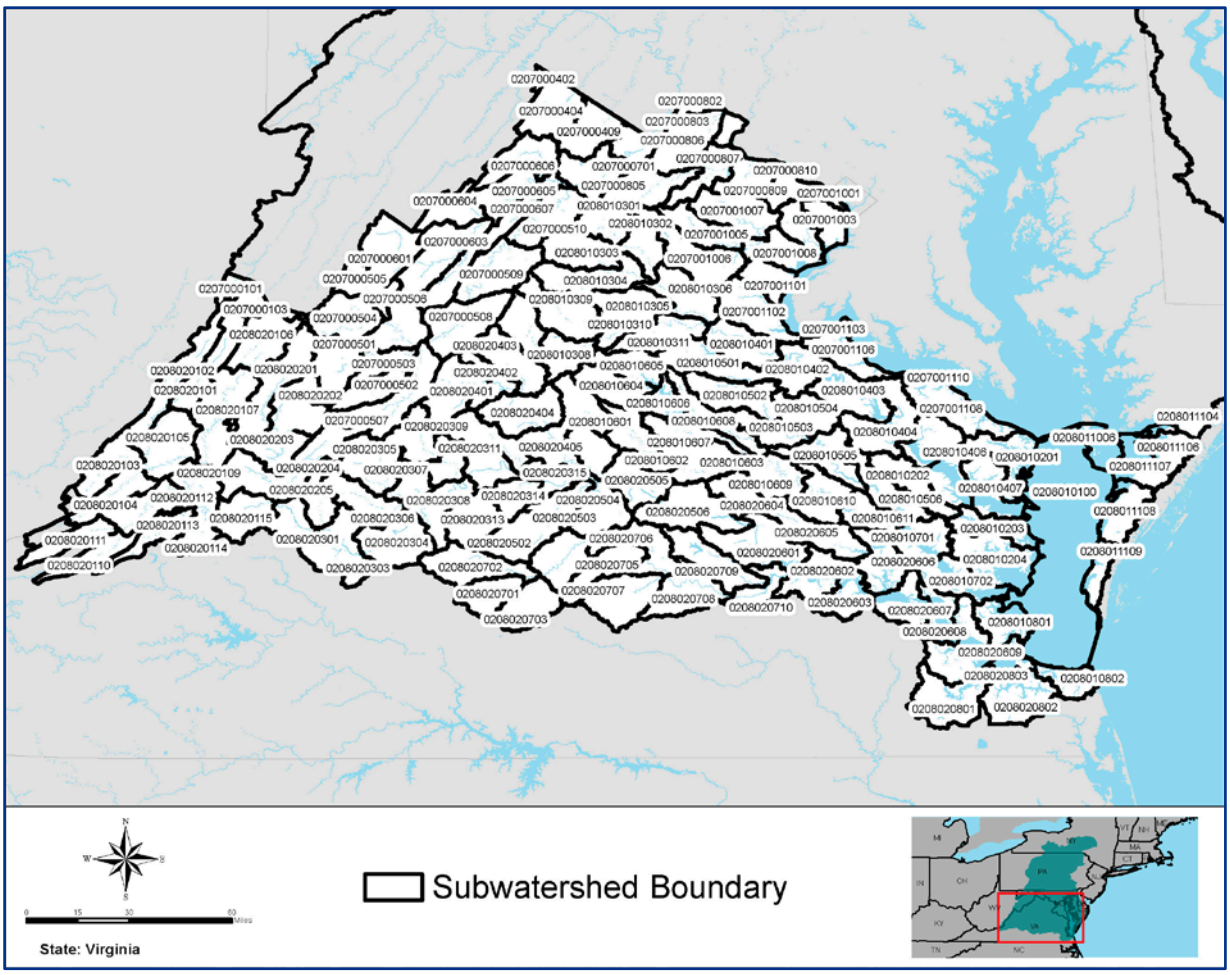

Figure 2. Hydrologic unit code (HUC) 10 subwatershed numbers in Virginia

1.2 Watershed Stressors

The Watershed Stressors Analysis evaluated the presence of stressors in each subwatershed based on six metrics listed below. See the Planning Analysis Appendix for more details on the data used.

- *Percent impervious cover* (Chesapeake Conservancy 2016)
- *Percent forest cover* (Chesapeake Conservancy 2016)
- *Percent of stream network with forested riparian buffers* (Environmental Protection Agency (EPA) 2010)
- *303(d) impaired waterways list* (EPA)
- *Benthic Index of Biotic Integrity (B-IBI)* (Chesapeake Bay Program (CBP))
- *Nitrogen and phosphorous yields* (as predicted by Spatially Referenced Regressions on Watershed (SPARROW) modeling)

Results of the Watershed Stressor Analysis for Virginia is shown on Figure 3 and in Table 2. Subwatersheds that contain the least watershed stressors resulted in a high watershed stressor score, and subwatersheds that contain the most watershed stressors resulted in a low watershed stressor score. The healthiest watersheds are areas that, if not already protected, would be good candidates for protection. The areas that are less healthy indicate areas that may benefit from restoration actions aimed at increasing the overall health of the subwatersheds. In general, the pattern of watershed stressors typically follows that of development, with the greater the amount of development and industrial activities in an area, the more stressed the subwatershed.

Based on the analysis, the subwatersheds in the western and central regions of Virginia contain the least watershed stressors and are considered healthy subwatersheds, compared to those adjacent to Washington, D.C.; Richmond, Virginia; the eastern shore of Virginia; and southeastern Virginia, which have more watershed stressors.

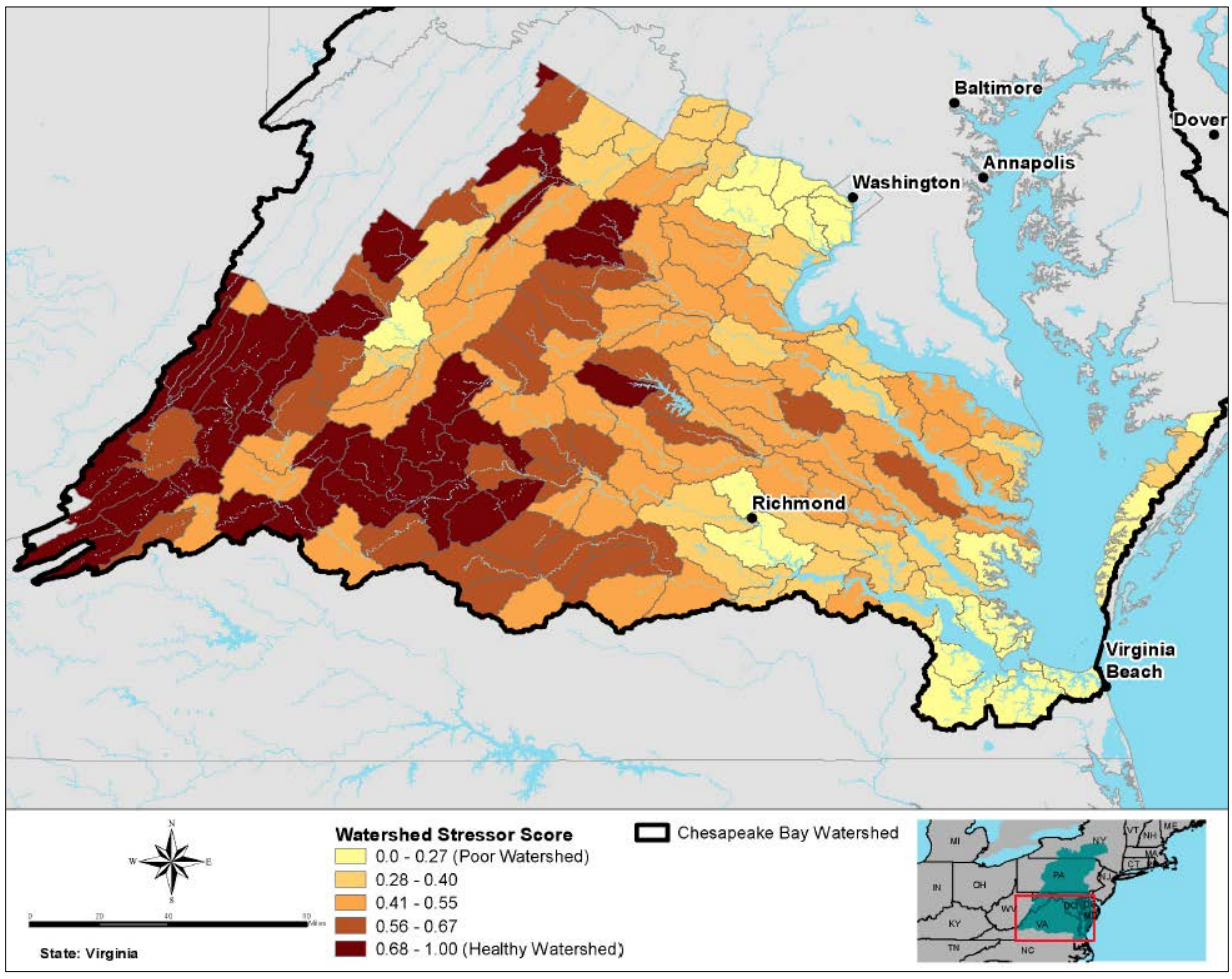

Figure 3. Watershed Stressor Analysis for Virginia

SECTION 2

Restoration Efforts Contributing to Watershed Wide Priorities

Opportunities for action were identified throughout the Chesapeake Bay Watershed by the baywide geospatial analyses. The *Opportunities Assessment* identifies subwatersheds with the greatest potential, need, or impairment, depending on the nature of the evaluation. The following sections discuss the *Opportunities Assessment* findings in Delaware and presents *Opportunity* maps that highlight subwatersheds holding the greatest potential to address the need investigated in each map. Shaded cells in the tables and darker-colored subwatersheds in the figures represent subwatersheds with the highest amount of *Opportunities*.

2.1 Vital Habitats Goal

"Restore, enhance and protect a network of land and water habitats to support fish and wildlife and to afford other public benefits, including water quality, recreation uses and scenic value across the watershed."

2.2.1 Outcome: Black Duck

"By 2025, restore, enhance and preserve wetland habitat to support a wintering population of 100,000 black ducks. Refine population targets through 2025 based on best available science."

CBP Black Duck Focus Areas were overlaid on the CBCP wetland restoration and enhancement maps to identify the subwatersheds that provide wetland restoration and enhancement opportunities with the potential to benefit black duck populations during the nonbreeding, over-wintering season.

Results of this analysis identified subwatersheds in which to focus wetland restoration and enhancement to benefit black duck populations during the nonbreeding, over-wintering season These subwatersheds lie within the tidally influenced wetland areas of the Chesapeake Bay Mainstem and near the mouths of bay tributaries as these areas are the most important over-wintering habitats utilized by the black duck.

Opportunities for Virginia area shown in Figures 12 (nontidal) and Figure 13 (tidal) and in Table 7. The Cedar Run (HUC 0207001006) and the Nomini Creek-Potomac River (HUC 0207001108) Subwatersheds have *Opportunities* for nontidal wetland restoration that may benefit overwintering black duck populations.

2.1.2 Outcome: Brook Trout

"Restore and sustain naturally reproducing brook trout in the Chesapeake Bay's headwater steams, with an eight percent increase in occupied habitat by 2025."

Geospatial data and analyses regarding brook trout have been provided by the CBP and Trout Unlimited, and are embedded in the Fish Passage, Riparian Forest Buffer, and Stream Restoration Analyses below.

2.1.3 Outcome: Fish Passage

"Continually increase habitat to support sustainable migratory fish populations in the Chesapeake Bay Watershed's freshwater rivers and streams. By 2025, restore historical fish migration routes by opening 1,000 additional stream miles to fish passage. Restoration success will be indicated by the consistent presence of alewife, blueback herring, American shad, hickory shad, American eel and brook trout, to be monitored in accordance with available agency resources and collaboratively developed methods."

Fish passage within the Chesapeake Bay Watershed is limited by a significant number of blockages that range from large hydroelectric power-generating dams to historical mill dams to road culverts and utility pipes that have been exposed by erosion. The intent of the CBCP's Fish Passage Blockages Opportunities Assessment was to build upon the work of the CBP's Fish Passage Workgroup to identify where high prioritized blockages are co-located with *Opportunities* for stream restoration. The following data were used in the Fish Passage Blockages Opportunities Assessment (see the Planning Analyses Appendix for more details on the data used).

- *High prioritized fish passage blockages* (CBP Fish Passage Workgroup)
- *Stream Restoration Analysis results* (CBCP)

Results of the Fish Passage Blockages Opportunities Assessment for Virginia is shown in Figure 4 and in Table 3. Based on this analysis, there are broad ranging opportunities for improving fish passage throughout Virginia to benefit anadromous fish and resident fish. The highest number of prioritized fish passage blockages to benefit anadromous fish are located in the Upper Pamunkey River (HUC 0208010609) and the Lower Pamunkey River (HUC 0208010611) Subwatersheds. The highest number of prioritized fish passage blockages to benefit resident fish are located in the Lickinghole Creek-James River Subwatershed (HUC 0208020505). The highest number of prioritized fish passage blockages to benefit both anadromous fish and resident fish are located in the Chapel Creek – Mattaponi River (HUC 0208010505) and the Occupacia Creek-Rappahannock River (HUC 0208010403) Subwatersheds.

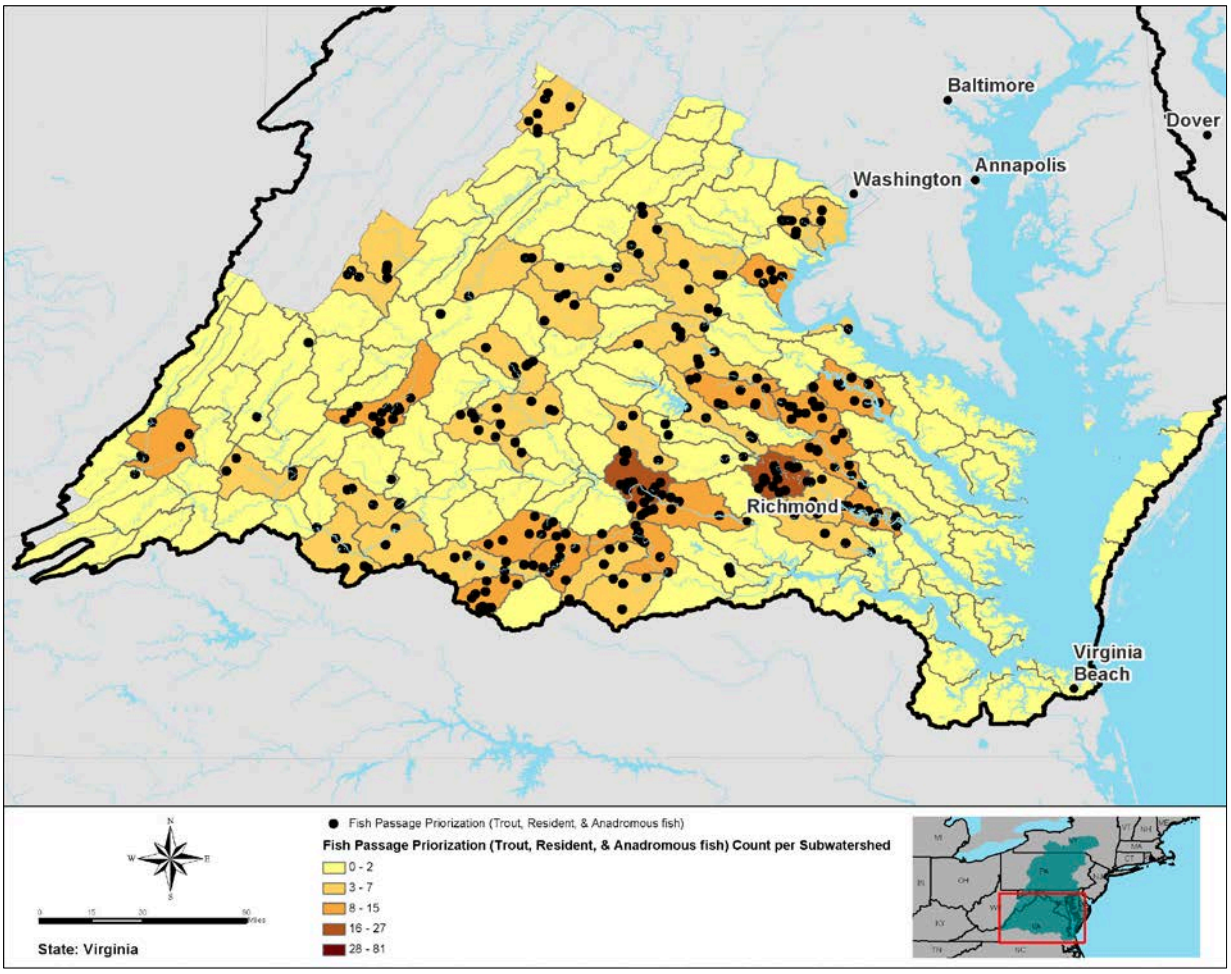

Figure 4. Prioritized fish passage blockages in Virginia

2.1.4 Outcome: Riparian Forest Buffers

"Continually increase the capacity of forest buffers to provide water quality and habitat benefits throughout the Chesapeake Bay Watershed. Restore 900 miles of riparian forest buffers per year and conserve existing buffers until at least 70 percent of riparian areas in the watershed are forested."

The purpose of the Riparian Forest Buffer Opportunities Assessment was to identify subwatersheds to focus riparian buffer restoration. Riparian buffer restoration can provide numerous benefits while targeting various impairments. This analysis identified subwatersheds where riparian buffer restoration opportunities exist to:

- Address watershed stressors (high-yielding nitrogen and phosphorous subwatersheds)
- Improve brook trout habitat
- Support improving stream habitat for resident fish and migratory species

The following data layers were used in the Riparian Forest Buffer Opportunities Assessment (see the Planning Analyses Appendix for more details on the data used):

- *Area of existing riparian buffers* (acres) (forested and non-forested) (CBP from Chesapeake Conservancy 2016)
- *Nitrogen and phosphorous yields* (as predicted by Spatially Referenced Regressions on Watershed (SPARROW) modeling)
- *Brook Trout Watersheds* (U.S. Geological Survey (USGS) National Hydrography Dataset plus catchments identified as potentially supporting brook trout based on the Eastern Brook Trout Joint Venture Salmonid Catchment Assessment and Habitat Patch Layers)
- *National Fish Habitat Assessment* (National Fish Habitat Partnership (NFHAP))
- *Eastern Brook Trout Conservation Portfolio, Range-wide Habitat Integrity and Future Security Assessment, and Focal Area Risk and Opportunity Analysis* (Trout Unlimited, Fessenmeyer et al. 2017)

Results of the Riparian Forest Buffer Opportunities Assessment for Virginia are shown in Figure 5 and in Table 4. There are broad riparian forest buffer opportunities throughout Virginia with opportunities concentrated in the western region of Virginia, in the Richmond, Virginia area, and in the southwest extent of the Virginia portion of the watershed. The greatest opportunity for fish species that are dependent on forest buffer restoration is in the western region of the Virginia portion of the watershed. High nitrogen and phosphorus yields are most pronounced in the southern extent of the Virginia portion of the watershed, and riparian buffer restoration in this area would serve to help improve water quality and increase wildlife habitat in this area.

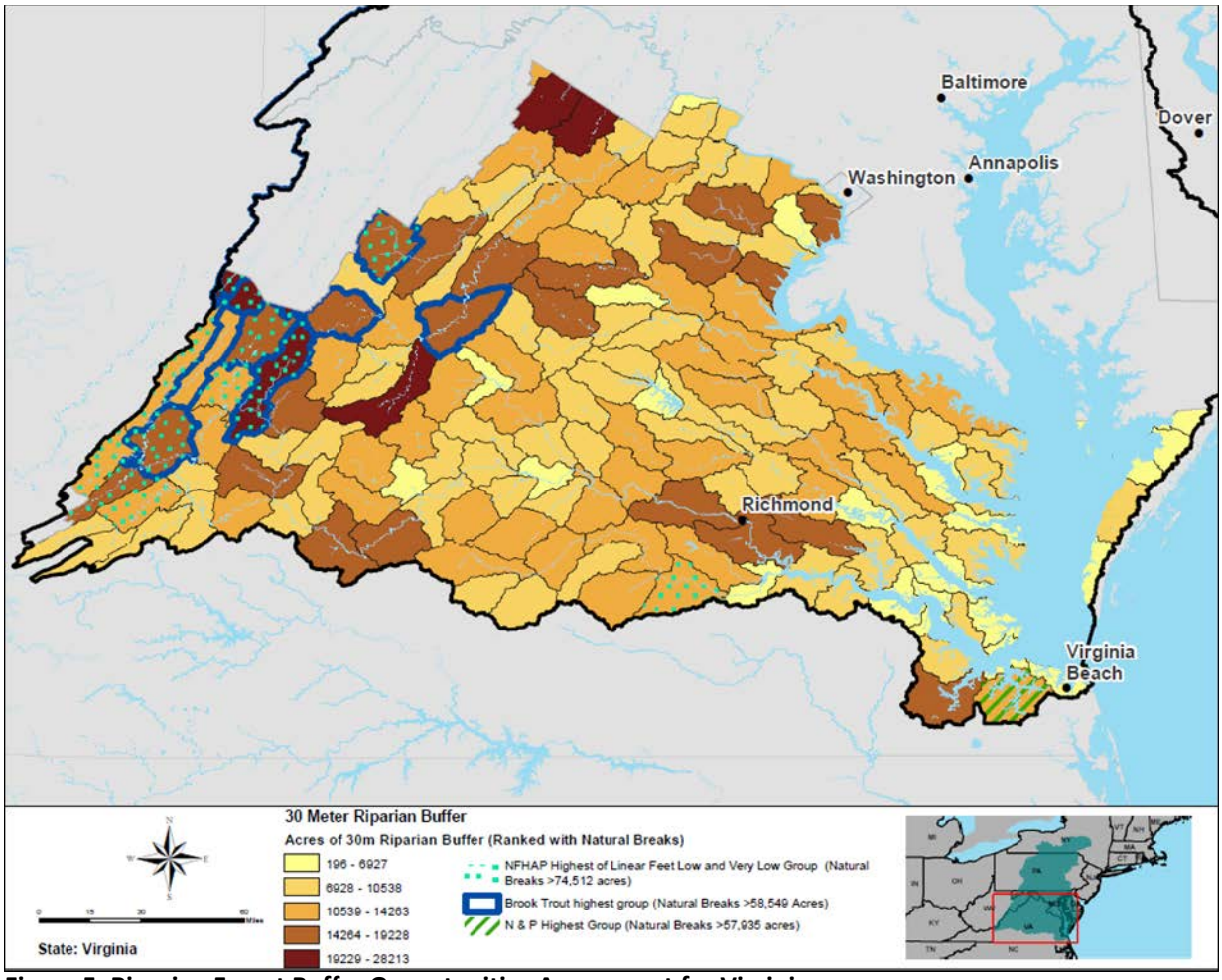

Figure 5. Riparian Forest Buffer Opportunities Assessment for Virginia

2.1.5 Outcome: Stream Health

"Continually improve stream health and function throughout the Chesapeake Bay Watershed. Improve the health and function of ten percent of stream miles above the 2008 baseline."

The purpose of this analysis was to identify subwatersheds to focus stream restoration efforts to benefit resident fish, brook trout, and anadromous fish. The following data was used in the Stream Restoration Opportunities Assessment (see the Planning Analyses Appendix for more details on the data used):

- *Watershed Stressor Analysis* (CBCP)
- *National Fish Habitat Assessment* (NFHAP)
- *Brook Trout Watersheds* (USGS)
- *Extent of anadromous fish habitat* (CBP)
- *Conservation Strategies for Brook Trout* (Trout Unlimited)

Results of the Stream Restoration Opportunities Assessment for Virginia are shown in Figures 6 and 7 and listed in Table 5. The subwatersheds with high watershed stressor scores (healthier watersheds) and opportunities to benefit brook trout are mainly located in the western areas of the Virginia portion of the watershed. These areas, though relatively healthy, are areas where brook trout could further benefit from stream restoration. Additionally, there are other broad ranging opportunities with varying watershed stressor scores throughout Virginia that have the potential to benefit a variety of fish populations.

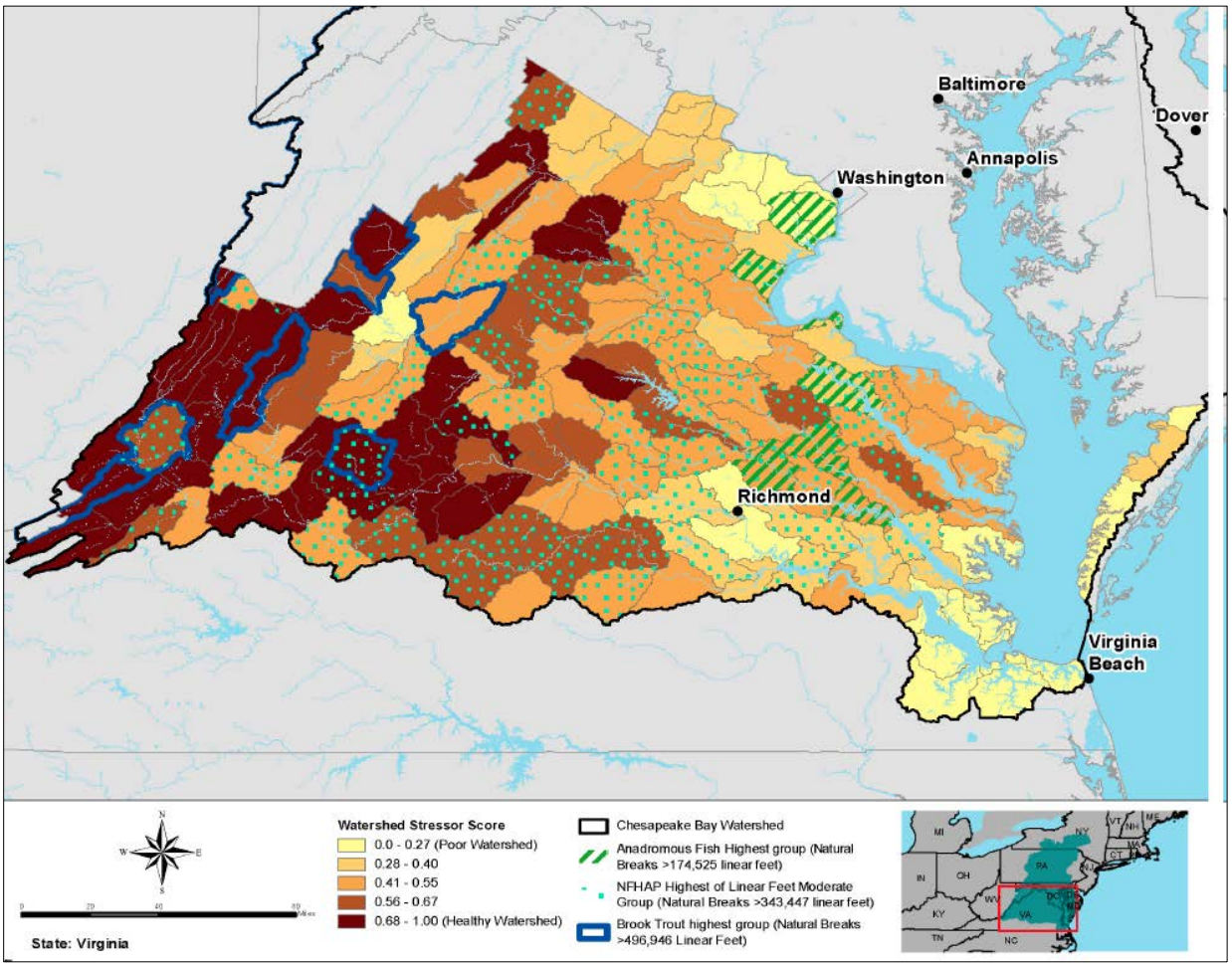

Figure 6. Stream Restoration Opportunities Assessment for Virginia

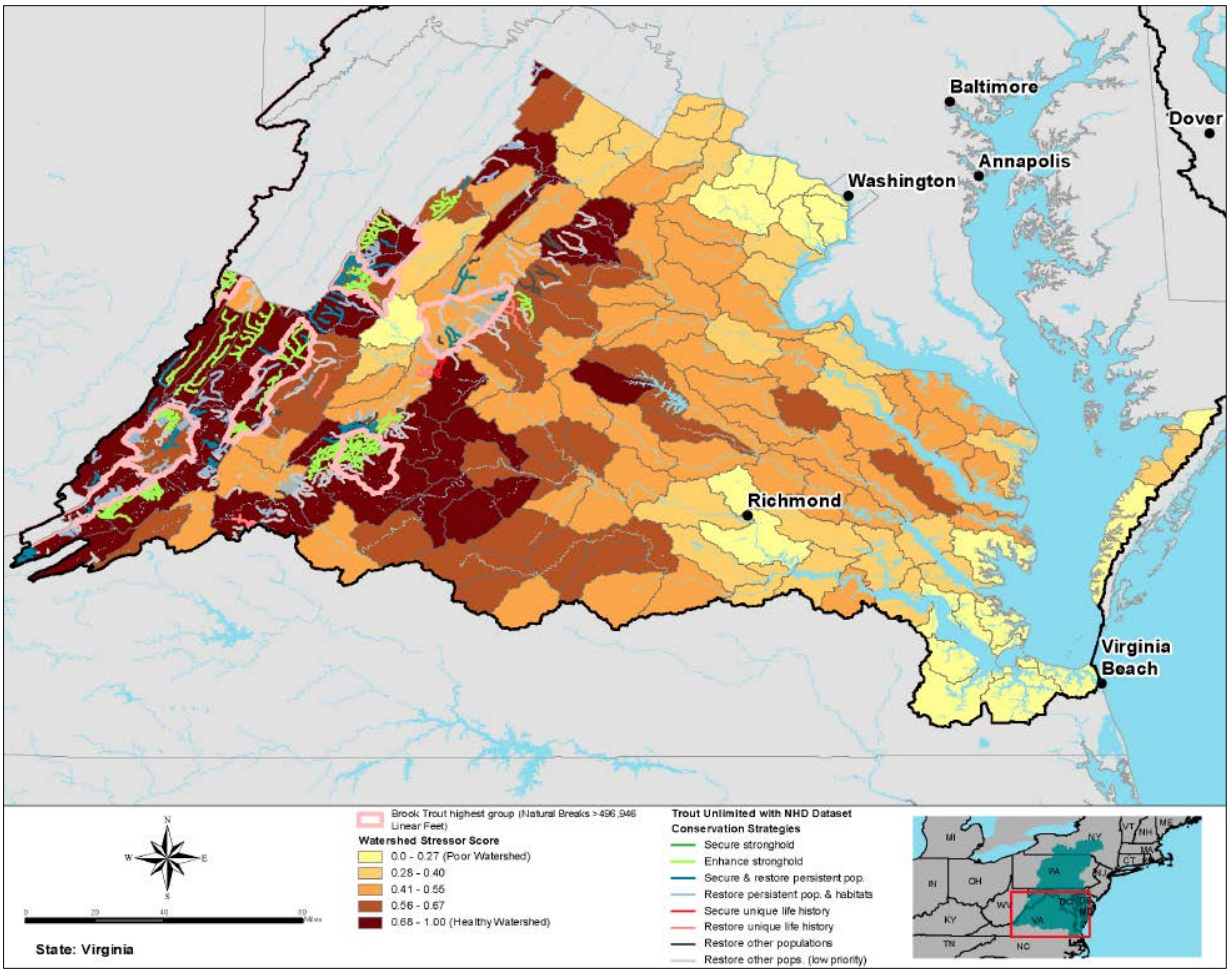

Figure 7. Potential areas for stream restoration to benefit brook trout based on Trout Unlimited conservation strategies and watershed stress in Virginia

2.1.6 Outcome: Wetlands

"Continually increase the capacity of wetlands to provide water quality and habitat benefits throughout the Chesapeake Bay Watershed. Create or reestablish 85,000 acres of tidal and nontidal wetlands and enhance the function of an additional 150,000 acres of degraded wetlands by 2025. These activities may occur in any land use (including urban), but should primarily occur in agricultural or natural landscapes."

2.1.6.1 Identify Wetland Enhancement Opportunities

The Wetlands Enhancement Opportunities Assessment (nontidal and tidal) for Virginia identified areas where wetlands exist and may provide enhancement opportunities to increase their ecological value. The following data was used in the Wetlands Enhancement Opportunities Assessment (see the Planning Analyses Appendix for more details on the data used):

- *High Resolution Land Cover Data* (collected in 2016 by the Chesapeake Bay Conservancy and provided by NFWF)
- *Hydric Soils Dataset* (CBP)

Results of the Wetlands Enhancement Opportunities Assessment for Virginia are shown in Figures 8 (nontidal) and 9 (tidal) and in Table 6. There are extensive potential opportunities for nontidal and tidal wetland enhancement throughout Virginia. Potential areas for nontidal and tidal wetland enhancement include Tangier, Pocomoke Sound, the Delmarva Peninsula, and the southernmost extent of the watershed. Opportunities for wetland enhancement are concentrated in the Marumsco Creek-Pocomoke Sound Subwatershed (HUC 0208011105), which contains 10,424 acres of existing tidal wetlands and the Nansemond River Subwatershed (HUC 0208020801), which contains 24,462 acres of existing nontidal wetlands.

The existing datasets do not evaluate the function and value of the existing wetlands; therefore, additional field analyses would be necessary to determine the existing wetland areas in need of enhancements and to identify the specific type of enhancement necessary.

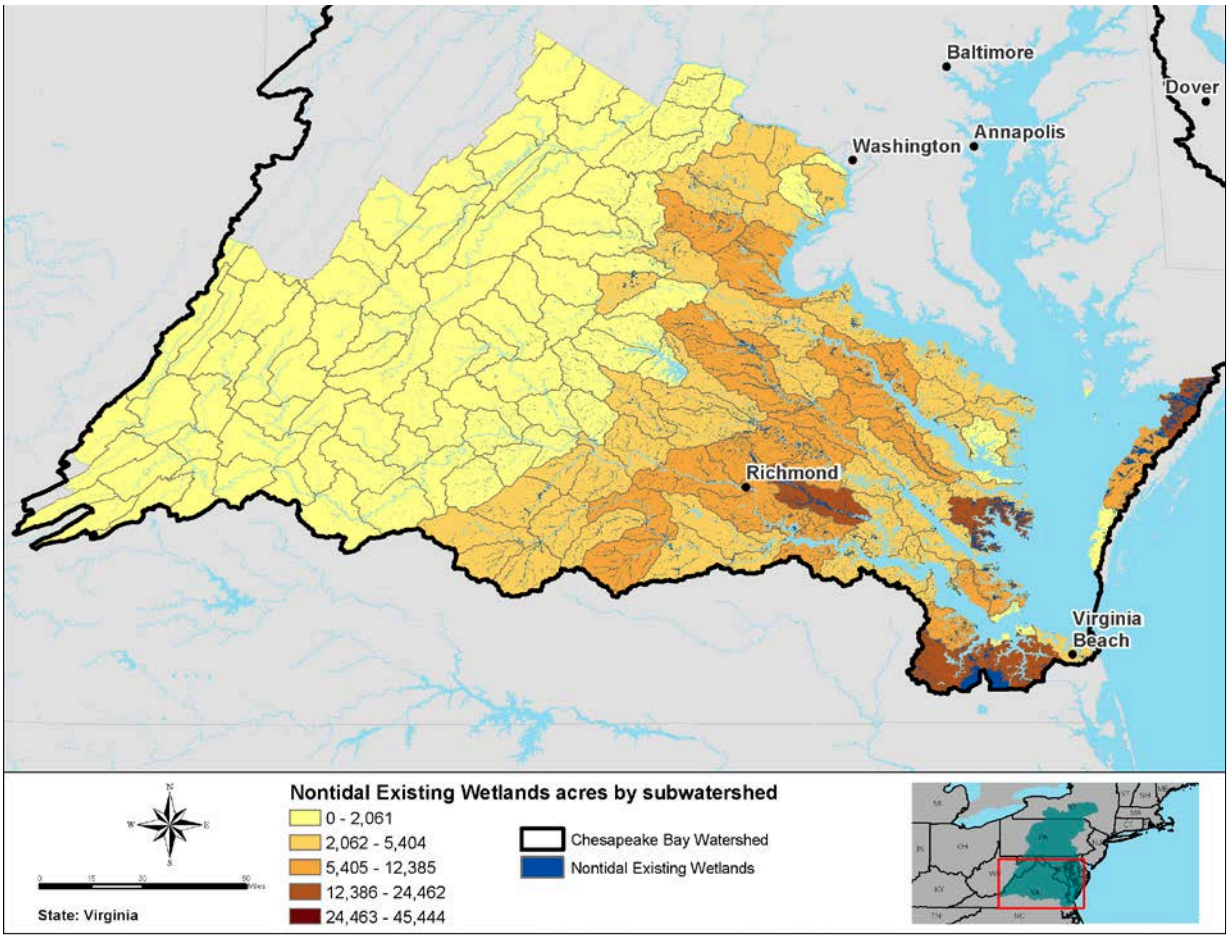

Figure 8. Existing nontidal wetlands in Virginia

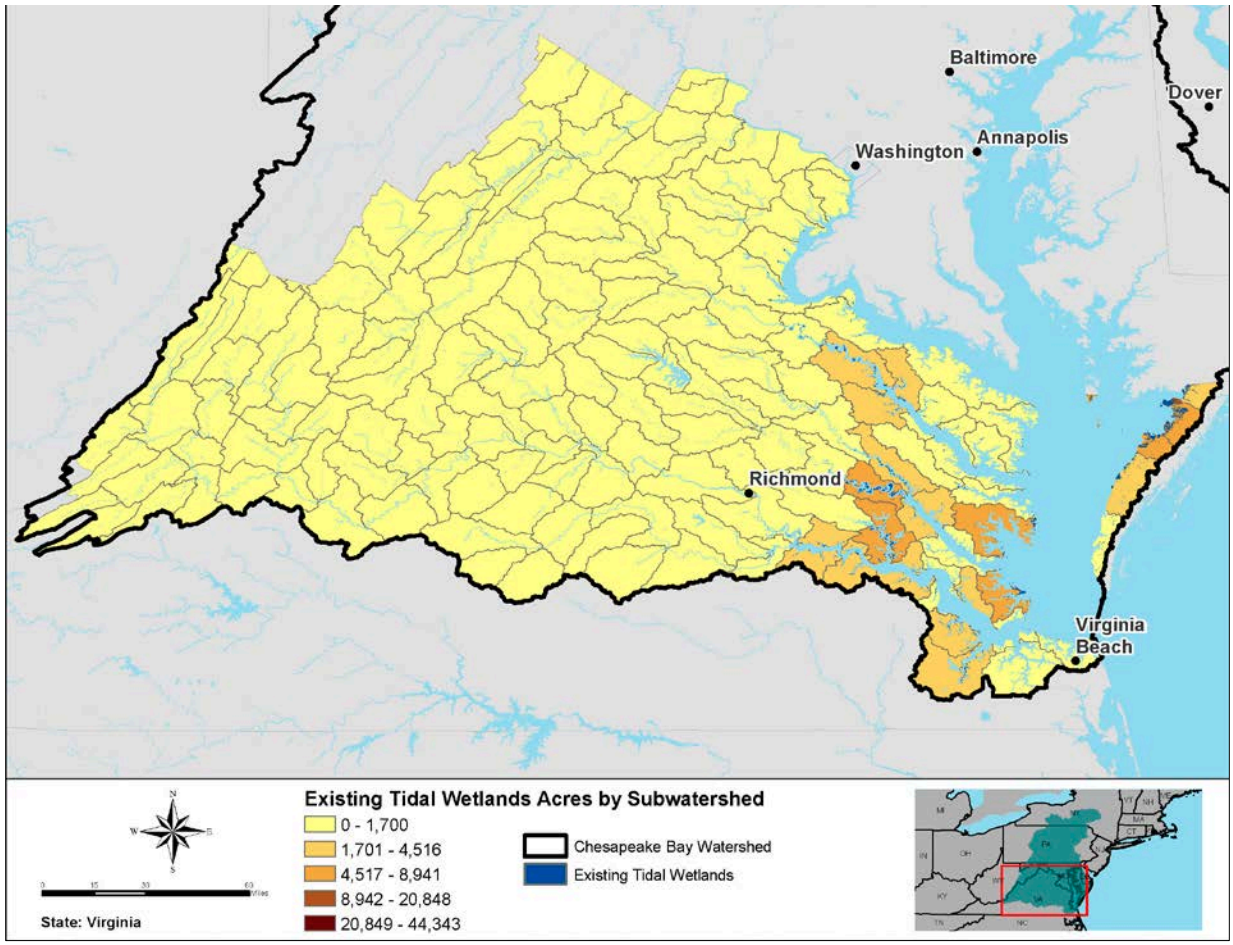

Figure 9. Existing tidal wetlands in Virginia

2.1.6.2 Identify Wetland Restoration Opportunities:

The Wetlands Restoration Opportunities Assessment identified opportunities for wetland restoration in Virginia. The following data was used in the Wetlands Restoration Opportunities Assessment (see the Planning Analyses Appendix for more details on each layer):

- *Wetlands Enhancement Opportunities Assessment Results* (CBCP)
- *Digital Elevation Model* (USGS)

Results of the Wetland Restoration Opportunities Assessment for Virginia are shown in Figures 10 and 11 and in Table 6. There are extensive opportunities throughout Virginia for nontidal wetland restoration. The areas described previously as potential sites for wetland enhancement (Tangier, Pocomoke Sound, Delmarva Peninsula, and the southernmost extent of the watershed) and the subwatersheds flanking the Back River and Mobjack Bay are focus areas for tidal wetland restoration. Opportunities for nontidal wetland restoration are concentrated in the Opequon Creek Subwatershed (HUC) 0207000409), which has 89,949 acres of nontidal wetland restoration opportunities and the Linville Creek-North Fork Shenandoah River (HUC 0207000603), which has 75,508 acres of nontidal wetland restoration opportunities.

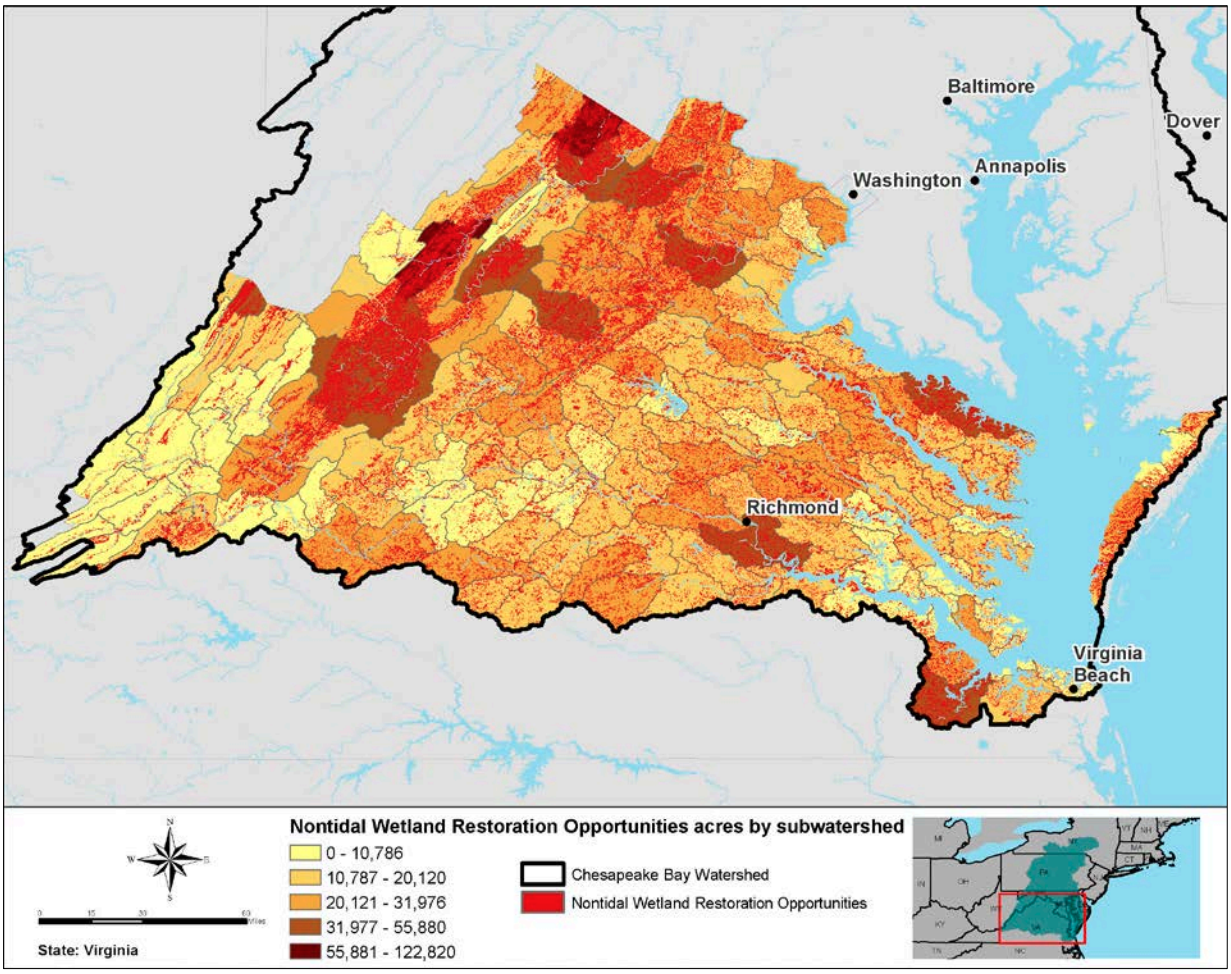

Figure 10. Nontidal wetland restoration opportunities in Virginia

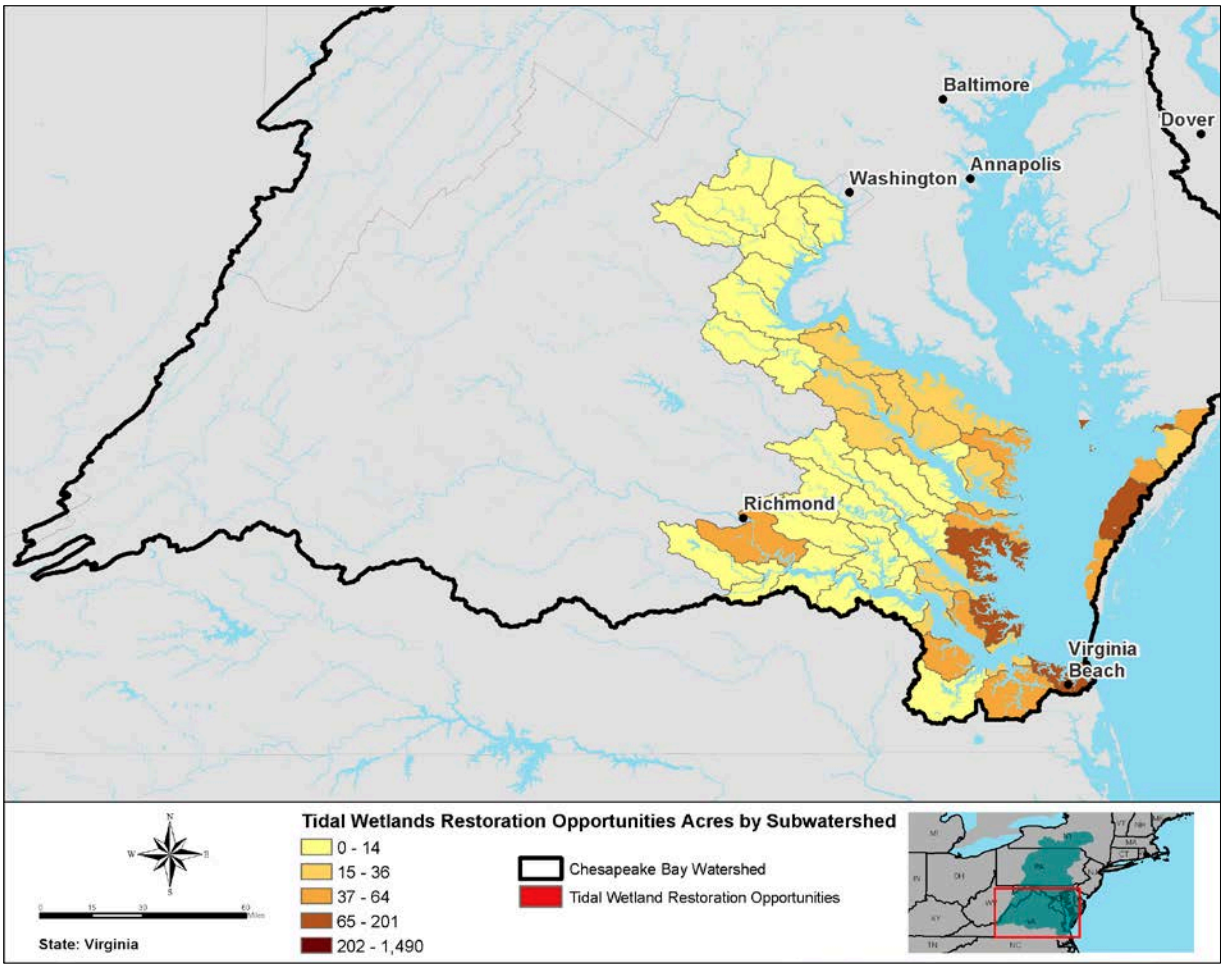

Figure 11. Tidal wetland restoration opportunities in Virginia

2.1.6.3 Identify Wetland Restoration Opportunities to Benefit Avian Wildlife.

The purpose of this analysis was to identify the wetland restoration *Opportunities* that have the potential to benefit avian wildlife by determining where *Opportunities* overlap with Audubon Important Bird Areas. The following data was used in this analysis (see the Planning Analyses Appendix for more details on the data used):

- *Wetlands Restoration Opportunities Assessment Results* (CBCP)
- *Nesting locations for wading birds and waterbirds* (Center for Conservation Biology)
- *Black Duck Focus Areas* (CBP)
- *Audubon Important Bird Areas*

Results of this analysis for the Virginia are shown in Figures 12 and 13 and in Table 7. There are important avian habitats throughout Virginia, and wetland restoration has the potential to create habitat and potentially improve ecological connectivity for a multitude of avian habitats throughout nontidal and tidal areas of Virginia. In the north-central regions of Virginia, wetland restoration has the potential to expand important avian habitats. There are substantive

opportunities to benefit key avian species that nest, forage, and roost in tributaries flanking the mainstem of Chesapeake Bay and notably in southernmost extent of the watershed and the Delmarva Peninsula. Approximately 43,690 acres of nontidal wetland restoration opportunities in the Cedar Run Subwatershed (HUC 02070001006) and approximately 39,468 acres of nontidal wetland restoration opportunities in the Nomini Creek-Potomac River (HUC 0207001108) overlaps Audubon Important Bird Areas and has the potential to benefit overwintering populations of black duck.

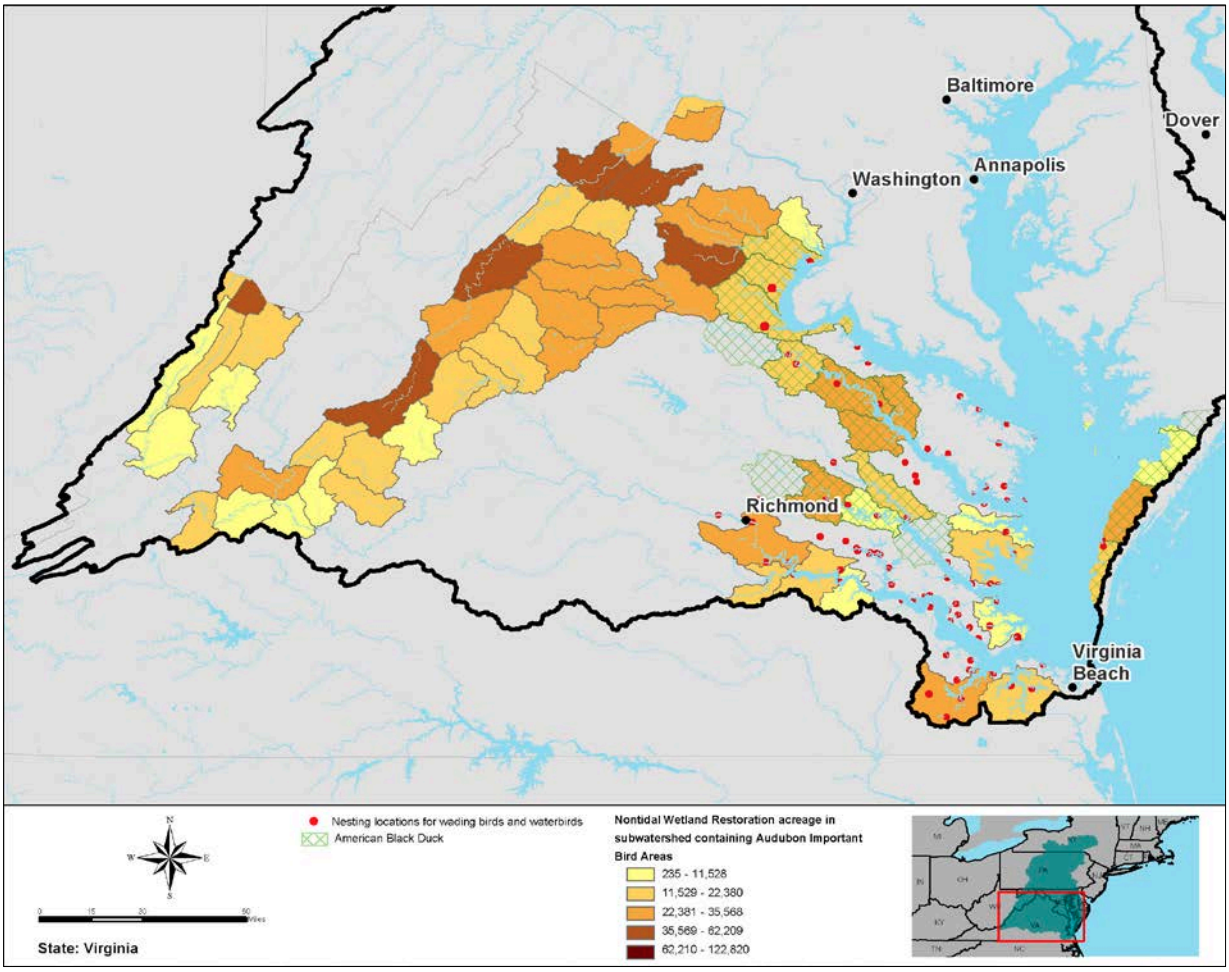

Figure 12. Nontidal wetland restoration opportunities with avian benefits in Virginia

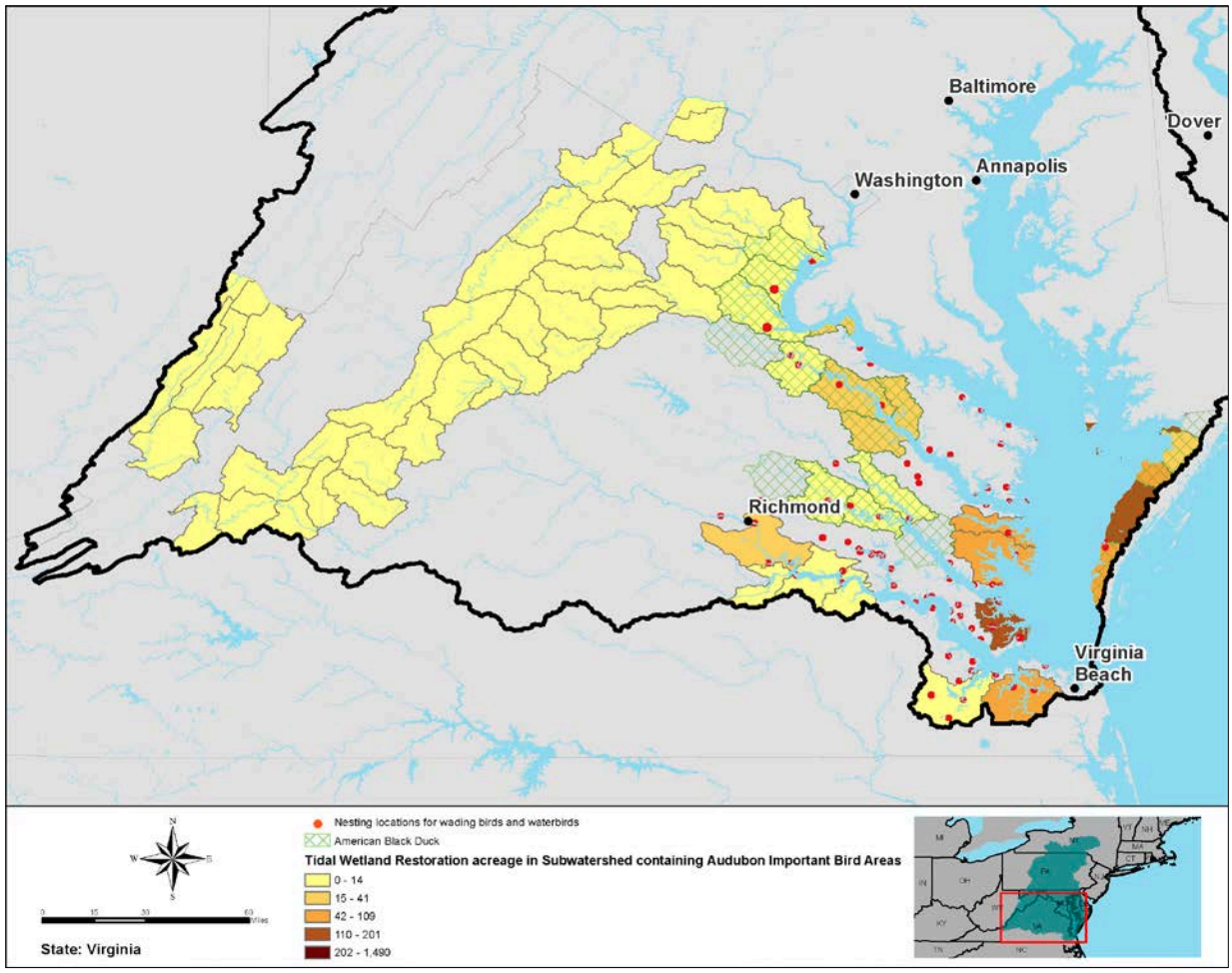

Figure 13. Tidal wetland restoration opportunities with avian benefits in Virginia

2.1.6.4 Identify Wetland Restoration Opportunities that are Important Habitats for Imperiled Species (Rare, Threatened and Endangered)

The purpose of this analysis was to identify wetland restoration *Opportunities* that are important habitats for rare, threatened and endangered (RTE) species. The following data was used in this analysis (see the Planning Analyses Appendix for more details on the data used):

- *Wetlands Restoration Opportunities Assessment Results* (CBCP)
- *Nature's Network Imperiled Species Dataset* (identifies important, moderately important, and less important habitat for imperiled species)

Results of this analysis for Virginia are shown in Figures 14 and 15. There are substantial opportunities to improve habitat for imperiled species by restoration of wetlands throughout the tidal and nontidal subwatersheds of Virginia. Core habitat for imperiled species overlaps nontidal wetland restoration opportunities in the western subwatersheds of Virginia.

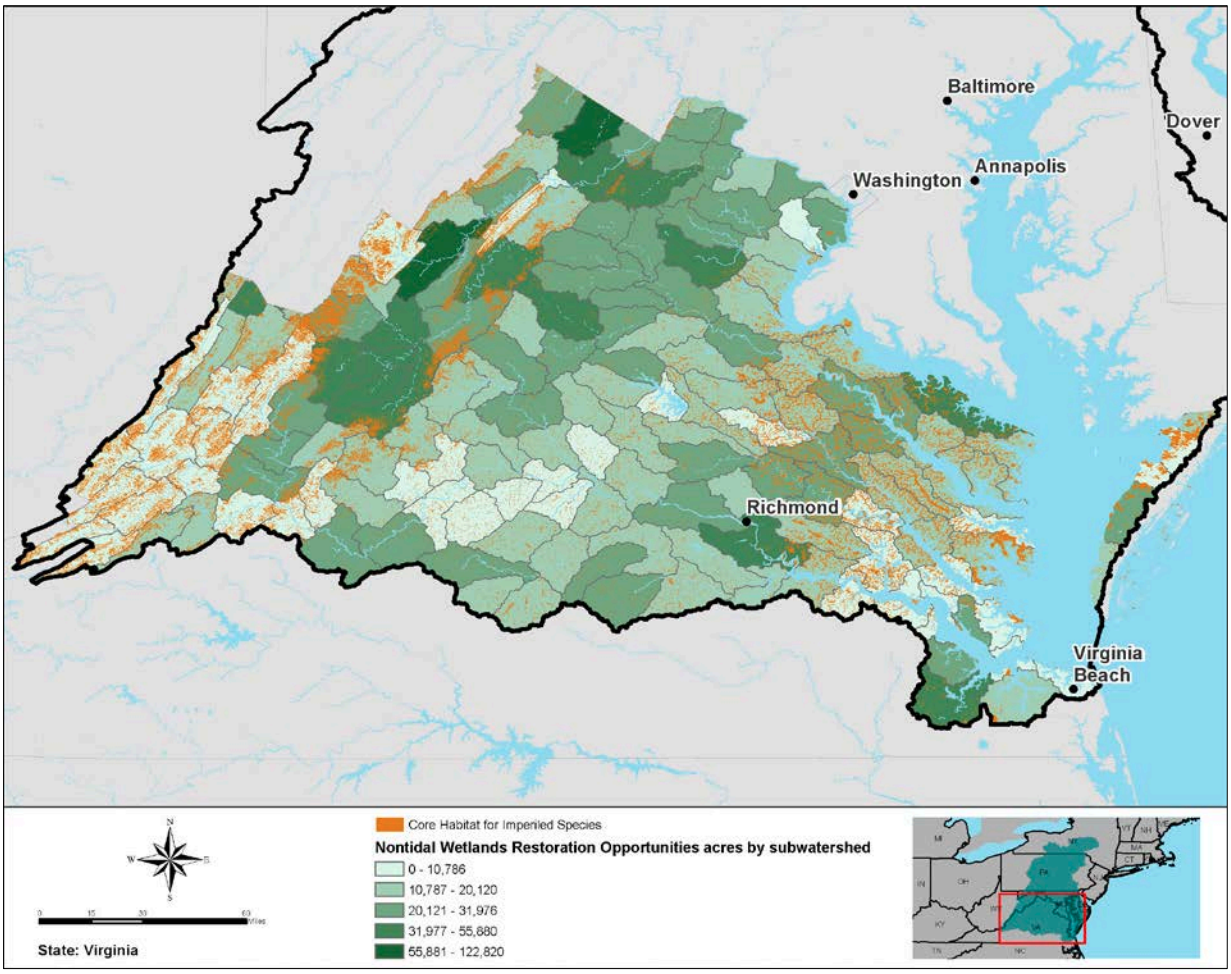

Figure 14. Core habitat for imperiled species in relation to existing nontidal wetland restoration *Opportunities* in Virginia

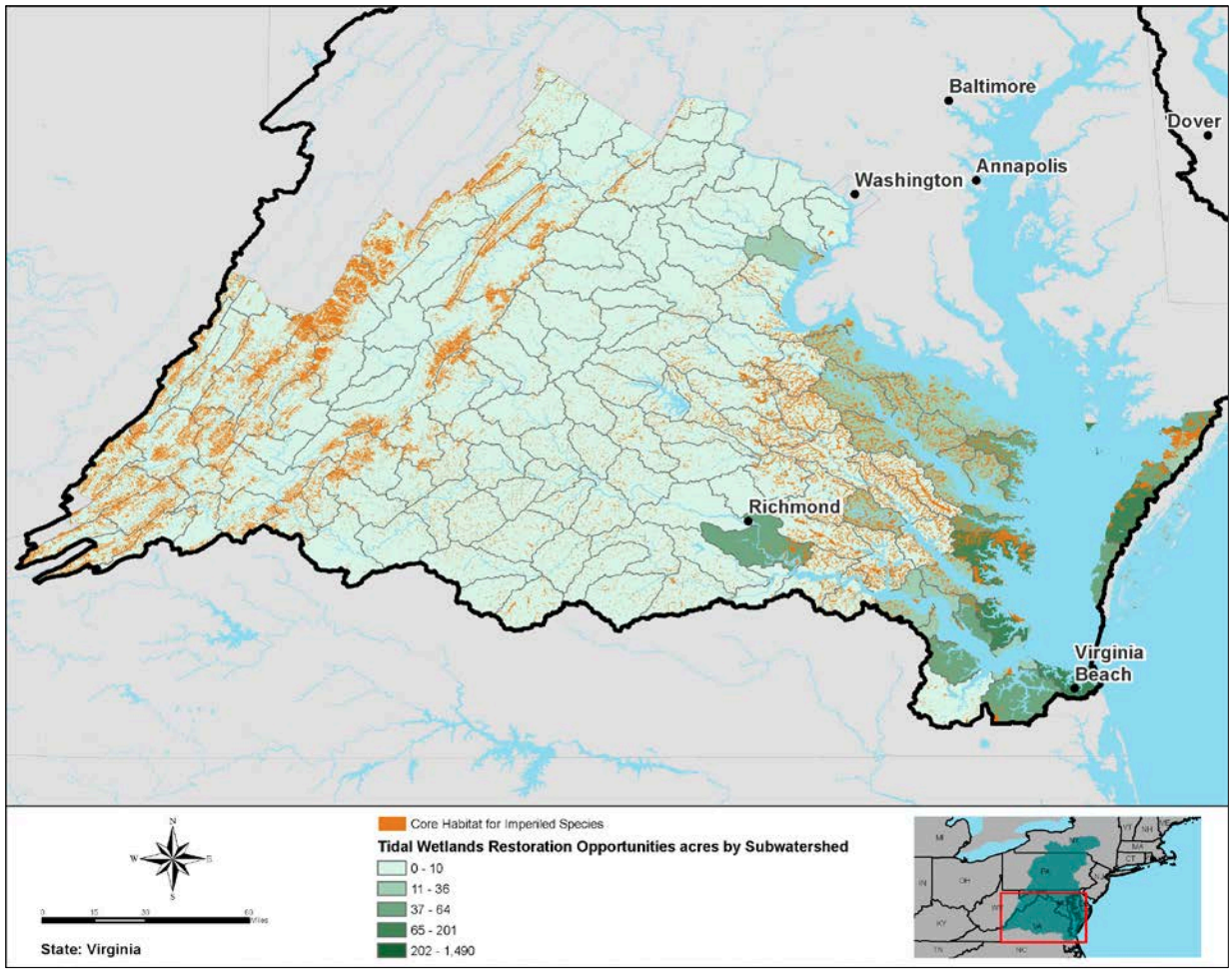

Figure 15. Core habitat for imperiled species in relation to existing tidal wetlands restoration *Opportunities* in Virginia

2.1.6.5 Identify Opportunities to beneficially use dredged material for Wetland Enhancement and Restoration

The purpose of this analysis was to identify wetland enhancement and restoration *Opportunities* located within a three-mile buffer of USACE navigation projects to identify potential beneficial use of dredged material for nontidal wetlands enhancement and restoration. The following data was used in this analysis (see the Planning Analyses Appendix for more details on the data used):

- *U.S. Army Corps of Engineers (USACE) navigation projects (dredged channels)*
- *Wetlands Restoration and Enhancement Opportunities Assessment Results* (CBCP)

The results of this analysis are shown on Figures 16 and 17 and in Table 8. The analysis shows vast opportunities for wetland enhancement and restoration within a three-mile buffer of USACE navigation channels along the major tributaries of the Chesapeake Bay in Virginia. Nontidal wetland enhancement opportunities that fall within a three-mile buffer of USACE navigation channels are concentrated in the Elizabeth River Subwatershed (HUC 0208020802), tidal wetland restoration opportunities that fall within a three-mile buffer of USACE navigation channels are

concentrated in the Lower Tangier Sound Subwatershed (HUC 0208011006), nontidal wetland restoration opportunities that fall within a three-mile buffer of USACE navigation channels are concentrated in the Falling Creek-James River Subwatershed (HUC 0208020601), and tidal wetland restoration opportunities that fall within a three-mile buffer of USACE navigation channels are concentrated in the Pungoteague Creek-Lower Chesapeake Bay (HUC 0208011108).

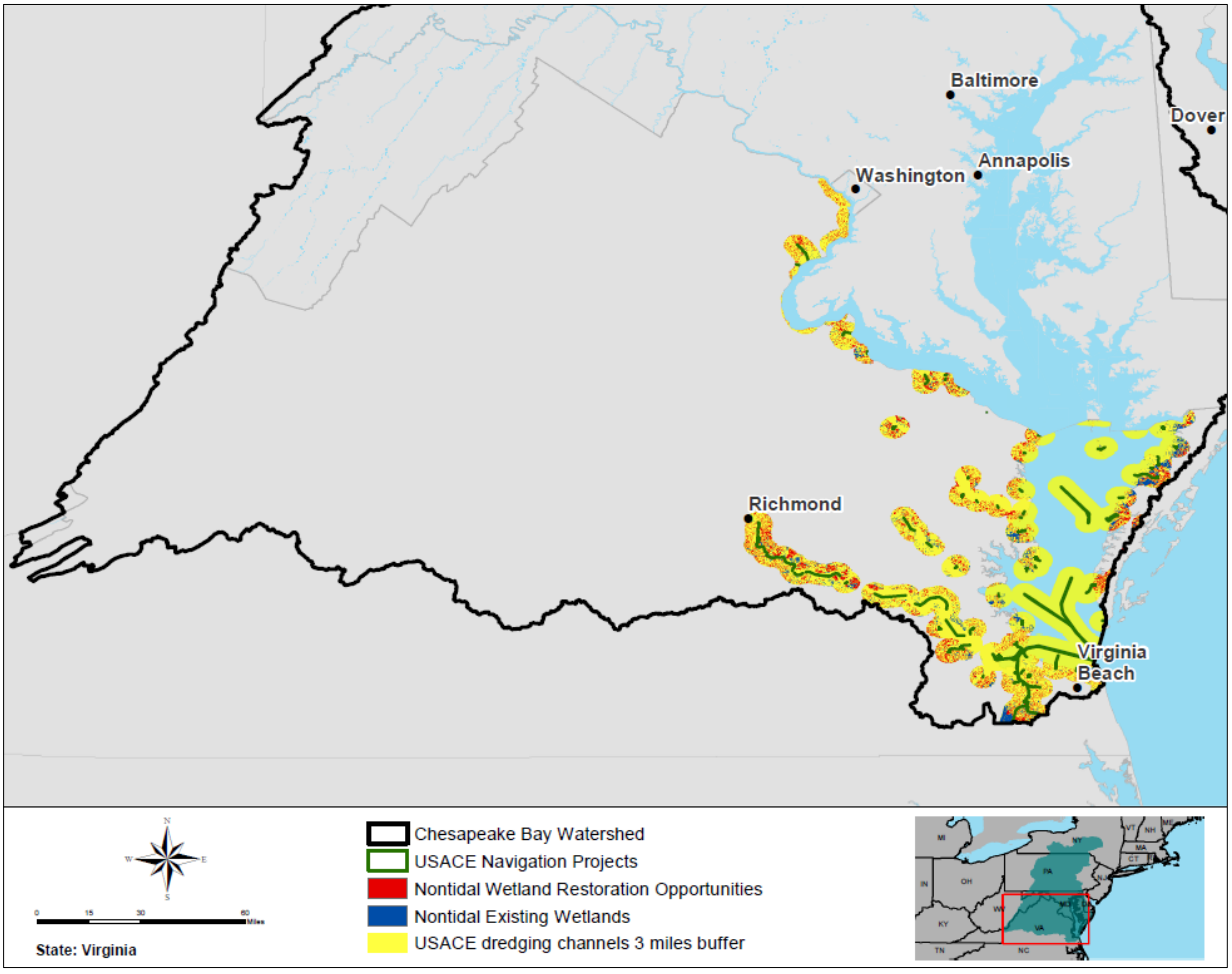

Figure 16. Potential beneficial use of dredged material and nontidal wetland enhancement and restoration opportunities in Virginia

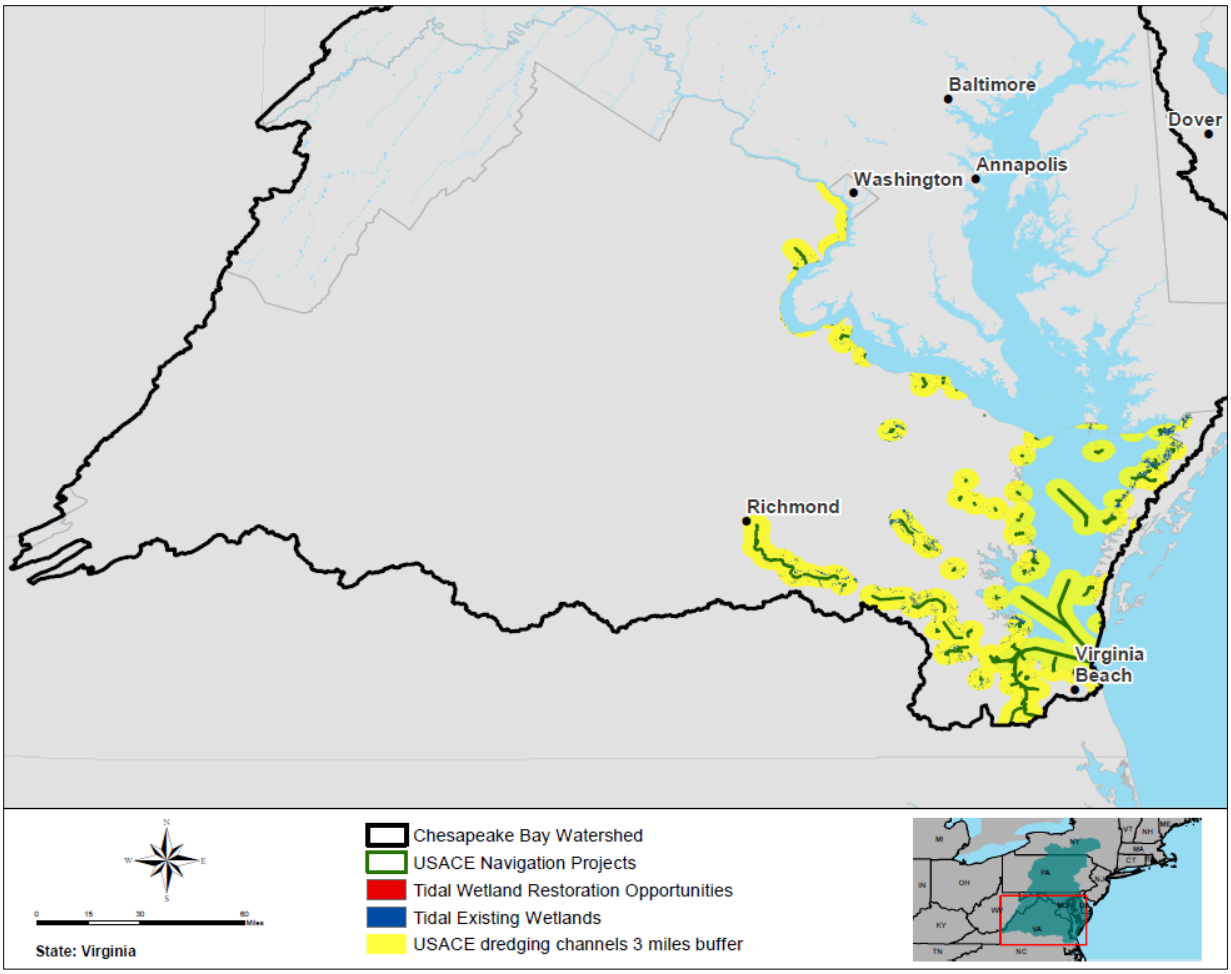

Figure 17. Potential beneficial use of dredged material and tidal wetland enhancement and restoration opportunities in Virginia

2.1.6.6 Wetlands Threats Opportunities Assessment

The Wetlands Threats Opportunities Assessment investigated whether wetland restoration *Opportunities* are at risk to climate change, anticipated increases in flooding and coastal storms, and projected development in the Chesapeake Bay Watershed. This analysis incorporated the results of the CBCP Threats Analysis with the CBCP Wetlands Restoration Opportunities Assessment and the Wetlands Enhancement Opportunities Assessment to understand habitats that may be lost or impaired by future threats.

Results of this Wetlands Threats Opportunities Assessment for Virginia are shown in Table 9 and in Figures 18 and 19 for threats to existing wetlands and Figures 20 and 21 for threats to wetland restoration opportunities. The most threatened nontidal areas are located in the north central-central areas of Virginia. The Upper Chickahominy River Subwatershed (HUC 02080202604) contains 2,502 acres of threatened nontidal wetlands. Threats to nontidal wetland restoration opportunities are concentrated in the Opequon Creek (HUC 0207000409), Upper Goose Creek (HUC 0207000805) and the Long Marsh Run-Shenandoah River (HUC 0207000702) Subwatersheds. Highly threatened tidal areas in Virginia are located in Tangier, the Delmarva Peninsula, and those flanking the mainstem of the Chesapeake Bay. The Marumsco Creek-

Pocomoke Sound Subwatershed (HUC 0208011105) contains 8,407 acres of threatened tidal wetlands.

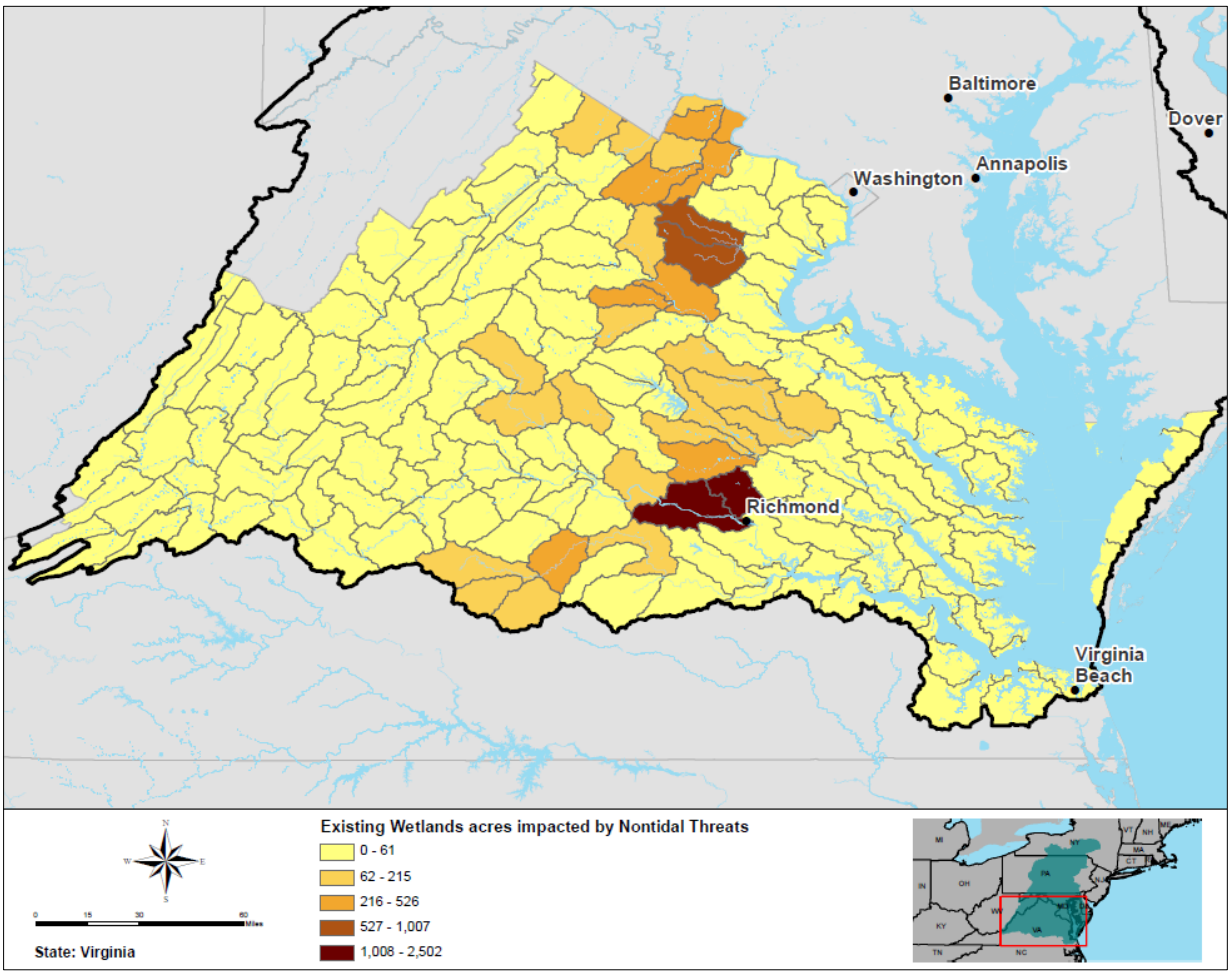

Figure 18. Wetland enhancement opportunities at risk to nontidal threats in Virginia

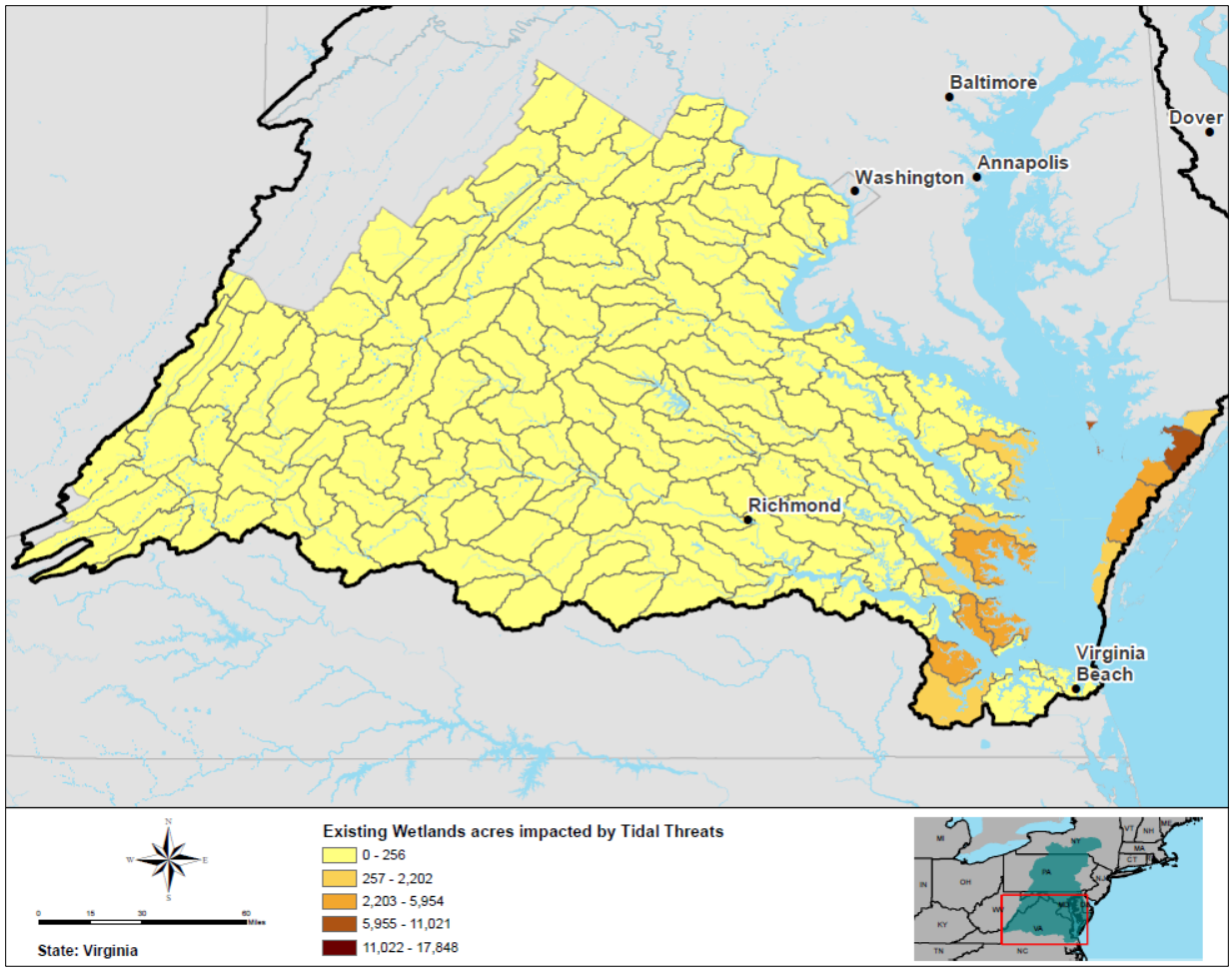

Figure 19. Wetland enhancement opportunities at risk to tidal threats in Virginia

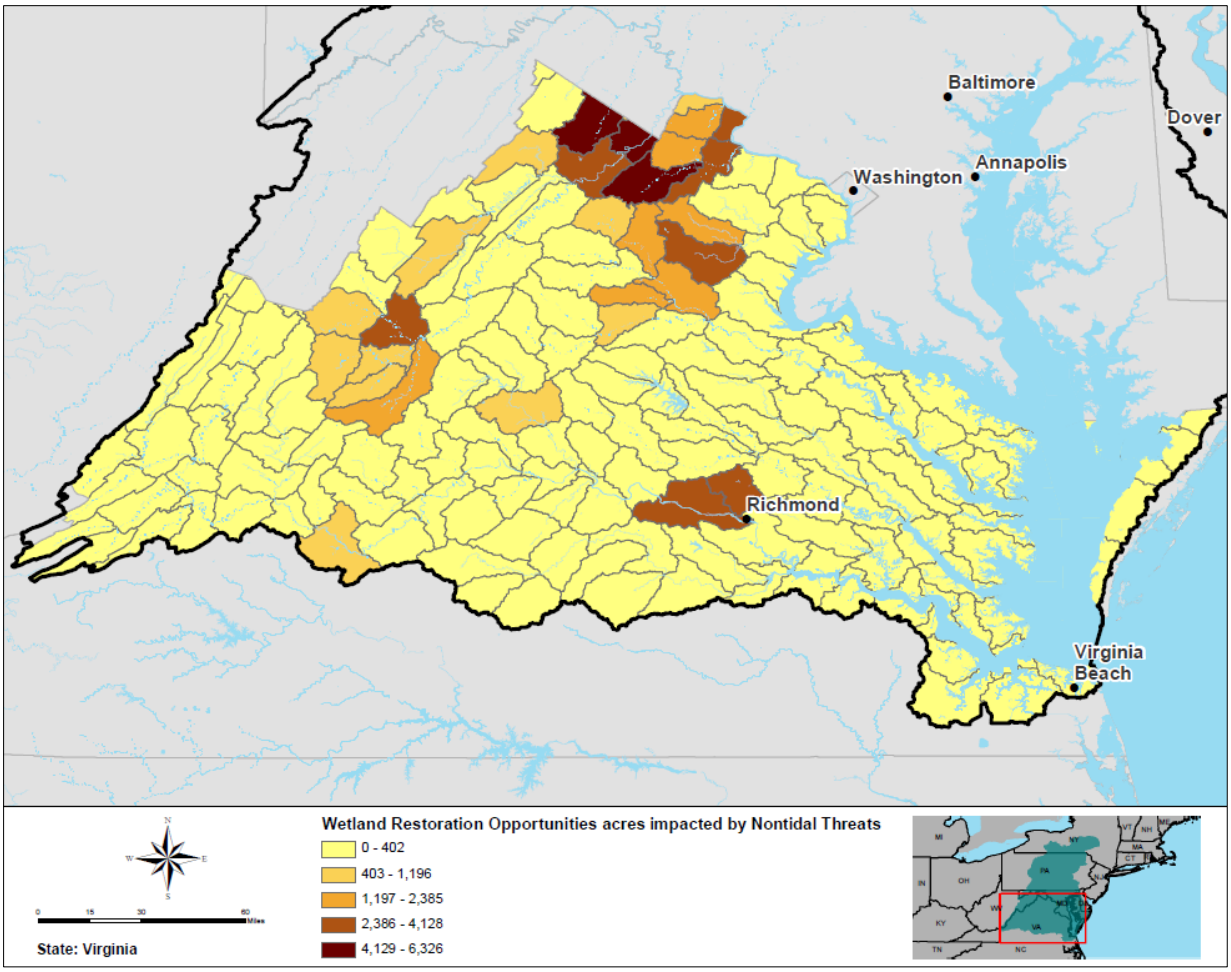

Figure 20. Wetland restoration opportunities at risk to nontidal threats in Virginia

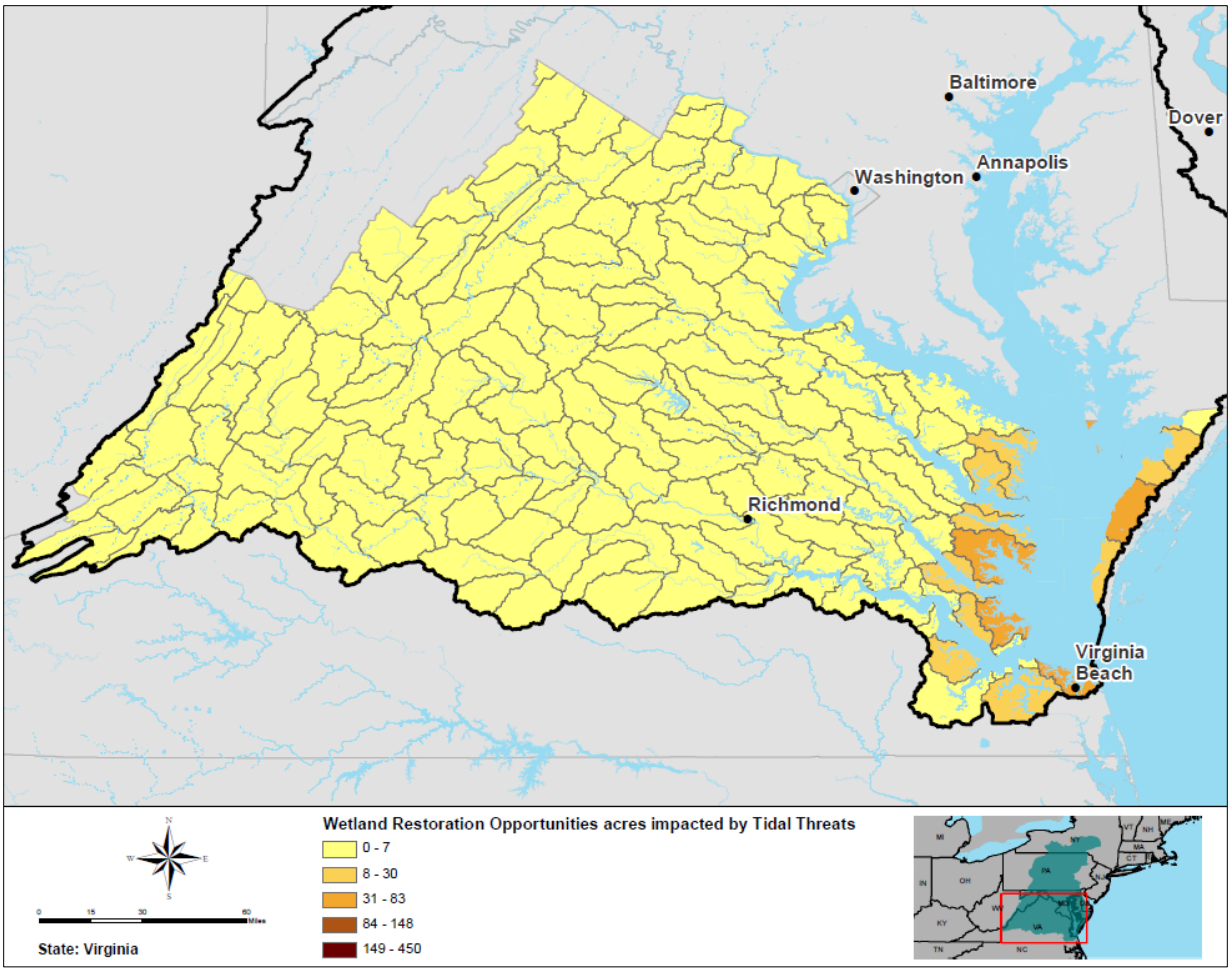

Figure 21. Wetland restoration opportunities at risk to tidal threats in Virginia

2.1.7 Outcome: Submerged Aquatic Vegetation

The Submerged Aquatic Vegetation (SAV) Restoration Opportunities Assessment compares areas that have experienced significant historical SAV loss and areas where SAV habitat was located as of 2015 to identify potential areas in the Chesapeake Bay Watershed for SAV restoration.

The following data was used in the SAV Restoration Opportunities Assessment (see the Planning Analysis Appendix for more details on the data used):

- *Virginia Institute of Marine Science (VIMS) SAV Survey Data (1971–2015) (compiled layer that represents all locations where SAV have been detected from 1971 through 2015)*
- *VIMS SAV Survey Data (2015) (identifies current location of SAV habitat)*

Results of the SAV Restoration Opportunities Assessment are shown on Figure 22 and in Table 10. The analysis showed opportunities for SAV restoration in the Lower Chesapeake Bay (HUC 0208010100), Deep Creek-Pocomoke Sound (HUC 0208011107), Pungoteague Creek-Lower Chesapeake Bay (HUC 0208011006), Lower Tangier Sound (HUC 0208011006) and the Lower York River (HUC 0208010702) Subwatersheds.

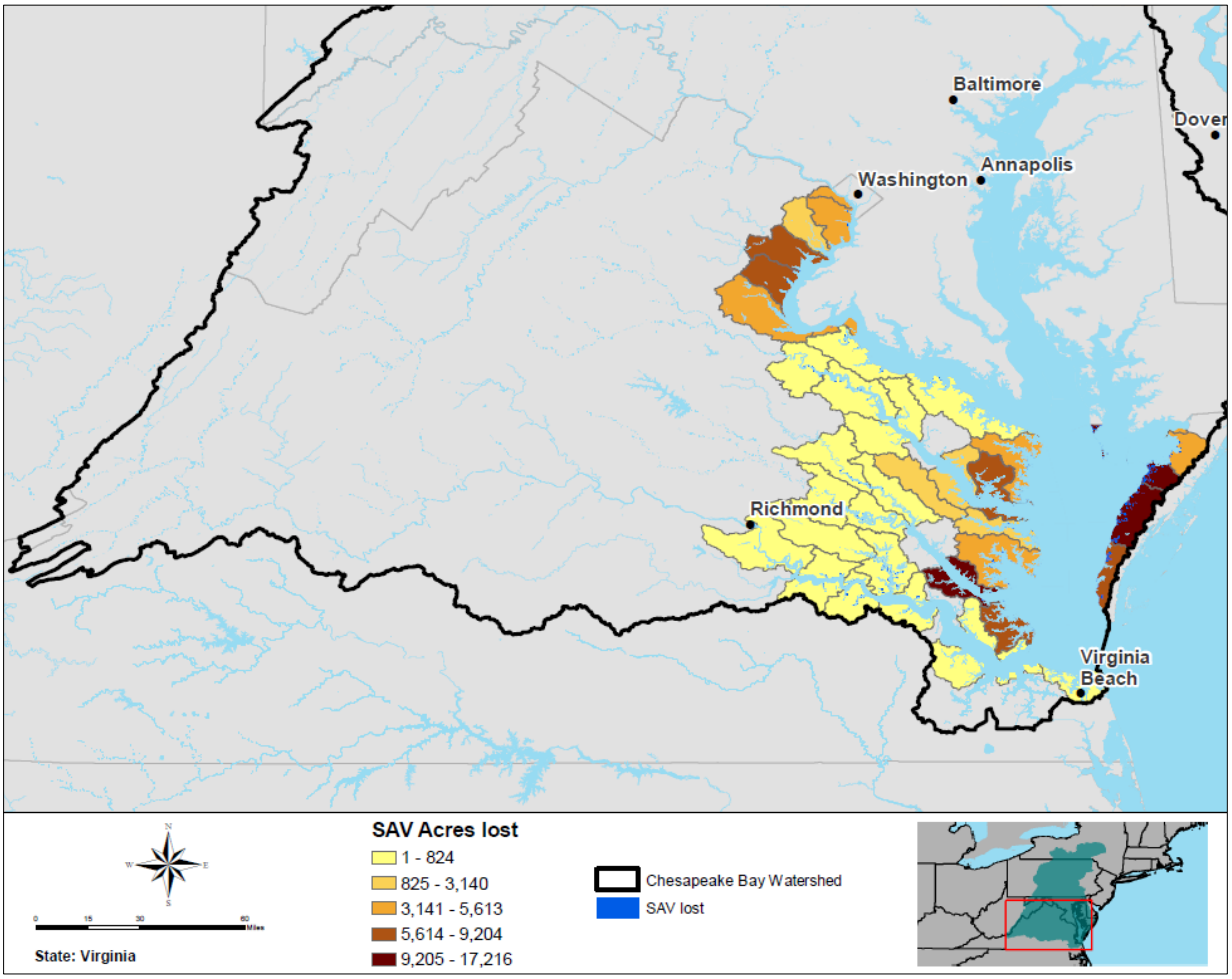

Figure 22. Submerged aquatic vegetation lost in Virginia

2.2 Sustainable Fisheries Goal

"Protect, restore, and enhance finfish, shellfish and other living resources, their habitats and ecological relationships to sustain all fisheries and provide for a balanced ecosystem in the watershed and Chesapeake Bay."

2.2.1 Outcome: Fish Habitat

"Continually improve the effectiveness of fish habitat conservation and restoration efforts by identifying and characterizing critical fish and shellfish spawning, nursery and forage areas within the Chesapeake Bay and its tributaries. Use existing and new tools to integrate information and conduct assessments to inform restoration and conservation efforts."

As there are extensive stakeholder efforts focused on identifying tributaries to undertake oyster restoration in the Chesapeake Bay, this analysis is focused only on those subwatersheds that drain directly to priority oyster restoration tributaries slated or recommended for restoration by 2025. This strategy is aimed at restoring native oyster reefs in areas where they historically occurred and where there are the most suitable conditions for oyster restoration. The intent is to

understand the relationship between the priority oyster restoration tributaries and watershed stressors in the Chesapeake Bay Watershed.

The 2014 Bay Agreement is the guiding directive for restoration of Chesapeake Bay and establishes a goal to restore and protect native oyster populations and their habitats in 10 tributaries by 2025. Executive Order 13508, Chesapeake Bay Protection and Restoration, signed in 2009, is the complementary federal directive to the 2014 Bay Agreement to protect and restore native oyster populations and habitats in Chesapeake Bay.

The *Chesapeake Bay Oyster Recovery: Native Oyster Restoration Master Plan* was completed in September 2012 by USACE in partnership with the State of Maryland and the Commonwealth of Virginia. State, federal, and local governmental agencies; nongovernmental organizations; and scientific experts contributed to the development of the plan, which described priority tributaries for oyster restoration in Maryland and Virginia based on an extensive geospatial analysis of locations of historic reefs and scientific parameters driving restoration success. Key parameters affecting oyster reef success (surface and bottom salinity, dissolved oxygen, and water depth) were assessed to determine the relative suitability of potential sites for oyster restoration in Maryland and Virginia.

The following data was used in the Oyster Restoration Opportunities Assessment (see the Planning Analysis Appendix for more details on the data used):

- *Oyster Restoration Data Layer* (compilation of Virginia and Maryland restoration sites)
- *Watershed Stressors Analysis* (CBCP)

Results of the Oyster Restoration Opportunities Assessment are shown on Figure 23. Oysters are resilient estuarine species, and oyster restoration has not been constrained by these watershed stressors in Virginia. This has been evidenced by relict reefs and reef construction that have met oyster abundance and biomass metrics (as set forth by the Sustainable Fisheries Goal Implementation Tea) in areas such as the Lynnhaven River and Lafayette River where there is a high level of watershed stressors. However, it is apparent that oyster restoration is a critical component to improving water quality because of the proven ability of oysters to improve water clarity and reduce nutrients in the water column. Therefore, oysters play a key role in reducing watershed stressors in the planned tributaries for restoration in Virginia. The effect of oysters on water filtration, nutrient concentrations, and water quality has been well documented, and oysters are known to reduce total suspended solids and chlorophyll a in the water column. The filtration capacity of oysters ultimately affects the level of total suspended solids and turbidity in the water column and improves the overall water clarity in Chesapeake Bay. In addition, water clarity is one of the key drivers affecting restoration of SAV in the Chesapeake Bay, and improvements in water clarity may affect the success of SAV restoration efforts and biomass of existing SAV beds in Chesapeake Bay. Recently, there has been a resurgence of SAV surrounding oyster reefs constructed in the Piankatank River (personnel communication with Rom Lipcius, Virginia Institute of Marine Science). Although the relationship between oyster reefs and SAV is not well understood and warrants further study, the impacts of oyster restoration could have cascading impacts to the restoration of other resources in the watershed, such as SAV, that are reliant upon improved water quality conditions in Chesapeake Bay.

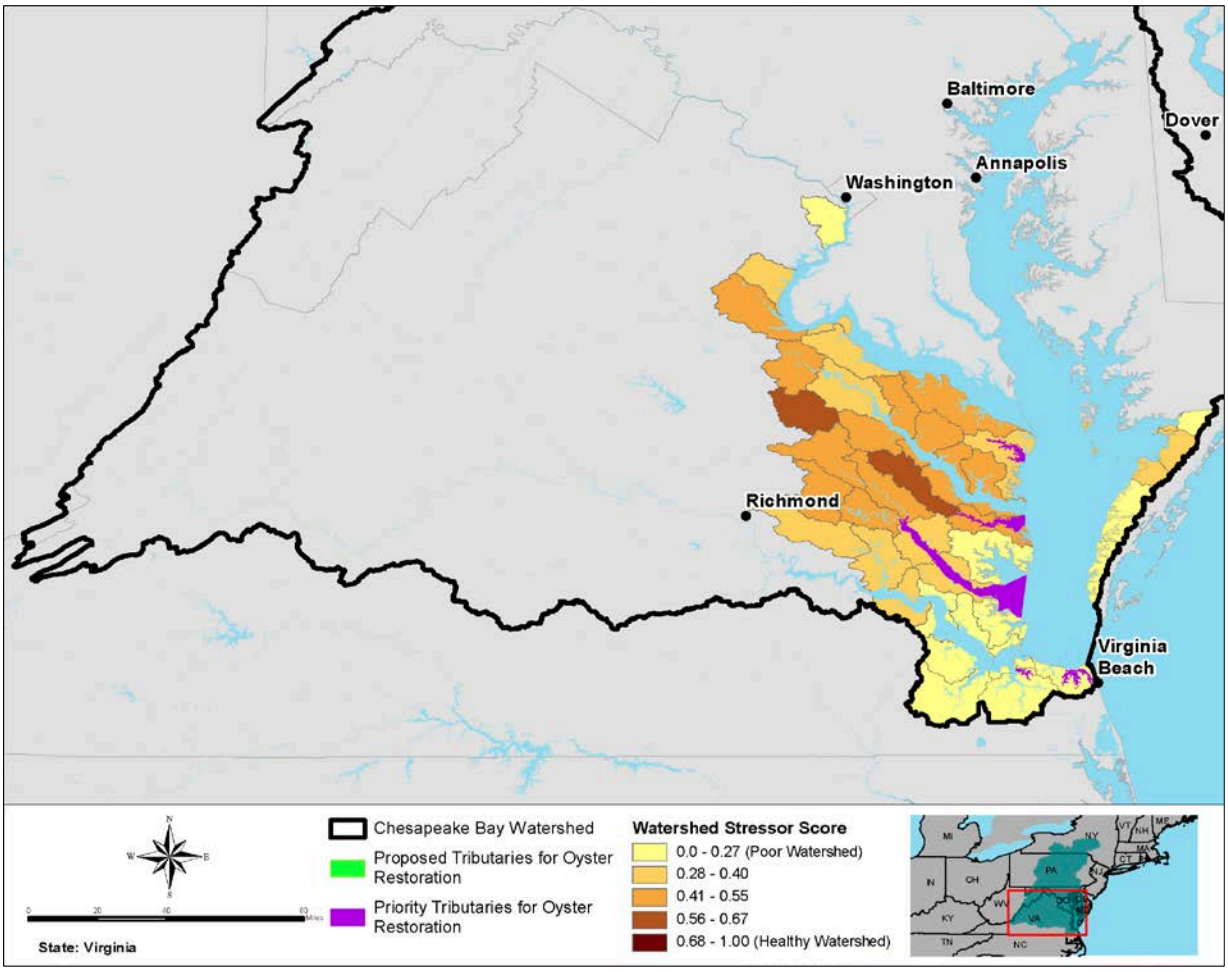

Figure 23. Oyster Restoration Opportunities Assessment for Virginia

2.3 Toxic Contaminants Goal

"Ensure the Chesapeake Bay and its rivers are free of the effects of toxic contaminants on living resources and human health."

2.3.1 Outcome: Toxic Contaminants Research

"Continually increase our understanding of the impacts and mitigation of toxic contaminants. Develop a research agenda and further characterize the occurrence, concentrations, sources and effects of mercury, polychlorinated biphenyls (PCBs) and other contaminants of emerging and widespread concern. In addition, identify which best management practices might provide the multiple benefits of reducing nutrient and sediment pollution as well as toxic contaminants in waterways."

2.3.2 Outcome: Toxic Contaminants Policy and Prevention

"*Continually improve practices and controls that prevent or reduce the effects of toxic contaminants on aquatic systems and humans. Build on existing programs to reduce the amount and effects of polychlorinated biphenyls (PCBs) in the Chesapeake Bay Watershed. Use research findings to*

evaluate the implementation of additional policies, programs and practices for other contaminants that need to be further reduced or eliminated."

The following data was used in the Toxic Contaminants Opportunities Assessment (see the Planning Analyses Appendix for more details on the data used):

- *National Priorities List (NPL) Sites (Superfund Sites) (*downloaded from https://toxmap-classic.nlm.nih.gov/toxmap/superfund/identifyAll.do and cross referenced with EPA for accuracy)

Results of the Toxic Contaminants Opportunities Assessment are shown in Figure 24 and in Table 11. The largest concentrations of NPL sites in Virginia are located in the areas surrounding Richmond and in the southernmost extent of the watershed. Most of the Superfund sites are clustered toward the southeastern portion of Virginia and the subwatershed where Richmond is located, though there are sites located throughout central and south-central Virginia and one in the western portion of Virginia. There are no abandoned mine sites in the Virginia portion of the watershed as these are all located in Pennsylvania.

There are a number of NPL sites (Superfund sites) in final status located in Virginia. Final status is defined as:

> *"[a] site determined to pose a real or potential threat to human health and the environment after completion of [Hazard Ranking System] HRS screening and public solicitation of comments about the proposed site" (USDH&HS 2017)."*

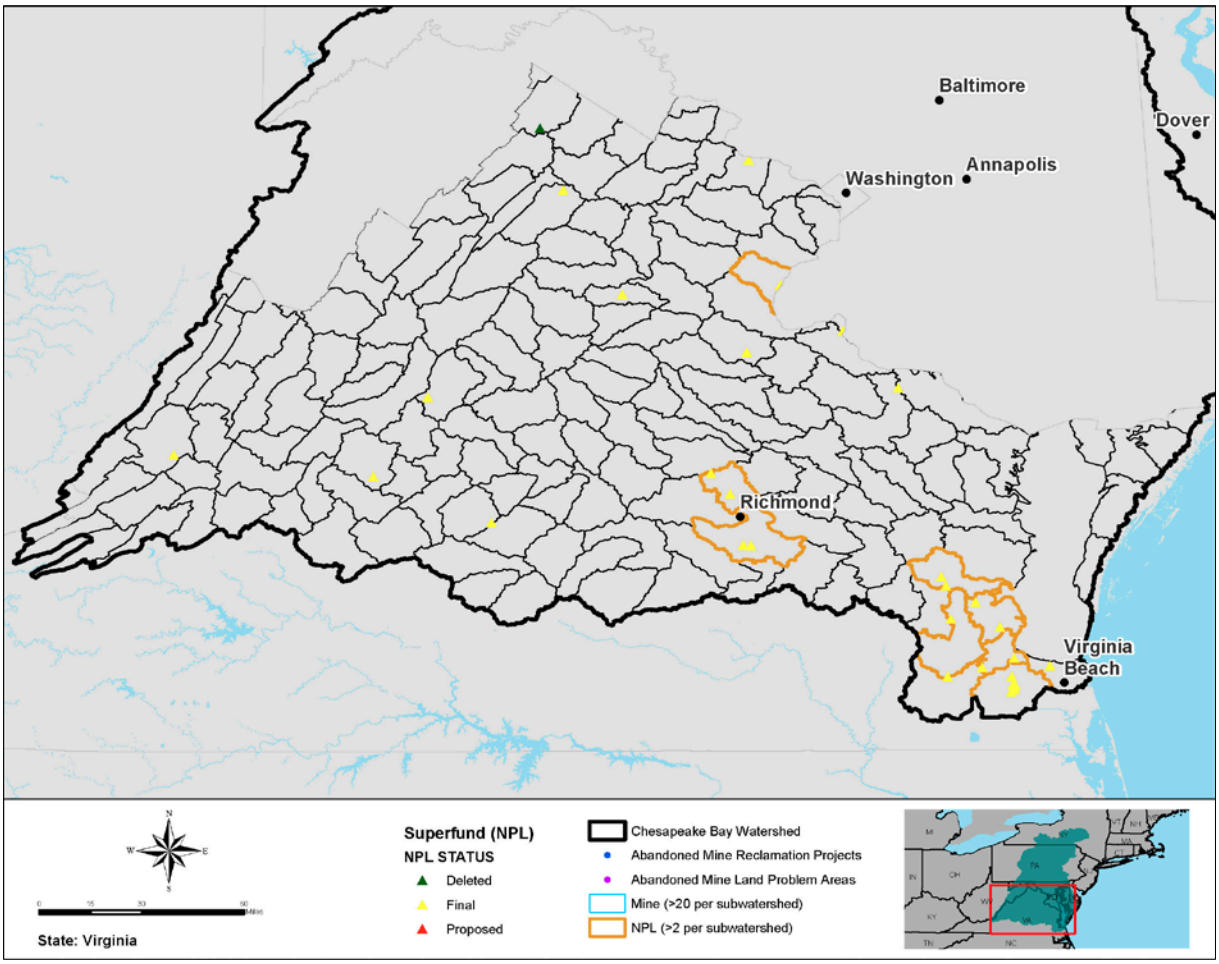

Figure 24. Toxic Contaminants Opportunities Assessment in Virginia

2.4 Healthy Watersheds Goal

"Sustain state-identified healthy waters and watersheds, recognized for their high quality and/or high ecological value."

2.4.1 Outcome: Healthy Watersheds

"Ensure 100 percent of state-identified currently healthy waters and watersheds remain healthy."

The Healthy/High Value Habitats Opportunities Assessment identifies areas in Delaware that have the healthiest habitats. The following data was used in the Healthy/High Value Habitats Opportunities Assessment (see Planning Analyses Appendix for more details on the data used):

- *State-identified Healthy Watersheds* (based on state-derived definitions and classifications of healthy waters and watersheds)
- *Subwatersheds identified as brook trout catchments (*National Hydrography Dataset plus catchments identified as potentially supporting brook trout based on the Eastern Brook Trout Joint Venture Salmonid Catchment Assessment)
- *Black Duck Focus Areas* (CBP)

- *Audubon Important Bird Areas*
- *Index of Ecological Integrity (IEI)*
- *Nature's Network Core and Connector Habitat*

Results of the Healthy/High Value Habitats Opportunities Assessment for Virginia are shown in Figure 24 and in Table 12. The healthiest subwatersheds are located in the western portions of the state, throughout the Shenandoah Valley, and in the northeastern subwatersheds of the Potomac and the Rappahannock Rivers. The healthiest subwatersheds include the North Fork South Branch Potomac River (HUC 0207000101), Naked Creek-South Fork Shenandoah River (HUC 020700050), Quantico Creek-Potomac River (HUC 0207001101), Mill Creek-Rappahannock River (HUC 0208010402), Thornton River (HUC 0208010303), Upper Tye River (HUC 0208020305), and the Lower Jackson River (HUC 0208020105) Subwatersheds.

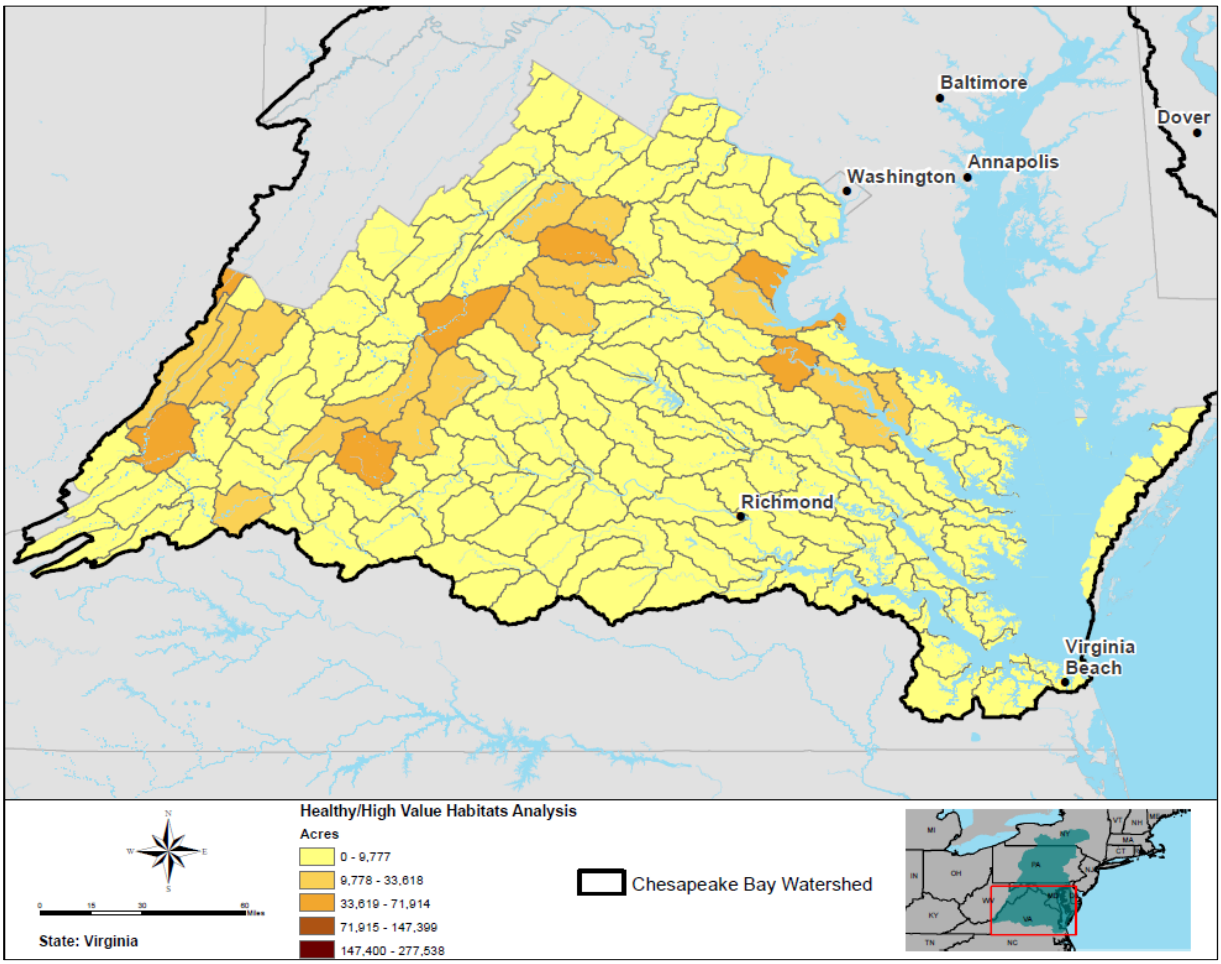

Figure 25. Healthy/high value habitats in Virginia

2.5 Land Conservation Goal

"Conserve landscapes treasured by citizens in order to maintain water quality and habitat; sustain working forests, farms and maritime communities; and conserve lands of cultural, indigenous and community value."

2.5.1 Outcome: Protected Lands

"By 2025, protect an additional two million acres of lands throughout the watershed – currently identified as high-conservation priorities at the federal, state or local level – including 225,000 acres of wetlands and 695,000 acres of forestland of highest value for maintaining water quality."

The purpose of the Conservation Opportunities Assessment was to identify habitats in need of potential conservation. Areas in potential need of conservation consist of healthy/high value habitats that are currently not conserved and potential habitat enhancement and restoration areas that align with conservation initiatives.

The following data was used in the Conservation Opportunities Assessment (see the Planning Analyses Appendix for more details on the data used):

- *Healthy/High Value Habitats Analysis Results* (CBCP)
- *Protected Lands Dataset* (CBP)

Results of the Conservation Opportunities Analysis for Virginia are shown on Figure 25 and in Table 13.

The Healthy/High Value Habitats Opportunities Assessment was then overlaid with the following layers to identify those prime habitat enhancement and restoration opportunities that align with conservation initiatives:

- *Habitat Restoration Compilation including the Stream Restoration Riparian Buffer Restoration Analysis Results* (CBCP)
- *Wetlands Restoration and Enhancement Compilation Analysis Results* (CBCP)

Results of this analysis for Virginia are shown in Figures 26 through 29 and in Table 13.

There are extensive opportunities for conservation throughout Virginia, and those habitats proposed for habitat enhancement and restoration would be high priority for conservation in Virginia.

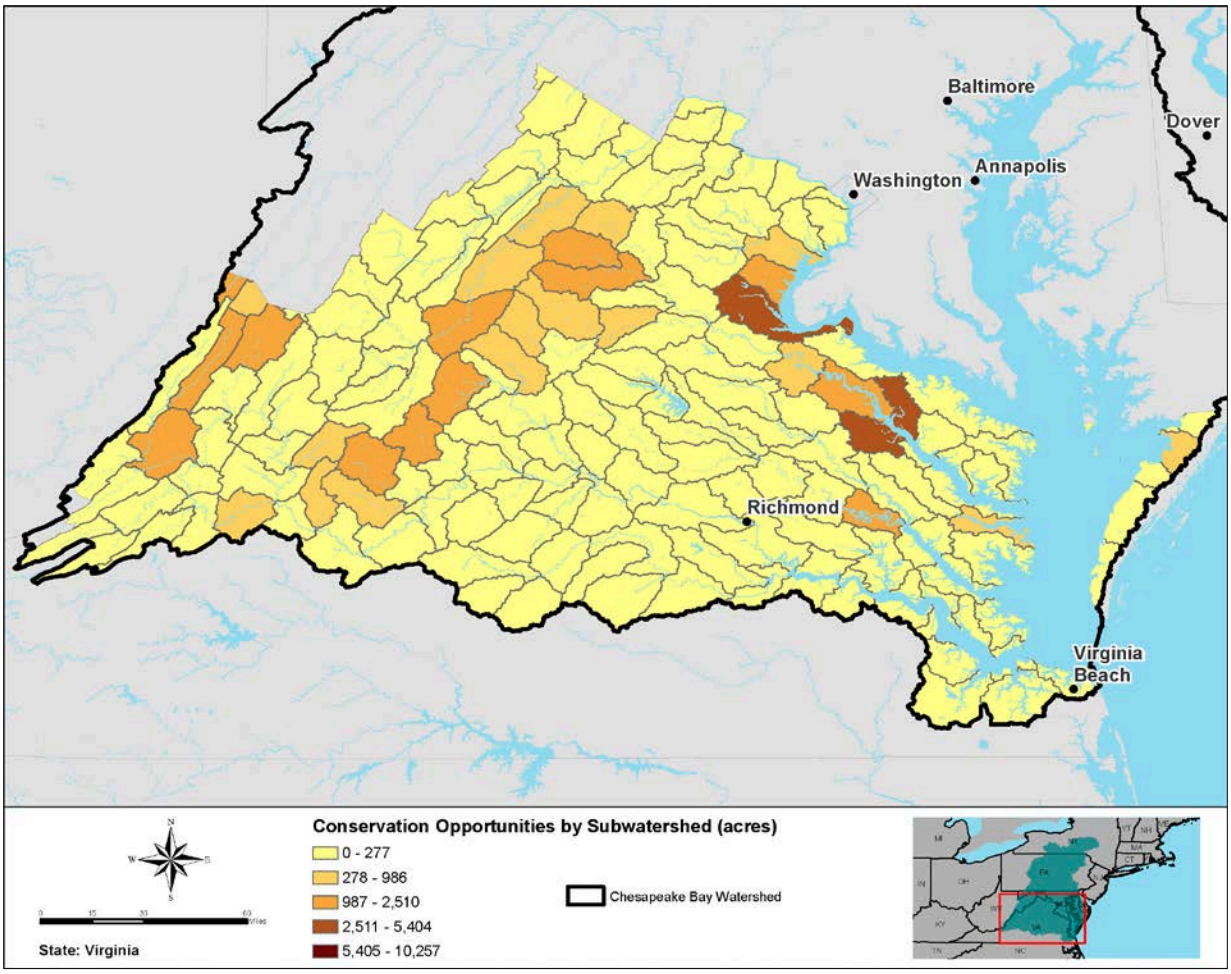

Figure 26. Conservation Opportunities Assessment for Virginia

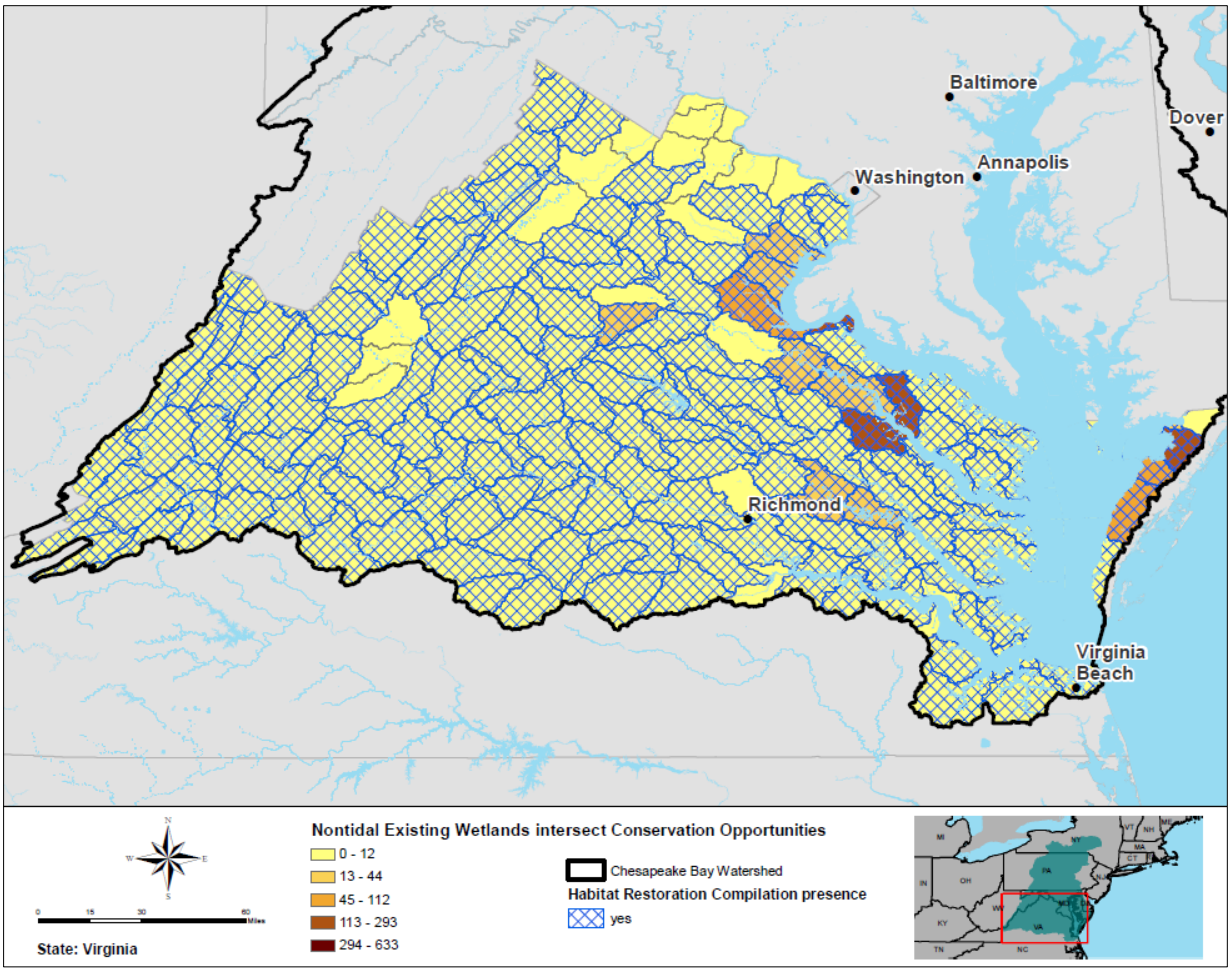

Figure 27. Nontidal conservation and wetland enhancement Opportunities and conservation opportunities in Virginia

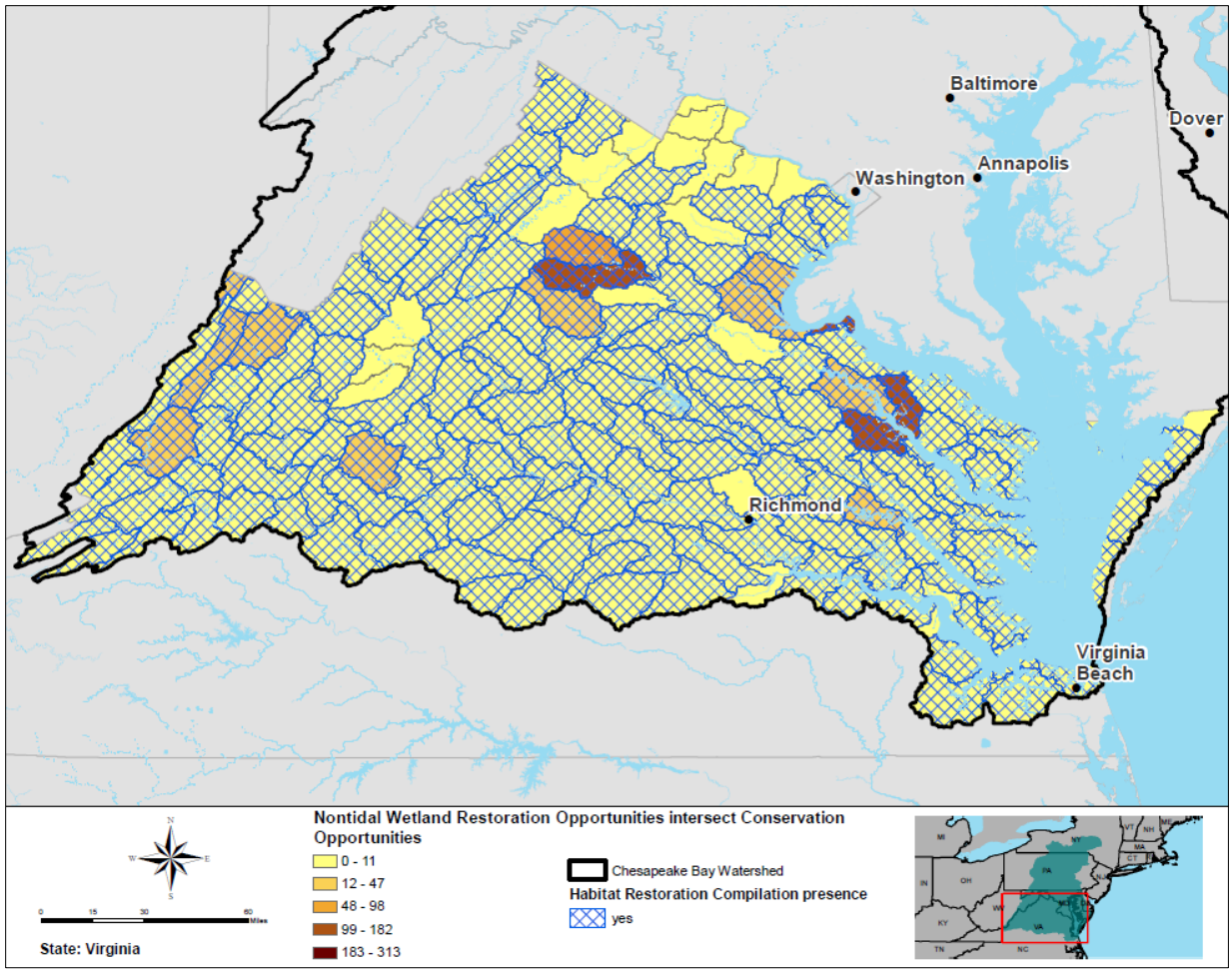

Figure 28. Nontidal restoration and conservation opportunities in Virginia

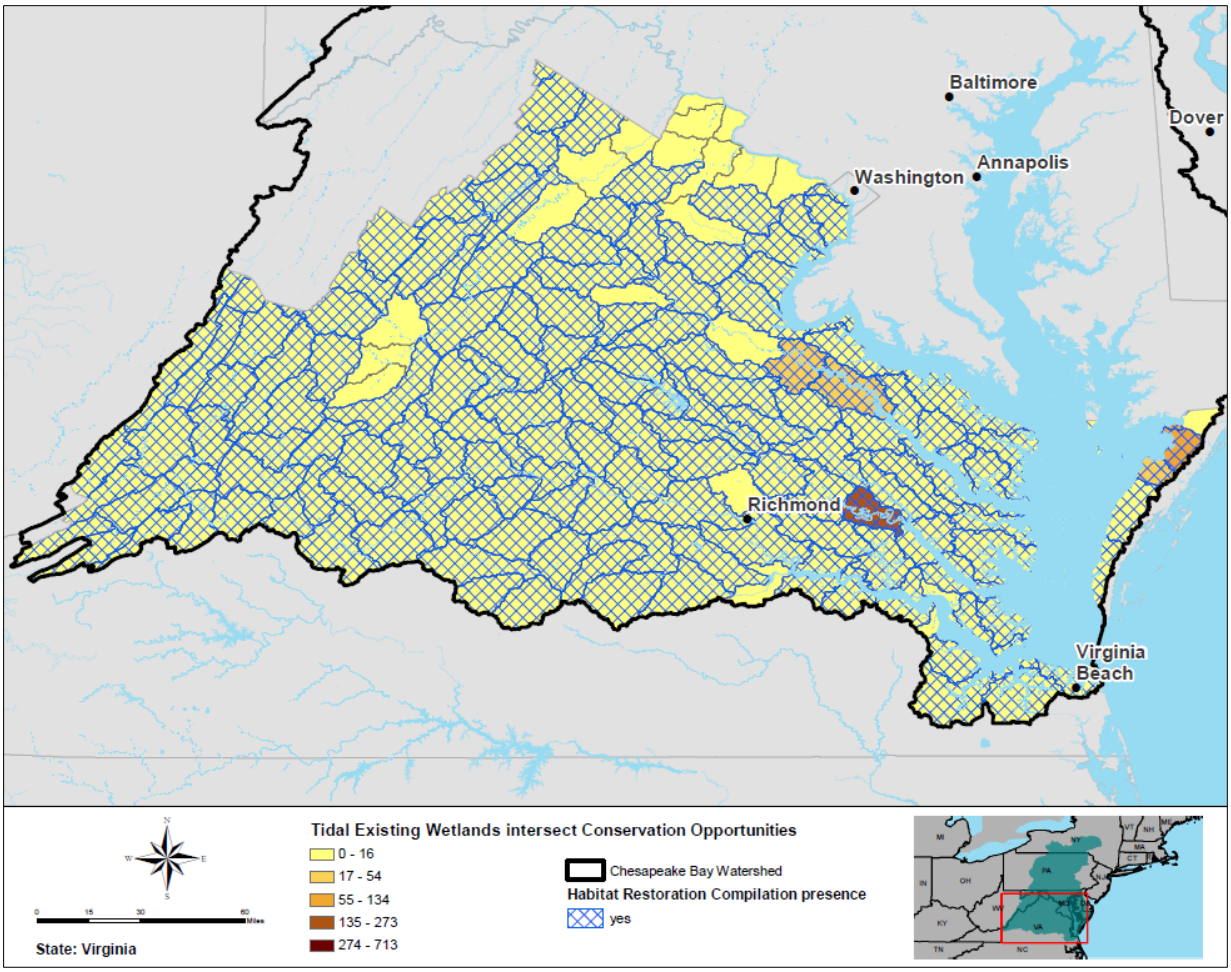

Figure 29. Tidal enhancement and conservation opportunities in Virginia

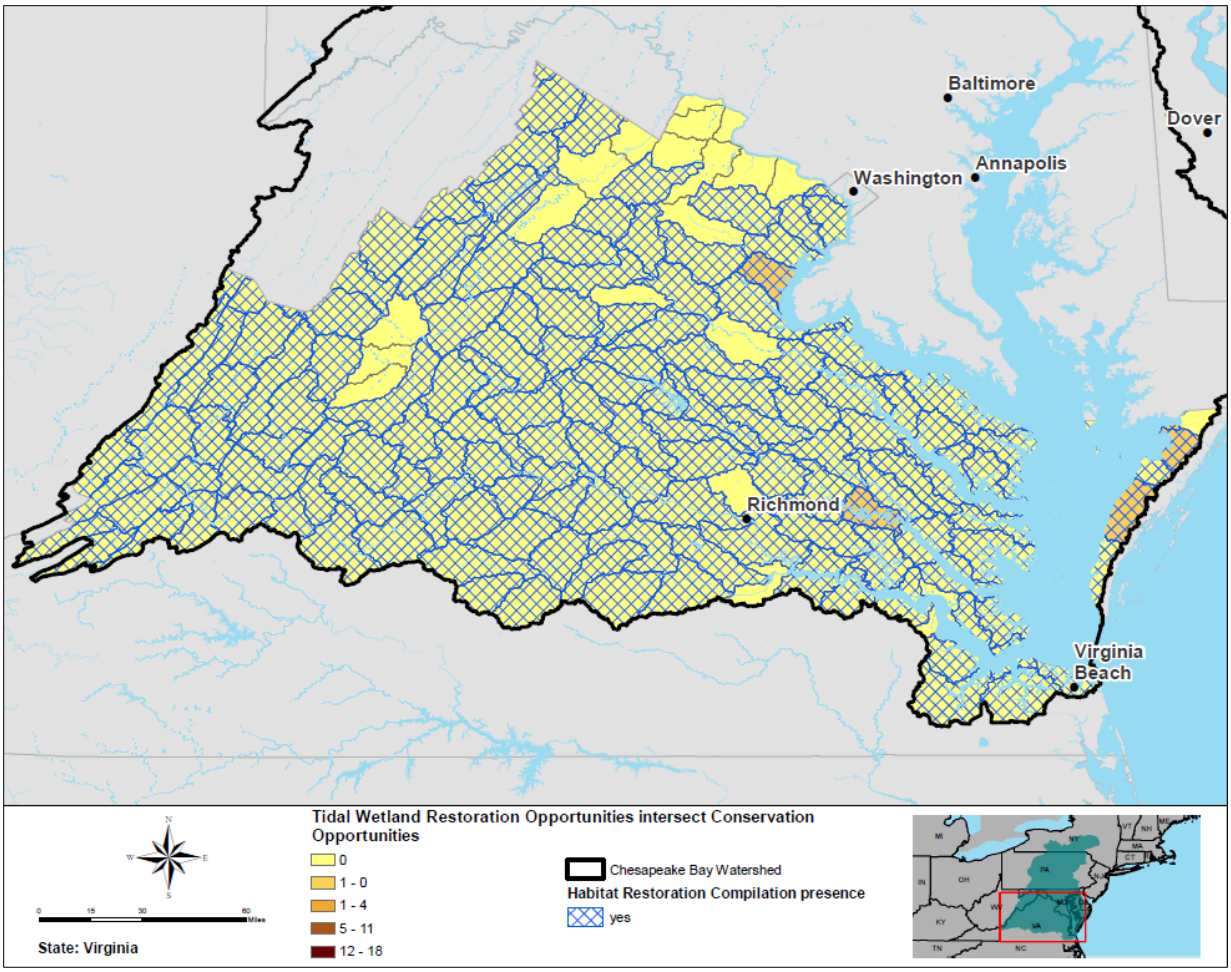

Figure 30. Tidal restoration and conservation opportunities in Virginia

2.6 Public Access Goal

"Expand public access to the Chesapeake Bay and its tributaries through existing and new local, state, and federal parks, refuges, reserves, trails and partner sites."

2.6.1 Outcome: Public Access Site Development

"By 2025, add 300 new public access sites to the Chesapeake Bay Watershed, with a strong emphasis on providing opportunities for boating, swimming and fishing, where feasible."

The Socioeconomic Analysis synthesizes information that reflects societal use of resources within Delaware. The compilation characterizes the locations in the watershed that are important for recreation and public access, water supply, and source water protection and those areas where underserved populations are located.

The following data was used in the Socioeconomic Analysis (see the Planning Analysis Appendix for more details on the data used):

- *Locations of national, state, and local parks*

- *Public access points* (Nationally designated trails, existing and proposed public access sites compiled by the CBP)
- *Underserved populations* (Minority and low-income populations provided by the CBP)
- *National Inventory of Dams* (Congressionally authorized database documenting dams in the U.S. and its territories; maintained and published by the USACE)

Results of the Socioeconomic Analysis for Virginia are shown in Figure 30 and in Table 14.

While parks are found throughout Virginia, most are in the western region of Virginia. Minority and low-income populations are distributed throughout Virginia.

The following data was used to determine where conservation may provide societal benefits to the public:

- *Conservation Opportunities Analysis Results* (CBCP)
- *Socioeconomic Analysis Results* (CBCP)

The results of this analysis are shown in Figure 31 and in Table 14. There are various conservation opportunities in Virginia that have the potential to provide societal benefits in Virginia. Opportunities are congregated in subwatersheds in the westernmost portions of Virginia, the subwatersheds flanking the northern portions of the Potomac River and the York River, and the Delmarva Peninsula.

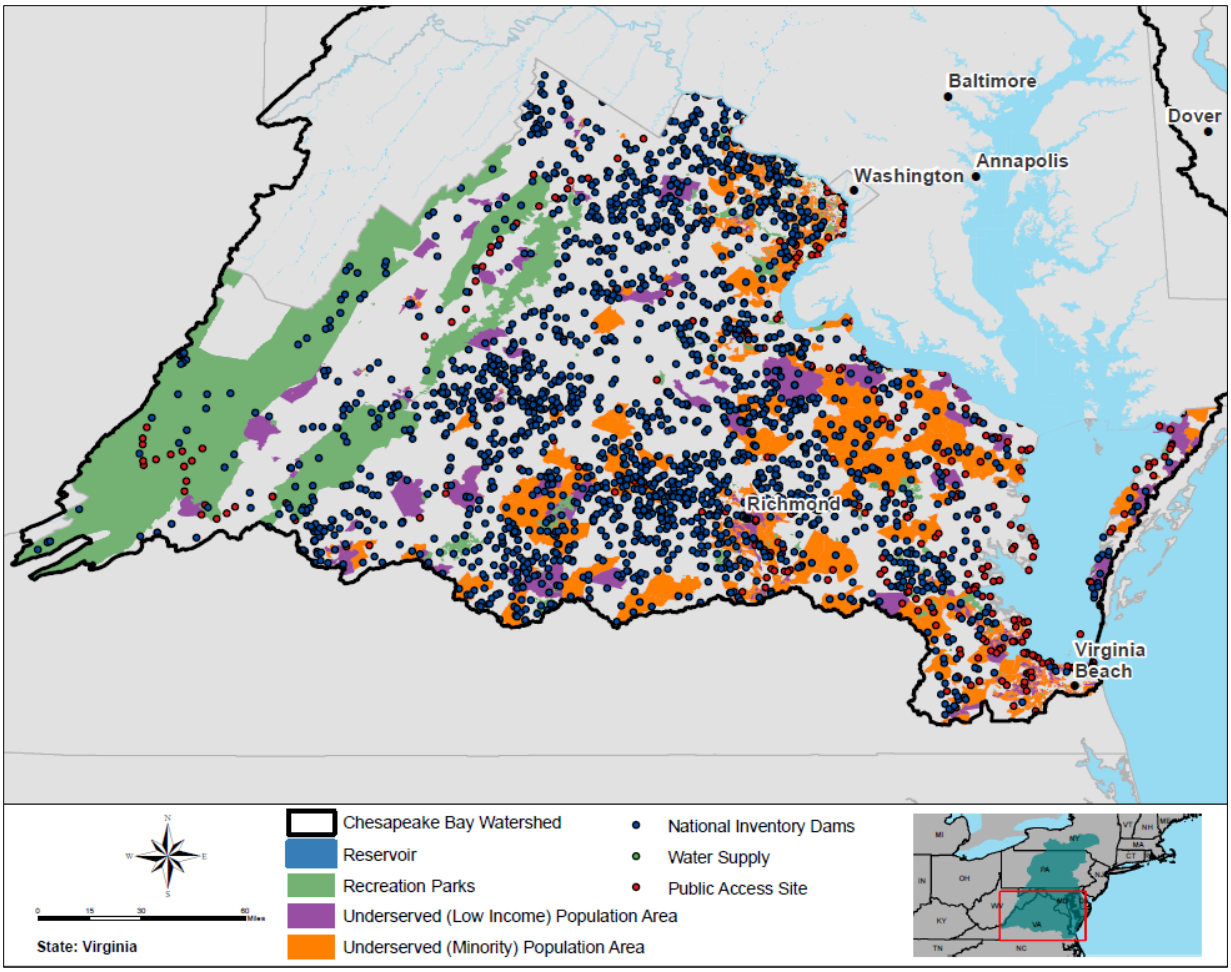

Figure 31. Socioeconomic Analysis for Virginia

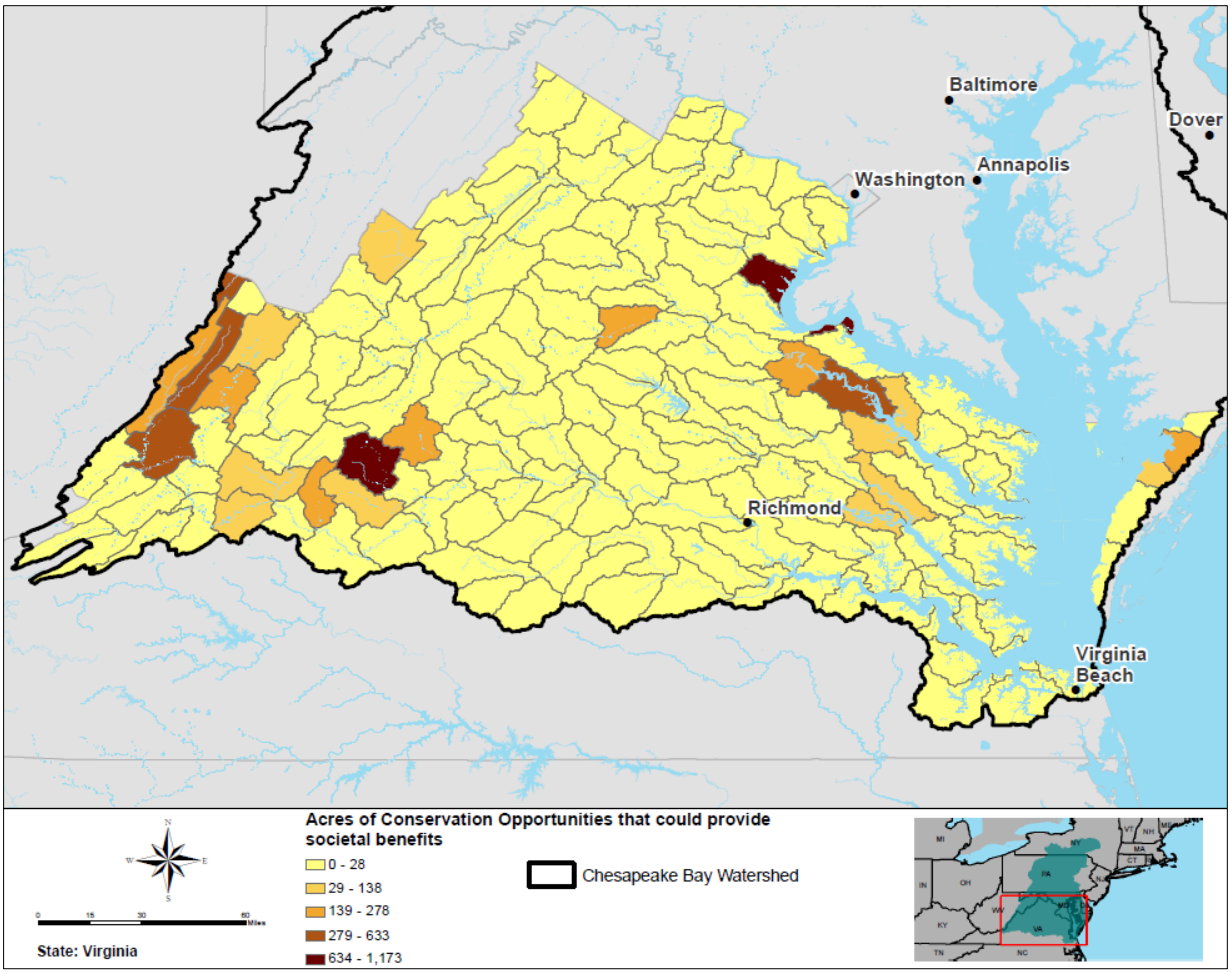

Figure 32. Potential conservation opportunities with societal benefits in Virginia

2.7 Climate Resiliency Goal

"Increase the resiliency of the Chesapeake Bay Watershed, including its living resources, habitats, public infrastructure and communities, to withstand the adverse impacts from changing environmental and climate conditions."

2.7.1 Outcome: Climate Adaptation

"Continually pursue, design and construct restoration and protection projects to enhance the resiliency of the Chesapeake Bay and its aquatic ecosystems against the impacts of coastal storm erosion, coastal flooding, more intense and more frequent storms, and sea level rise."

The Threats Analysis identifies areas within Virginia that are threatened by urbanization and climate change, as well as areas prone to increased/persistent future flooding.

The following data was used in the Nontidal Threats Analysis (see Planning Analyses Appendix for more details on the data used):

- *Nontidal flooding* (USGS)

- *Future projected development* (USACE North Atlantic Coast Comprehensive Study (NACCS))
- National Fish Habitat Assessment (NFHAP)

The following data was used in the Tidal Threats Analysis (see the Planning Analysis Appendix for more details on the data used):

- *Areas projected to have more frequent 'normal' flooding* (NACCS and USGS 30-meter Digital Elevation Model)
- *Future projected development* (NACCS)
- *Sea level rise curves* (Projected using the USACE Sea Level Rise High Scenario in year 2100 based on USGS Sea Level Rise Calculator)
- *Resources at risk to coastal storms* (NACCS)
- *Coastal Vulnerability Index* (USGS)

Results of these analyses are depicted on Figures 32 and 33 and in Table 15. Threats throughout the nontidal regions of Virginia are focused in the northern region and in the subwatersheds in the Richmond area. Throughout the tidal regions of Virginia, there is a notable threat along the lower Tangier Sound, the coastal regions flanking the Chesapeake Bay Mainstem and the Delmarva Peninsula that stands out particularly as a substantive area under considerable threat. Tangier Sound is the area under greatest threat, having more than twice the acreage under threat of any other subwatershed in Virginia.

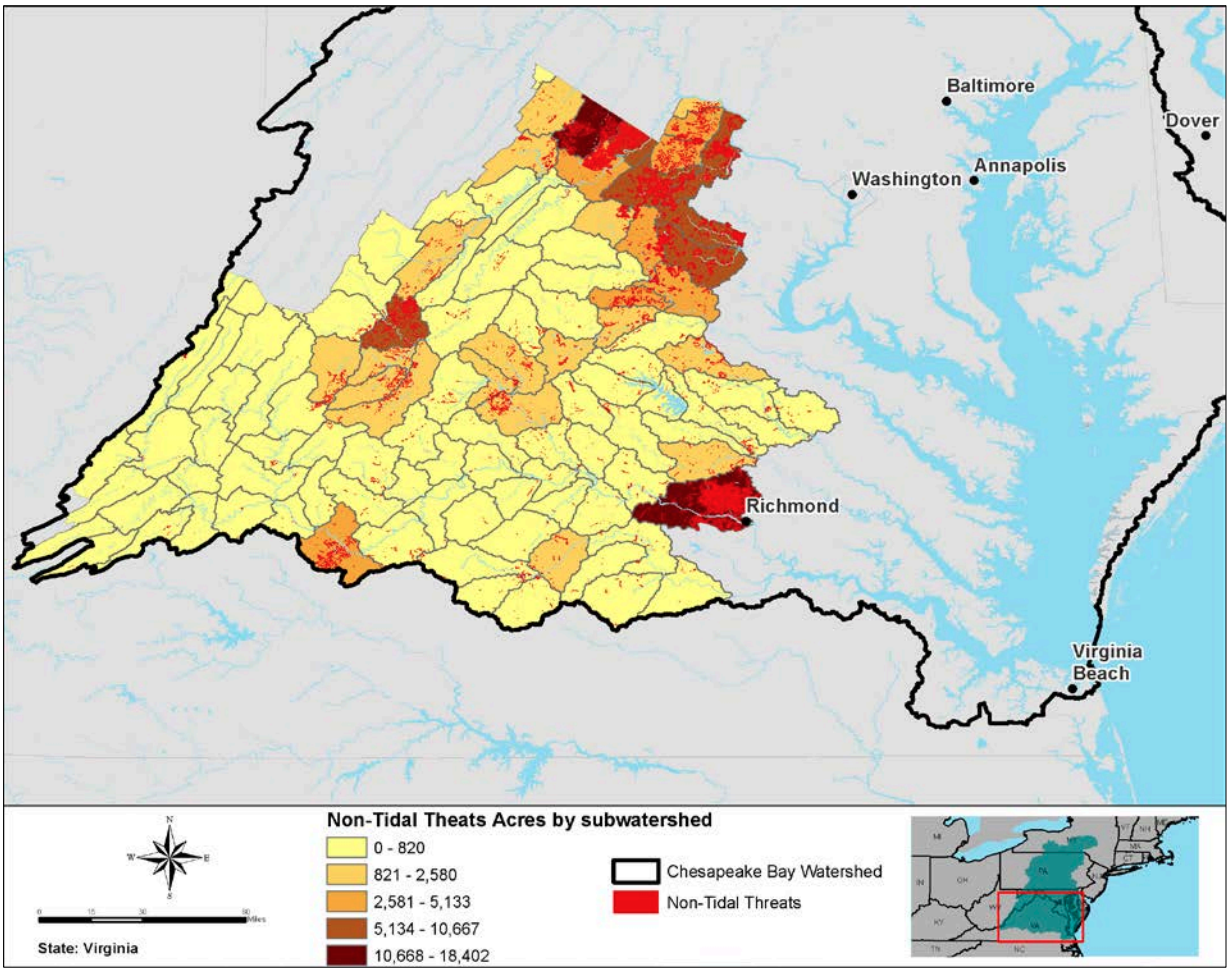

Figure 33. Nontidal Watershed Threats Analysis for Virginia

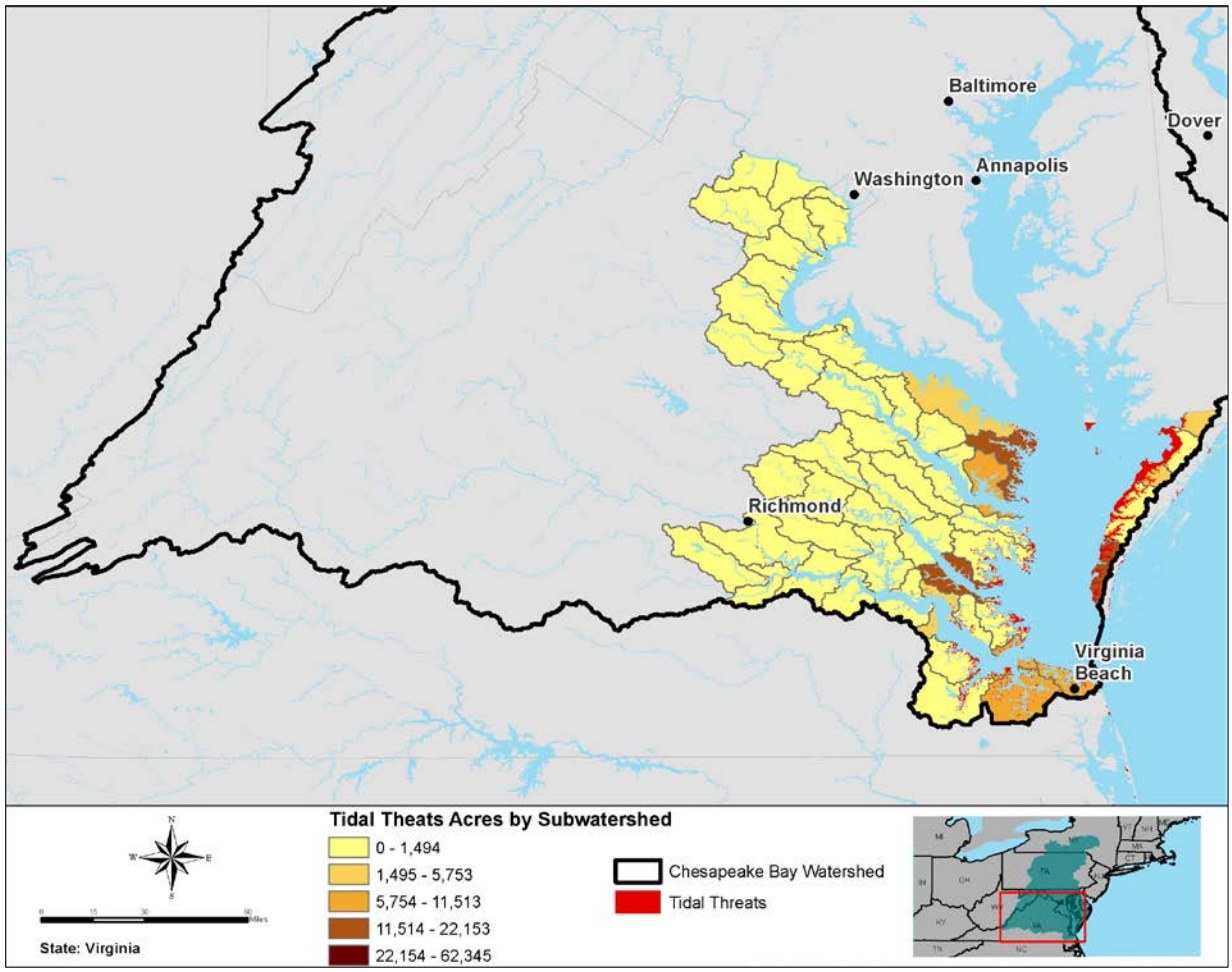

Figure 34. Tidal Watershed Threats Analysis for Virginia

SECTION 3

Watershed Planning Considerations outside the Chesapeake Bay Agreement

3.1 Rare, Threatened, and Endangered Species and USFWS Species of Critical Concern

The following maps (Figures 34 through 37) display areas in Virginia that have federally listed threatened and endangered species as well as species identified as critical by the USFWS. The species have been placed into the following categories based on their primary habitat needs — aquatic, beach, stream, and wetland dependent. The following maps display the number of species per subwatershed that fall into the aquatic, beach, stream, or wetland categories and whether they are federally listed, critical, or both.

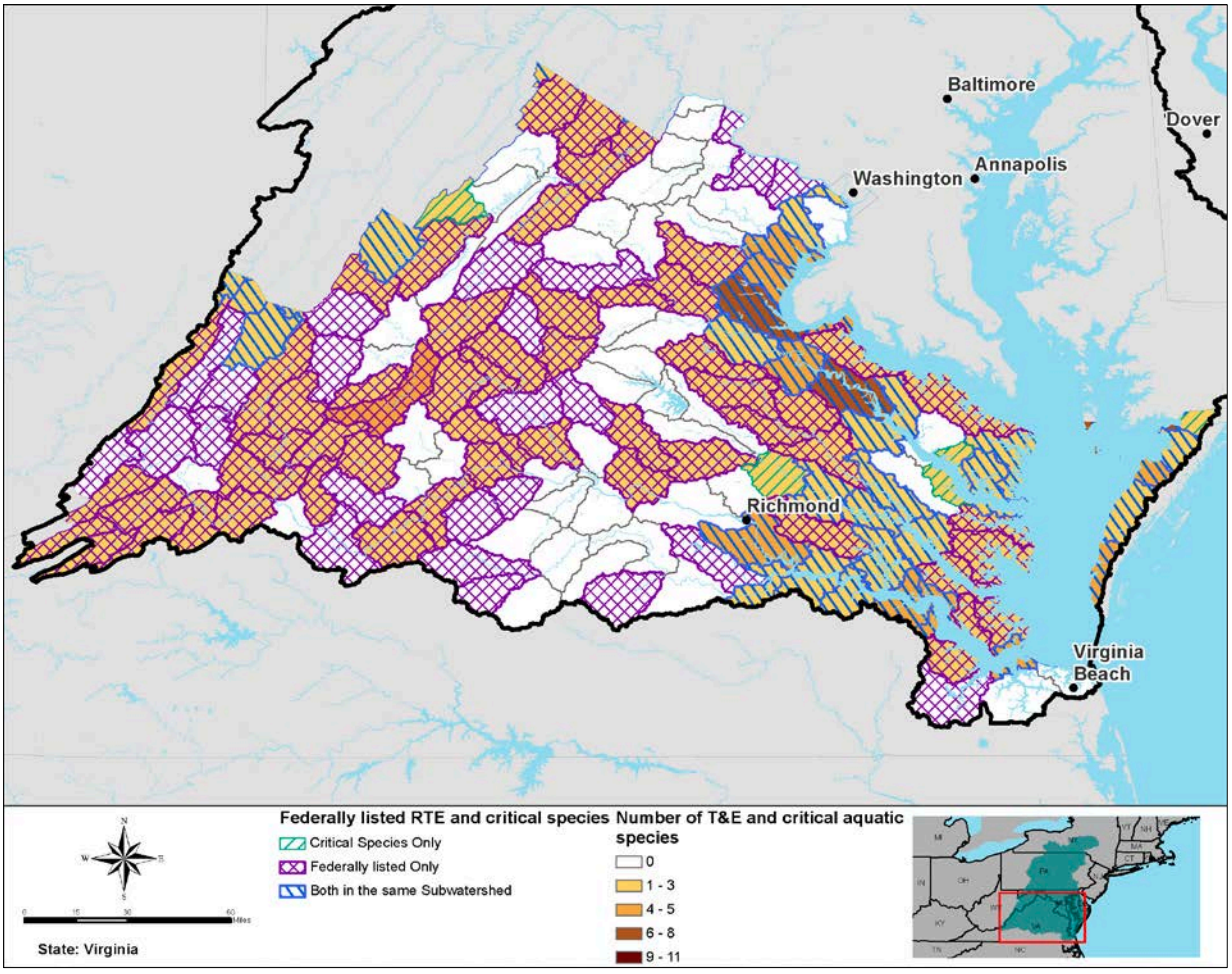

Figure 35. Occurrence of rare, threatened, and endangered and U.S. Fish and Wildlife Service critical aquatic species in Virginia

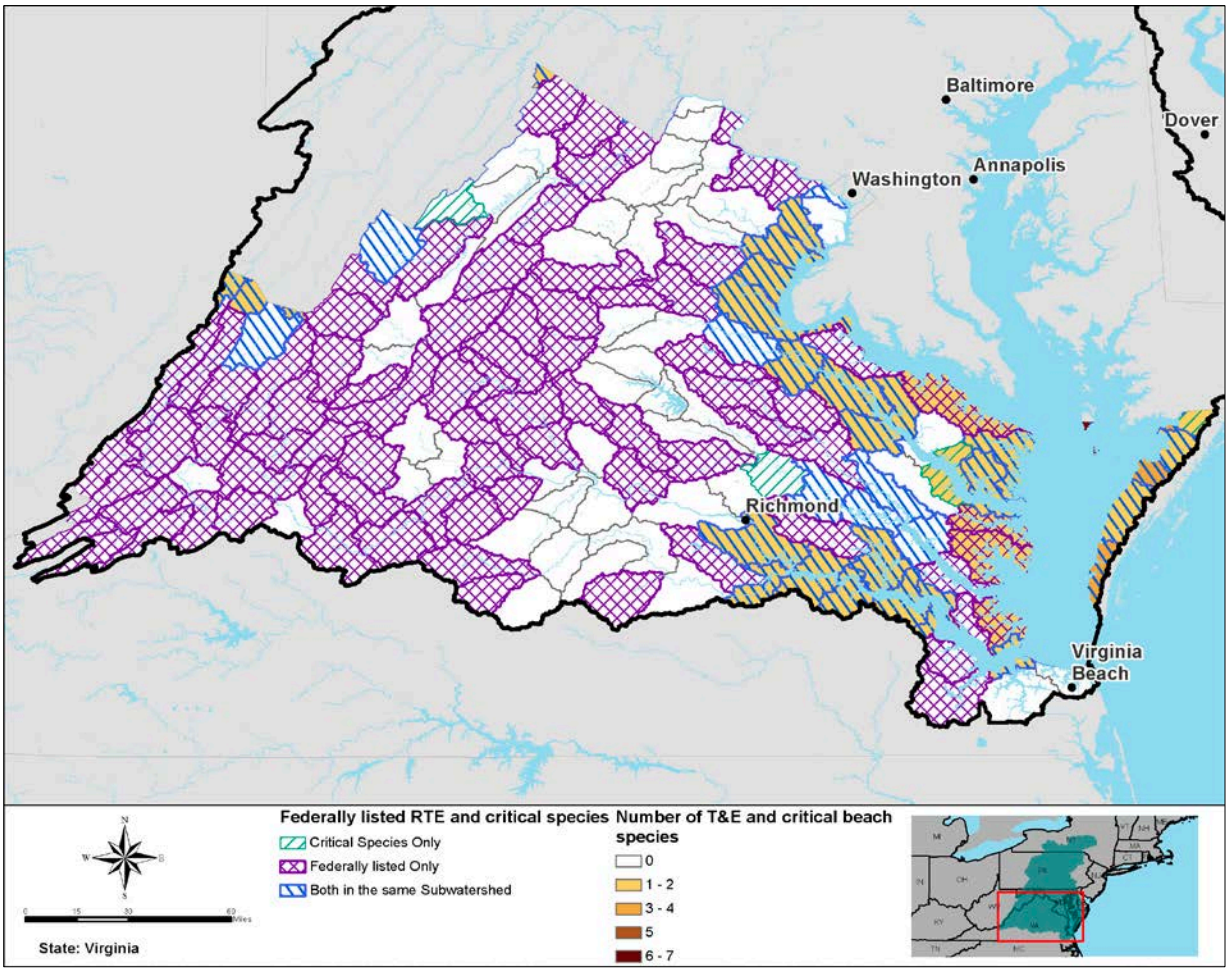

Figure 36. Occurrence of rare, threatened, and endangered and U.S. Fish and Wildlife Service critical beach species in Virginia

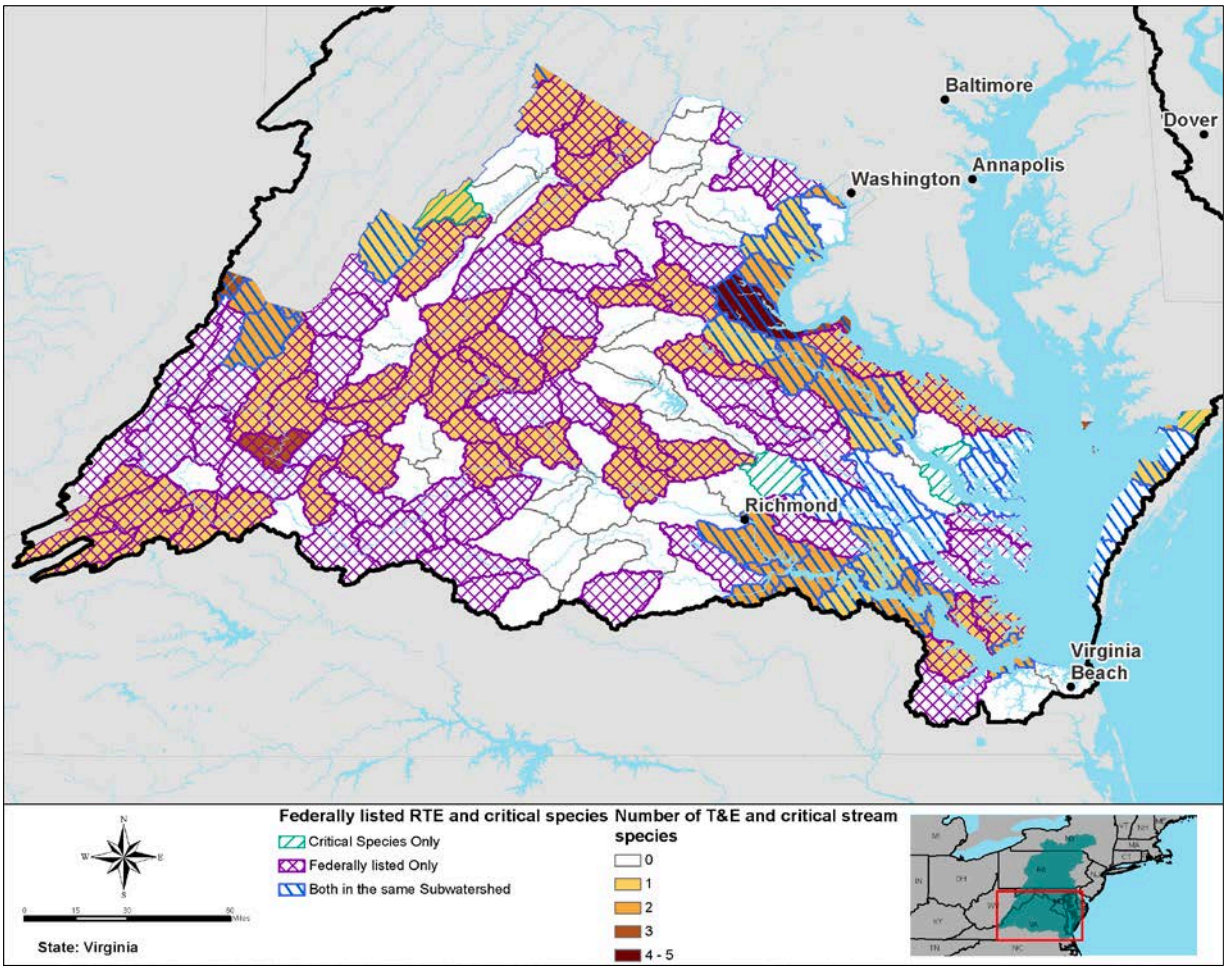

Figure 37. Occurrence of rare, threatened, and endangered and U.S. Fish and Wildlife Service critical stream species in Virginia

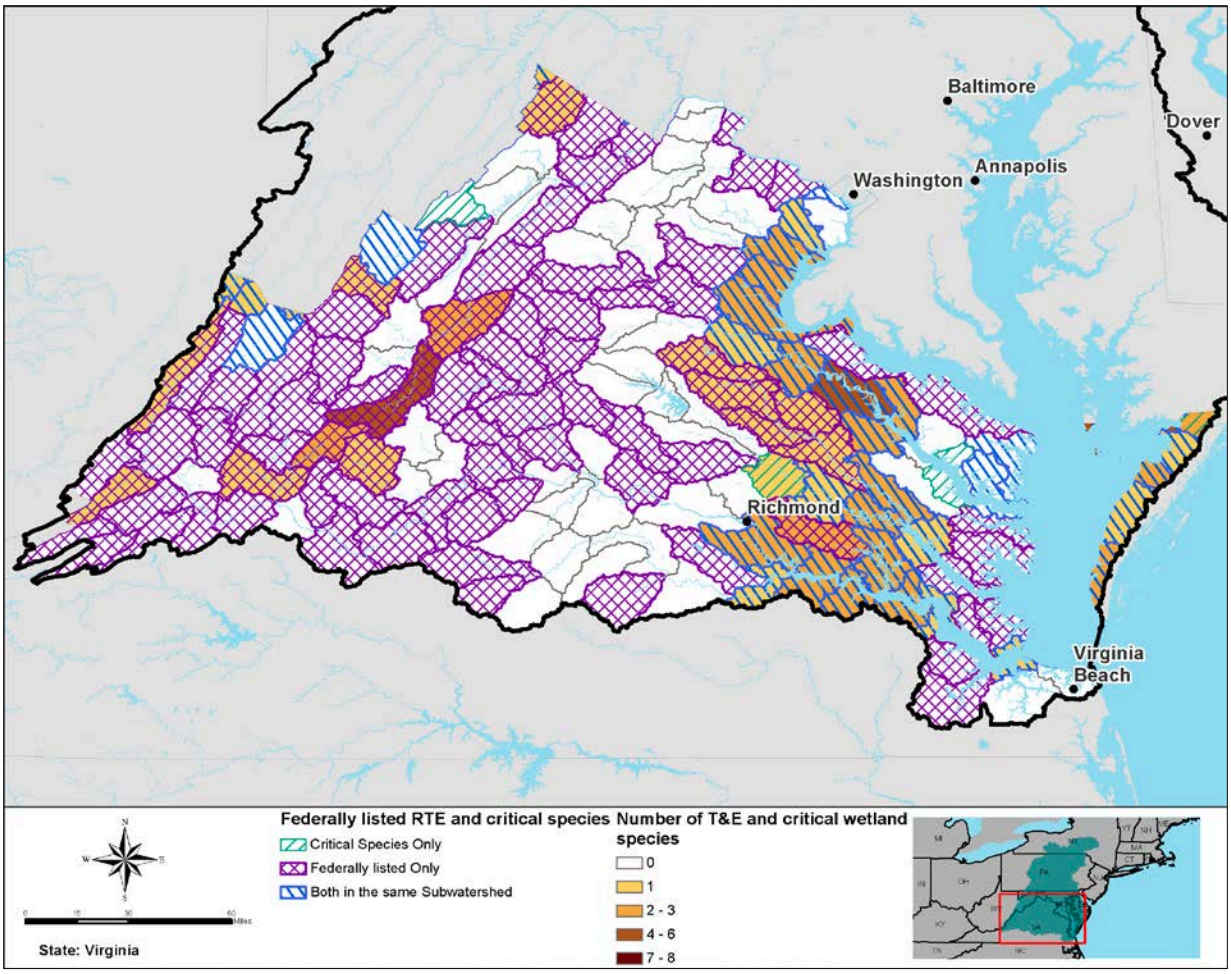

Figure 38. Occurrence of rare, threatened, and endangered and U.S. Fish and Wildlife Service critical wetland species in Virginia

3.2 Marsh Migration

As sea levels rise, the ability of a marsh to migrate inland will be an important factor to determine the future location of tidal wetlands. In 2015, the National Oceanic and Atmospheric Administration (NOAA) (2015) developed a model based on previous work by The Nature Conservancy that evaluates the potential for tidal wetlands to migrate inland. A cost distance approach was taken that considers elevation and land use adjacent to existing wetlands to estimate the inland migration potential. The results of NOAA's modeling were incorporated with the CBCP analyses as described below. The intent was to identify where wetland restoration opportunities should consider inland migration corridors.

1. Overlay the existing wetlands layer to show the connectivity of migration corridors to existing wetlands. The results are presented in Figure 38 and Table 16.

2. Determine which subwatershed have the greatest opportunity for marsh migration. Tally the acres of greens and blues in each subwatershed. Provide the results in the standard color ramp determined by the Jenks method.

3. Overlay the migration/cost corridor data on top of the threats to existing tidal wetlands opportunity results. The results are presented in Figure 39.

4. Overlay the migration/cost corridor data on top of the tidal wetland restoration opportunity results. The results are presented in Figure 40.

The following data was used in the Marsh Migration Opportunities Assessment (see the Planning Analyses Appendix for more details on the data used):

- *Marsh Migration Model* (NOAA 2015)
- *Tidal Wetlands Enhancement and Restoration Opportunities Assessment* (CBCP)

In Virginia, the subwatersheds with the lowest cost for marsh migration include the Occupacia-Creek-Rappahannock River, the Mobjack Bay-Lower Chesapeake Bay, the Nomini Creek-Potomac River, and Pungoteague Creek-Lower Chesapeake Bay.

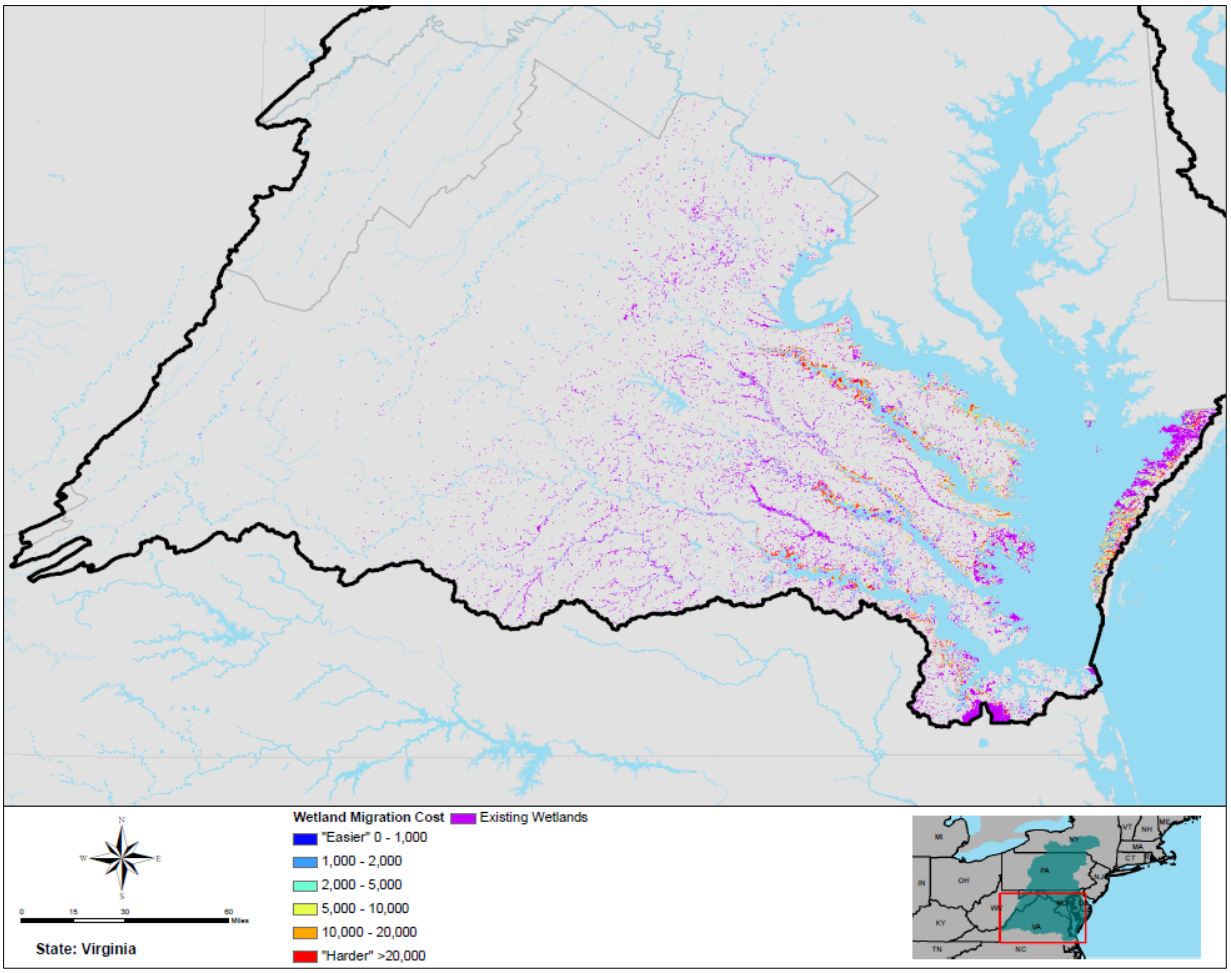

Figure 39. Connectivity of migration corridors to existing wetlands in Virginia

The wetlands in the Tangier Sound and the Delmarva Peninsula region face a substantial threat to sea level rise and have areas with potential low cost marsh migration in need of wetland enhancement and restoration. There are also notable opportunities in areas of low cost marsh

migration for wetland restoration opportunities in the subwatersheds flanking Mobjack Bay, the southern extent of the York River, and in the southeastern extent of Virginia. It will be important for restoration and enhancements to proceed rapidly in these areas to ameliorate the effects of sea level rise and provide for a more resilient coastal landscape.

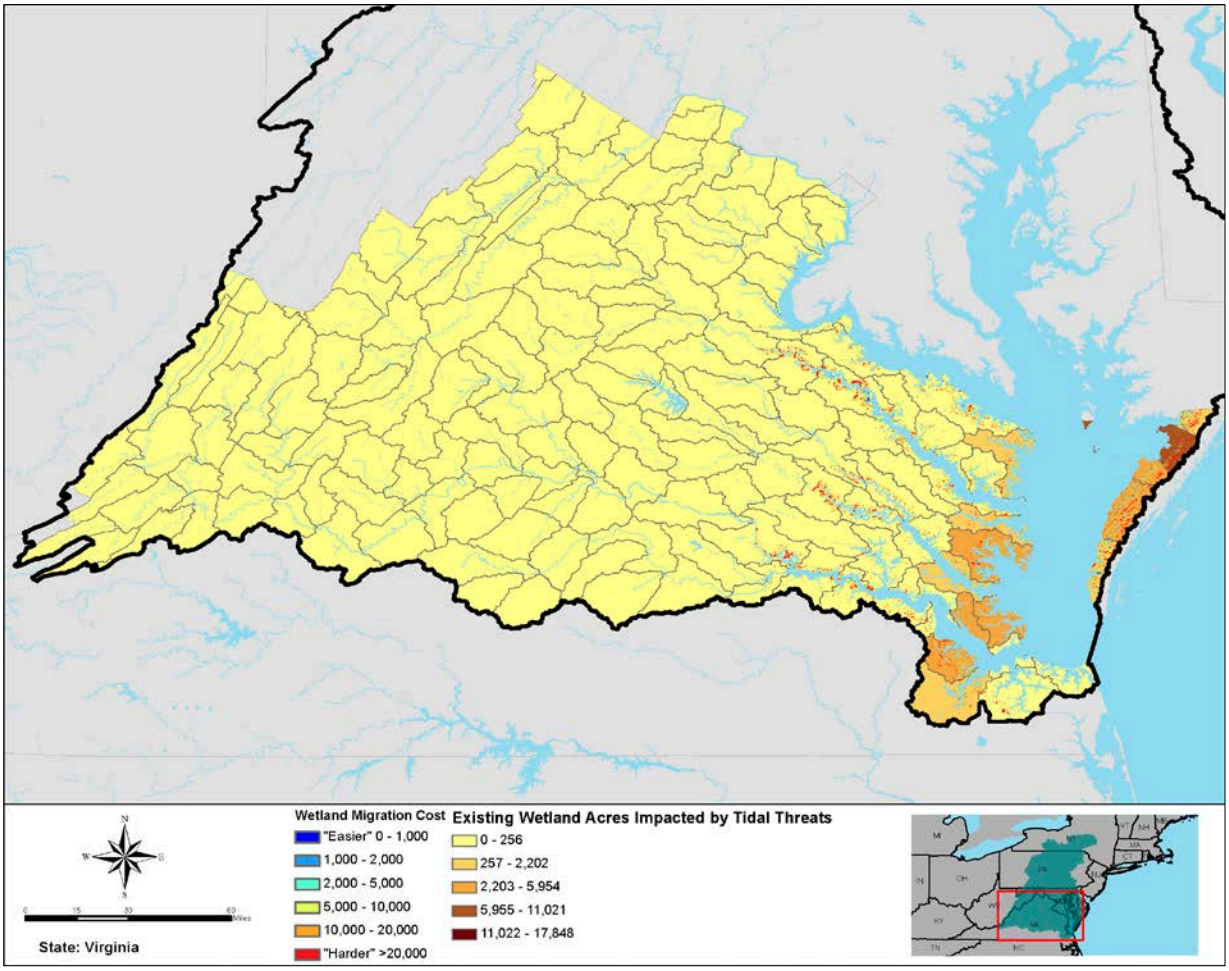

Figure 40. Wetland Migration Cost and Wetland Enhancement in Virginia

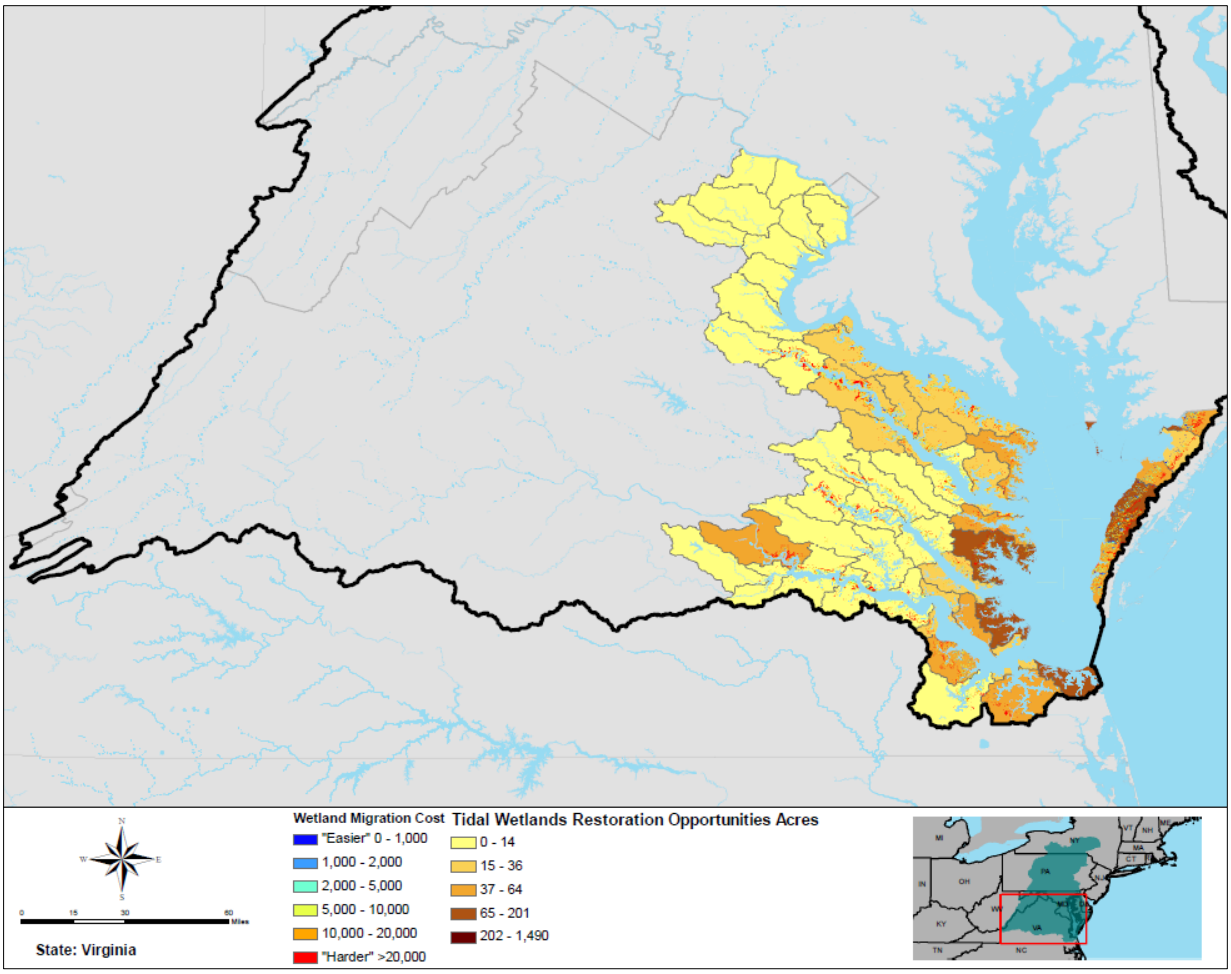

Figure 41. Wetland Migration Cost and Wetland Restoration in Virginia

3.3 Regional Flow and Connectivity

Nature's Network developed data that characterizes the ability of flora and fauna to move across the landscape. This regional flow data characterizes areas within a range of constrained flow to high diffuse flow (Figure 33 and Table 15) (see the Planning Analyses Appendix for definitions of each category.) The purpose of this analysis is to discern where there are important areas of regional flow, as determined by the Nature Conservancy (2016), which could benefit from tidal and/or nontidal wetland restoration. By aligning areas for potential wetland restoration with regional flow, opportunities to improve connectivity and ease of passage are identified. To investigate this concept, the CBCP overlaid the combined wetland restoration opportunities with the regional flow data. The acreage that is identified by Nature's Network as being a regional flow corridor of any degree was summed within each subwatershed. The total acreage of restoration opportunity was classified into 5 groups utilizing the Jenks (Natural Breaks) method in ArcGIS. The top 2 groups of watersheds based on acreage of opportunity are identified as *Opportunity* subwatersheds. There are broad ranging opportunities to provide a connected network of resilient and ecologically intact habitats throughout Virginia. Based on this data set, these opportunities are highly concentrated in the western regions of Virginia.

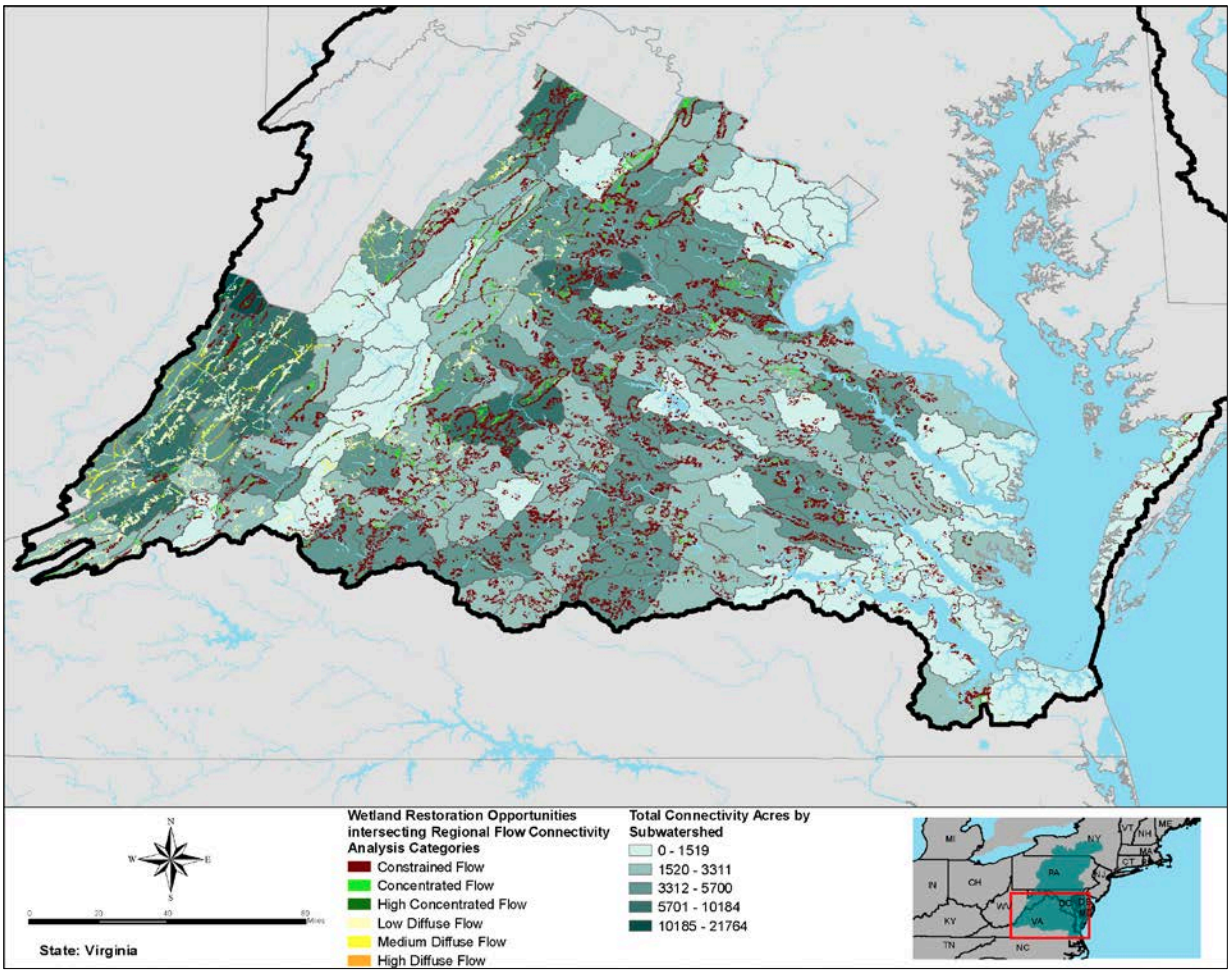

Figure 42. Wetland restoration opportunities that could beneficially impact regional flow in Virginia

3.4 Shoreline Erosion

The purpose of the Shoreline Erosion Opportunities Assessment was to identify where wetland enhancement and restoration could be implemented to help address eroding shorelines. Alternatively, this evaluation will provide information to identify where potential projects are co-located in areas at risk to shoreline erosion.

The following data layers were included in the evaluation:

- *Eroding shoreline* (VIMS)
- *Wetland Enhancement* (CBCP)
- *Habitat restoration* (CBCP)

The results of this analysis are provided on Figures 42 and 43. Based on the results of this analysis, key areas to focus on restoration and conservation opportunities in Virginia to help address shoreline erosion would be the Mobjack Bay area, the Delmarva Peninsula, and the southernmost extent of the watershed.

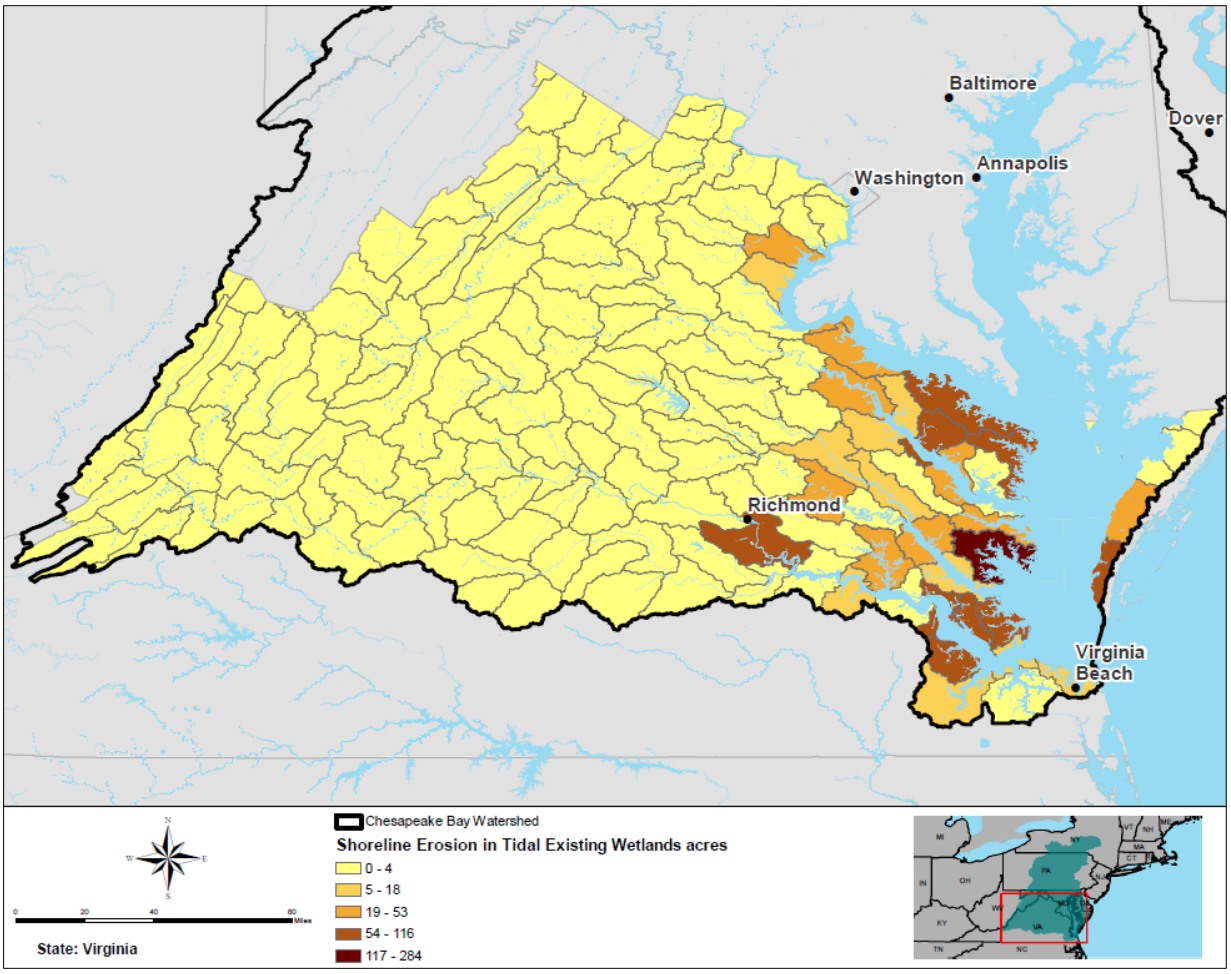

Figure 43. Shoreline erosion in tidal wetland enhancement subwatersheds in Virginia

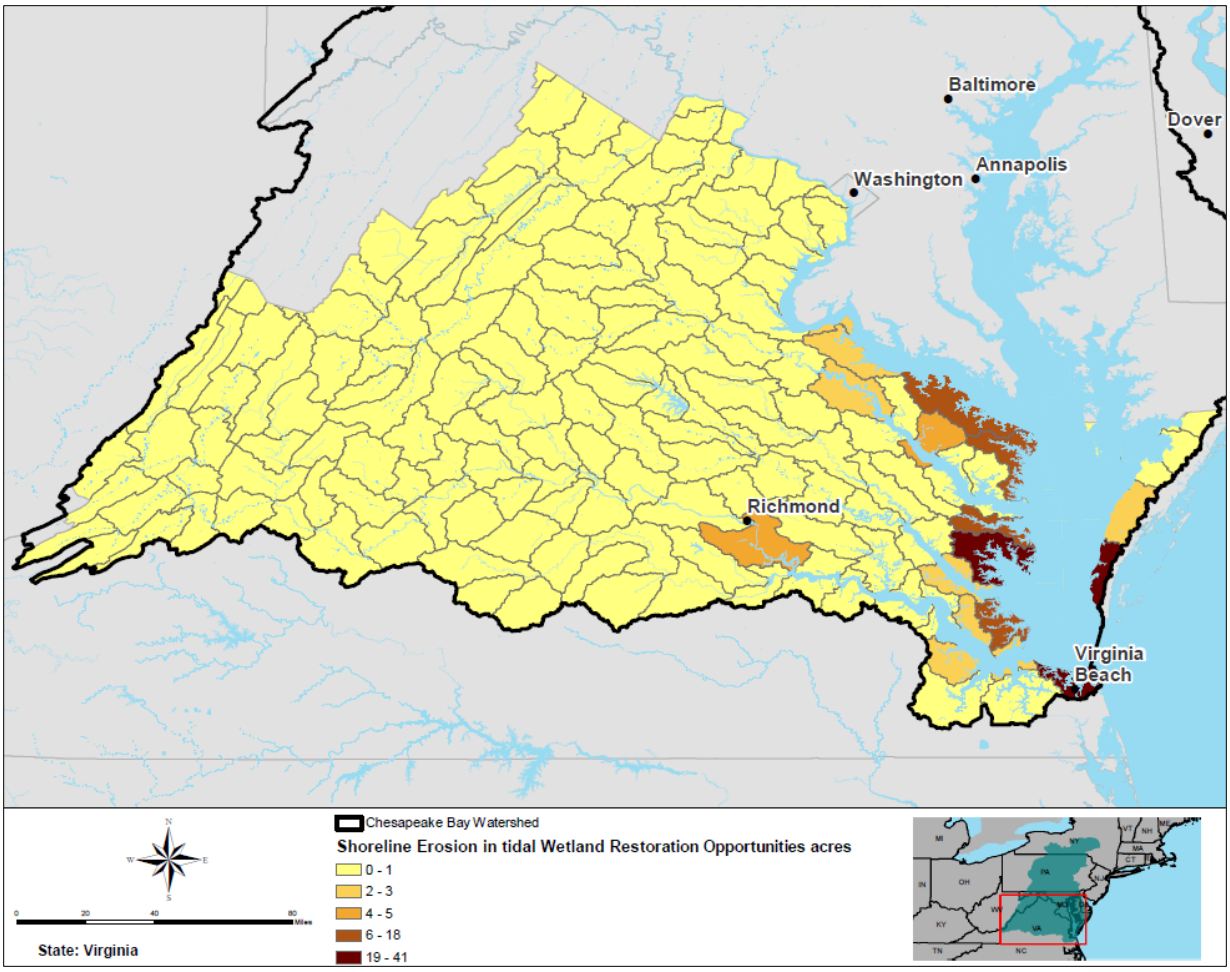

Figure 44. Shoreline erosion in tidal wetland restoration opportunity subwatersheds in Virginia

3.5 Shale Deposits and Natural Gas Extraction

Another potential threat to enhancement and restoration sites and existing high value healthy habitats is development associated with extraction of natural gas from shale deposits. Virginia contains extensive shale deposits; thus, the westernmost regions of Virginia are at risk of potential development associated with natural gas extraction.

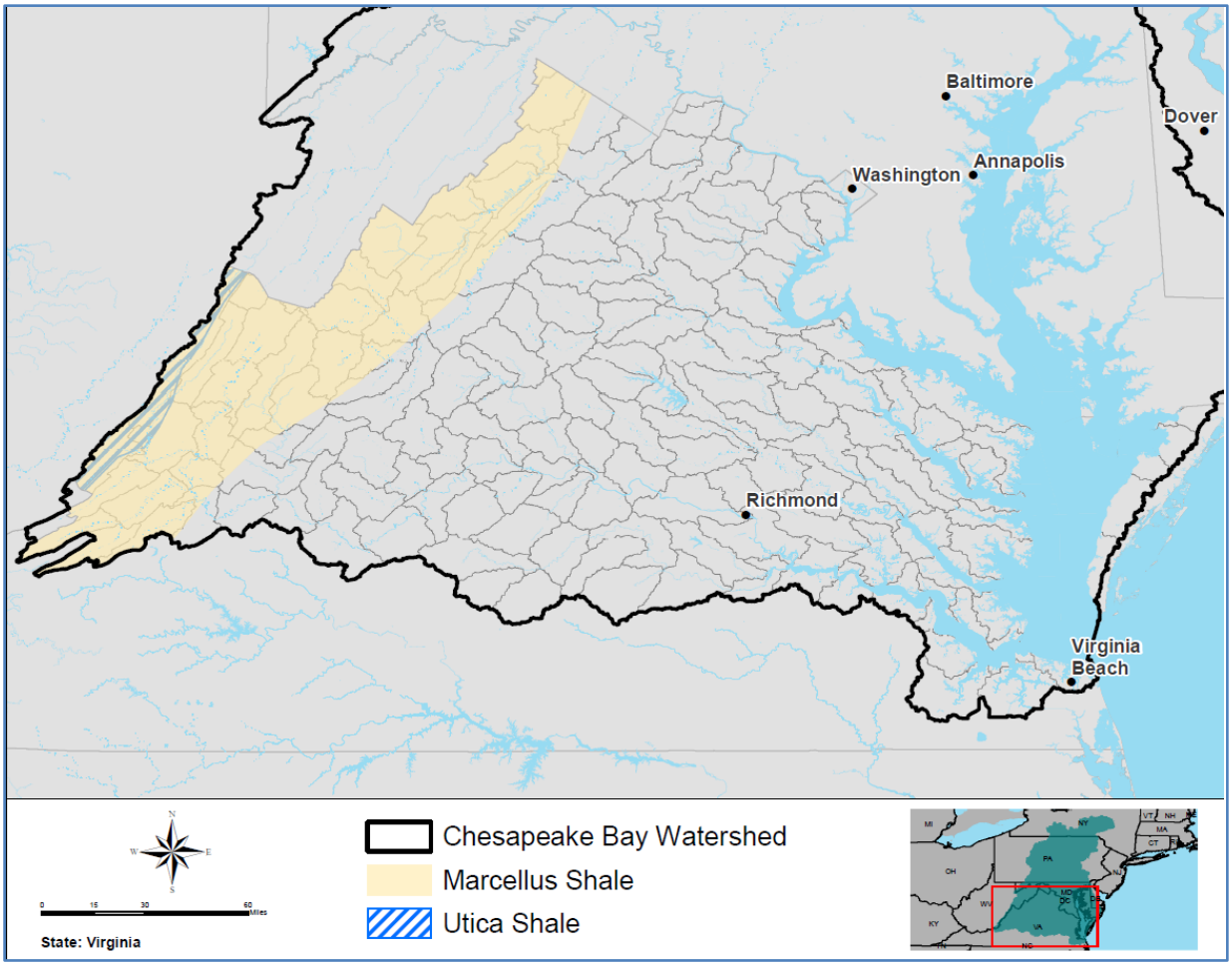

Figure 45. Shale deposits in Virginia

3.6 Road-Stream Crossings

A number of human activities can disrupt the continuity of river and stream ecosystems. The most familiar human-caused barriers are dams. Fish passage projects and dam removals have been a focus of the Chesapeake Bay Fish Passage Workgroup (FPWG) since 1989, and many dams and fish passage structures have been installed, opening thousands of miles of potential fish habitat. In recent years, there is growing concern about the role of road-stream crossings, especially culverts, in altering habitats, disrupting river and stream continuity, and blocking fish passage. Over 160,000 road-stream crossings exist in the Chesapeake Bay Watershed. In Virginia, there are 57,886 road-stream crossings. However, few culverts in the Chesapeake Bay Watershed have been assessed for fish passage. Of those in Virginia, 1,848 culverts have been surveyed.

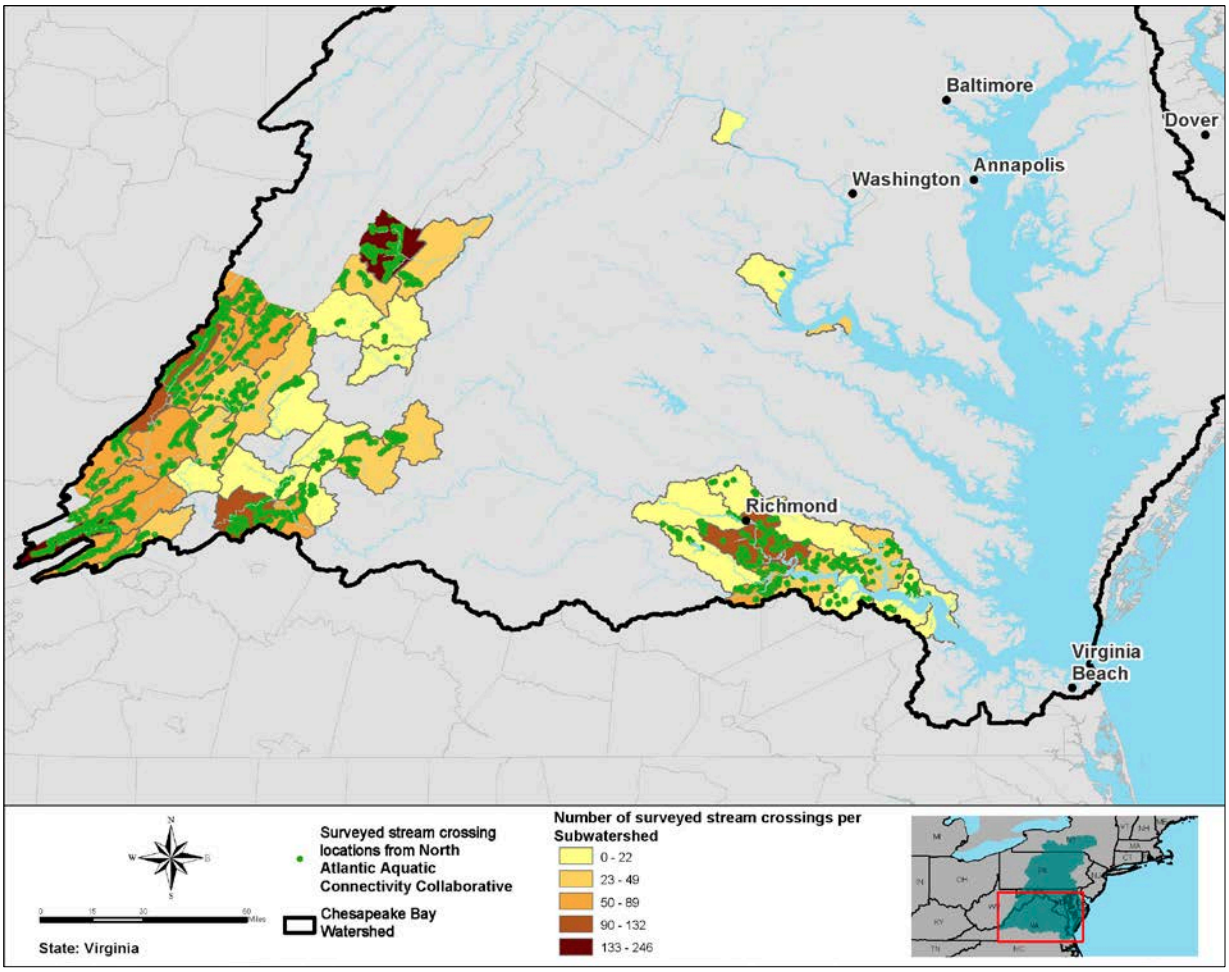

Figure 46. Surveyed stream crossings in Virginia

SECTION 4
Integration Analysis

The *Opportunity* maps can guide various stakeholders and focus efforts. The purpose of the Integration Analysis was to evaluate the results of the individual Opportunity Assessments to identify where multiple 2014 Bay Agreement goals and outcomes or co-benefits that could be achieved. The resulting *Restoration Roadmap* is a compilation of the *Opportunity Assessments* which highlights co-benefits and the potential to address multiple problems with an integrated water resources management approach.

In Virginia, the following *Opportunities Assessments* identified subwatersheds with opportunities aligning with the 2014 Bay Agreement goals and outcomes:

- Nontidal wetlands restoration
- Tidal wetlands restoration
- Wetlands restoration where dredged material may be used
- Wetlands restoration to benefit avian wildlife
- SAV restoration
- Riparian forest buffers
- Stream restoration
- Oyster Restoration
- Future threats – tidal
- Eroding shorelines
- Fish Passage

Due to the fact that there are a number of analyses that occur only in estuarine or tidal areas (oyster restoration, SAV, etc.), these data were separated and included in scoring only in those subwatersheds where 2014 Bay Agreement goals and outcomes have the potential to occur, eliminating bias towards tidal/estuarine areas at the mouth of the watershed when compared to the basin states further from the mainstem of the Chesapeake Bay. This allows for consistency between all analyses where subwatersheds were placed in disparate categories.

Estuarine subwatersheds with the most potential to achieve goals and outcomes are in the Quantico Creek-Potomac River and Falling Creek-James River of Virginia; however, there are wide-ranging opportunities throughout the estuarine subwatersheds of Virginia to potentially achieve goals and outcomes. Nonestuarine subwatersheds with the potential to achieve the most

goals and outcomes were the Cedar Run, Tuckahoe Creek-James River, Lower Jackson River, and Hazel River; however, there are also broad-ranging opportunities throughout the nonestuarine regions of Virginia to potentially achieve multiple goals and outcomes.

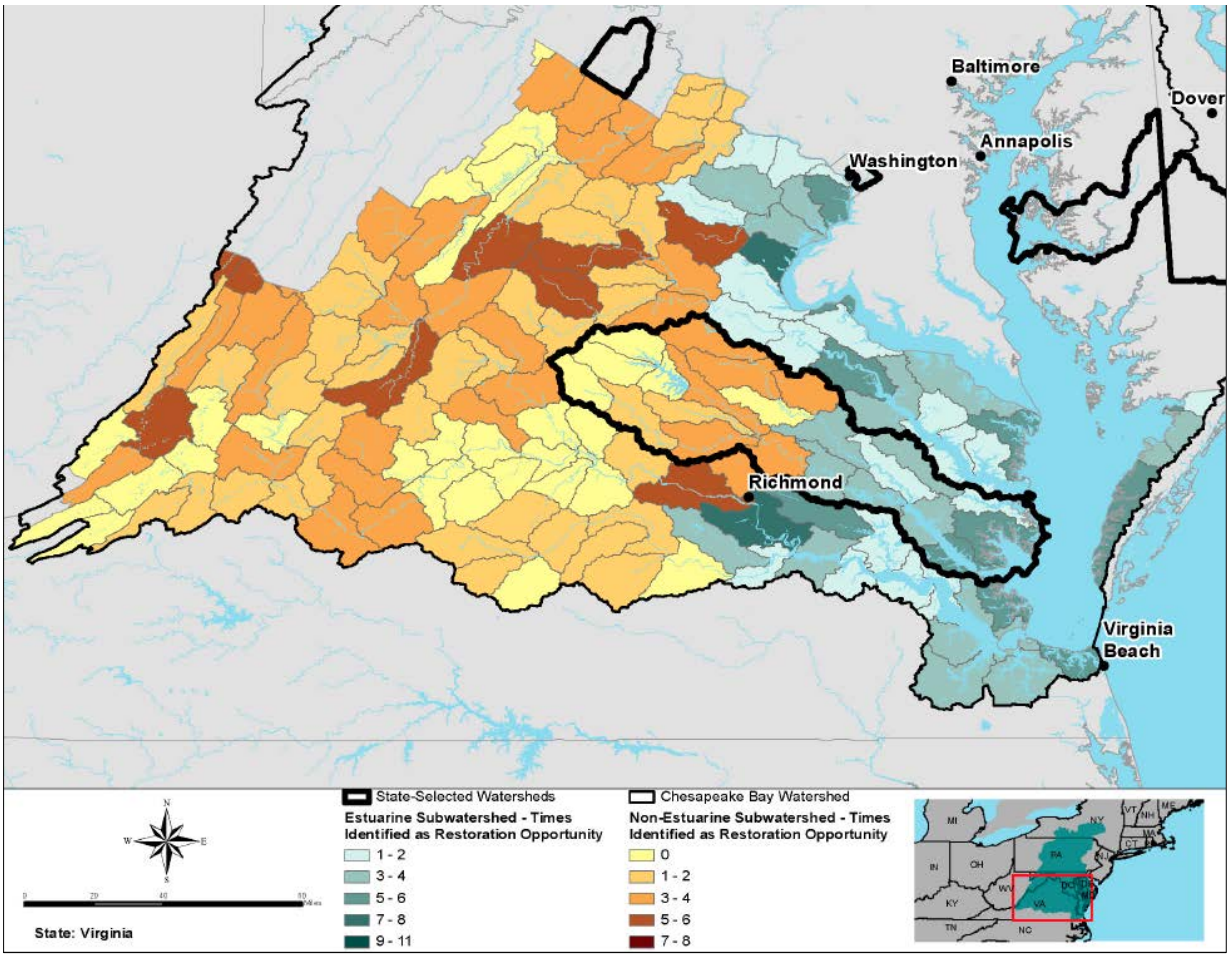

Figure 47. *Restoration Roadmap* for Virginia

Table 1a. *Restoration Roadmap* for Virginia: Compilation of Opportunity Assessments (1 = yes; 0 = no) - Estuarine

Drainage States	HUC 10 Number	Subwatershed Name	Tidal Wetland Restoration Opportunity	Nontidal Wetland Restoration Opportunity	Tidal/Nontidal Wetlands Restoration Opportunity Where Dredged Material May Be Used	Wetlands Restoration Opportunity to Benefiting Avian Wildlife	SAV Restoration Opportunity
VA	0208010610	Middle Pamunkey River	0	0	0	1	0
VA	0208010611	Lower Pamunkey River	0	0	0	1	0
VA	0208010701	Upper York River	0	0	0	1	0
VA	0208010702	Lower York River	0	0	0	1	1
VA	0208010801	Back River-Lower Chesapeake Bay	1	0	0	1	1
VA	0207001005	Broad Run	0	0	0	1	0
VA	0207001007	Bull Run	0	0	0	1	0
VA	0208010201	Great Wicomico River-Lower Chesapeake Bay	0	0	0	1	0
VA	0208010202	Dragon Swamp	0	0	0	1	0
VA	0208010203	Piankatank River-Lower Chesapeake Bay	0	0	0	1	0
VA	0208010204	Mobjack Bay-Lower Chesapeake Bay	1	0	0	1	0
VA	0208010403	Occupacia Creek-Rappahannock River	0	0	0	1	0
VA	0208010404	Cat Point Creek-Rappahannock River	0	0	0	1	0
VA	0208010405	Totuskey Creek-Rappahannock River	0	0	0	1	0
VA	0208010406	Lancaster Creek-Rappahannock River	0	0	0	1	0
MD,VA	0207000809	Broad Run-Potomac River	0	0	0	0	0
MD,VA	0207000810	Difficult Run-Potomac River	0	0	0	0	0
MD,VA	0207001101	Quantico Creek-Potomac River	0	0	0	1	1

Drainage States	HUC 10 Number	Subwatershed Name	Tidal Wetland Restoration Opportunity	Nontidal Wetland Restoration Opportunity	Tidal/Nontidal Wetlands Restoration Opportunity Where Dredged Material May Be Used	Wetlands Restoration Opportunity to Benefiting Avian Wildlife	SAV Restoration Opportunity
MD,VA	0207001108	Nomini Creek-Potomac River	0	1	0	1	0
MD,VA	0208010100	Lower Chesapeake Bay	0	0	0	1	1
MD,VA	0208011006	Lower Tangier Sound	1	0	1	1	1
MD,VA	0208011104	Pitts Creek-Pocomoke River	0	0	0	1	0
MD,VA	0208011105	Marumsco Creek-Pocomoke Sound	1	0	0	1	0
MD,VA	0208011107	Deep Creek-Pocomoke Sound	0	0	0	1	1
VA	0208010407	Corrotoman River-Rappahannock River	0	0	0	1	1
VA	0208010505	Chapel Creek-Mattaponi River	0	0	0	1	0
VA	0208010506	Garnetts Creek-Mattaponi River	0	0	0	1	0
VA	0208020709	Swift Creek	0	0	0	1	0
VA	0208020710	Ashton Creek-Appomattox River	0	0	0	1	0
VA	0208020803	Hampton Roads	0	0	0	1	0
MD	0207001103	Nanjemoy Creek-Potomac River	0	0	0	1	0
MD	0208011103	Dividing Creek-Pocomoke River	0	0	0	1	0
DC,MD,VA	0207001001	Rock Creek-Potomac River	0	0	0	0	0
VA 32	0208011106	Messongo Creek-Pocomoke Sound	0	0	0	1	0
VA	0208011108	Pungoteague Creek-Lower Chesapeake Bay	1	0	1	1	1
VA	0208011109	Cherrystone Inlet-Lower Chesapeake Bay	0	0	0	1	1

Drainage States	HUC 10 Number	Subwatershed Name	Tidal Wetland Restoration Opportunity	Nontidal Wetland Restoration Opportunity	Tidal/Nontidal Wetlands Restoration Opportunity Where Dredged Material May Be Used	Wetlands Restoration Opportunity to Benefiting Avian Wildlife	SAV Restoration Opportunity
VA	0208020601	Falling Creek-James River	0	1	1	1	0
VA	0208020602	Herring Creek-James River	0	0	0	1	0
VA	0208020605	Middle Chickahominy River	0	0	0	1	0
VA	0208020606	Lower Chickahominy River	0	0	0	1	0
VA	0208020608	Lawnes Creek-James River	0	0	0	1	0
VA	0208020609	Pagan River-James River	0	0	0	1	0
MD,VA	0207001008	Occoquan River-Potomac River	0	0	0	1	1
MD,VA	0207001102	Potomac Creek-Potomac River	0	0	0	1	0
MD,VA	0207001106	Machodoc Creek-Potomac River	0	0	0	1	0
DC,MD,VA	0207001003	Cameron Run-Potomac River	0	0	0	1	0
VA	0208010401	Massaponax Creek-Rappahannock River	0	0	0	1	0
VA	0208010402	Mill Creek-Rappahannock River	0	0	0	1	0
VA	0207001004	Pohick Creek	0	0	0	1	0
MD,VA	0207001110	0207001110-Potomac River	0	0	0	1	0
VA	0208020603	Upper Chippokes Creek-James River	0	0	0	1	0
VA	0208020607	Powhatan Creek-James River	0	0	0	1	0
VA	0208020801	Nansemond River	0	1	0	1	0
VA	0208010802	Lynnhaven River-Lower Chesapeake Bay	1	0	1	1	0
VA	0208020802	Elizabeth River	0	0	0	1	0

Table 1a. *Restoration Roadmap* for Virginia: Compilation of Opportunity Assessments (1 = yes; 0 = no) - Estuarine

Drainage States	HUC 10 Number	Subwatershed Name	Riparian Forest Buffers Opportunity	Stream Restoration Opportunity	Oyster Restoration Opportunity	Future Threats – Tidal Opportunity	Eroding Shorelines Opportunity
VA	0208010610	Middle Pamunkey River	0	1	0	0	0
VA	0208010611	Lower Pamunkey River	0	1	1	0	0
VA	0208010701	Upper York River	0	1	1	0	0
VA	0208010702	Lower York River	0	0	1	1	0
VA	0208010801	Back River-Lower Chesapeake Bay	0	0	1	0	0
VA	0207001005	Broad Run	0	0	0	1	0
VA	0207001007	Bull Run	1	0	0	0	0
VA	0208010201	Great Wicomico River-Lower Chesapeake Bay	0	0	1	1	1
VA	0208010202	Dragon Swamp	0	1	1	0	0
VA	0208010203	Piankatank River-Lower Chesapeake Bay	0	0	1	0	0
VA	0208010204	Mobjack Bay-Lower Chesapeake Bay	0	0	1	0	1
VA	0208010403	Occupacia Creek-Rappahannock River	0	1	0	0	0
VA	0208010404	Cat Point Creek-Rappahannock River	0	1	0	0	0
VA	0208010405	Totuskey Creek-Rappahannock River	0	0	0	0	0
VA	0208010406	Lancaster Creek-Rappahannock River	0	0	0	0	0
MD,VA	0207000809	Broad Run-Potomac River	0	0	0	0	0
MD,VA	0207000810	Difficult Run-Potomac River	0	0	0	0	0
MD,VA	0207001101	Quantico Creek-Potomac River	1	1	0	0	0
MD,VA	0207001108	Nomini Creek-Potomac River	0	0	0	0	1
MD,VA	0208010100	Lower Chesapeake Bay	0	0	1	0	0
MD,VA	0208011006	Lower Tangier Sound	0	0	0	1	0

Drainage States	HUC 10 Number	Subwatershed Name	Riparian Forest Buffers Opportunity	Stream Restoration Opportunity	Oyster Restoration Opportunity	Future Threats – Tidal Opportunity	Eroding Shorelines Opportunity
MD,VA	0208011104	Pitts Creek-Pocomoke River	0	0	0	0	0
MD,VA	0208011105	Marumsco Creek-Pocomoke Sound	0	0	0	0	0
MD,VA	0208011107	Deep Creek-Pocomoke Sound	0	0	0	0	0
VA	0208010407	Corrotoman River-Rappahannock River	0	0	0	0	0
VA	0208010505	Chapel Creek-Mattaponi River	0	1	0	0	0
VA	0208010506	Garnetts Creek-Mattaponi River	0	0	1	0	0
VA	0208020709	Swift Creek	0	1	0	0	0
VA	0208020710	Ashton Creek-Appomattox River	0	0	0	0	0
VA	0208020803	Hampton Roads	0	0	0	0	0
MD	0207001103	Nanjemoy Creek-Potomac River	0	1	0	0	1
MD	0208011103	Dividing Creek-Pocomoke River	0	1	0	0	0
DC,MD,VA	0207001001	Rock Creek-Potomac River	0	0	0	0	0
VA	0208011106	Messongo Creek-Pocomoke Sound	0	0	0	0	0
VA	0208011108	Pungoteague Creek-Lower Chesapeake Bay	0	0	0	0	0
VA	0208011109	Cherrystone Inlet-Lower Chesapeake Bay	0	0	1	1	1
VA	0208020601	Falling Creek-James River	1	0	0	0	1
VA	0208020602	Herring Creek-James River	0	1	0	0	0
VA	0208020605	Middle Chickahominy River	1	1	0	0	0
VA	0208020606	Lower Chickahominy River	0	0	0	0	0
VA	0208020608	Lawnes Creek-James River	0	0	0	0	0
VA	0208020609	Pagan River-James River	0	0	0	0	0
MD,VA	0207001008	Occoquan River-Potomac River	0	0	0	0	0

Drainage States	HUC 10 Number	Subwatershed Name	Riparian Forest Buffers Opportunity	Stream Restoration Opportunity	Oyster Restoration Opportunity	Future Threats – Tidal Opportunity	Eroding Shorelines Opportunity
MD,VA	0207001102	Potomac Creek-Potomac River	0	0	0	0	0
MD,VA	0207001106	Machodoc Creek-Potomac River	0	0	0	0	0
DC,MD,VA	0207001003	Cameron Run-Potomac River	1	1	0	0	0
VA	0208010401	Massaponax Creek-Rappahannock River	0	0	0	0	0
VA	0208010402	Mill Creek-Rappahannock River	0	0	0	0	0
VA	0207001004	Pohick Creek	0	1	0	0	0
MD,VA	0207001110	0207001110-Potomac River	0	0	0	0	0
VA	0208020603	Upper Chippokes Creek-James River	0	0	0	0	0
VA	0208020607	Powhatan Creek-James River	0	0	0	0	0
VA	0208020801	Nansemond River	1	0	0	0	0
VA	0208010802	Lynnhaven River-Lower Chesapeake Bay	0	0	1	0	1
VA	0208020802	Elizabeth River	0	0	1	0	0

Table 1a. *Restoration Roadmap* for Virginia: Compilation of Opportunity Assessments (1 = yes; 0 = no) - Estuarine

Drainage States	HUC 10 Number	Subwatershed Name	Times Identified as *Opportunity*	Times Identified as *Opportunity* including Fish Passage
VA	0208010610	Middle Pamunkey River	2	3
VA	0208010611	Lower Pamunkey River	3	4
VA	0208010701	Upper York River	4	4
VA	0208010702	Lower York River	6	6
VA	0208010801	Back River-Lower Chesapeake Bay	6	6
VA	0207001005	Broad Run	2	2
VA	0207001007	Bull Run	3	3
VA	0208010201	Great Wicomico River-Lower Chesapeake Bay	5	5
VA	0208010202	Dragon Swamp	3	3
VA	0208010203	Piankatank River-Lower Chesapeake Bay	2	2
VA	0208010204	Mobjack Bay-Lower Chesapeake Bay	6	6
VA	0208010403	Occupacia Creek-Rappahannock River	5	6
VA	0208010404	Cat Point Creek-Rappahannock River	3	3
VA	0208010405	Totuskey Creek-Rappahannock River	1	1
VA	0208010406	Lancaster Creek-Rappahannock River	1	1
MD,VA	0207000809	Broad Run-Potomac River	1	1
MD,VA	0207000810	Difficult Run-Potomac River	1	1
MD,VA	0207001101	Quantico Creek-Potomac River	7	8
MD,VA	0207001108	Nomini Creek-Potomac River	4	4
MD,VA	0208010100	Lower Chesapeake Bay	3	3
MD,VA	0208011006	Lower Tangier Sound	6	6
MD,VA	0208011104	Pitts Creek-Pocomoke River	2	2
MD,VA	0208011105	Marumsco Creek-Pocomoke Sound	5	5

Drainage States	HUC 10 Number	Subwatershed Name	Times Identified as *Opportunity*	Times Identified as *Opportunity* including Fish Passage
MD,VA	0208011107	Deep Creek-Pocomoke Sound	4	4
VA	0208010407	Corrotoman River-Rappahannock River	2	2
VA	0208010505	Chapel Creek-Mattaponi River	2	3
VA	0208010506	Garnetts Creek-Mattaponi River	2	2
VA	0208020709	Swift Creek	3	4
VA	0208020710	Ashton Creek-Appomattox River	2	2
VA	0208020803	Hampton Roads	3	3
MD	0207001103	Nanjemoy Creek-Potomac River	5	6
MD	0208011103	Dividing Creek-Pocomoke River	4	4
DC,MD,VA	0207001001	Rock Creek-Potomac River	1	1
VA	0208011106	Messongo Creek-Pocomoke Sound	4	4
VA	0208011108	Pungoteague Creek-Lower Chesapeake Bay	6	6
VA	0208011109	Cherrystone Inlet-Lower Chesapeake Bay	6	6
VA	0208020601	Falling Creek-James River	7	7
VA	0208020602	Herring Creek-James River	3	3
VA	0208020605	Middle Chickahominy River	4	5
VA	0208020606	Lower Chickahominy River	2	2
VA	0208020608	Lawnes Creek-James River	2	2
VA	0208020609	Pagan River-James River	3	3
MD,VA	0207001008	Occoquan River-Potomac River	3	3
MD,VA	0207001102	Potomac Creek-Potomac River	1	1
MD,VA	0207001106	Machodoc Creek-Potomac River	2	2
DC,MD,VA	0207001003	Cameron Run-Potomac River	4	5
VA	0208010401	Massaponax Creek-Rappahannock River	2	2

Drainage States	HUC 10 Number	Subwatershed Name	Times Identified as *Opportunity*	Times Identified as *Opportunity* including Fish Passage
VA	0208010402	Mill Creek-Rappahannock River	1	1
VA	0207001004	Pohick Creek	3	4
MD,VA	0207001110	0207001110-Potomac River	2	2
VA	0208020603	Upper Chippokes Creek-James River	1	1
VA	0208020607	Powhatan Creek-James River	2	2
VA	0208020801	Nansemond River	4	4
VA	0208010802	Lynnhaven River-Lower Chesapeake Bay	6	6
VA	0208020802	Elizabeth River	4	4

Table 1b. *Restoration Roadmap* for Virginia: Compilation of Opportunity Assessments (1 = yes; 0 = no) – Non-Estuarine

Drainage States	HUC 10 Number	Subwatershed Name	Nontidal Wetland Restoration Opportunity	Wetlands Restoration Opportunity to Benefit Avian Wildlife	Connectivity - Regional Flow Opportunity	Riparian Forest Buffers Opportunity
VA,WV	0207000103	Upper South Branch Potomac River	1	1	1	1
VA,WV	0207000105	South Fork South Branch Potomac River	0	0	1	1
VA,WV	0207000305	Lost River	0	0	1	0
VA,WV	0207000402	Sleepy Creek	0	0	0	0
VA,WV	0207000404	Back Creek	0	0	1	1
VA,WV	0207000409	Opequon Creek	1	0	0	1
VA	0208010603	Lower South Anna River	0	1	0	0
VA	0208010604	Gold Mine Creek-North Anna River	0	0	0	0
VA	0208010605	Pamunkey Creek	0	0	0	0

Drainage States	HUC 10 Number	Subwatershed Name	Nontidal Wetland Restoration Opportunity	Wetlands Restoration Opportunity to Benefit Avian Wildlife	Connectivity - Regional Flow Opportunity	Riparian Forest Buffers Opportunity
VA	0208010606	Lake Anna	0	0	0	0
VA	0208010607	Little River	0	0	0	0
VA	0208010608	Northeast Creek-North Anna River	0	1	0	0
VA	0208010609	Upper Pamunkey River	0	1	0	0
VA	0207000501	Upper Middle River	1	0	0	0
VA	0207000502	Christians Creek	1	0	0	0
VA	0207000503	Lower Middle River	1	0	0	0
VA	0207000504	Upper North River	0	0	0	1
VA	0207000505	Dry River	0	0	0	0
VA	0207000506	Lower North River	1	0	0	0
VA	0207000507	South River	1	1	0	1
VA	0207000603	Linville Creek-North Fork Shenandoah River	1	0	0	1
VA	0207000604	Stony Creek	0	0	0	0
VA	0207000605	Narrow Passage Creek-North Fork Shenandoah River	0	0	0	0
VA	0207000803	Catoctin Creek	0	1	0	0
VA	0207000806	North Fork Goose Creek	0	0	0	0
VA	0207000807	Lower Goose Creek	0	0	0	0
VA	0207001006	Cedar Run	1	1	0	1
VA	0208010305	Mountain Run	0	1	0	0
VA	0208010306	Marsh Run-Rappahannock River	0	1	0	0
VA	0208010308	Blue Run-Rapidan River	0	1	0	0
VA	0208010310	Cedar Run-Rapidan River	0	1	0	0
VA	0208020114	Looney Creek-James River	0	1	0	0
VA	0208020115	Cedar Creek-James River	0	1	0	0

Drainage States	HUC 10 Number	Subwatershed Name	Nontidal Wetland Restoration Opportunity	Wetlands Restoration Opportunity to Benefit Avian Wildlife	Connectivity - Regional Flow Opportunity	Riparian Forest Buffers Opportunity
VA	0208020201	Calfpasture River	0	0	1	1
VA	0208020202	Little Calfpasture River-Upper Maury River	0	0	0	1
VA	0208020203	Middle Maury River	0	0	0	0
VA	0208020204	South River	0	1	0	0
VA	0208020205	Lower Maury River	0	1	0	1
VA	0208020301	Reed Creek-James River	0	1	0	0
VA	0208020302	Pedlar River	0	1	0	0
VA	0208020303	Harris Creek-James River	0	0	0	1
VA	0208020304	Wreck Island Creek-James River	0	0	0	1
VA	0208020305	Upper Tye River	0	1	0	0
VA	0208020306	Buffalo River	0	1	0	0
VA	0208020704	Big Guinea Creek-Appomattox River	0	0	0	0
VA	0208020705	Flat Creek	0	0	0	0
VA	0208020706	Rocky Ford Creek-Appomattox River	0	0	0	0
VA	0208010503	Polecat Creek-Mattaponi River	0	0	0	0
VA	0208010504	Maracossic Creek	0	1	0	0
VA	0208010601	Upper South Anna River	0	0	0	0
VA	0208010602	Middle South Anna River	0	0	0	0
VA	0208020707	Deep Creek	0	0	0	0
VA	0208020708	Lake Chesdin-Appomattox River	0	0	0	0
VA	0208020702	Vaughans Creek-Appomattox River	0	0	0	0
VA	0208020703	Bush River	0	0	0	0
MD	0207000802	Piney Run-Potomac River	0	1	0	0
MD	0207000804	Tuscarora Creek-Potomac River	0	0	0	0
VA	0208020307	Lower Tye River	0	0	0	0

Drainage States	HUC 10 Number	Subwatershed Name	Nontidal Wetland Restoration Opportunity	Wetlands Restoration Opportunity to Benefit Avian Wildlife	Connectivity - Regional Flow Opportunity	Riparian Forest Buffers Opportunity
VA	0208020308	David Creek-James River	0	0	0	0
VA	0208020309	Upper Rockfish River	0	1	0	0
VA	0208020310	Lower Rockfish River	0	0	0	0
VA	0208020311	Ballinger Creek-James River	0	0	0	0
VA	0208020312	Hardware River	0	0	1	0
VA	0208020313	Upper Slate River	0	0	0	0
VA	0208020314	Lower Slate River	0	0	0	0
VA	0208020315	Bear Garden Creek-James River	0	0	0	0
VA	0208020401	Moormans River-Mechums River	0	1	0	0
VA	0208020402	South Fork Rivanna River	0	1	0	0
VA	0208020404	Mechunk Creek-Rivanna River	0	0	1	0
VA	0208020405	Cunningham Creek-Rivanna River	0	0	0	0
VA	0208020501	Byrd Creek	0	0	0	0
VA	0208020502	Upper Willis River	0	0	0	0
VA	0208020503	Lower Willis River	0	0	0	0
VA	0208020504	Deep Creek-James River	0	0	0	0
VA	0208020505	Lickinghole Creek-James River	0	0	0	0
VA	0208020506	Tuckahoe Creek-James River	0	1	0	1
VA	0208020101	Upper Jackson River	0	1	1	0
VA	0208020102	Back Creek-Middle Jackson River	0	1	0	0
VA	0208020105	Lower Jackson River	0	1	1	1
VA	0208020107	Middle Cowpasture River	0	1	1	0
VA	0208020108	Lower Cowpasture River	0	0	0	0
VA	0208020109	Mill Creek-James River	0	0	0	0
VA	0208020110	Upper Craig Creek	0	0	0	0

Drainage States	HUC 10 Number	Subwatershed Name	Nontidal Wetland Restoration Opportunity	Wetlands Restoration Opportunity to Benefit Avian Wildlife	Connectivity - Regional Flow Opportunity	Riparian Forest Buffers Opportunity
VA	0208020112	Lower Craig Creek	0	0	0	0
VA	0208020113	Catawba Creek	0	0	0	0
VA	0208020604	Upper Chickahominy River	0	1	0	0
VA	0208020701	Buffalo Creek	0	0	0	0
VA	0207000601	Shoemaker River-North Fork Shenandoah River	0	0	0	1
VA	0207000702	Long Marsh Run-Shenandoah River	0	1	0	0
VA	0208020103	Dunlap Creek	0	0	0	0
VA	0208020106	Upper Cowpasture River	0	1	1	1
VA	0207000510	Gooney Run-South Fork Shenandoah River	0	1	0	0
VA	0207000602	Smith Creek	0	0	0	0
VA	0207000607	Passage Creek-North Fork Shenandoah River	0	0	0	0
VA	0207000701	Crooked Run-Shenandoah River	1	1	0	0
VA	0207000805	Upper Goose Creek	1	1	0	0
VA	0208010301	Thumb Run-Rappahannock River	0	1	0	0
VA	0208010302	Carter Run-Rappahannock River	0	0	0	0
VA	0208010303	Thornton River	0	1	0	0
VA	0208010304	Hazel River	0	1	1	1
VA	0208010307	Conway River-Rapidan River	0	1	0	0
VA	0208010309	Robinson River	1	1	0	1
VA	0208010311	Mine Run-Rapidan River	0	1	0	0
VA	0208010501	Poni River	0	1	0	0
VA	0208010502	Matta River-Mattaponi River	0	1	0	0
VA	0208020403	North Fork Rivanna River	0	1	0	0
VA	0208020104	Potts Creek	0	0	0	1
VA,WV	0207000703	Bullskin Run-Shenandoah River	0	0	0	0

Drainage States	HUC 10 Number	Subwatershed Name	Nontidal Wetland Restoration Opportunity	Wetlands Restoration Opportunity to Benefit Avian Wildlife	Connectivity - Regional Flow Opportunity	Riparian Forest Buffers Opportunity
VA	0207000508	Naked Creek-South Fork Shenandoah River	0	1	0	1
VA	0207000509	Hawksbill Creek-South Fork Shenandoah River	1	1	0	1
VA	0208020111	Johns Creek	0	0	0	0
VA,WV	0207000101	North Fork South Branch Potomac River	0	1	1	1
WV	0207000307	Cacapon River	0	0	1	1
VA	0207000606	Cedar Creek	0	0	0	0

Table 1b. *Restoration Roadmap* for Virginia: Compilation of Opportunity Assessments (1 = yes; 0 = no) – Non-Estuarine

Drainage States	HUC 10 Number	Subwatershed Name	Stream Restoration Opportunity	Future Threats – Nontidal Opportunity	Conservation Opportunity	Water Stressor Analysis - Water Quality Improvements Opportunity	Times Identified as *Opportunity*	Times Identified as *Opportunity* including Fish Passage
VA,WV	0207000103	Upper South Branch Potomac River	1	0	0	0	5	5
VA,WV	0207000105	South Fork South Branch Potomac River	1	0	0	0	3	3
VA,WV	0207000305	Lost River	0	0	0	0	1	1
VA,WV	0207000402	Sleepy Creek	0	0	0	0	0	0
VA,WV	0207000404	Back Creek	1	0	0	0	3	4
VA,WV	0207000409	Opequon Creek	0	1	0	1	4	4
VA	0208010603	Lower South Anna River	1	0	0	0	2	3
VA	0208010604	Gold Mine Creek-North Anna River	0	0	0	0	0	0
VA	0208010605	Pamunkey Creek	0	0	0	0	0	0
VA	0208010606	Lake Anna	0	0	0	0	0	0
VA	0208010607	Little River	1	0	0	0	1	2
VA	0208010608	Northeast Creek-North Anna River	1	0	0	0	2	3
VA	0208010609	Upper Pamunkey River	1	0	0	0	2	3
VA	0207000501	Upper Middle River	0	0	0	0	1	1
VA	0207000502	Christians Creek	0	0	0	0	1	1
VA	0207000503	Lower Middle River	0	0	0	1	2	2
VA	0207000504	Upper North River	0	0	0	0	1	1
VA	0207000505	Dry River	1	0	0	0	1	2
VA	0207000506	Lower North River	0	1	0	1	3	3
VA	0207000507	South River	1	0	0	0	4	5
VA	0207000603	Linville Creek-North Fork Shenandoah River	0	0	0	1	3	3

Drainage States	HUC 10 Number	Subwatershed Name	Stream Restoration Opportunity	Future Threats – Nontidal Opportunity	Conservation Opportunity	Water Stressor Analysis - Water Quality Improvements Opportunity	Times Identified as *Opportunity*	Times Identified as *Opportunity* including Fish Passage
VA	0207000604	Stony Creek	0	0	0	0	0	0
VA	0207000605	Narrow Passage Creek-North Fork Shenandoah River	0	0	0	0	0	0
VA	0207000803	Catoctin Creek	0	0	0	1	2	2
VA	0207000806	North Fork Goose Creek	0	0	0	1	1	1
VA	0207000807	Lower Goose Creek	0	1	0	1	2	2
VA	0207001006	Cedar Run	1	1	0	0	5	6
VA	0208010305	Mountain Run	0	0	0	0	1	1
VA	0208010306	Marsh Run-Rappahannock River	1	0	0	0	2	3
VA	0208010308	Blue Run-Rapidan River	0	0	0	0	1	1
VA	0208010310	Cedar Run-Rapidan River	0	0	0	0	1	1
VA	0208020114	Looney Creek-James River	0	0	0	0	1	1
VA	0208020115	Cedar Creek-James River	0	0	0	0	1	1
VA	0208020201	Calfpasture River	1	0	0	0	3	4
VA	0208020202	Little Calfpasture River-Upper Maury River	0	0	0	0	1	1
VA	0208020203	Middle Maury River	0	0	0	0	0	0
VA	0208020204	South River	0	0	0	0	1	1
VA	0208020205	Lower Maury River	1	0	0	0	3	4
VA	0208020301	Reed Creek-James River	0	0	0	0	1	1
VA	0208020302	Pedlar River	0	0	0	0	1	1
VA	0208020303	Harris Creek-James River	1	0	0	0	2	3
VA	0208020304	Wreck Island Creek-James River	1	0	0	0	2	3
VA	0208020305	Upper Tye River	1	0	1	0	3	4

Drainage States	HUC 10 Number	Subwatershed Name	Stream Restoration Opportunity	Future Threats – Nontidal Opportunity	Conservation Opportunity	Water Stressor Analysis - Water Quality Improvements Opportunity	Times Identified as *Opportunity*	Times Identified as *Opportunity* including Fish Passage
VA	0208020306	Buffalo River	1	0	0	0	2	3
VA	0208020704	Big Guinea Creek-Appomattox River	1	0	0	0	1	2
VA	0208020705	Flat Creek	1	0	0	0	1	2
VA	0208020706	Rocky Ford Creek-Appomattox River	1	0	0	0	1	2
VA	0208010503	Polecat Creek-Mattaponi River	0	0	0	0	0	0
VA	0208010504	Maracossic Creek	1	0	0	0	2	3
VA	0208010601	Upper South Anna River	0	0	0	0	0	0
VA	0208010602	Middle South Anna River	1	0	0	0	1	2
VA	0208020707	Deep Creek	1	0	0	0	1	2
VA	0208020708	Lake Chesdin-Appomattox River	0	0	0	0	0	0
VA	0208020702	Vaughans Creek-Appomattox River	1	0	0	0	1	2
VA	0208020703	Bush River	0	0	0	0	0	0
MD	0207000802	Piney Run-Potomac River	0	0	0	1	2	2
MD	0207000804	Tuscarora Creek-Potomac River	0	1	0	1	2	2
VA	0208020307	Lower Tye River	0	0	0	0	0	0
VA	0208020308	David Creek-James River	0	0	0	0	0	0
VA	0208020309	Upper Rockfish River	0	0	0	0	1	1
VA	0208020310	Lower Rockfish River	0	0	0	0	0	0
VA	0208020311	Ballinger Creek-James River	0	0	0	0	0	0
VA	0208020312	Hardware River	1	0	0	0	2	3

Drainage States	HUC 10 Number	Subwatershed Name	Stream Restoration Opportunity	Future Threats – Nontidal Opportunity	Conservation Opportunity	Water Stressor Analysis - Water Quality Improvements Opportunity	Times Identified as *Opportunity*	Times Identified as *Opportunity* including Fish Passage
VA	0208020313	Upper Slate River	0	0	0	0	0	0
VA	0208020314	Lower Slate River	0	0	0	0	0	0
VA	0208020315	Bear Garden Creek-James River	0	0	0	0	0	0
VA	0208020401	Moormans River-Mechums River	0	0	0	0	1	1
VA	0208020402	South Fork Rivanna River	0	0	0	0	1	1
VA	0208020404	Mechunk Creek-Rivanna River	1	0	0	0	2	3
VA	0208020405	Cunningham Creek-Rivanna River	0	0	0	0	0	0
VA	0208020501	Byrd Creek	0	0	0	0	0	0
VA	0208020502	Upper Willis River	1	0	0	0	1	2
VA	0208020503	Lower Willis River	0	0	0	0	0	0
VA	0208020504	Deep Creek-James River	0	0	0	0	0	0
VA	0208020505	Lickinghole Creek-James River	1	0	0	0	1	2
VA	0208020506	Tuckahoe Creek-James River	1	1	0	1	5	6
VA	0208020101	Upper Jackson River	0	0	1	0	3	3
VA	0208020102	Back Creek-Middle Jackson River	0	0	0	0	1	1
VA	0208020105	Lower Jackson River	1	0	1	0	5	6
VA	0208020107	Middle Cowpasture River	0	0	0	0	2	2
VA	0208020108	Lower Cowpasture River	0	0	0	0	0	0
VA	0208020109	Mill Creek-James River	0	0	0	0	0	0
VA	0208020110	Upper Craig Creek	0	0	0	0	0	0

Drainage States	HUC 10 Number	Subwatershed Name	Stream Restoration Opportunity	Future Threats – Nontidal Opportunity	Conservation Opportunity	Water Stressor Analysis - Water Quality Improvements Opportunity	Times Identified as *Opportunity*	Times Identified as *Opportunity* including Fish Passage
VA	0208020112	Lower Craig Creek	0	0	0	0	0	0
VA	0208020113	Catawba Creek	1	0	0	0	1	1
VA	0208020604	Upper Chickahominy River	0	1	0	1	4	4
VA	0208020701	Buffalo Creek	1	0	0	0	1	2
VA	0207000601	Shoemaker River-North Fork Shenandoah River	1	0	0	0	2	3
VA	0207000702	Long Marsh Run-Shenandoah River	0	1	0	1	3	3
VA	0208020103	Dunlap Creek	0	0	0	0	0	0
VA	0208020106	Upper Cowpasture River	0	0	0	0	3	3
VA	0207000510	Gooney Run-South Fork Shenandoah River	0	0	0	0	1	1
VA	0207000602	Smith Creek	0	0	0	0	0	0
VA	0207000607	Passage Creek-North Fork Shenandoah River	0	0	0	0	0	0
VA	0207000701	Crooked Run-Shenandoah River	0	0	0	1	3	3
VA	0207000805	Upper Goose Creek	0	1	0	0	3	3
VA	0208010301	Thumb Run-Rappahannock River	0	0	0	0	1	1
VA	0208010302	Carter Run-Rappahannock River	1	0	0	0	1	2
VA	0208010303	Thornton River	0	0	0	0	1	1
VA	0208010304	Hazel River	1	0	1	0	5	6
VA	0208010307	Conway River-Rapidan River	0	0	0	0	1	1
VA	0208010309	Robinson River	1	0	0	0	4	5

Drainage States	HUC 10 Number	Subwatershed Name	Stream Restoration Opportunity	Future Threats – Nontidal Opportunity	Conservation Opportunity	Water Stressor Analysis - Water Quality Improvements Opportunity	Times Identified as *Opportunity*	Times Identified as *Opportunity* including Fish Passage
VA	0208010311	Mine Run-Rapidan River	1	0	0	0	2	3
VA	0208010501	Poni River	1	0	0	0	2	3
VA	0208010502	Matta River-Mattaponi River	1	0	0	0	2	3
VA	0208020403	North Fork Rivanna River	1	0	0	0	3	4
VA	0208020104	Potts Creek	1	0	0	0	2	3
VA,WV	0207000703	Bullskin Run-Shenandoah River	0	0	0	1	1	1
VA	0207000508	Naked Creek-South Fork Shenandoah River	1	0	0	0	3	4
VA	0207000509	Hawksbill Creek-South Fork Shenandoah River	1	0	0	0	4	5
VA	0208020111	Johns Creek	0	0	0	0	0	0
VA,WV	0207000101	North Fork South Branch Potomac River	1	0	1	0	5	5
WV	0207000307	Cacapon River	1	0	0	0	3	3
VA	0207000606	Cedar Creek	0	0	0	0	0	0

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SECTION 5

State-Selected Watershed Action Plan Summary

The State-Selected Watershed Action Plans undertook a detailed analysis for each jurisdiction with the goal of identifying site-specific, project-scale for implementation. The watershed being evaluated in detail for Virginia is the Piankatank (including Mobjack Bay) and the York River Watersheds. The full action plan for the Piankatank (including Mobjack Bay) and the York River Watersheds is appended to this chapter. Figured 48 and 49 depict the results of the action plan investigation. Utilizing the results of the CBCP baywide analyses, local data, and candidate restoration projects submitted by stakeholders, 12 areas are identified as focal points (labeled A-I) for developing projects that could address multiple CBA goals and outcomes. Table 2 summarizes the potential opportunities identified in each area.

Table 2. Summary of activities in proposed state-selected watersheds for project identification in the Piankatank (including Mobjack Bay) and the York River Watersheds

Piankatank (including Mobjack Bay) and the York River State-Selected Watersheds												
Activity	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**
Conservation	X		X		X				X	X	X	X
Oyster Restoration			X	X								
Stream Restoration	X	X				X	X	X	X		X	X
Riparian Buffer Restoration	X	X				X			X		X	X
SAV Restoration	X		X	X	X							
Wetland Restoration	X	X	X	X	X	X	X	X	X		X	X
Living Shoreline	X			X	X							
Removal of Fish Blockages			X						X	X	X	X
Stakeholder-Submitted Candidate Project					X							

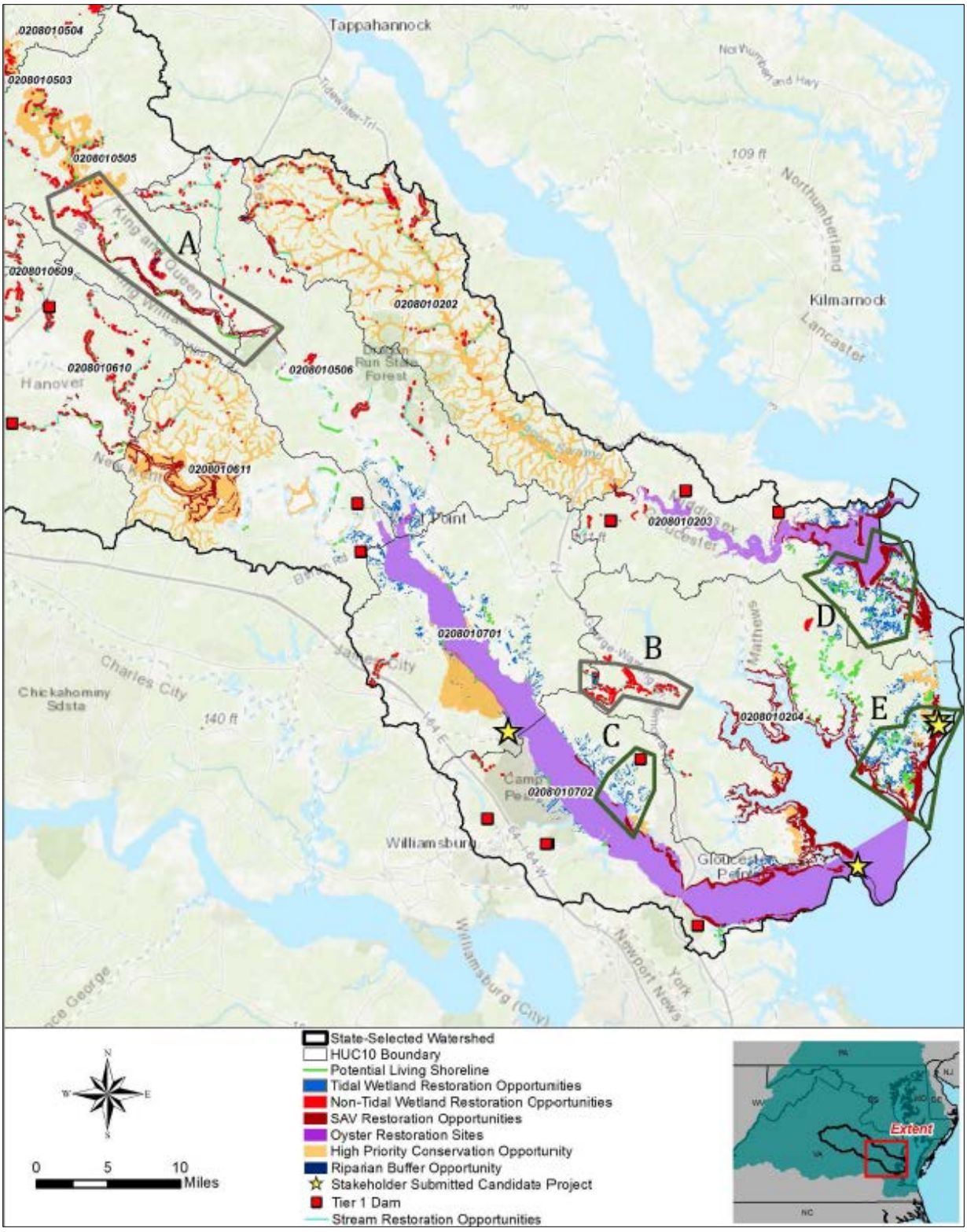

Figure 48. Proposed state-selected watershed for project identification in the Piankatank (including Mobjack Bay) and the York River Watersheds

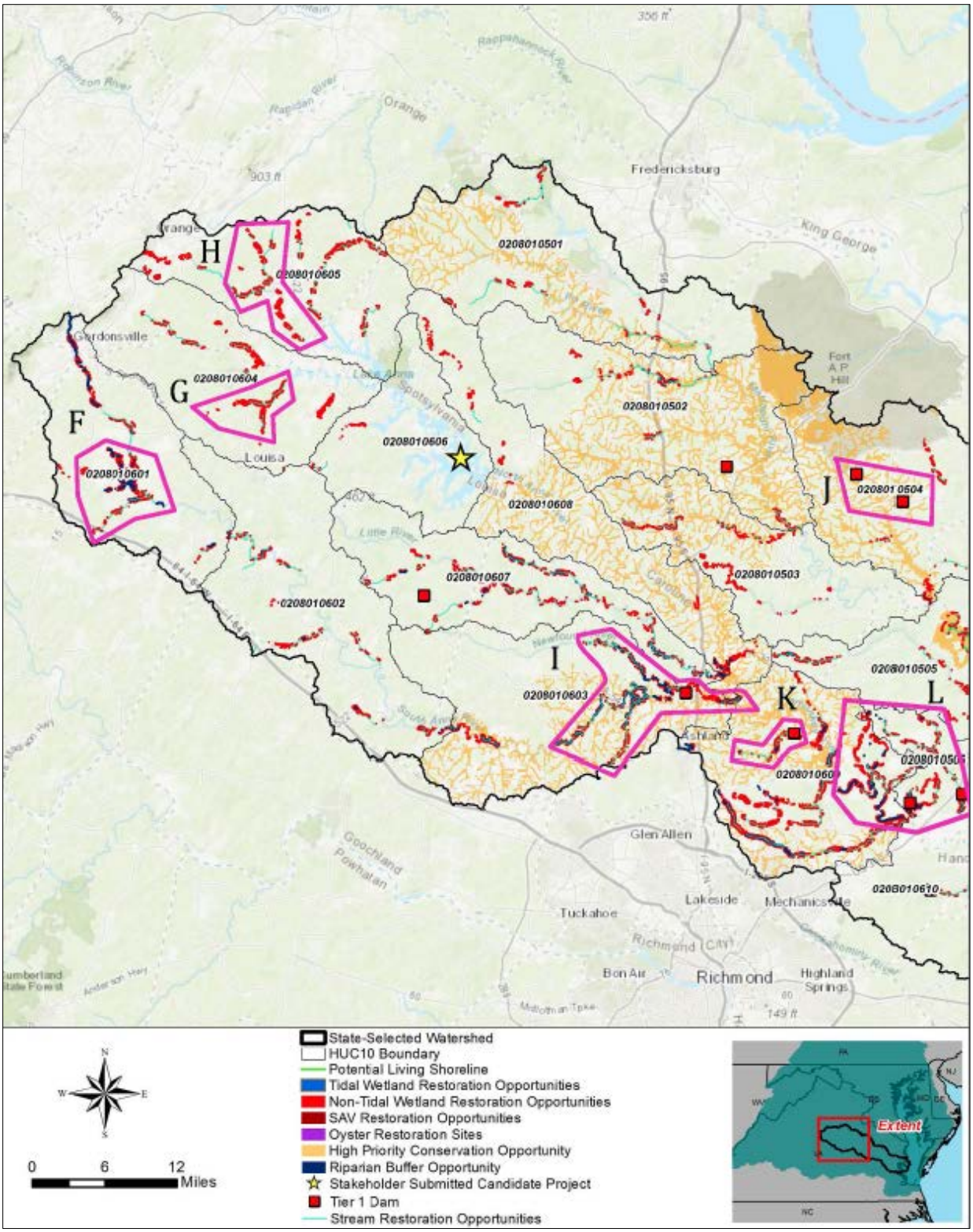

Figure 49. Proposed state-selected watershed for project identification in the Piankatank (including Mobjack Bay) and the York River Watersheds

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SECTION 6

Funding and Implementation Strategy

The Federal Leadership Committee for the Chesapeake Bay, including EPA and the Departments of Agriculture, Commerce, Defense, and the Interior, invested more than $536 million in watershed restoration in fiscal year 2016. Funding is directed to state and local governments, educational institutions, nonprofit organizations, and territorial and tribal agencies. These groups often provide additional funding—cash or in-kind—to further facilitate restoration efforts.

This section details a summary of federal, state, and nongovernmental programs and organizations that could be pursued for assistance in implementation efforts.

6.1 Federal Funding

The *Catalog of Federal Funding Sources for Watershed Protection* is a searchable online database of financial assistance sources (grants, loans, and cost-sharing) available to fund a variety of projects. The database may be searched by:

- Key word (e.g., wetlands, infrastructure, education, forestry);
- Type of organization (e.g., nonprofit groups, state, tribal, educational institution);
- Match requirement (yes or no); and
- Federal agency.

A search of all criteria provided programmatic information by agency that may be useful for different needs and opportunities identified in the CBCP. This information is available in the CBCP Existing Watershed Conditions and Threats Report in Table 39 of Section 12.3. Each program is linked to a web page that details the most current information regarding the funding source, including program overview, current and past funding levels, lowest/median/highest awards, match requirements, contact information, and eligible organizations.

6.2 Non-Governmental Resources

Outreach and public engagement, advocacy, volunteer and community support, monitoring, and research are examples of activities that many nongovernmental and nonprofit groups do as part of their mission. These groups often are more nimble than larger governmental agencies. They are on the ground and aware of opportunities and constraints at the parcel scale. Networking with community groups can bring much needed resources to the aid of communities with the capacity to facilitate restoration efforts. Tables 40 and 41 in Sections 12.4 and 12.5 of the CBCP Existing Watershed Conditions and Threats Report catalogs a list of groups that support habitat conservation, management, and restoration efforts that are complementary to Chesapeake Bay goals.

6.3 Public-Private-Partnerships

A public-private partnership is typically a contractual agreement between a state or locality and a private organization or nongovernmental organization that commits them to provide an environmental or recreational service. Public/Private partnerships will be an essential component for implementation of various CBCP measures, including those associated with restoration, water quality, recreation, stewardship, and conservation. For example, public-private partnerships have become a popular and effective method to achieve stringent water quality standards required to meet stormwater initiatives in the Chesapeake Bay Watershed. Another successful and viable example of a public-private partnership approach is the execution of voluntary, long-term real estate protections by local citizens in the Chesapeake Bay Watershed. Other successful partnerships that have been implemented in the watershed are citizen water quality monitoring programs and programs where students grow oyster spat for reef restoration projects. Other public-private partnerships exist in which schools grow vegetation that they then plant at local restoration sites, providing a viable function for the school and promoting stewardship and interpretation throughout the watershed. Overall, the implementation of public-private partnerships will be an essential component to ensure successful implementation of the CBCP.

SECTION 7
References

Source information for all geospatial data is provided in Annex 3 of the Planning Analyses Appendix.

U.S. Department of Health & Human Services (USDH&HS). 2017. What are the Superfund "NPL" statuses? https://toxmap.nlm.nih.gov/toxmap/faq/2009/08/what-are-the-superfund-site-npl-statuses.html

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Attachment A

State of Virginia –

Data Tables Supporting Geospatial Analyses and Outputs from Opportunity Assessments

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Table A1. Summary of each hydrologic unit code (HUC) 10 subwatershed in Virginia

HUC 10 Number	Subwatershed Name	Acres*	Drainage States
0207000103	Upper South Branch Potomac River	189,626	VA,WV
0207000105	South Fork South Branch Potomac River	160,134	VA,WV
0207000305	Lost River	99,573	VA,WV
0207000402	Sleepy Creek	56,485	VA,WV
0207000404	Back Creek	162,936	VA,WV
0207000409	Opequon Creek	185,005	VA,WV
0208010603	Lower South Anna River	111,757	VA
0208010604	Gold Mine Creek-North Anna River	84,873	VA
0208010605	Pamunkey Creek	78,475	VA
0208010606	Lake Anna	55,149	VA
0208010607	Little River	75,743	VA
0208010608	Northeast Creek-North Anna River	86,060	VA
0208010609	Upper Pamunkey River	89,122	VA
0208010610	Middle Pamunkey River	103,210	VA
0208010611	Lower Pamunkey River	70,784	VA
0208010701	Upper York River	93,340	VA
0208010702	Lower York River	93,457	VA
0208010801	Back River-Lower Chesapeake Bay	85,753	VA
0207000501	Upper Middle River	108,891	VA
0207000502	Christians Creek	68,730	VA
0207000503	Lower Middle River	61,665	VA
0207000504	Upper North River	111,682	VA
0207000505	Dry River	76,854	VA
0207000506	Lower North River	96,346	VA
0207000507	South River	149,894	VA
0207000603	Linville Creek-North Fork Shenandoah River	141,587	VA
0207000604	Stony Creek	72,545	VA
0207000605	Narrow Passage Creek-North Fork Shenandoah River	78,342	VA
0207000803	Catoctin Creek	59,177	VA
0207000806	North Fork Goose Creek	62,673	VA
0207000807	Lower Goose Creek	76,691	VA
0207001005	Broad Run	88,697	VA
0207001006	Cedar Run	125,378	VA
0207001007	Bull Run	124,038	VA
0208010201	Great Wicomico River-Lower Chesapeake Bay	108,361	VA
0208010202	Dragon Swamp	89,960	VA
0208010203	Piankatank River-Lower Chesapeake Bay	75,932	VA
0208010204	Mobjack Bay-Lower Chesapeake Bay	155,408	VA

HUC 10 Number	Subwatershed Name	Acres*	Drainage States
0208010305	Mountain Run	58,267	VA
0208010306	Marsh Run-Rappahannock River	105,098	VA
0208010308	Blue Run-Rapidan River	76,561	VA
0208010310	Cedar Run-Rapidan River	68,347	VA
0208010403	Occupacia Creek-Rappahannock River	121,717	VA
0208010404	Cat Point Creek-Rappahannock River	143,721	VA
0208010405	Totuskey Creek-Rappahannock River	87,507	VA
0208010406	Lancaster Creek-Rappahannock River	90,374	VA
0207000809	Broad Run-Potomac River	83,491	MD,VA
0207000810	Difficult Run-Potomac River	99,646	MD,VA
0207001101	Quantico Creek-Potomac River	161,706	MD,VA
0207001108	Nomini Creek-Potomac River	139,066	MD,VA
0208010100	Lower Chesapeake Bay	684,865	MD,VA
0208011006	Lower Tangier Sound	59,201	MD,VA
0208011104	Pitts Creek-Pocomoke River	28,797	MD,VA
0208011105	Marumsco Creek-Pocomoke Sound	12,010	MD,VA
0208011107	Deep Creek-Pocomoke Sound	83,004	MD,VA
0208020114	Looney Creek-James River	81,959	VA
0208020115	Cedar Creek-James River	91,593	VA
0208020201	Calfpasture River	150,983	VA
0208020202	Little Calfpasture River-Upper Maury River	114,649	VA
0208020203	Middle Maury River	72,051	VA
0208020204	South River	75,873	VA
0208020205	Lower Maury River	122,853	VA
0208020301	Reed Creek-James River	63,023	VA
0208020302	Pedlar River	68,387	VA
0208020303	Harris Creek-James River	142,828	VA
0208020304	Wreck Island Creek-James River	128,648	VA
0208020305	Upper Tye River	113,310	VA
0208020306	Buffalo River	98,256	VA
0208020704	Big Guinea Creek-Appomattox River	101,657	VA
0208020705	Flat Creek	90,386	VA
0208020706	Rocky Ford Creek-Appomattox River	112,186	VA
0208010407	Corrotoman River-Rappahannock River	102,297	VA
0208010503	Polecat Creek-Mattaponi River	74,137	VA
0208010504	Maracossic Creek	87,721	VA
0208010505	Chapel Creek-Mattaponi River	108,217	VA
0208010506	Garnetts Creek-Mattaponi River	92,101	VA
0208010601	Upper South Anna River	83,755	VA

HUC 10 Number	Subwatershed Name	Acres*	Drainage States
0208010602	Middle South Anna River	103,063	VA
0208020707	Deep Creek	131,388	VA
0208020708	Lake Chesdin-Appomattox River	119,256	VA
0208020709	Swift Creek	116,348	VA
0208020710	Ashton Creek-Appomattox River	60,392	VA
0208020702	Vaughans Creek-Appomattox River	125,572	VA
0208020703	Bush River	99,205	VA
0208020803	Hampton Roads	50,850	VA
0208020307	Lower Tye River	56,014	VA
0208020308	David Creek-James River	90,425	VA
0208020309	Upper Rockfish River	92,919	VA
0208020310	Lower Rockfish River	65,459	VA
0208020311	Ballinger Creek-James River	74,533	VA
0207001001	Rock Creek-Potomac River	72,440	DC,MD,VA
0208020312	Hardware River	88,183	VA
0208020313	Upper Slate River	96,489	VA
0208020314	Lower Slate River	60,504	VA
0208020315	Bear Garden Creek-James River	55,892	VA
0208020401	Moormans River-Mechums River	112,954	VA
0208020402	South Fork Rivanna River	58,239	VA
0208020404	Mechunk Creek-Rivanna River	123,534	VA
0208020405	Cunningham Creek-Rivanna River	83,629	VA
0208020501	Byrd Creek	72,106	VA
0208020502	Upper Willis River	112,744	VA
0208020503	Lower Willis River	65,475	VA
0208020504	Deep Creek-James River	102,959	VA
0208020505	Lickinghole Creek-James River	102,270	VA
0208020506	Tuckahoe Creek-James River	149,173	VA
0208011106	Messongo Creek-Pocomoke Sound	62,512	VA
0208011108	Pungoteague Creek-Lower Chesapeake Bay	91,620	VA
0208011109	Cherrystone Inlet-Lower Chesapeake Bay	54,913	VA
0208020101	Upper Jackson River	101,385	VA
0208020102	Back Creek-Middle Jackson River	119,286	VA
0208020105	Lower Jackson River	138,502	VA
0208020107	Middle Cowpasture River	92,535	VA
0208020108	Lower Cowpasture River	85,272	VA
0208020109	Mill Creek-James River	55,074	VA
0208020110	Upper Craig Creek	71,514	VA
0208020112	Lower Craig Creek	99,402	VA

HUC 10 Number	Subwatershed Name	Acres*	Drainage States
0208020113	Catawba Creek	73,911	VA
0208020601	Falling Creek-James River	151,456	VA
0208020602	Herring Creek-James River	102,322	VA
0208020604	Upper Chickahominy River	68,064	VA
0208020605	Middle Chickahominy River	126,170	VA
0208020606	Lower Chickahominy River	106,349	VA
0208020608	Lawnes Creek-James River	73,056	VA
0208020609	Pagan River-James River	138,636	VA
0208020701	Buffalo Creek	74,184	VA
0207001008	Occoquan River-Potomac River	80,771	MD,VA
0207001102	Potomac Creek-Potomac River	123,030	MD,VA
0207001106	Machodoc Creek-Potomac River	85,296	MD,VA
0207000601	Shoemaker River-North Fork Shenandoah River	122,511	VA
0207000702	Long Marsh Run-Shenandoah River	53,385	VA
0208020103	Dunlap Creek	107,463	VA
0208020106	Upper Cowpasture River	118,867	VA
0207001003	Cameron Run-Potomac River	153,721	DC,MD,VA
0207000510	Gooney Run-South Fork Shenandoah River	113,853	VA
0207000602	Smith Creek	67,320	VA
0207000607	Passage Creek-North Fork Shenandoah River	68,066	VA
0207000701	Crooked Run-Shenandoah River	105,208	VA
0207000805	Upper Goose Creek	107,841	VA
0208010301	Thumb Run-Rappahannock River	79,160	VA
0208010302	Carter Run-Rappahannock River	84,701	VA
0208010303	Thornton River	100,343	VA
0208010304	Hazel River	123,912	VA
0208010307	Conway River-Rapidan River	80,794	VA
0208010309	Robinson River	124,239	VA
0208010311	Mine Run-Rapidan River	94,890	VA
0208010401	Massaponax Creek-Rappahannock River	103,474	VA
0208010402	Mill Creek-Rappahannock River	90,702	VA
0208010501	Poni River	106,014	VA
0208010502	Matta River-Mattaponi River	114,813	VA
0208020403	North Fork Rivanna River	113,226	VA
0208020104	Potts Creek	109,785	VA
0207000703	Bullskin Run-Shenandoah River	41,813	VA,WV
0207001004	Pohick Creek	59,475	VA
0207001110	0207001110-Potomac River	145,617	MD,VA
0207000508	Naked Creek-South Fork Shenandoah River	142,755	VA

HUC 10 Number	Subwatershed Name	Acres*	Drainage States
0207000509	Hawksbill Creek-South Fork Shenandoah River	139,325	VA
0208020111	Johns Creek	67,181	VA
0207000101	North Fork South Branch Potomac River	186,309	VA,WV
0207000606	Cedar Creek	100,641	VA
0208020603	Upper Chippokes Creek-James River	72,743	VA
0208020607	Powhatan Creek-James River	83,662	VA
0208020801	Nansemond River	143,708	VA
0208010802	Lynnhaven River-Lower Chesapeake Bay	61,244	VA
0208020802	Elizabeth River	128,746	VA

*Acreage for the entire subwatershed

Table A2. Watershed Stressor Analysis for Virginia

HUC 10 Number	Subwatershed Name	Watershed Stressor Score
0208020107	Middle Cowpasture River	1.0000
0208020102	Back Creek-Middle Jackson River	0.8889
0208020101	Upper Jackson River	0.8333
0208020104	Potts Creek	0.8333
0208020106	Upper Cowpasture River	0.8333
0208020108	Lower Cowpasture River	0.8333
0208020201	Calfpasture River	0.8333
0208020302	Pedlar River	0.8333
0207000504	Upper North River	0.7778
0207000601	Shoemaker River-North Fork Shenandoah River	0.7778
0207000606	Cedar Creek	0.7778
0208010303	Thornton River	0.7778
0208020103	Dunlap Creek	0.7778
0208020111	Johns Creek	0.7778
0208020112	Lower Craig Creek	0.7778
0208020115	Cedar Creek-James River	0.7778
0208020204	South River	0.7778
0208020305	Upper Tye River	0.7778
0208020306	Buffalo River	0.7778
0208020308	David Creek-James River	0.7778
0208020309	Upper Rockfish River	0.7778
0208020310	Lower Rockfish River	0.7778
0208020313	Upper Slate River	0.7778
0208020314	Lower Slate River	0.7778
0208020401	Moormans River-Mechums River	0.7778
0207000402	Sleepy Creek	0.7778

HUC 10 Number	Subwatershed Name	Watershed Stressor Score
0207000607	Passage Creek-North Fork Shenandoah River	0.7222
0208010301	Thumb Run-Rappahannock River	0.7222
0208010604	Gold Mine Creek-North Anna River	0.7222
0208020109	Mill Creek-James River	0.7222
0208020110	Upper Craig Creek	0.7222
0208020301	Reed Creek-James River	0.7222
0208020307	Lower Tye River	0.7222
0208020312	Hardware River	0.7222
0207000101	North Fork South Branch Potomac River	0.7222
0207000105	South Fork South Branch Potomac River	0.7222
0207000305	Lost River	0.7222
0207000505	Dry River	0.6667
0208010307	Conway River-Rapidan River	0.6667
0208010605	Pamunkey Creek	0.6667
0208020105	Lower Jackson River	0.6667
0208020113	Catawba Creek	0.6667
0208020202	Little Calfpasture River-Upper Maury River	0.6667
0208020315	Bear Garden Creek-James River	0.6667
0208020403	North Fork Rivanna River	0.6667
0208020405	Cunningham Creek-Rivanna River	0.6667
0208020502	Upper Willis River	0.6667
0208020701	Buffalo Creek	0.6667
0208020702	Vaughans Creek-Appomattox River	0.6667
0208020705	Flat Creek	0.6667
0207000404	Back Creek	0.6667
0207000501	Upper Middle River	0.6111
0207000604	Stony Creek	0.6111
0208010202	Dragon Swamp	0.6111
0208010304	Hazel River	0.6111
0208010309	Robinson River	0.6111
0208010504	Maracossic Creek	0.6111
0208010606	Lake Anna	0.6111
0208010607	Little River	0.6111
0208020304	Wreck Island Creek-James River	0.6111
0208020311	Ballinger Creek-James River	0.6111
0208020501	Byrd Creek	0.6111
0208020704	Big Guinea Creek-Appomattox River	0.6111
0208020706	Rocky Ford Creek-Appomattox River	0.6111
0207000507	South River	0.5556
0207000805	Upper Goose Creek	0.5556
0208010302	Carter Run-Rappahannock River	0.5556

HUC 10 Number	Subwatershed Name	Watershed Stressor Score
0208010310	Cedar Run-Rapidan River	0.5556
0208010405	Totuskey Creek-Rappahannock River	0.5556
0208010501	Poni River	0.5556
0208010502	Matta River-Mattaponi River	0.5556
0208010503	Polecat Creek-Mattaponi River	0.5556
0208010601	Upper South Anna River	0.5556
0208010602	Middle South Anna River	0.5556
0208020114	Looney Creek-James River	0.5556
0208020205	Lower Maury River	0.5556
0208020303	Harris Creek-James River	0.5556
0208020402	South Fork Rivanna River	0.5556
0208020404	Mechunk Creek-Rivanna River	0.5556
0208020503	Lower Willis River	0.5556
0208020504	Deep Creek-James River	0.5556
0208020703	Bush River	0.5556
0208020708	Lake Chesdin-Appomattox River	0.5556
0207000103	Upper South Branch Potomac River	0.5556
0207001102	Potomac Creek-Potomac River	0.5000
0208010100	Lower Chesapeake Bay	0.5000
0207000508	Naked Creek-South Fork Shenandoah River	0.5000
0207000509	Hawksbill Creek-South Fork Shenandoah River	0.5000
0207000602	Smith Creek	0.5000
0207000605	Narrow Passage Creek-North Fork Shenandoah River	0.5000
0208010306	Marsh Run-Rappahannock River	0.5000
0208010308	Blue Run-Rapidan River	0.5000
0208010311	Mine Run-Rapidan River	0.5000
0208010402	Mill Creek-Rappahannock River	0.5000
0208010404	Cat Point Creek-Rappahannock River	0.5000
0208010505	Chapel Creek-Mattaponi River	0.5000
0208010506	Garnetts Creek-Mattaponi River	0.5000
0208010608	Northeast Creek-North Anna River	0.5000
0208010610	Middle Pamunkey River	0.5000
0208010611	Lower Pamunkey River	0.5000
0208020203	Middle Maury River	0.5000
0208020505	Lickinghole Creek-James River	0.5000
0208020603	Upper Chippokes Creek-James River	0.5000
0208020707	Deep Creek	0.5000
0207001108	Nomini Creek-Potomac River	0.4444
0207000502	Christians Creek	0.4444
0207000510	Gooney Run-South Fork Shenandoah River	0.4444
0207001005	Broad Run	0.4444

HUC 10 Number	Subwatershed Name	Watershed Stressor Score
0207001006	Cedar Run	0.4444
0208010203	Piankatank River-Lower Chesapeake Bay	0.4444
0208010305	Mountain Run	0.4444
0208010406	Lancaster Creek-Rappahannock River	0.4444
0208010407	Corrotoman River-Rappahannock River	0.4444
0208010603	Lower South Anna River	0.4444
0208010609	Upper Pamunkey River	0.4444
0207001008	Occoquan River-Potomac River	0.3889
0207001101	Quantico Creek-Potomac River	0.3889
0207001106	Machodoc Creek-Potomac River	0.3889
0207001110	0207001110-Potomac River	0.3889
0207000702	Long Marsh Run-Shenandoah River	0.3889
0207000803	Catoctin Creek	0.3889
0207000806	North Fork Goose Creek	0.3889
0207000807	Lower Goose Creek	0.3889
0208010201	Great Wicomico River-Lower Chesapeake Bay	0.3889
0208010401	Massaponax Creek-Rappahannock River	0.3889
0208010403	Occupacia Creek-Rappahannock River	0.3889
0208010701	Upper York River	0.3889
0208020602	Herring Creek-James River	0.3889
0208020605	Middle Chickahominy River	0.3889
0208020606	Lower Chickahominy River	0.3889
0208020709	Swift Creek	0.3889
0207000703	Bullskin Run-Shenandoah River	0.3889
0208011105	Marumsco Creek-Pocomoke Sound	0.3333
0208011006	Lower Tangier Sound	0.3333
0208011107	Deep Creek-Pocomoke Sound	0.3333
0208020506	Tuckahoe Creek-James River	0.3333
0208020607	Powhatan Creek-James River	0.3333
0208011106	Messongo Creek-Pocomoke Sound	0.3333
0208010702	Lower York River	0.3333
0207000503	Lower Middle River	0.3333
0207000603	Linville Creek-North Fork Shenandoah River	0.3333
0207000701	Crooked Run-Shenandoah River	0.3333
0208020710	Ashton Creek-Appomattox River	0.3333
0207000409	Opequon Creek	0.3333
0208011104	Pitts Creek-Pocomoke River	0.2778
0208011108	Pungoteague Creek-Lower Chesapeake Bay	0.2778
0208020801	Nansemond River	0.2778
0208010204	Mobjack Bay-Lower Chesapeake Bay	0.2778
0207000506	Lower North River	0.2778

HUC 10 Number	Subwatershed Name	Watershed Stressor Score
0208020608	Lawnes Creek-James River	0.2778
0207001007	Bull Run	0.2778
0208020604	Upper Chickahominy River	0.2222
0207000810	Difficult Run-Potomac River	0.2222
0207000809	Broad Run-Potomac River	0.2222
0207001004	Pohick Creek	0.2222
0208020609	Pagan River-James River	0.2222
0208011109	Cherrystone Inlet-Lower Chesapeake Bay	0.2222
0207001001	Rock Creek-Potomac River	0.1667
0207001003	Cameron Run-Potomac River	0.1667
0208020803	Hampton Roads	0.1111
0208020601	Falling Creek-James River	0.1111
0208020802	Elizabeth River	0.1111
0208010801	Back River-Lower Chesapeake Bay	0.0556
0208010802	Lynnhaven River-Lower Chesapeake Bay	0.0000

Table A3. Priority fish passage blockages in Virginia

HUC 10 Number	Subwatershed Name	Number of Opportunities to Improve Fish Passage for Anadromous Fish	Number of Opportunities to Improve Fish Passage for Brook Trout	Number of Opportunities to Improve Fish Passage for Resident Fish
0208010609	Upper Pamunkey River	16	0	6
0208010611	Lower Pamunkey River	12		
0207001101	Quantico Creek-Potomac River	8	0	3
0208010505	Chapel Creek-Mattaponi River	8	0	7
0208010403	Occupacia Creek-Rappahannock River	7	0	7
0207001004	Pohick Creek	7		
0207001003	Cameron Run-Potomac River	6		
0208020305	Upper Tye River		1	1
0208010607	Little River		0	2
0208010603	Lower South Anna River		0	2
0208020709	Swift Creek		0	2
0208010304	Hazel River		0	3
0208020304	Wreck Island Creek-James River		0	3
0208010602	Middle South Anna River		0	3
0207000509	Hawksbill Creek-South Fork Shenandoah River		0	3
0208010306	Marsh Run-Rappahannock River		0	3
0207001006	Cedar Run		0	3
0208020705	Flat Creek		0	4
0208010309	Robinson River		0	4
0208020205	Lower Maury River		0	4
0208010608	Northeast Creek-North Anna River		0	4
0208020707	Deep Creek		0	4
0208020605	Middle Chickahominy River		0	4
0208020105	Lower Jackson River		3	5
0208020306	Buffalo River		0	5
0208010302	Carter Run-Rappahannock River		0	5
0208010501	Poni River		0	5
0208020404	Mechunk Creek-Rivanna River		0	5
0208010311	Mine Run-Rapidan River		0	5
0208010610	Middle Pamunkey River		0	5
0208020403	North Fork Rivanna River		0	6
0208020312	Hardware River		0	7
0207000404	Back Creek		0	7
0208020702	Vaughans Creek-Appomattox River		0	7
0208020303	Harris Creek-James River		0	7
0208020502	Upper Willis River		0	8

HUC 10 Number	Subwatershed Name	Number of Opportunities to Improve Fish Passage for Anadromous Fish	Number of Opportunities to Improve Fish Passage for Brook Trout	Number of Opportunities to Improve Fish Passage for Resident Fish
0208020706	Rocky Ford Creek-Appomattox River		0	8
0208010502	Matta River-Mattaponi River		0	8
0208020506	Tuckahoe Creek-James River		0	8
0208010504	Maracossic Creek		0	10
0208020704	Big Guinea Creek-Appomattox River		0	10
0208020701	Buffalo Creek		0	11
0207000507	South River		0	14
0208020505	Lickinghole Creek-James River		0	18
0207000601	Shoemaker River-North Fork Shenandoah River		3	
0207000505	Dry River		3	
0208020201	Calfpasture River		2	
0208020104	Potts Creek		1	
0207000508	Naked Creek-South Fork Shenandoah River		1	

Table A4. Riparian Forest Buffer Opportunities Assessment for Virginia

HUC 10 Number	Subwatershed Name	30 Meter Riparian Buffer (Acres)	Resident Fish (Acres)	Brook Trout (Acres)	Nitrogen and Phosphorous Yields (Acres)	Percent Riparian Forested Buffer
0205010609	Mehoopany Creek	7854	63688	73265	135	92.8%
0205030409	Tuscarora Creek	19228	107764	10214	10761	92.5%
0208020201	Calfpasture River	19839	143400	97107	0	90.1%
0205020105	Moshannon Creek	19016	126929	78309	654	89.7%
0205020602	Lycoming Creek	18532	118390	121040	517	89.7%
0208010904	Upper Nanticoke River	20248	5522	0	128164	89.6%
0205010708	Catawissa Creek	9375	47926	66838	5726	89.0%
0205020506	Lower Pine Creek	20001	186117	162645	21	88.6%
0208020106	Upper Cowpasture River	15424	100079	73633	0	88.5%
0205020404	Bald Eagle Creek	19156	106044	46791	2141	88.5%
0205030608	Chickies Creek	9458	2290	1182	75560	88.3%
0208020802	Elizabeth River	11278	18582	0	64096	87.7%
0205030609	Cocalico Creek	9868	7810	18418	75125	87.2%
0205020605	Lower Loyalsock Creek	20037	132592	122713	2701	86.8%
0205010703	Middle Susquehanna River	15600	57815	61468	1400	85.7%
0205020302	Upper West Branch Susquehanna River	8389	81843	58548	0	85.2%
0208010905	Lower Nanticoke River	8806	18852	0	61217	85.2%
0205010112	Middle Susquehanna River	19891	114300	11	264	85.2%
0208010902	Broad Creek	11257	2834	0	63211	84.7%
0208020708	Lake Chesdin-Appomattox River	12678	83089	0	0	84.4%
0205030612	Pequea Creek	10845	10	4707	98417	84.4%
0205010504	Upper Chemung River	10684	78570	0	589	84.3%
0206000505	Lower Choptank River	8992	603	0	93273	84.3%
0207000905	Upper Monocacy River	14260	20522	15628	74955	83.4%
0205030509	Lower Swatara Creek	15442	10543	0	98073	83.2%
0208020601	Falling Creek-James River	15104	5809	0	38525	83.0%

HUC 10 Number	Subwatershed Name	30 Meter Riparian Buffer (Acres)	Resident Fish (Acres)	Brook Trout (Acres)	Nitrogen and Phosphorous Yields (Acres)	Percent Riparian Forested Buffer
0205030104	Penns Creek	20411	63435	42834	57060	83.0%
0205010612	Tunkhannock Creek	15585	67223	43679	288	82.0%
0205030503	Middle Conodoguinet Creek	17925	19959	23946	63641	80.9%
0207000507	South River	20713	42677	45422	4010	80.9%
0208010903	Marshyhope Creek	18638	1520	0	106676	80.7%
0205020204	First Fork Sinnemahoning Creek	18625	153271	152361	0	80.6%
0207000906	Middle Monocacy River	15370	10376	9925	40287	80.4%
0205020104	Upper West Branch Susquehanna River	20497	84746	66256	10215	80.2%
0207000411	Rocky Marsh Run-Potomac River	15080	12666	0	45024	80.1%
0205030613	Muddy Creek	10537	0	3717	85917	79.7%
0205010205	Upper Chenango River	15201	49486	0	5555	78.5%
0207000603	Linville Creek-North Fork Shenandoah River	17986	11840	19	551	77.1%
0205010408	Cowanesque River	15165	39514	31506	1387	76.6%
0207000508	Naked Creek-South Fork Shenandoah River	17832	67077	71455	2355	75.4%
0208020112	Lower Craig Creek	12676	85679	39684	0	74.8%
0205010614	Lower Susquehanna River	20884	51570	11869	2174	74.3%
0208020104	Potts Creek	15255	93540	39145	0	74.0%
0205010113	Lower Susquehanna River	23264	141025	62295	1041	73.2%
0207000207	Patterson Creek	22513	79505	7206	3067	72.8%
0207000410	Antietam Creek	21612	24521	11236	116456	72.4%
0207000404	Back Creek	21682	67244	0	769	72.0%
0208020101	Upper Jackson River	12606	59724	92483	0	71.6%
0207000504	Upper North River	15170	56726	59751	0	71.6%
0208020205	Lower Maury River	15435	54394	26660	742	71.5%
0205010704	Nescopeck Creek	11353	34032	83637	2023	71.4%
0208010304	Hazel River	14451	24461	31197	0	71.3%

HUC 10 Number	Subwatershed Name	30 Meter Riparian Buffer (Acres)	Resident Fish (Acres)	Brook Trout (Acres)	Nitrogen and Phosphorous Yields (Acres)	Percent Riparian Forested Buffer
0207000205	Wills Creek	17230	117631	16929	552	71.2%
0208020202	Little Calfpasture River-Upper Maury River	15103	57721	24820	0	70.6%
0206000605	Middle Patuxent River	14414	16972	0	935	70.4%
0206000206	Eastern Bay	9107	1103	0	82346	70.1%
0206000312	Patapsco River-Chesapeake Bay	9084	0	1505	62048	70.1%
0207000306	North River	16051	87908	1527	0	69.9%
0205010404	Canisteo River	16627	101644	0	5316	69.7%
0205020603	Upper Loyalsock Creek	8690	71352	78754	0	69.3%
0206000502	Upper Choptank River	21137	2083	0	118205	68.9%
0208020801	Nansemond River	15907	34303	0	21425	68.5%
0207000105	South Fork South Branch Potomac River	24768	114696	32975	3014	68.2%
0208020103	Dunlap Creek	13063	92394	13138	16	68.1%
0207000202	Stony River-North Branch Potomac River	17142	133053	89836	2260	67.6%
0206000204	Chester River	26784	7182	0	229419	67.2%
0207000201	Savage River	7568	54061	71167	0	67.2%
0205030501	Sherman Creek	17307	74511	64572	16512	67.1%
0207001007	Bull Run	15246	2539	0	4739	67.0%
0207000301	Town Creek	12682	82136	5926	0	66.9%
0208020105	Lower Jackson River	17138	99235	68227	2769	66.9%
0208011003	Wicomico River	13196	18396	0	86044	66.0%
0207001003	Cameron Run-Potomac River	16387	2935	0	55498	65.8%
0205030615	Octoraro Creek	8690	722	0	76282	65.7%
0208011102	Bald Cypress Branch-Pocomoke River	18914	5921	0	89445	65.4%
0207000101	North Fork South Branch Potomac River	22952	173685	139798	6	65.1%
0208020304	Wreck Island Creek-James River	14409	47387	0	806	64.7%
0205020304	Lower West Branch Susquehanna River	22172	176051	159325	4426	63.8%
0208020506	Tuckahoe Creek-James River	16341	16912	0	5702	63.7%

HUC 10 Number	Subwatershed Name	30 Meter Riparian Buffer (Acres)	Resident Fish (Acres)	Brook Trout (Acres)	Nitrogen and Phosphorous Yields (Acres)	Percent Riparian Forested Buffer
0205010409	Tioga River	22216	118820	76723	994	63.1%
0205010109	Unadilla River	23334	88802	0	168	63.1%
0207000601	Shoemaker River-North Fork Shenandoah River	15446	114690	87864	0	62.8%
0207000509	Hawksbill Creek-South Fork Shenandoah River	16972	37510	52793	2469	62.7%
0206000202	Elk River	16266	4893	0	136271	62.4%
0208020605	Middle Chickahominy River	14424	31741	0	2916	62.1%
0205030611	Conestoga River	17622	6697	0	160808	61.5%
0207000409	Opequon Creek	26935	0	36	33956	60.5%
0205030617	Susquehanna River	26355	2606	14	210758	59.1%
0205010701	Lackawanna River	25159	76667	142433	5363	58.5%
0207000106	Lower South Branch Potomac River	28213	133969	7341	23991	58.4%
0207000406	West Branch Conococheague Creek	15800	26184	4431	42625	58.1%
0208020303	Harris Creek-James River	16361	30352	0	1433	58.0%
0207000305	Lost River	13562	98732	24031	232	57.8%
0207000408	Conococheague Creek	22608	29956	24932	133433	57.5%
0205030110	Susquehanna River	15652	39598	10017	33990	57.3%
0207000307	Cacapon River	22199	148086	31648	2684	57.1%
0207000103	Upper South Branch Potomac River	25227	100527	75423	735	56.8%
0205030510	Susquehanna River	18992	64940	9519	79622	56.2%
0205020103	Clearfield Creek	27065	140845	96701	4363	55.5%
0205020203	Bennett Branch Sinnemahoning Creek	25527	209451	169195	11	55.4%
0205010203	Otselic River	16037	91747	0	0	54.8%
0205020505	Little Pine Creek	12145	91474	115041	11	54.6%
0205030616	Deer Creek	13671	3	9109	72701	53.2%
0205010505	Middle Chemung River	16044	63643	0	3536	53.1%
0207001002	Anacostia River	13597	2052	0	60855	52.9%

HUC 10 Number	Subwatershed Name	30 Meter Riparian Buffer (Acres)	Resident Fish (Acres)	Brook Trout (Acres)	Nitrogen and Phosphorous Yields (Acres)	Percent Riparian Forested Buffer
0205010208	Lower Chenango River	17729	93442	0	24	52.3%
0205030504	Lower Conodoguinet Creek	15080	3157	88	80379	52.2%
0205020107	Lower West Branch Susquehanna River	24532	192397	151180	125	51.8%
0205020612	West Branch Susquehanna River	16677	38954	6749	61489	51.5%
0208020102	Back Creek-Middle Jackson River	13766	84503	27606	0	50.3%
0205010104	Charlotte Creek	11552	84772	0	0	48.5%
0205020202	Driftwood Branch Sinnemahoning Creek	17130	137785	118275	752	48.0%
0208020107	Middle Cowpasture River	11674	88242	33649	0	47.7%
0205010206	Middle Chenango River	15641	85969	0	1979	46.7%
0207000904	Double Pipe Creek	14517	0	0	40565	45.1%
0205020402	Beech Creek	12423	97178	83533	11	43.7%
0207001006	Cedar Run	15797	11217	0	1687	41.6%
0205030505	Yellow Breeches Creek	16441	41129	19465	52058	41.4%
0205020301	Kettle Creek	17086	141380	142655	0	39.9%
0205010707	Fishing Creek	15033	48653	73725	10130	39.5%
0205020403	Fishing Creek	12220	38383	110629	8079	38.8%
0205010503	Lower Cohocton River	15072	94427	0	1335	38.1%
0206000304	Middle Gunpowder Falls	15658	613	33058	1235	37.5%
0208010309	Robinson River	14686	26670	19570	29	36.2%
0206000503	Middle Choptank	6904	17	0	75654	36.2%
0205030205	Little Juniata River	16412	71268	39707	8134	34.8%
0205020502	Upper Pine Creek	14020	116301	122462	17	34.2%
0206000501	Tuckahoe Creek	12418	0	0	79868	32.9%
0207000403	Licking Creek	16599	68499	8	7109	31.2%
0207001101	Quantico Creek-Potomac River	16421	49863	0	3585	28.8%

Table A5. Stream Restoration Opportunities Assessment for Virginia

HUC 10 Number	Subwatershed Name	Watershed Stressor Score	Anadromous Fish (Linear Feet)	Brook Trout (Linear Feet)	National Fish Habitat Assessment (Linear Feet)	Index of Biotic Integrity Scores
0207000101	North Fork South Branch Potomac River	0.72	0	1276369	271150	GOOD
0207000103	Upper South Branch Potomac River	0.56	0	496945	624296	GOOD
0207000105	South Fork South Branch Potomac River	0.72	0	213873	363160	GOOD
0207000305	Lost River	0.72	0	130759	124162	GOOD
0207000402	Sleepy Creek	0.78	0	30154	343446	GOOD
0207000404	Back Creek	0.67	0	0	754506	FAIR
0207000501	Upper Middle River	0.61	0	152206	107548	FAIR
0207000504	Upper North River	0.78	0	282954	145420	FAIR
0207000505	Dry River	0.67	0	539017	15955	GOOD
0207000507	South River	0.56	0	465145	373001	FAIR
0207000508	Naked Creek-South Fork Shenandoah River	0.50	0	597132	290994	VERY_POOR
0207000509	Hawksbill Creek-South Fork Shenandoah River	0.50	0	304049	348923	POOR
0207000601	Shoemaker River-North Fork Shenandoah River	0.78	0	645626	58499	GOOD
0207000602	Smith Creek	0.50	0	27475	105137	VERY_POOR
0207000604	Stony Creek	0.61	0	219428	34859	FAIR
0207000605	Narrow Passage Creek-North Fork Shenandoah River	0.50	0	0	313851	FAIR
0207000606	Cedar Creek	0.78	0	170931	207651	FAIR
0207000607	Passage Creek-North Fork Shenandoah River	0.72	0	39962	68980	FAIR
0207000805	Upper Goose Creek	0.56	0	0	209721	POOR

HUC 10 Number	Subwatershed Name	Watershed Stressor Score	Anadromous Fish (Linear Feet)	Brook Trout (Linear Feet)	National Fish Habitat Assessment (Linear Feet)	Index of Biotic Integrity Scores
0207001003	Cameron Run-Potomac River	0.17	218381	0	200832	POOR
0207001004	Pohick Creek	0.22	204626	0	0	VERY_POOR
0207001006	Cedar Run	0.44	0	0	356317	POOR
0207001101	Quantico Creek-Potomac River	0.39	224177	0	433213	FAIR
0207001102	Potomac Creek-Potomac River	0.50	119531	0	327698	GOOD
0208010202	Dragon Swamp	0.61	68036	0	347050	FAIR
0208010301	Thumb Run-Rappahannock River	0.72	0	72859	285766	POOR
0208010302	Carter Run-Rappahannock River	0.56	0	0	371706	POOR
0208010303	Thornton River	0.78	0	195958	241871	FAIR
0208010304	Hazel River	0.61	0	146226	407775	GOOD
0208010306	Marsh Run-Rappahannock River	0.50	84568	0	414181	GOOD
0208010307	Conway River-Rapidan River	0.67	0	279502	191441	POOR
0208010308	Blue Run-Rapidan River	0.50	0	0	178933	EXCELLENT
0208010309	Robinson River	0.61	0	78476	407340	FAIR
0208010310	Cedar Run-Rapidan River	0.56	0	0	72466	GOOD
0208010311	Mine Run-Rapidan River	0.50	0	0	367038	GOOD
0208010402	Mill Creek-Rappahannock River	0.50	116619	0	206630	GOOD
0208010403	Occupacia Creek-Rappahannock River	0.39	217507	0	407794	POOR
0208010404	Cat Point Creek-Rappahannock River	0.50	168400	0	749864	POOR
0208010405	Totuskey Creek-Rappahannock River	0.56	62767	0	320709	FAIR
0208010501	Poni River	0.56	0	0	440294	GOOD
0208010502	Matta River-Mattaponi River	0.56	8350	0	604585	FAIR
0208010503	Polecat Creek-Mattaponi River	0.56	134154	0	320479	FAIR
0208010504	Maracossic Creek	0.61	74	0	374935	FAIR

HUC 10 Number	Subwatershed Name	Watershed Stressor Score	Anadromous Fish (Linear Feet)	Brook Trout (Linear Feet)	National Fish Habitat Assessment (Linear Feet)	Index of Biotic Integrity Scores
0208010505	Chapel Creek-Mattaponi River	0.50	181453	0	582115	FAIR
0208010506	Garnetts Creek-Mattaponi River	0.50	119370	0	341084	FAIR
0208010601	Upper South Anna River	0.56	0	0	271037	POOR
0208010602	Middle South Anna River	0.56	0	0	534376	FAIR
0208010603	Lower South Anna River	0.44	24539	0	628027	POOR
0208010604	Gold Mine Creek-North Anna River	0.72	0	0	190938	FAIR
0208010605	Pamunkey Creek	0.67	0	0	287399	GOOD
0208010606	Lake Anna	0.61	0	0	85086	FAIR
0208010607	Little River	0.61	0	0	414641	FAIR
0208010608	Northeast Creek-North Anna River	0.50	61803	0	413411	FAIR
0208010609	Upper Pamunkey River	0.44	178115	0	486045	GOOD
0208010610	Middle Pamunkey River	0.50	123161	0	533388	FAIR
0208010611	Lower Pamunkey River	0.50	190304	0	157702	FAIR
0208010701	Upper York River	0.39	80283	0	361484	FAIR
0208020101	Upper Jackson River	0.83	0	368438	131798	GOOD
0208020102	Back Creek-Middle Jackson River	0.89	0	129003	91786	GOOD
0208020103	Dunlap Creek	0.78	0	109154	183684	GOOD
0208020104	Potts Creek	0.83	0	515505	239334	GOOD
0208020105	Lower Jackson River	0.67	0	801641	369675	GOOD
0208020106	Upper Cowpasture River	0.83	0	291817	61421	GOOD
0208020107	Middle Cowpasture River	1.00	0	204046	36661	GOOD
0208020108	Lower Cowpasture River	0.83	0	317806	193406	GOOD
0208020109	Mill Creek-James River	0.72	0	125862	75053	GOOD
0208020110	Upper Craig Creek	0.72	0	48717	129142	GOOD
0208020111	Johns Creek	0.78	0	273863	136658	GOOD

HUC 10 Number	Subwatershed Name	Watershed Stressor Score	Anadromous Fish (Linear Feet)	Brook Trout (Linear Feet)	National Fish Habitat Assessment (Linear Feet)	Index of Biotic Integrity Scores
0208020112	Lower Craig Creek	0.78	0	488773	197456	GOOD
0208020113	Catawba Creek	0.67	0	0	378108	GOOD
0208020114	Looney Creek-James River	0.56	0	0	330024	GOOD
0208020115	Cedar Creek-James River	0.78	0	235419	230102	GOOD
0208020201	Calfpasture River	0.83	0	576241	81507	FAIR
0208020202	Little Calfpasture River-Upper Maury River	0.67	0	96692	134984	FAIR
0208020203	Middle Maury River	0.50	0	0	317187	EXCELLENT
0208020204	South River	0.78	0	337356	117582	FAIR
0208020205	Lower Maury River	0.56	0	294257	370187	GOOD
0208020301	Reed Creek-James River	0.72	0	128794	262666	
0208020302	Pedlar River	0.83	0	247435	204023	FAIR
0208020303	Harris Creek-James River	0.56	0	0	617561	
0208020304	Wreck Island Creek-James River	0.61	0	0	639472	FAIR
0208020305	Upper Tye River	0.78	0	676372	446989	FAIR
0208020306	Buffalo River	0.78	0	107351	417872	FAIR
0208020307	Lower Tye River	0.72	0	0	221824	FAIR
0208020308	David Creek-James River	0.78	0	0	193799	FAIR
0208020309	Upper Rockfish River	0.78	0	155311	316007	FAIR
0208020310	Lower Rockfish River	0.78	0	0	92622	FAIR
0208020311	Ballinger Creek-James River	0.61	0	0	198200	FAIR
0208020312	Hardware River	0.72	0	0	405693	FAIR
0208020313	Upper Slate River	0.78	0	0	206260	FAIR
0208020314	Lower Slate River	0.78	0	0	187684	FAIR
0208020315	Bear Garden Creek-James River	0.67	0	0	119544	POOR

HUC 10 Number	Subwatershed Name	Watershed Stressor Score	Anadromous Fish (Linear Feet)	Brook Trout (Linear Feet)	National Fish Habitat Assessment (Linear Feet)	Index of Biotic Integrity Scores
0208020401	Moormans River-Mechums River	0.78	0	102317	322263	FAIR
0208020402	South Fork Rivanna River	0.56	0	0	141710	POOR
0208020403	North Fork Rivanna River	0.67	0	120847	454467	POOR
0208020404	Mechunk Creek-Rivanna River	0.56	0	0	538988	POOR
0208020405	Cunningham Creek-Rivanna River	0.67	0	0	278907	POOR
0208020501	Byrd Creek	0.61	0	0	223783	POOR
0208020502	Upper Willis River	0.67	0	0	468710	FAIR
0208020503	Lower Willis River	0.56	0	0	184143	FAIR
0208020504	Deep Creek-James River	0.56	0	0	251553	POOR
0208020505	Lickinghole Creek-James River	0.50	17748	0	351838	POOR
0208020506	Tuckahoe Creek-James River	0.33	141106	0	408584	VERY_POOR
0208020602	Herring Creek-James River	0.39	81553	0	392760	
0208020603	Upper Chippokes Creek-James River	0.50	66383	0	200476	
0208020605	Middle Chickahominy River	0.39	38542	0	474526	FAIR
0208020701	Buffalo Creek	0.67	0	0	458006	
0208020702	Vaughans Creek-Appomattox River	0.67	0	0	706597	FAIR
0208020703	Bush River	0.56	0	0	278059	POOR
0208020704	Big Guinea Creek-Appomattox River	0.61	0	0	345715	FAIR
0208020705	Flat Creek	0.67	0	0	454996	POOR
0208020706	Rocky Ford Creek-Appomattox River	0.61	0	0	383310	POOR
0208020707	Deep Creek	0.50	144	0	621531	POOR
0208020708	Lake Chesdin-Appomattox River	0.56	0	0	195570	
0208020709	Swift Creek	0.39	0	0	391609	FAIR

Table A5. Stream Restoration Opportunities Assessment for Virginia (continued)

HUC 10 Number	Subwatershed Name	Enhance Stronghold (Linear Feet)	Restore Other Populations (Low Priority) (Linear Feet)	Restore Other Populations (Linear Feet)	Restore Persistent Populations and Habitats (Linear Feet)	Restore Unique Life History (Linear Feet)	Secure and Restore Persistent Populations (Linear Feet)	Secure Unique Life History (Linear Feet)	Priority Fish Passage Blockages within Stream Restoration for Anadromous Fish Opportunity	Priority Fish Passage Blockages within Stream Restoration for Brook Trout Opportunity	Priority Fish Passage Blockages within Stream Restoration for Resident Fish Opportunity
0207000101	North Fork South Branch Potomac River	1074881	112964	11902	78118						
0207000103	Upper South Branch Potomac River	199161	152484		41534	85591	17865				
0207000105	South Fork South Branch Potomac River		76338	36974	100554						
0207000305	Lost River		130696								
0207000402	Sleepy Creek				29743						
0207000404	Back Creek									0	7
0207000501	Upper Middle River		105436			46475					
0207000504	Upper North River		19309		64168		199559				
0207000505	Dry River	288088					251197			3	
0207000507	South River	122409	96125	61642	71525	60499	51503			0	14
0207000508	Naked Creek-South Fork Shenandoah River		130916	13725	310264		129829			1	
0207000509	Hawksbill Creek-South Fork Shenandoah River		177574	14464	22948		88683			0	3
0207000601	Shoemaker River-North Fork Shenandoah River	293377	42907		217689		68477			3	
0207000602	Smith Creek				27611						
0207000604	Stony Creek	169276	24809				25395				

HUC 10 Number	Subwatershed Name	Enhance Stronghold (Linear Feet)	Restore Other Populations (Low Priority) (Linear Feet)	Restore Other Populations (Linear Feet)	Restore Persistent Populations and Habitats (Linear Feet)	Restore Unique Life History (Linear Feet)	Secure and Restore Persistent Populations (Linear Feet)	Secure Unique Life History (Linear Feet)	Priority Fish Passage Blockages within Stream Restoration for Anadromous Fish Opportunity	Priority Fish Passage Blockages within Stream Restoration for Brook Trout Opportunity	Priority Fish Passage Blockages within Stream Restoration for Resident Fish Opportunity
0207000606	Cedar Creek		56069		115017						
0207000607	Passage Creek-North Fork Shenandoah River		23161	16795							
0207001003	Cameron Run-Potomac River								6		
0207001004	Pohick Creek								7		
0207001006	Cedar Run									0	3
0207001101	Quantico Creek-Potomac River								8	0	3
0208010301	Thumb Run-Rappahannock River		73018								
0208010302	Carter Run-Rappahannock River									0	5
0208010303	Thornton River		128254	67805							
0208010304	Hazel River		88259	57809						0	3
0208010306	Marsh Run-Rappahannock River									0	3
0208010307	Conway River-Rapidan River	109517	86843			83143					
0208010309	Robinson River			78499						0	4
0208010311	Mine Run-Rapidan River									0	5
0208010403	Occupacia Creek-Rappahannock River								7	0	7

HUC 10 Number	Subwatershed Name	Enhance Stronghold (Linear Feet)	Restore Other Populations (Low Priority) (Linear Feet)	Restore Other Populations (Linear Feet)	Restore Persistent Populations and Habitats (Linear Feet)	Restore Unique Life History (Linear Feet)	Secure and Restore Persistent Populations (Linear Feet)	Secure Unique Life History (Linear Feet)	Priority Fish Passage Blockages within Stream Restoration for Anadromous Fish Opportunity	Priority Fish Passage Blockages within Stream Restoration for Brook Trout Opportunity	Priority Fish Passage Blockages within Stream Restoration for Resident Fish Opportunity
0208010501	Poni River									0	5
0208010502	Matta River-Mattaponi River									0	8
0208010504	Maracossic Creek									0	10
0208010505	Chapel Creek-Mattaponi River								8	0	7
0208010602	Middle South Anna River									0	3
0208010603	Lower South Anna River									0	2
0208010607	Little River									0	2
0208010608	Northeast Creek-North Anna River									0	4
0208010609	Upper Pamunkey River								16	0	6
0208010610	Middle Pamunkey River									0	5
0208010611	Lower Pamunkey River								12		
0208020101	Upper Jackson River	334878	33398								
0208020102	Back Creek-Middle Jackson River	110321	11817				87717				
0208020103	Dunlap Creek				79472		29427				
0208020104	Potts Creek		164280	3652	279915		25815			1	
0208020105	Lower Jackson River	211012	93467		419620		80044			3	5
0208020106	Upper Cowpasture River	262142					29490				

HUC 10 Number	Subwatershed Name	Enhance Stronghold (Linear Feet)	Restore Other Populations (Low Priority) (Linear Feet)	Restore Other Populations (Linear Feet)	Restore Persistent Populations and Habitats (Linear Feet)	Restore Unique Life History (Linear Feet)	Secure and Restore Persistent Populations (Linear Feet)	Secure Unique Life History (Linear Feet)	Priority Fish Passage Blockages within Stream Restoration for Anadromous Fish Opportunity	Priority Fish Passage Blockages within Stream Restoration for Brook Trout Opportunity	Priority Fish Passage Blockages within Stream Restoration for Resident Fish Opportunity
0208020107	Middle Cowpasture River				203812						
0208020108	Lower Cowpasture River		53394	9338	119911		133724				
0208020109	Mill Creek-James River		58224		67590						
0208020110	Upper Craig Creek		48540								
0208020111	Johns Creek		43822	14862	82895		132448				
0208020112	Lower Craig Creek	488783									
0208020115	Cedar Creek-James River		86164	17071	49591	82741					
0208020201	Calfpasture River	450467	65944		114391		18279			2	
0208020202	Little Calfpasture River-Upper Maury River		31705	15967	48874						
0208020204	South River	157931	16854	7927			156034				
0208020205	Lower Maury River		38582	15855	111953					0	4
0208020301	Reed Creek-James River		113462	15368							
0208020302	Pedlar River	117427	129625								
0208020303	Harris Creek-James River									0	7
0208020304	Wreck Island Creek-James River									0	3
0208020305	Upper Tye River	530850	145297							1	1
0208020306	Buffalo River		141978							0	5
0208020309	Upper Rockfish River		155039								

HUC 10 Number	Subwatershed Name	Enhance Stronghold (Linear Feet)	Restore Other Populations (Low Priority) (Linear Feet)	Restore Other Populations (Linear Feet)	Restore Persistent Populations and Habitats (Linear Feet)	Restore Unique Life History (Linear Feet)	Secure and Restore Persistent Populations (Linear Feet)	Secure Unique Life History (Linear Feet)	Priority Fish Passage Blockages within Stream Restoration for Anadromous Fish Opportunity	Priority Fish Passage Blockages within Stream Restoration for Brook Trout Opportunity	Priority Fish Passage Blockages within Stream Restoration for Resident Fish Opportunity
0208020312	Hardware River									0	7
0208020401	Moormans River-Mechums River		43508					58823			
0208020403	North Fork Rivanna River		121946							0	6
0208020404	Mechunk Creek-Rivanna River									0	5
0208020502	Upper Willis River									0	8
0208020505	Lickinghole Creek-James River									0	18
0208020506	Tuckahoe Creek-James River									0	8
0208020605	Middle Chickahominy River									0	4
0208020701	Buffalo Creek									0	11
0208020702	Vaughans Creek-Appomattox River									0	7
0208020704	Big Guinea Creek-Appomattox River									0	10
0208020705	Flat Creek									0	4
0208020706	Rocky Ford Creek-Appomattox River									0	8
0208020707	Deep Creek									0	4
0208020709	Swift Creek									0	2

Table A6. Existing tidal and nontidal wetlands and wetland restoration opportunities in Virginia

HUC 10 Number	Subwatershed Name	Existing Tidal Wetlands (Acres)	Existing Nontidal Wetlands (Acres)	Combined Tidal and Nontidal Restoration Opportunities (Acres)	Tidal Wetland Restoration Opportunities (Acres)	Nontidal Wetland Restoration Opportunities (Acres)
0207000409	Opequon Creek	0	603	89,949	0	89,949
0207000603	Linville Creek-North Fork Shenandoah River	0	73	75,508	0	75,508
0207000506	Lower North River	0	62	55,880	0	55,880
0207001006	Cedar Run	0	7,325	43,690	0	43,690
0207000805	Upper Goose Creek	0	1,252	43,377	0	43,377
0207000103	Upper South Branch Potomac River	0	112	41,941	0	41,941
0207000501	Upper Middle River	0	22	41,120	0	41,120
0207000509	Hawksbill Creek-South Fork Shenandoah River	0	116	41,049	0	41,049
0207000701	Crooked Run-Shenandoah River	0	177	40,997	0	40,997
0207001108	Nomini Creek-Potomac River	1,085	4,887	39,499	34	39,468
0207000507	South River	0	623	38,657	0	38,657
0208020601	Falling Creek-James River	616	9,468	35,609	41	35,568
0207000502	Christians Creek	0	70	35,317	0	35,317
0208010309	Robinson River	0	323	34,086	0	34,086
0208020801	Nansemond River	3,015	24,462	33,876	3	33,873
0207000503	Lower Middle River	0	36	32,642	0	32,642
0208020506	Tuckahoe Creek-James River	0	6,565	31,526	0	31,526
0207000508	Naked Creek-South Fork Shenandoah River	0	252	30,686	0	30,686
0208010304	Hazel River	0	1,093	30,545	0	30,545
0208010404	Cat Point Creek-Rappahannock River	3,629	6,488	29,677	24	29,653
0208010306	Marsh Run-Rappahannock River	0	4,011	29,629	0	29,629
0208010308	Blue Run-Rapidan River	0	439	29,400	0	29,400
0207000404	Back Creek	0	265	29,258	0	29,258
0208010403	Occupacia Creek-Rappahannock River	4,340	7,248	28,455	24	28,432
0207001005	Broad Run	0	4,567	28,400	0	28,400

HUC 10 Number	Subwatershed Name	Existing Tidal Wetlands (Acres)	Existing Nontidal Wetlands (Acres)	Combined Tidal and Nontidal Restoration Opportunities (Acres)	Tidal Wetland Restoration Opportunities (Acres)	Nontidal Wetland Restoration Opportunities (Acres)
0208010310	Cedar Run-Rapidan River	0	2,564	27,882	0	27,882
0207000806	North Fork Goose Creek	0	597	27,864	0	27,864
0207000807	Lower Goose Creek	0	1,082	27,859	0	27,859
0207001007	Bull Run	0	3,821	27,813	0	27,812
0207000605	Narrow Passage Creek-North Fork Shenandoah River	0	61	27,774	0	27,774
0207000602	Smith Creek	0	18	27,227	0	27,227
0208020202	Little Calfpasture River-Upper Maury River	0	144	27,222	0	27,222
0207000803	Catoctin Creek	0	825	27,091	0	27,091
0208010603	Lower South Anna River	0	5,404	27,072	0	27,072
0207000702	Long Marsh Run-Shenandoah River	0	344	26,940	0	26,940
0208020303	Harris Creek-James River	0	216	26,369	0	26,369
0208010302	Carter Run-Rappahannock River	0	1,338	26,270	0	26,270
0208020205	Lower Maury River	0	32	25,658	0	25,658
0208020304	Wreck Island Creek-James River	0	895	25,408	0	25,408
0208020707	Deep Creek	0	6,248	25,355	0	25,355
0208011108	Pungoteague Creek-Lower Chesapeake Bay	3,227	12,385	24,320	173	24,146
0207000810	Difficult Run-Potomac River	0	2,143	23,884	0	23,884
0208010303	Thornton River	0	80	23,849	0	23,849
0208010610	Middle Pamunkey River	1,001	6,601	23,474	2	23,472
0207000504	Upper North River	0	103	23,379	0	23,379
0208010401	Massaponax Creek-Rappahannock River	41	3,598	23,250	0	23,250
0208010305	Mountain Run	0	1,263	23,149	0	23,149
0208020702	Vaughans Creek-Appomattox River	0	2,467	23,051	0	23,051
0208020203	Middle Maury River	0	26	22,661	0	22,661
0208010609	Upper Pamunkey River	0	8,895	22,486	0	22,486
0207001003	Cameron Run-Potomac River	222	4,120	22,432	8	22,424

HUC 10 Number	Subwatershed Name	Existing Tidal Wetlands (Acres)	Existing Nontidal Wetlands (Acres)	Combined Tidal and Nontidal Restoration Opportunities (Acres)	Tidal Wetland Restoration Opportunities (Acres)	Nontidal Wetland Restoration Opportunities (Acres)
0208020403	North Fork Rivanna River	0	727	22,380	0	22,380
0208020404	Mechunk Creek-Rivanna River	0	775	22,351	0	22,351
0208020609	Pagan River-James River	4,516	8,825	22,319	45	22,278
0208010505	Chapel Creek-Mattaponi River	584	6,390	21,388	2	21,386
0208020705	Flat Creek	0	3,941	21,335	0	21,335
0208010605	Pamunkey Creek	0	1,171	21,228	0	21,228
0208010301	Thumb Run-Rappahannock River	0	380	20,319	0	20,319
0207000703	Bullskin Run-Shenandoah River	0	454	20,120	0	20,120
0207000606	Cedar Creek	0	17	20,094	0	20,094
0207000510	Gooney Run-South Fork Shenandoah River	0	116	19,486	0	19,486
0208020401	Moormans River-Mechums River	0	278	19,400	0	19,400
0208020605	Middle Chickahominy River	4	16,800	19,365	0	19,365
0208020802	Elizabeth River	571	20,956	19,294	64	19,236
0208020709	Swift Creek	177	3,605	19,203	2	19,201
0208020114	Looney Creek-James River	0	96	18,883	0	18,883
0208020312	Hardware River	0	436	18,577	0	18,577
0208020502	Upper Willis River	0	4,149	18,551	0	18,551
0208010405	Totuskey Creek-Rappahannock River	1,207	3,390	18,194	17	18,179
0208010201	Great Wicomico River-Lower Chesapeake Bay	983	3,866	18,194	53	18,150
0208010311	Mine Run-Rapidan River	0	1,225	17,672	0	17,672
0208011109	Cherrystone Inlet-Lower Chesapeake Bay	769	1,805	17,649	58	17,597
0208020505	Lickinghole Creek-James River	0	3,733	17,490	0	17,490
0208020706	Rocky Ford Creek-Appomattox River	0	6,487	17,362	0	17,362
0208020602	Herring Creek-James River	2,206	6,687	17,341	6	17,336
0208010502	Matta River-Mattaponi River	0	8,630	17,216	0	17,216
0207000809	Broad Run-Potomac River	0	3,043	17,148	1	17,148

HUC 10 Number	Subwatershed Name	Existing Tidal Wetlands (Acres)	Existing Nontidal Wetlands (Acres)	Combined Tidal and Nontidal Restoration Opportunities (Acres)	Tidal Wetland Restoration Opportunities (Acres)	Nontidal Wetland Restoration Opportunities (Acres)
0207000604	Stony Creek	0	54	17,107	0	17,107
0207000101	North Fork South Branch Potomac River	0	162	16,877	0	16,877
0208010601	Upper South Anna River	0	1,934	16,870	0	16,870
0208010604	Gold Mine Creek-North Anna River	0	1,554	16,823	0	16,823
0208020704	Big Guinea Creek-Appomattox River	0	5,092	16,731	0	16,731
0208020113	Catawba Creek	0	18	16,627	0	16,627
0208010307	Conway River-Rapidan River	0	76	16,547	0	16,547
0208020305	Upper Tye River	0	63	16,389	0	16,389
0208020204	South River	0	39	16,364	0	16,364
0208010602	Middle South Anna River	0	4,589	16,034	0	16,034
0207001102	Potomac Creek-Potomac River	883	5,863	15,980	9	15,972
0208020101	Upper Jackson River	0	52	15,876	0	15,876
0207000505	Dry River	0	39	15,831	0	15,831
0208020311	Ballinger Creek-James River	0	1,070	15,703	0	15,703
0208020306	Buffalo River	0	132	15,444	0	15,444
0208020701	Buffalo Creek	0	2,359	15,170	0	15,170
0208010407	Corrotoman River-Rappahannock River	743	1,844	14,989	28	14,963
0207000105	South Fork South Branch Potomac River	0	107	14,863	0	14,863
0208010402	Mill Creek-Rappahannock River	1,430	4,416	14,454	1	14,453
0208020402	South Fork Rivanna River	0	275	14,290	0	14,290
0208020710	Ashton Creek-Appomattox River	426	3,071	14,217	7	14,209
0208020604	Upper Chickahominy River	0	6,746	14,149	0	14,149
0208010202	Dragon Swamp	414	7,656	14,122	0	14,122
0208010204	Mobjack Bay-Lower Chesapeake Bay	4,974	22,370	14,109	109	14,007
0208020106	Upper Cowpasture River	0	58	14,088	0	14,088
0208020504	Deep Creek-James River	0	3,579	13,901	0	13,901

HUC 10 Number	Subwatershed Name	Existing Tidal Wetlands (Acres)	Existing Nontidal Wetlands (Acres)	Combined Tidal and Nontidal Restoration Opportunities (Acres)	Tidal Wetland Restoration Opportunities (Acres)	Nontidal Wetland Restoration Opportunities (Acres)
0207001101	Quantico Creek-Potomac River	769	8,846	13,813	1	13,812
0208010501	Poni River	0	7,821	13,766	0	13,766
0207001106	Machodoc Creek-Potomac River	874	4,449	13,625	19	13,604
0208010504	Maracossic Creek	0	3,777	13,304	0	13,304
0207001001	Rock Creek-Potomac River	7	593	13,189	2	13,187
0208020708	Lake Chesdin-Appomattox River	0	5,157	13,102	0	13,102
0208020703	Bush River	0	4,455	12,907	0	12,907
0208020405	Cunningham Creek-Rivanna River	0	1,108	12,892	0	12,892
0208010506	Garnetts Creek-Mattaponi River	3,844	3,981	12,887	9	12,878
0207000305	Lost River	0	41	12,749	0	12,749
0208010406	Lancaster Creek-Rappahannock River	1,172	3,195	12,714	11	12,705
0208010607	Little River	0	3,262	12,579	0	12,579
0208011104	Pitts Creek-Pocomoke River	2,530	14,775	12,254	44	12,212
0207001008	Occoquan River-Potomac River	751	2,103	12,195	13	12,182
0207000402	Sleepy Creek	0	138	11,790	0	11,790
0208010701	Upper York River	3,520	4,148	11,693	4	11,689
0208010608	Northeast Creek-North Anna River	0	3,612	11,359	0	11,359
0208020309	Upper Rockfish River	0	171	11,167	0	11,167
0208020606	Lower Chickahominy River	6,245	5,236	10,745	7	10,739
0208020607	Powhatan Creek-James River	2,434	3,666	10,674	11	10,663
0208020313	Upper Slate River	0	1,464	10,591	0	10,591
0208020105	Lower Jackson River	0	43	10,470	0	10,470
0208020503	Lower Willis River	0	2,191	10,374	0	10,374
0208010503	Polecat Creek-Mattaponi River	0	5,717	10,332	0	10,332
0208020603	Upper Chippokes Creek-James River	2,305	4,848	10,158	6	10,152
0208010611	Lower Pamunkey River	8,941	2,843	10,133	12	10,122

HUC 10 Number	Subwatershed Name	Existing Tidal Wetlands (Acres)	Existing Nontidal Wetlands (Acres)	Combined Tidal and Nontidal Restoration Opportunities (Acres)	Tidal Wetland Restoration Opportunities (Acres)	Nontidal Wetland Restoration Opportunities (Acres)
0208020501	Byrd Creek	0	1,971	10,131	0	10,131
0208020201	Calfpasture River	0	381	9,867	0	9,867
0208011106	Messongo Creek-Pocomoke Sound	8,312	13,366	9,812	31	9,781
0207000601	Shoemaker River-North Fork Shenandoah River	0	16	9,274	0	9,274
0208010203	Piankatank River-Lower Chesapeake Bay	1,142	4,357	9,247	63	9,187
0207001004	Pohick Creek	37	1,086	9,147	2	9,144
0208020307	Lower Tye River	0	233	9,094	0	9,094
0208020115	Cedar Creek-James River	0	176	8,933	0	8,933
0208010801	Back River-Lower Chesapeake Bay	5,260	7,243	8,919	175	8,747
0207000607	Passage Creek-North Fork Shenandoah River	0	67	8,399	0	8,399
0208020315	Bear Garden Creek-James River	0	824	8,388	0	8,388
0208020308	David Creek-James River	0	790	7,972	0	7,972
0208010702	Lower York River	1,130	4,243	7,796	23	7,776
0208010802	Lynnhaven River-Lower Chesapeake Bay	303	4,074	7,737	138	7,604
0208010606	Lake Anna	0	796	7,639	0	7,639
0208020112	Lower Craig Creek	0	224	7,204	0	7,204
0208020314	Lower Slate River	0	680	7,017	0	7,017
0208020107	Middle Cowpasture River	0	134	7,008	0	7,008
0208011107	Deep Creek-Pocomoke Sound	5,633	6,132	6,940	48	6,891
0208020102	Back Creek-Middle Jackson River	0	99	6,250	0	6,250
0208020103	Dunlap Creek	0	15	6,184	0	6,184
0208020110	Upper Craig Creek	0	3	6,182	0	6,182
0208020608	Lawnes Creek-James River	1,481	3,328	5,725	25	5,698
0208020104	Potts Creek	0	65	5,583	0	5,583
0208020302	Pedlar River	0	59	5,550	0	5,550
0208011105	Marumsco Creek-Pocomoke Sound	10,424	8,784	5,427	201	5,228

HUC 10 Number	Subwatershed Name	Existing Tidal Wetlands (Acres)	Existing Nontidal Wetlands (Acres)	Combined Tidal and Nontidal Restoration Opportunities (Acres)	Tidal Wetland Restoration Opportunities (Acres)	Nontidal Wetland Restoration Opportunities (Acres)
0208020301	Reed Creek-James River	0	106	4,533	0	4,533
0208020109	Mill Creek-James River	0	127	4,328	0	4,328
0208020310	Lower Rockfish River	0	318	4,325	0	4,325
0208020108	Lower Cowpasture River	0	58	4,084	0	4,084
0208020111	Johns Creek	0	65	3,941	0	3,941
0208020803	Hampton Roads	189	499	3,068	16	3,055
0208011006	Lower Tangier Sound	7,236	654	713	143	571
0208010100	Lower Chesapeake Bay	0	0	1	0	1

Table A7. Nontidal and tidal wetland restoration opportunities to benefit avian wildlife in Virginia

HUC 10 Number	Subwatershed Name	Presence of Black Duck	Presence of Important Bird Areas	Presence of Nesting for Wading Birds and Waterbirds	Nontidal Wetland Restoration Opportunities (Acres)	Tidal Wetland Restoration Opportunities (Acres)
0207001006	Cedar Run	yes	yes	no	43,690	0
0207000805	Upper Goose Creek	no	yes	no	43,377	0
0207000103	Upper South Branch Potomac River	no	yes	no	41,941	0
0207000509	Hawksbill Creek-South Fork Shenandoah River	no	yes	no	41,049	0
0207000701	Crooked Run-Shenandoah River	no	yes	no	40,997	0
0207001108	Nomini Creek-Potomac River	yes	no	yes	39,468	34
0207000507	South River	no	yes	no	38,657	0
0208020601	Falling Creek-James River	no	yes	yes	35,568	41
0208010309	Robinson River	no	yes	no	34,086	0
0208020801	Nansemond River	no	yes	yes	33,873	3
0208020506	Tuckahoe Creek-James River	no	no	yes	31,526	0
0207000508	Naked Creek-South Fork Shenandoah River	no	yes	no	30,686	0
0208010304	Hazel River	no	yes	no	30,545	0
0208010404	Cat Point Creek-Rappahannock River	yes	yes	yes	29,653	24
0208010306	Marsh Run-Rappahannock River	yes	yes	no	29,629	0
0208010308	Blue Run-Rapidan River	no	yes	no	29,400	0
0207000404	Back Creek	no	no	no	29,258	0
0208010403	Occupacia Creek-Rappahannock River	yes	yes	yes	28,432	24
0207001005	Broad Run	yes	yes	no	28,400	0
0208010310	Cedar Run-Rapidan River	no	yes	no	27,882	0
0207001007	Bull Run	yes	yes	no	27,812	0
0207000803	Catoctin Creek	no	yes	no	27,091	0
0208010603	Lower South Anna River	yes	no	no	27,072	0

HUC 10 Number	Subwatershed Name	Presence of Black Duck	Presence of Important Bird Areas	Presence of Nesting for Wading Birds and Waterbirds	Nontidal Wetland Restoration Opportunities (Acres)	Tidal Wetland Restoration Opportunities (Acres)
0207000702	Long Marsh Run-Shenandoah River	no	yes	no	26,940	0
0208020205	Lower Maury River	no	yes	no	25,658	0
0208011108	Pungoteague Creek-Lower Chesapeake Bay	yes	yes	yes	24,146	173
0208010303	Thornton River	no	yes	no	23,849	0
0208010610	Middle Pamunkey River	yes	yes	yes	23,472	2
0208010401	Massaponax Creek-Rappahannock River	yes	no	no	23,250	0
0208010305	Mountain Run	no	yes	no	23,149	0
0208010609	Upper Pamunkey River	yes	no	no	22,486	0
0207001003	Cameron Run-Potomac River	yes	no	yes	22,424	8
0208020403	North Fork Rivanna River	no	yes	no	22,380	0
0208020609	Pagan River-James River	no	no	yes	22,278	45
0208010505	Chapel Creek-Mattaponi River	yes	no	yes	21,386	2
0208010301	Thumb Run-Rappahannock River	no	yes	no	20,319	0
0207000510	Gooney Run-South Fork Shenandoah River	no	yes	no	19,486	0
0208020401	Moormans River-Mechums River	no	yes	no	19,400	0
0208020605	Middle Chickahominy River	yes	no	yes	19,365	0
0208020802	Elizabeth River	no	yes	yes	19,236	64
0208020709	Swift Creek	no	no	yes	19,201	2
0208020114	Looney Creek-James River	no	yes	no	18,883	0
0208010405	Totuskey Creek-Rappahannock River	yes	no	yes	18,179	17
0208010201	Great Wicomico River-Lower Chesapeake Bay	no	no	yes	18,150	53
0208010311	Mine Run-Rapidan River	yes	no	no	17,672	0
0208011109	Cherrystone Inlet-Lower Chesapeake Bay	yes	yes	yes	17,597	58
0208020602	Herring Creek-James River	no	yes	yes	17,336	6

HUC 10 Number	Subwatershed Name	Presence of Black Duck	Presence of Important Bird Areas	Presence of Nesting for Wading Birds and Waterbirds	Nontidal Wetland Restoration Opportunities (Acres)	Tidal Wetland Restoration Opportunities (Acres)
0208010502	Matta River-Mattaponi River	yes	no	no	17,216	0
0207000101	North Fork South Branch Potomac River	no	yes	no	16,877	0
0208010307	Conway River-Rapidan River	no	yes	no	16,547	0
0208020305	Upper Tye River	no	yes	no	16,389	0
0208020204	South River	no	yes	no	16,364	0
0207001102	Potomac Creek-Potomac River	yes	yes	yes	15,972	9
0208020101	Upper Jackson River	no	yes	no	15,876	0
0208020306	Buffalo River	no	yes	no	15,444	0
0208010407	Corrotoman River-Rappahannock River	no	no	yes	14,963	28
0208010402	Mill Creek-Rappahannock River	yes	yes	yes	14,453	1
0208020402	South Fork Rivanna River	no	yes	no	14,290	0
0208020710	Ashton Creek-Appomattox River	no	yes	yes	14,209	7
0208020604	Upper Chickahominy River	yes	no	yes	14,149	0
0208010202	Dragon Swamp	yes	no	yes	14,122	0
0208010204	Mobjack Bay-Lower Chesapeake Bay	yes	yes	yes	14,007	109
0208020106	Upper Cowpasture River	no	yes	no	14,088	0
0208020504	Deep Creek-James River	no	no	no	13,901	0
0207001101	Quantico Creek-Potomac River	yes	yes	yes	13,812	1
0208010501	Poni River	yes	no	no	13,766	0
0207001106	Machodoc Creek-Potomac River	yes	no	yes	13,604	19
0208010504	Maracossic Creek	yes	no	no	13,304	0
0208010506	Garnetts Creek-Mattaponi River	yes	yes	yes	12,878	9
0208010406	Lancaster Creek-Rappahannock River	no	no	yes	12,705	11
0208011104	Pitts Creek-Pocomoke River	yes	no	no	12,212	44

HUC 10 Number	Subwatershed Name	Presence of Black Duck	Presence of Important Bird Areas	Presence of Nesting for Wading Birds and Waterbirds	Nontidal Wetland Restoration Opportunities (Acres)	Tidal Wetland Restoration Opportunities (Acres)
0207001008	Occoquan River-Potomac River	yes	yes	yes	12,182	13
0208010701	Upper York River	yes	no	yes	11,689	4
0208010608	Northeast Creek-North Anna River	yes	no	no	11,359	0
0208020309	Upper Rockfish River	no	yes	no	11,167	0
0208020606	Lower Chickahominy River	yes	no	yes	10,739	7
0208020607	Powhatan Creek-James River	yes	no	yes	10,663	11
0208020105	Lower Jackson River	no	yes	no	10,470	0
0208020603	Upper Chippokes Creek-James River	no	yes	yes	10,152	6
0208010611	Lower Pamunkey River	yes	yes	yes	10,122	12
0208011106	Messongo Creek-Pocomoke Sound	yes	yes	yes	9,781	31
0208010203	Piankatank River-Lower Chesapeake Bay	yes	yes	yes	9,187	63
0207001004	Pohick Creek	yes	yes	no	9,144	2
0208020115	Cedar Creek-James River	no	yes	no	8,933	0
0208010801	Back River-Lower Chesapeake Bay	no	yes	yes	8,747	175
0208010702	Lower York River	yes	no	yes	7,776	23
0208010802	Lynnhaven River-Lower Chesapeake Bay	no	no	yes	7,604	138
0208020107	Middle Cowpasture River	no	yes	no	7,008	0
0208011107	Deep Creek-Pocomoke Sound	yes	yes	yes	6,891	48
0208020102	Back Creek-Middle Jackson River	no	yes	no	6,250	0
0208020608	Lawnes Creek-James River	no	no	yes	5,698	25
0208020302	Pedlar River	no	yes	no	5,550	0
0208011105	Marumsco Creek-Pocomoke Sound	yes	yes	no	5,228	201
0208020301	Reed Creek-James River	no	yes	no	4,533	0
0208020803	Hampton Roads	no	no	yes	3,055	16

HUC 10 Number	Subwatershed Name	Presence of Black Duck	Presence of Important Bird Areas	Presence of Nesting for Wading Birds and Waterbirds	Nontidal Wetland Restoration Opportunities (Acres)	Tidal Wetland Restoration Opportunities (Acres)
0208011006	Lower Tangier Sound	yes	yes	yes	571	143
0208010100	Lower Chesapeake Bay	yes	no	no	1	0
0207001110	0207001110-Potomac River	yes	no	no	0	0

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Table A8. Potential beneficial use of dredged material and nontidal wetland enhancement and restoration opportunities in Virginia

HUC 10 Number	Subwatershed Name	Existing Nontidal Wetlands within Three-Mile Buffer of U.S. Army Corps of Engineers (USACE) Channel (Acres)	Existing Tidal Wetlands within Three-Mile Buffer of USACE Channel (Acres)	Nontidal Restoration Opportunities within Three-Mile Buffer of USACE Channel (Acres)	Tidal Restoration Opportunities within Three-Mile Buffer of USACE Channel (Acres)
0208020601	Falling Creek-James River	5,024	598	17,064	41
0208020802	Elizabeth River	10,662	547	14,330	62
0207001108	Nomini Creek-Potomac River	2,581	543	9,225	16
0208011108	Pungoteague Creek-Lower Chesapeake Bay	7,567	2,845	8,848	156
0208020609	Pagan River-James River	2,795	2,770	8,756	34
0208020602	Herring Creek-James River	3,314	2,174	8,067	5
0208010201	Great Wicomico River-Lower Chesapeake Bay	1,386	574	7,487	41
0207001003	Cameron Run-Potomac River	529	208	6,470	6
0207001106	Machodoc Creek-Potomac River	2,478	625	6,389	9
0208011109	Cherrystone Inlet-Lower Chesapeake Bay	490	274	5,999	30
0208011107	Deep Creek-Pocomoke Sound	5,954	5,608	5,720	37
0208010407	Corrotoman River-Rappahannock River	530	418	5,099	20
0208020603	Upper Chippokes Creek-James River	2,272	1,464	4,835	5
0208010802	Lynnhaven River-Lower Chesapeake Bay	3,146	238	4,747	132
0207001008	Occoquan River-Potomac River	959	587	4,611	12

HUC 10 Number	Subwatershed Name	Existing Nontidal Wetlands within Three-Mile Buffer of U.S. Army Corps of Engineers (USACE) Channel (Acres)	Existing Tidal Wetlands within Three-Mile Buffer of USACE Channel (Acres)	Nontidal Restoration Opportunities within Three-Mile Buffer of USACE Channel (Acres)	Tidal Restoration Opportunities within Three-Mile Buffer of USACE Channel (Acres)
0208010203	Piankatank River-Lower Chesapeake Bay	2,299	243	4,336	27
0208010404	Cat Point Creek-Rappahannock River	1,339	2,050	4,281	19
0208020608	Lawnes Creek-James River	2,516	1,450	4,076	25
0208010406	Lancaster Creek-Rappahannock River	485	206	3,904	4
0208020607	Powhatan Creek-James River	1,699	2,018	3,617	11
0208010701	Upper York River	2,212	2,952	3,201	3
0207001001	Rock Creek-Potomac River	57	7	2,991	2
0208010801	Back River-Lower Chesapeake Bay	4,174	3,747	2,881	88
0208020801	Nansemond River	796	1,049	2,729	3
0208010702	Lower York River	1,185	520	2,614	8
0208020803	Hampton Roads	409	91	2,611	15
0208011106	Messongo Creek-Pocomoke Sound	6,398	6,143	2,278	24
0208020710	Ashton Creek-Appomattox River	807	63	1,952	0
0207000810	Difficult Run-Potomac River	58	0	1,883	0
0208020606	Lower Chickahominy River	581	381	1,590	3
0208010204	Mobjack Bay-Lower Chesapeake Bay	3,888	2,010	1,565	54
0208011104	Pitts Creek-Pocomoke River	1,133	1,911	1,446	29
0208010506	Garnetts Creek-Mattaponi River	347	1,147	1,324	8
0207001101	Quantico Creek-Potomac River	304	344	1,257	1
0208010611	Lower Pamunkey River	706	1,832	1,010	5
0208011105	Marumsco Creek-Pocomoke Sound	3,270	6,807	951	64
0207001102	Potomac Creek-Potomac River	196	141	709	4
0208011006	Lower Tangier Sound	653	7,196	571	136
0207001004	Pohick Creek	96	22	560	2
0208010202	Dragon Swamp	24	0	441	0
0208020506	Tuckahoe Creek-James River	63	0	331	0
0208010403	Occupacia Creek-Rappahannock River	7	7	4	0

Table A9. Wetlands Threats Opportunities Assessment for Virginia

HUC 10 Number	Subwatershed Name	Threats Impacting Existing Tidal Wetlands (Acres)	Threats Impacting Tidal Wetland Restoration Opportunities (Acres)	Threats Impacting Existing Nontidal Wetlands (Acres)	Threat Impacting Nontidal Wetland Restoration Opportunities (Acres)
0207000409	Opequon Creek	0	0	125	5,442
0207000805	Upper Goose Creek	0	0	462	5,151
0207000702	Long Marsh Run-Shenandoah River	0	0	66	4,604
0207000506	Lower North River	0	0	15	3,928
0208020506	Tuckahoe Creek-James River	0	0	1,787	3,481
0207000807	Lower Goose Creek	0	0	303	3,350
0208020604	Upper Chickahominy River	0	0	2,502	3,320
0207000701	Crooked Run-Shenandoah River	0	0	8	3,055
0207001006	Cedar Run	0	0	692	2,819
0207000803	Catoctin Creek	0	0	303	1,959
0207001005	Broad Run	0	0	620	1,816
0208010302	Carter Run-Rappahannock River	0	0	161	1,804
0208010305	Mountain Run	0	0	261	1,420
0207000806	North Fork Goose Creek	0	0	213	1,396
0208010306	Marsh Run-Rappahannock River	0	0	368	1,260
0207000507	South River	0	0	54	1,244
0207000501	Upper Middle River	0	0	4	1,105
0207000703	Bullskin Run-Shenandoah River	0	0	253	995
0207000603	Linville Creek-North Fork Shenandoah River	0	0	9	979
0207000606	Cedar Creek	0	0	4	975
0207000502	Christians Creek	0	0	7	958
0208010301	Thumb Run-Rappahannock River	0	0	45	706
0208010310	Cedar Run-Rapidan River	0	0	127	665
0208020303	Harris Creek-James River	0	0	30	644

HUC 10 Number	Subwatershed Name	Threats Impacting Existing Tidal Wetlands (Acres)	Threats Impacting Tidal Wetland Restoration Opportunities (Acres)	Threats Impacting Existing Nontidal Wetlands (Acres)	Threat Impacting Nontidal Wetland Restoration Opportunities (Acres)
0207000503	Lower Middle River	0	0	9	628
0207000504	Upper North River	0	0	3	473
0208020404	Mechunk Creek-Rivanna River	0	0	66	449
0208010308	Blue Run-Rapidan River	0	0	42	373
0207000404	Back Creek	0	0	7	348
0208020202	Little Calfpasture River-Upper Maury River	0	0	6	339
0208010307	Conway River-Rapidan River	0	0	1	317
0208020403	North Fork Rivanna River	0	0	78	252
0208020402	South Fork Rivanna River	0	0	16	222
0208020505	Lickinghole Creek-James River	0	0	118	204
0208020702	Vaughans Creek-Appomattox River	0	0	120	202
0207000508	Naked Creek-South Fork Shenandoah River	0	0	2	194
0208010603	Lower South Anna River	0	0	252	194
0208020305	Upper Tye River	0	0	7	170
0207000509	Hawksbill Creek-South Fork Shenandoah River	0	0	8	164
0208010501	Poni River	0	0	200	162
0207000604	Stony Creek	0	0	3	154
0208010304	Hazel River	0	0	17	151
0208020304	Wreck Island Creek-James River	0	0	61	127
0208020301	Reed Creek-James River	0	0	3	125
0207000510	Gooney Run-South Fork Shenandoah River	0	0	3	122
0208020704	Big Guinea Creek-Appomattox River	0	0	286	117
0208020309	Upper Rockfish River	0	0	4	114
0207000505	Dry River	0	0	0	105
0208010605	Pamunkey Creek	0	0	9	103

HUC 10 Number	Subwatershed Name	Threats Impacting Existing Tidal Wetlands (Acres)	Threats Impacting Tidal Wetland Restoration Opportunities (Acres)	Threats Impacting Existing Nontidal Wetlands (Acres)	Threat Impacting Nontidal Wetland Restoration Opportunities (Acres)
0208020401	Moormans River-Mechums River	0	0	31	95
0208020204	South River	0	0	1	88
0207000605	Narrow Passage Creek-North Fork Shenandoah River	0	0	0	83
0208010311	Mine Run-Rapidan River	0	0	30	81
0208010601	Upper South Anna River	0	0	89	81
0208020113	Catawba Creek	0	0	0	72
0208010604	Gold Mine Creek-North Anna River	0	0	29	62
0208010502	Matta River-Mattaponi River	0	0	190	61
0208020115	Cedar Creek-James River	0	0	0	55
0208010608	Northeast Creek-North Anna River	0	0	197	47
0208020105	Lower Jackson River	0	0	5	42
0208020306	Buffalo River	0	0	0	42
0208020707	Deep Creek	0	0	49	42
0208020701	Buffalo Creek	0	0	80	40
0208020302	Pedlar River	0	0	0	40
0208020108	Lower Cowpasture River	0	0	0	33
0208020203	Middle Maury River	0	0	0	32
0208020405	Cunningham Creek-Rivanna River	0	0	32	31
0208020502	Upper Willis River	0	0	28	29
0207000607	Passage Creek-North Fork Shenandoah River	0	0	0	25
0207000602	Smith Creek	0	0	0	21
0208010309	Robinson River	0	0	3	19
0208020703	Bush River	0	0	87	17
0208020706	Rocky Ford Creek-Appomattox River	0	0	90	17
0208010602	Middle South Anna River	0	0	39	16

HUC 10 Number	Subwatershed Name	Threats Impacting Existing Tidal Wetlands (Acres)	Threats Impacting Tidal Wetland Restoration Opportunities (Acres)	Threats Impacting Existing Nontidal Wetlands (Acres)	Threat Impacting Nontidal Wetland Restoration Opportunities (Acres)
0208020312	Hardware River	0	0	4	15
0208020308	David Creek-James River	0	0	0	10
0208020311	Ballinger Creek-James River	0	0	12	10
0208020504	Deep Creek-James River	0	0	46	9
0208010606	Lake Anna	0	0	12	8
0208020103	Dunlap Creek	0	0	0	8
0208020705	Flat Creek	0	0	10	8
0208020111	Johns Creek	0	0	0	7
0208020201	Calfpasture River	0	0	1	7
0208020315	Bear Garden Creek-James River	0	0	25	7
0208020205	Lower Maury River	0	0	0	7
0208020110	Upper Craig Creek	0	0	0	6
0208010607	Little River	0	0	108	6
0208020708	Lake Chesdin-Appomattox River	0	0	13	6
0208010504	Maracossic Creek	0	0	75	5
0208020114	Looney Creek-James River	0	0	2	5
0208010503	Polecat Creek-Mattaponi River	0	0	86	4
0208020112	Lower Craig Creek	0	0	0	4
0208020503	Lower Willis River	0	0	15	3
0207000601	Shoemaker River-North Fork Shenandoah River	0	0	0	3
0208020109	Mill Creek-James River	0	0	0	3
0208020310	Lower Rockfish River	0	0	1	2
0208020314	Lower Slate River	0	0	30	2
0208020501	Byrd Creek	0	0	13	1
0207000103	Upper South Branch Potomac River	0	0	5	1

HUC 10 Number	Subwatershed Name	Threats Impacting Existing Tidal Wetlands (Acres)	Threats Impacting Tidal Wetland Restoration Opportunities (Acres)	Threats Impacting Existing Nontidal Wetlands (Acres)	Threat Impacting Nontidal Wetland Restoration Opportunities (Acres)
0208020107	Middle Cowpasture River	0	0	0	1
0208020601	Falling Creek-James River	11	1	0	1
0208020104	Potts Creek	0	0	0	1
0207000105	South Fork South Branch Potomac River	0	0	4	1
0207001007	Bull Run	0	0	0	0
0208020605	Middle Chickahominy River	0	0	0	0
0208010609	Upper Pamunkey River	0	0	0	0
0207000810	Difficult Run-Potomac River	0	0	0	0
0208010401	Massaponax Creek-Rappahannock River	0	0	0	0
0207000809	Broad Run-Potomac River	0	0	0	0
0207001001	Rock Creek-Potomac River	1	0	0	0
0207001008	Occoquan River-Potomac River	57	0	0	0
0207000305	Lost River	0	0	0	0
0207000101	North Fork South Branch Potomac River	0	0	0	0
0207000402	Sleepy Creek	0	0	0	0
0208020709	Swift Creek	7	0	0	0
0207001004	Pohick Creek	0	0	0	0
0208010201	Great Wicomico River-Lower Chesapeake Bay	611	26	0	0
0208010202	Dragon Swamp	0	0	0	0
0208010203	Piankatank River-Lower Chesapeake Bay	596	24	0	0
0208010204	Mobjack Bay-Lower Chesapeake Bay	4,440	46	0	0
0208010303	Thornton River	0	0	0	0
0208010402	Mill Creek-Rappahannock River	0	0	0	0
0208010403	Occupacia Creek-Rappahannock River	0	0	0	0
0208010404	Cat Point Creek-Rappahannock River	0	0	0	0

HUC 10 Number	Subwatershed Name	Threats Impacting Existing Tidal Wetlands (Acres)	Threats Impacting Tidal Wetland Restoration Opportunities (Acres)	Threats Impacting Existing Nontidal Wetlands (Acres)	Threat Impacting Nontidal Wetland Restoration Opportunities (Acres)
0208010405	Totuskey Creek-Rappahannock River	0	0	0	0
0208010406	Lancaster Creek-Rappahannock River	46	0	0	0
0208010407	Corrotoman River-Rappahannock River	174	13	0	0
0208010505	Chapel Creek-Mattaponi River	0	0	0	0
0208010506	Garnetts Creek-Mattaponi River	7	0	0	0
0208010610	Middle Pamunkey River	2	0	0	0
0208010611	Lower Pamunkey River	68	0	0	0
0208010701	Upper York River	11	0	0	0
0208010702	Lower York River	467	9	0	0
0208010801	Back River-Lower Chesapeake Bay	4,956	41	0	0
0208010802	Lynnhaven River-Lower Chesapeake Bay	225	56	0	0
0208011106	Messongo Creek-Pocomoke Sound	6,977	18	0	0
0208011108	Pungoteague Creek-Lower Chesapeake Bay	3,039	83	0	0
0208011109	Cherrystone Inlet-Lower Chesapeake Bay	614	25	0	0
0208020101	Upper Jackson River	0	0	0	0
0208020102	Back Creek-Middle Jackson River	0	0	0	0
0208020106	Upper Cowpasture River	0	0	0	0
0208020307	Lower Tye River	0	0	0	0
0208020313	Upper Slate River	0	0	30	0
0208020602	Herring Creek-James River	8	0	0	0
0208020603	Upper Chippokes Creek-James River	0	0	0	0
0208020606	Lower Chickahominy River	86	0	0	0
0208020607	Powhatan Creek-James River	82	0	0	0
0208020608	Lawnes Creek-James River	207	7	0	0
0208020609	Pagan River-James River	2,811	9	0	0

HUC 10 Number	Subwatershed Name	Threats Impacting Existing Tidal Wetlands (Acres)	Threats Impacting Tidal Wetland Restoration Opportunities (Acres)	Threats Impacting Existing Nontidal Wetlands (Acres)	Threat Impacting Nontidal Wetland Restoration Opportunities (Acres)
0208020710	Ashton Creek-Appomattox River	36	0	0	0
0208020801	Nansemond River	2,202	1	0	0
0208020802	Elizabeth River	200	15	0	0
0208020803	Hampton Roads	136	5	0	0
0207001101	Quantico Creek-Potomac River	75	0	0	0
0207001102	Potomac Creek-Potomac River	102	0	0	0
0207001106	Machodoc Creek-Potomac River	124	0	0	0
0207001108	Nomini Creek-Potomac River	49	0	0	0
0207001110	0207001110-Potomac River	0	0	0	0
0208010100	Lower Chesapeake Bay	0	0	0	0
0208011006	Lower Tangier Sound	7,096	58	0	0
0208011104	Pitts Creek-Pocomoke River	1,075	3	0	0
0208011105	Marumsco Creek-Pocomoke Sound	8,407	13	0	0
0208011107	Deep Creek-Pocomoke Sound	5,579	30	0	0
0207001003	Cameron Run-Potomac River	99	0	0	0

Table A10. Submerged aquatic vegetation lost in Virginia

HUC 10 Number	Subwatershed Name	Submerged Aquatic Vegetation Lost (Acres)
0208010100	Lower Chesapeake Bay	17216.0
0208011107	Deep Creek-Pocomoke Sound	14383.0
0208011108	Pungoteague Creek-Lower Chesapeake Bay	12413.0
0208011006	Lower Tangier Sound	10741.0
0208010702	Lower York River	10718.0
0207001008	Occoquan River-Potomac River	8378.0
0208011109	Cherrystone Inlet-Lower Chesapeake Bay	8351.0
0208010407	Corrotoman River-Rappahannock River	8321.0
0207001101	Quantico Creek-Potomac River	6894.0
0208010801	Back River-Lower Chesapeake Bay	6606.0
0208010204	Mobjack Bay-Lower Chesapeake Bay	5613.0
0207001102	Potomac Creek-Potomac River	5532.0
0208010201	Great Wicomico River-Lower Chesapeake Bay	5409.0
0208011106	Messongo Creek-Pocomoke Sound	5038.0
0207001003	Cameron Run-Potomac River	4877.0
0208011105	Marumsco Creek-Pocomoke Sound	4145.0
0207001001	Rock Creek-Potomac River	3515.0
0208010406	Lancaster Creek-Rappahannock River	3060.0
0208010203	Piankatank River-Lower Chesapeake Bay	2416.0
0208010202	Dragon Swamp	2416.0
0207001004	Pohick Creek	1580.0
0207001110	0207001110-Potomac River	1534.0
0208020606	Lower Chickahominy River	824.0
0207001106	Machodoc Creek-Potomac River	698.0
0207001108	Nomini Creek-Potomac River	662.0
0208010402	Mill Creek-Rappahannock River	557.0
0208010403	Occupacia Creek-Rappahannock River	557.0
0208010610	Middle Pamunkey River	532.0
0208010611	Lower Pamunkey River	532.0
0208010505	Chapel Creek-Mattaponi River	329.0
0208010506	Garnetts Creek-Mattaponi River	329.0
0208020603	Upper Chippokes Creek-James River	246.0
0208010802	Lynnhaven River-Lower Chesapeake Bay	237.0
0208020803	Hampton Roads	180.0
0208020602	Herring Creek-James River	149.0
0208020607	Powhatan Creek-James River	53.0
0208020601	Falling Creek-James River	12.0

HUC 10 Number	Subwatershed Name	Submerged Aquatic Vegetation Lost (Acres)
0208020605	Middle Chickahominy River	5.0
0208020609	Pagan River-James River	4.0
0208010404	Cat Point Creek-Rappahannock River	1.0

Table A11. Toxic Contaminants Opportunities Assessment for Virginia

HUC 10 Number	Subwatershed Name	Number of National Priority List Sites	Number of Final Status NPL Sites
0207000404	Back Creek	1	0
0207000409	Opequon Creek	1	0
0207000510	Gooney Run-South Fork Shenandoah River	1	1
0207000809	Broad Run-Potomac River	1	1
0207001003	Cameron Run-Potomac River	1	1
0207001101	Quantico Creek-Potomac River	3	3
0207001108	Nomini Creek-Potomac River	1	1
0208010305	Mountain Run	1	1
0208010401	Massaponax Creek-Rappahannock River	1	1
0208010702	Lower York River	2	2
0208010801	Back River-Lower Chesapeake Bay	2	2
0208010802	Lynnhaven River-Lower Chesapeake Bay	1	1
0208020105	Lower Jackson River	1	1
0208020305	Upper Tye River	1	1
0208020313	Upper Slate River	1	1
0208020401	Moormans River-Mechums River	1	1
0208020601	Falling Creek-James River	2	2
0208020604	Upper Chickahominy River	2	2
0208020609	Pagan River-James River	2	2
0208020802	Elizabeth River	5	5
0208020803	Hampton Roads	2	2

Table A12. Healthy/high value habitats in Virginia

HUC 10 Number	Subwatershed Name	Healthy/High Value Habitat (Acres)
0207000101	North Fork South Branch Potomac River	65,205.28
0207000508	Naked Creek-South Fork Shenandoah River	41,286.75
0207001101	Quantico Creek-Potomac River	38,002.81
0208010402	Mill Creek-Rappahannock River	36,789.88
0208010303	Thornton River	35,003.97
0208020305	Upper Tye River	34,930.65
0208020105	Lower Jackson River	33,904.10
0208010404	Cat Point Creek-Rappahannock River	29,171.10
0208010304	Hazel River	28,625.99
0208010307	Conway River-Rapidan River	24,515.74
0207001102	Potomac Creek-Potomac River	23,818.73
0208010403	Occupacia Creek-Rappahannock River	21,994.82
0208020101	Upper Jackson River	21,593.26
0207000507	South River	21,539.38
0208020106	Upper Cowpasture River	19,357.28
0208010309	Robinson River	19,255.23
0208020401	Moormans River-Mechums River	18,843.48
0207000510	Gooney Run-South Fork Shenandoah River	18,284.07
0208020309	Upper Rockfish River	16,630.20
0208020107	Middle Cowpasture River	15,988.79
0208020102	Back Creek-Middle Jackson River	14,857.79
0208020204	South River	14,801.66
0208020115	Cedar Creek-James River	10,818.86
0208010301	Thumb Run-Rappahannock River	9,997.35
0208020302	Pedlar River	9,663.42
0208020205	Lower Maury River	8,890.72
0208010611	Lower Pamunkey River	8,882.05
0208020306	Buffalo River	8,247.51
0207000103	Upper South Branch Potomac River	7,714.76
0208020403	North Fork Rivanna River	6,825.35
0207001008	Occoquan River-Potomac River	5,814.36
0207000604	Stony Creek	5,265.27
0208020301	Reed Creek-James River	4,033.59
0208011105	Marumsco Creek-Pocomoke Sound	3,270.32
0208010310	Cedar Run-Rapidan River	2,955.34
0207000601	Shoemaker River-North Fork Shenandoah River	2,732.29
0207001005	Broad Run	2,375.53

HUC 10 Number	Subwatershed Name	Healthy/High Value Habitat (Acres)
0208010203	Piankatank River-Lower Chesapeake Bay	2,125.09
0207000805	Upper Goose Creek	1,905.24
0208010506	Garnetts Creek-Mattaponi River	1,652.72
0208011107	Deep Creek-Pocomoke Sound	1,580.46
0208011108	Pungoteague Creek-Lower Chesapeake Bay	1,274.08
0208011006	Lower Tangier Sound	827.90
0208010610	Middle Pamunkey River	694.63
0208010308	Blue Run-Rapidan River	534.76
0208020603	Upper Chippokes Creek-James River	494.15
0207001007	Bull Run	465.67
0207001004	Pohick Creek	304.63
0207001006	Cedar Run	175.49
0207000803	Catoctin Creek	149.13
0208020602	Herring Creek-James River	123.71
0207000504	Upper North River	121.83
0208020114	Looney Creek-James River	120.47
0208010305	Mountain Run	101.34
0208010609	Upper Pamunkey River	84.39
0208010501	Poni River	31.28
0208020108	Lower Cowpasture River	21.39
0207000602	Smith Creek	13.12
0208020201	Calfpasture River	12.77
0208010505	Chapel Creek-Mattaponi River	8.66
0208020402	South Fork Rivanna River	8.42
0208020109	Mill Creek-James River	7.03
0207000606	Cedar Creek	6.39
0208020103	Dunlap Creek	6.19
0208010504	Maracossic Creek	5.92
0207000701	Crooked Run-Shenandoah River	5.30
0207000605	Narrow Passage Creek-North Fork Shenandoah River	5.03
0208020310	Lower Rockfish River	4.65
0207001106	Machodoc Creek-Potomac River	3.79
0208011104	Pitts Creek-Pocomoke River	3.59
0207000105	South Fork South Branch Potomac River	3.03
0208010202	Dragon Swamp	2.97
0208020307	Lower Tye River	2.72
0208010502	Matta River-Mattaponi River	1.85
0207000501	Upper Middle River	1.69

HUC 10 Number	Subwatershed Name	Healthy/High Value Habitat (Acres)
0208010701	Upper York River	1.66
0207000807	Lower Goose Creek	1.57
0208020104	Potts Creek	1.53
0208010306	Marsh Run-Rappahannock River	1.43
0208020112	Lower Craig Creek	1.21
0207001003	Cameron Run-Potomac River	0.98
0208020303	Harris Creek-James River	0.96
0207000607	Passage Creek-North Fork Shenandoah River	0.60
0208010302	Carter Run-Rappahannock River	0.33
0208010601	Upper South Anna River	0.29
0207001108	Nomini Creek-Potomac River	0.28
0208010401	Massaponax Creek-Rappahannock River	0.15
0208020605	Middle Chickahominy River	0.12
0207000703	Bullskin Run-Shenandoah River	0.11
0208010311	Mine Run-Rapidan River	0.07
0208010604	Gold Mine Creek-North Anna River	0.03

Table A13. Conservation Opportunities Assessment for Virginia

HUC 10 Number	Subwatershed Name	Conservation Opportunities (Acres)	Oyster Restoration Presence	Submerged Aquatic Vegetation Presence	Stream Restoration Presence	Riparian Forest Buffer Presence	Habitat Restoration Compilation
0208011106	Messongo Creek-Pocomoke Sound	670	no	yes	no	no	yes
0208010611	Lower Pamunkey River	1,397	yes	yes	yes	no	yes
0208010404	Cat Point Creek-Rappahannock River	4,987	no	yes	yes	no	yes
0208011107	Deep Creek-Pocomoke Sound	180	no	yes	no	no	yes
0208011105	Marumsco Creek-Pocomoke Sound	239	no	yes	no	no	yes
0208011108	Pungoteague Creek-Lower Chesapeake Bay	147	no	yes	no	no	yes
0208010402	Mill Creek-Rappahannock River	751	no	yes	yes	no	yes
0208010403	Occupacia Creek-Rappahannock River	2,199	no	yes	yes	no	yes
0207001102	Potomac Creek-Potomac River	3,022	no	yes	yes	no	yes
0207001101	Quantico Creek-Potomac River	2,002	no	yes	yes	yes	yes
0208010610	Middle Pamunkey River	105	no	yes	yes	no	yes
0207001008	Occoquan River-Potomac River	333	no	yes	no	no	yes
0208010310	Cedar Run-Rapidan River	498	no	no	yes	no	yes
0208011006	Lower Tangier Sound	28	no	yes	no	no	yes
0208010506	Garnetts Creek-Mattaponi River	112	yes	yes	yes	no	yes
0208010203	Piankatank River-Lower Chesapeake Bay	376	yes	yes	no	no	yes
0207001006	Cedar Run	28	no	no	yes	yes	yes
0208020603	Upper Chippokes Creek-James River	87	no	yes	yes	no	yes
0208020115	Cedar Creek-James River	371	no	no	yes	no	yes
0208010304	Hazel River	1,806	no	no	yes	yes	yes
0208010609	Upper Pamunkey River	15	no	no	yes	no	yes
0208020306	Buffalo River	315	no	no	yes	no	yes
0207001005	Broad Run	159	no	no	no	no	no
0208010305	Mountain Run	18	no	no	no	no	no
0208020106	Upper Cowpasture River	1,557	no	no	yes	yes	yes

HUC 10 Number	Subwatershed Name	Conservation Opportunities (Acres)	Oyster Restoration Presence	Submerged Aquatic Vegetation Presence	Stream Restoration Presence	Riparian Forest Buffer Presence	Habitat Restoration Compilation
0208020602	Herring Creek-James River	15	no	yes	yes	no	yes
0208020101	Upper Jackson River	1,063	no	no	yes	yes	yes
0208020403	North Fork Rivanna River	334	no	no	yes	no	yes
0208011104	Pitts Creek-Pocomoke River	1	no	no	no	no	no
0207001004	Pohick Creek	5	no	yes	yes	no	yes
0208010301	Thumb Run-Rappahannock River	838	no	no	yes	no	yes
0207000101	North Fork South Branch Potomac River	2,510	no	no	yes	yes	yes
0208010308	Blue Run-Rapidan River	75	no	no	yes	no	yes
0208010309	Robinson River	681	no	no	yes	yes	yes
0208010306	Marsh Run-Rappahannock River	0	no	no	yes	no	yes
0207001007	Bull Run	45	no	no	no	yes	yes
0208020102	Back Creek-Middle Jackson River	266	no	no	yes	yes	yes
0208020105	Lower Jackson River	1,284	no	no	yes	yes	yes
0208020107	Middle Cowpasture River	274	no	no	yes	yes	yes
0207000510	Gooney Run-South Fork Shenandoah River	361	no	no	no	no	no
0208010307	Conway River-Rapidan River	690	no	no	yes	no	yes
0208020302	Pedlar River	421	no	no	yes	no	yes
0207000508	Naked Creek-South Fork Shenandoah River	1,362	no	no	yes	yes	yes
0208010303	Thornton River	1,816	no	no	yes	no	yes
0208020309	Upper Rockfish River	1,838	no	no	yes	no	yes
0208020401	Moormans River-Mechums River	1,224	no	no	yes	no	yes
0207000507	South River	208	no	no	yes	yes	yes
0207000103	Upper South Branch Potomac River	596	no	no	yes	yes	yes
0207000105	South Fork South Branch Potomac River	0	no	no	yes	yes	yes
0207000305	Lost River	0	no	no	yes	yes	yes
0207000402	Sleepy Creek	0	no	no	yes	no	yes

HUC 10 Number	Subwatershed Name	Conservation Opportunities (Acres)	Oyster Restoration Presence	Submerged Aquatic Vegetation Presence	Stream Restoration Presence	Riparian Forest Buffer Presence	Habitat Restoration Compilation
0207000404	Back Creek	0	no	no	yes	yes	yes
0207000409	Opequon Creek	0	no	no	no	yes	yes
0207000501	Upper Middle River	0	no	no	yes	no	yes
0207000502	Christians Creek	0	no	no	no	no	no
0207000503	Lower Middle River	0	no	no	no	no	no
0207000504	Upper North River	0	no	no	yes	yes	yes
0207000505	Dry River	0	no	no	yes	no	yes
0207000506	Lower North River	0	no	no	no	no	no
0207000509	Hawksbill Creek-South Fork Shenandoah River	308	no	no	yes	yes	yes
0207000601	Shoemaker River-North Fork Shenandoah River	81	no	no	yes	yes	yes
0207000602	Smith Creek	0	no	no	yes	no	yes
0207000603	Linville Creek-North Fork Shenandoah River	0	no	no	no	yes	yes
0207000604	Stony Creek	8	no	no	yes	no	yes
0207000605	Narrow Passage Creek-North Fork Shenandoah River	0	no	no	yes	no	yes
0207000606	Cedar Creek	0	no	no	yes	no	yes
0207000607	Passage Creek-North Fork Shenandoah River	0	no	no	yes	no	yes
0207000701	Crooked Run-Shenandoah River	0	no	no	no	no	no
0207000702	Long Marsh Run-Shenandoah River	0	no	no	no	no	no
0207000703	Bullskin Run-Shenandoah River	0	no	no	no	no	no
0207000803	Catoctin Creek	23	no	no	no	no	no
0207000805	Upper Goose Creek	94	no	no	yes	no	yes
0207000806	North Fork Goose Creek	0	no	no	no	no	no
0207000807	Lower Goose Creek	0	no	no	no	no	no
0207000809	Broad Run-Potomac River	0	no	no	no	no	no
0207000810	Difficult Run-Potomac River	0	no	no	no	no	no
0207001001	Rock Creek-Potomac River	0	no	yes	no	no	yes

HUC 10 Number	Subwatershed Name	Conservation Opportunities (Acres)	Oyster Restoration Presence	Submerged Aquatic Vegetation Presence	Stream Restoration Presence	Riparian Forest Buffer Presence	Habitat Restoration Compilation
0207001003	Cameron Run-Potomac River	0	no	yes	yes	yes	yes
0207001106	Machodoc Creek-Potomac River	0	no	yes	no	no	yes
0207001108	Nomini Creek-Potomac River	0	no	yes	no	no	yes
0207001110	0207001110-Potomac River	0	no	yes	no	no	yes
0208010100	Lower Chesapeake Bay	0	yes	yes	yes	no	yes
0208010201	Great Wicomico River-Lower Chesapeake Bay	0	yes	yes	no	no	yes
0208010202	Dragon Swamp	0	yes	yes	yes	no	yes
0208010204	Mobjack Bay-Lower Chesapeake Bay	0	yes	yes	no	no	yes
0208010302	Carter Run-Rappahannock River	0	no	no	yes	no	yes
0208010311	Mine Run-Rapidan River	0	no	no	yes	no	yes
0208010401	Massaponax Creek-Rappahannock River	0	no	no	no	no	no
0208010405	Totuskey Creek-Rappahannock River	0	no	no	yes	no	yes
0208010406	Lancaster Creek-Rappahannock River	0	no	yes	no	no	yes
0208010407	Corrotoman River-Rappahannock River	0	no	yes	no	no	yes
0208010501	Poni River	0	no	no	yes	no	yes
0208010502	Matta River-Mattaponi River	0	no	no	yes	no	yes
0208010503	Polecat Creek-Mattaponi River	0	no	no	yes	no	yes
0208010504	Maracossic Creek	0	no	no	yes	no	yes
0208010505	Chapel Creek-Mattaponi River	1	no	yes	yes	no	yes
0208010601	Upper South Anna River	0	no	no	yes	no	yes
0208010602	Middle South Anna River	0	no	no	yes	no	yes
0208010603	Lower South Anna River	0	no	no	yes	no	yes
0208010604	Gold Mine Creek-North Anna River	0	no	no	yes	no	yes
0208010605	Pamunkey Creek	0	no	no	yes	no	yes
0208010606	Lake Anna	0	no	no	yes	no	yes
0208010607	Little River	0	no	no	yes	no	yes

HUC 10 Number	Subwatershed Name	Conservation Opportunities (Acres)	Oyster Restoration Presence	Submerged Aquatic Vegetation Presence	Stream Restoration Presence	Riparian Forest Buffer Presence	Habitat Restoration Compilation
0208010608	Northeast Creek-North Anna River	0	no	no	yes	no	yes
0208010701	Upper York River	0	yes	no	yes	no	yes
0208010702	Lower York River	0	yes	yes	no	no	yes
0208010801	Back River-Lower Chesapeake Bay	0	yes	yes	no	no	yes
0208010802	Lynnhaven River-Lower Chesapeake Bay	0	yes	yes	no	no	yes
0208011109	Cherrystone Inlet-Lower Chesapeake Bay	0	yes	yes	no	no	yes
0208020103	Dunlap Creek	0	no	no	yes	yes	yes
0208020104	Potts Creek	0	no	no	yes	yes	yes
0208020108	Lower Cowpasture River	0	no	no	yes	no	yes
0208020109	Mill Creek-James River	0	no	no	yes	no	yes
0208020110	Upper Craig Creek	0	no	no	yes	no	yes
0208020111	Johns Creek	0	no	no	yes	no	yes
0208020112	Lower Craig Creek	0	no	no	yes	yes	yes
0208020113	Catawba Creek	0	no	no	yes	no	yes
0208020114	Looney Creek-James River	22	no	no	yes	no	yes
0208020201	Calfpasture River	0	no	no	yes	yes	yes
0208020202	Little Calfpasture River-Upper Maury River	0	no	no	yes	yes	yes
0208020203	Middle Maury River	0	no	no	yes	no	yes
0208020204	South River	482	no	no	yes	no	yes
0208020205	Lower Maury River	166	no	no	yes	yes	yes
0208020301	Reed Creek-James River	28	no	no	yes	no	yes
0208020303	Harris Creek-James River	0	no	no	yes	yes	yes
0208020304	Wreck Island Creek-James River	0	no	no	yes	yes	yes
0208020305	Upper Tye River	1,636	no	no	yes	no	yes
0208020307	Lower Tye River	0	no	no	yes	no	yes
0208020308	David Creek-James River	0	no	no	yes	no	yes

HUC 10 Number	Subwatershed Name	Conservation Opportunities (Acres)	Oyster Restoration Presence	Submerged Aquatic Vegetation Presence	Stream Restoration Presence	Riparian Forest Buffer Presence	Habitat Restoration Compilation
0208020310	Lower Rockfish River	1	no	no	yes	no	yes
0208020311	Ballinger Creek-James River	0	no	no	yes	no	yes
0208020312	Hardware River	0	no	no	yes	no	yes
0208020313	Upper Slate River	0	no	no	yes	no	yes
0208020314	Lower Slate River	0	no	no	yes	no	yes
0208020315	Bear Garden Creek-James River	0	no	no	yes	no	yes
0208020402	South Fork Rivanna River	0	no	no	yes	no	yes
0208020404	Mechunk Creek-Rivanna River	0	no	no	yes	no	yes
0208020405	Cunningham Creek-Rivanna River	0	no	no	yes	no	yes
0208020501	Byrd Creek	0	no	no	yes	no	yes
0208020502	Upper Willis River	0	no	no	yes	no	yes
0208020503	Lower Willis River	0	no	no	yes	no	yes
0208020504	Deep Creek-James River	0	no	no	yes	no	yes
0208020505	Lickinghole Creek-James River	0	no	no	yes	no	yes
0208020506	Tuckahoe Creek-James River	0	no	no	yes	yes	yes
0208020601	Falling Creek-James River	0	no	yes	no	yes	yes
0208020604	Upper Chickahominy River	0	no	no	no	no	no
0208020605	Middle Chickahominy River	0	no	yes	yes	yes	yes
0208020606	Lower Chickahominy River	0	no	yes	no	no	yes
0208020607	Powhatan Creek-James River	0	no	yes	no	no	yes
0208020608	Lawnes Creek-James River	0	no	no	no	no	no
0208020609	Pagan River-James River	0	no	yes	no	no	yes
0208020701	Buffalo Creek	0	no	no	yes	no	yes
0208020702	Vaughans Creek-Appomattox River	0	no	no	yes	no	yes
0208020703	Bush River	0	no	no	yes	no	yes
0208020704	Big Guinea Creek-Appomattox River	0	no	no	yes	no	yes

HUC 10 Number	Subwatershed Name	Conservation Opportunities (Acres)	Oyster Restoration Presence	Submerged Aquatic Vegetation Presence	Stream Restoration Presence	Riparian Forest Buffer Presence	Habitat Restoration Compilation
0208020705	Flat Creek	0	no	no	yes	no	yes
0208020706	Rocky Ford Creek-Appomattox River	0	no	no	yes	no	yes
0208020707	Deep Creek	0	no	no	yes	no	yes
0208020708	Lake Chesdin-Appomattox River	0	no	no	yes	yes	yes
0208020709	Swift Creek	0	no	no	yes	no	yes
0208020710	Ashton Creek-Appomattox River	0	no	no	no	no	no
0208020801	Nansemond River	0	no	no	no	yes	yes
0208020802	Elizabeth River	0	yes	no	no	yes	yes
0208020803	Hampton Roads	0	no	yes	no	no	yes

Table A13. Conservation Opportunities Assessment for Virginia (continued)

HUC 10 Number	Subwatershed Name	Nontidal Wetland Restoration Opportunities Acres that intersect with Conservation Opportunities	Nontidal Existing Wetland Acres that intersect with Conservation Opportunities	Tidal Wetland Restoration Opportunities Acres that intersect with Conservation Opportunities	Tidal Existing Wetland Acres that intersect with Conservation Opportunities
0208011106	Messongo Creek-Pocomoke Sound	2	293	0	86
0208010611	Lower Pamunkey River	16	25	0	273
0208010404	Cat Point Creek-Rappahannock River	153	159	0	16
0208011107	Deep Creek-Pocomoke Sound	1	56	0	41
0208011105	Marumsco Creek-Pocomoke Sound	2	20	0	75
0208011108	Pungoteague Creek-Lower Chesapeake Bay	1	83	0	4
0208010402	Mill Creek-Rappahannock River	7	23	0	54
0208010403	Occupacia Creek-Rappahannock River	18	40	0	34
0207001102	Potomac Creek-Potomac River	39	54	0	6
0207001101	Quantico Creek-Potomac River	44	40	0	1
0208010610	Middle Pamunkey River	0	14	0	15

HUC 10 Number	Subwatershed Name	Nontidal Wetland Restoration Opportunities Acres that intersect with Conservation Opportunities	Nontidal Existing Wetland Acres that intersect with Conservation Opportunities	Tidal Wetland Restoration Opportunities Acres that intersect with Conservation Opportunities	Tidal Existing Wetland Acres that intersect with Conservation Opportunities
0207001008	Occoquan River-Potomac River	1	15	0	0
0208010310	Cedar Run-Rapidan River	4	14	0	0
0208011006	Lower Tangier Sound	0	1	0	13
0208010506	Garnetts Creek-Mattaponi River	0	3	0	10
0208010203	Piankatank River-Lower Chesapeake Bay	1	12	0	0
0207001006	Cedar Run	1	4	0	0
0208020603	Upper Chippokes Creek-James River	3	3	0	0
0208020115	Cedar Creek-James River	1	3	0	0
0208010304	Hazel River	144	2	0	0
0208010609	Upper Pamunkey River	0	2	0	0
0208020306	Buffalo River	1	2	0	0
0207001005	Broad Run	1	1	0	0
0208010305	Mountain Run	0	1	0	0
0208020106	Upper Cowpasture River	14	1	0	0
0208020602	Herring Creek-James River	0	1	0	0
0208020101	Upper Jackson River	13	0	0	0
0208020403	North Fork Rivanna River	4	0	0	0
0208011104	Pitts Creek-Pocomoke River	0	0	0	0
0207001004	Pohick Creek	0	0	0	0
0208010301	Thumb Run-Rappahannock River	9	0	0	0
0207000101	North Fork South Branch Potomac River	37	0	0	0
0208010308	Blue Run-Rapidan River	0	0	0	0
0208010309	Robinson River	14	0	0	0
0208010306	Marsh Run-Rappahannock River	0	0	0	0
0207001007	Bull Run	0	0	0	0

HUC 10 Number	Subwatershed Name	Nontidal Wetland Restoration Opportunities Acres that intersect with Conservation Opportunities	Nontidal Existing Wetland Acres that intersect with Conservation Opportunities	Tidal Wetland Restoration Opportunities Acres that intersect with Conservation Opportunities	Tidal Existing Wetland Acres that intersect with Conservation Opportunities
0208020102	Back Creek-Middle Jackson River	1	0	0	0
0208020105	Lower Jackson River	15	0	0	0
0208020107	Middle Cowpasture River	4	0	0	0
0207000510	Gooney Run-South Fork Shenandoah River	1	0	0	0
0208010307	Conway River-Rapidan River	2	0	0	0
0208020302	Pedlar River	1	0	0	0
0207000508	Naked Creek-South Fork Shenandoah River	8	0	0	0
0208010303	Thornton River	98	0	0	0
0208020309	Upper Rockfish River	4	0	0	0
0208020401	Moormans River-Mechums River	10	0	0	0
0207000507	South River	3	0	0	0
0207000103	Upper South Branch Potomac River	2	0	0	0
0207000105	South Fork South Branch Potomac River	0	0	0	0
0207000305	Lost River	0	0	0	0
0207000402	Sleepy Creek	0	0	0	0
0207000404	Back Creek	0	0	0	0
0207000409	Opequon Creek	0	0	0	0
0207000501	Upper Middle River	0	0	0	0
0207000502	Christians Creek	0	0	0	0
0207000503	Lower Middle River	0	0	0	0
0207000504	Upper North River	0	0	0	0
0207000505	Dry River	0	0	0	0
0207000506	Lower North River	0	0	0	0
0207000509	Hawksbill Creek-South Fork Shenandoah River	1	0	0	0
0207000601	Shoemaker River-North Fork Shenandoah River	0	0	0	0

HUC 10 Number	Subwatershed Name	Nontidal Wetland Restoration Opportunities Acres that intersect with Conservation Opportunities	Nontidal Existing Wetland Acres that intersect with Conservation Opportunities	Tidal Wetland Restoration Opportunities Acres that intersect with Conservation Opportunities	Tidal Existing Wetland Acres that intersect with Conservation Opportunities
0207000602	Smith Creek	0	0	0	0
0207000603	Linville Creek-North Fork Shenandoah River	0	0	0	0
0207000604	Stony Creek	0	0	0	0
0207000605	Narrow Passage Creek-North Fork Shenandoah River	0	0	0	0
0207000606	Cedar Creek	0	0	0	0
0207000607	Passage Creek-North Fork Shenandoah River	0	0	0	0
0207000701	Crooked Run-Shenandoah River	0	0	0	0
0207000702	Long Marsh Run-Shenandoah River	0	0	0	0
0207000703	Bullskin Run-Shenandoah River	0	0	0	0
0207000803	Catoctin Creek	0	0	0	0
0207000805	Upper Goose Creek	1	0	0	0
0207000806	North Fork Goose Creek	0	0	0	0
0207000807	Lower Goose Creek	0	0	0	0
0207000809	Broad Run-Potomac River	0	0	0	0
0207000810	Difficult Run-Potomac River	0	0	0	0
0207001001	Rock Creek-Potomac River	0	0	0	0
0207001003	Cameron Run-Potomac River	0	0	0	0
0207001106	Machodoc Creek-Potomac River	0	0	0	0
0207001108	Nomini Creek-Potomac River	0	0	0	0
0207001110	0207001110-Potomac River	0	0	0	0
0208010100	Lower Chesapeake Bay	0	0	0	0
0208010201	Great Wicomico River-Lower Chesapeake Bay	0	0	0	0
0208010202	Dragon Swamp	0	0	0	0
0208010204	Mobjack Bay-Lower Chesapeake Bay	0	0	0	0
0208010302	Carter Run-Rappahannock River	0	0	0	0

HUC 10 Number	Subwatershed Name	Nontidal Wetland Restoration Opportunities Acres that intersect with Conservation Opportunities	Nontidal Existing Wetland Acres that intersect with Conservation Opportunities	Tidal Wetland Restoration Opportunities Acres that intersect with Conservation Opportunities	Tidal Existing Wetland Acres that intersect with Conservation Opportunities
0208010311	Mine Run-Rapidan River	0	0	0	0
0208010401	Massaponax Creek-Rappahannock River	0	0	0	0
0208010405	Totuskey Creek-Rappahannock River	0	0	0	0
0208010406	Lancaster Creek-Rappahannock River	0	0	0	0
0208010407	Corrotoman River-Rappahannock River	0	0	0	0
0208010501	Poni River	0	0	0	0
0208010502	Matta River-Mattaponi River	0	0	0	0
0208010503	Polecat Creek-Mattaponi River	0	0	0	0
0208010504	Maracossic Creek	0	0	0	0
0208010505	Chapel Creek-Mattaponi River	0	0	0	0
0208010601	Upper South Anna River	0	0	0	0
0208010602	Middle South Anna River	0	0	0	0
0208010603	Lower South Anna River	0	0	0	0
0208010604	Gold Mine Creek-North Anna River	0	0	0	0
0208010605	Pamunkey Creek	0	0	0	0
0208010606	Lake Anna	0	0	0	0
0208010607	Little River	0	0	0	0
0208010608	Northeast Creek-North Anna River	0	0	0	0
0208010701	Upper York River	0	0	0	0
0208010702	Lower York River	0	0	0	0
0208010801	Back River-Lower Chesapeake Bay	0	0	0	0
0208010802	Lynnhaven River-Lower Chesapeake Bay	0	0	0	0
0208011109	Cherrystone Inlet-Lower Chesapeake Bay	0	0	0	0
0208020103	Dunlap Creek	0	0	0	0
0208020104	Potts Creek	0	0	0	0

HUC 10 Number	Subwatershed Name	Nontidal Wetland Restoration Opportunities Acres that intersect with Conservation Opportunities	Nontidal Existing Wetland Acres that intersect with Conservation Opportunities	Tidal Wetland Restoration Opportunities Acres that intersect with Conservation Opportunities	Tidal Existing Wetland Acres that intersect with Conservation Opportunities
0208020108	Lower Cowpasture River	0	0	0	0
0208020109	Mill Creek-James River	0	0	0	0
0208020110	Upper Craig Creek	0	0	0	0
0208020111	Johns Creek	0	0	0	0
0208020112	Lower Craig Creek	0	0	0	0
0208020113	Catawba Creek	0	0	0	0
0208020114	Looney Creek-James River	1	0	0	0
0208020201	Calfpasture River	0	0	0	0
0208020202	Little Calfpasture River-Upper Maury River	0	0	0	0
0208020203	Middle Maury River	0	0	0	0
0208020204	South River	1	0	0	0
0208020205	Lower Maury River	1	0	0	0
0208020301	Reed Creek-James River	0	0	0	0
0208020303	Harris Creek-James River	0	0	0	0
0208020304	Wreck Island Creek-James River	0	0	0	0
0208020305	Upper Tye River	16	0	0	0
0208020307	Lower Tye River	0	0	0	0
0208020308	David Creek-James River	0	0	0	0
0208020310	Lower Rockfish River	0	0	0	0
0208020311	Ballinger Creek-James River	0	0	0	0
0208020312	Hardware River	0	0	0	0
0208020313	Upper Slate River	0	0	0	0
0208020314	Lower Slate River	0	0	0	0
0208020315	Bear Garden Creek-James River	0	0	0	0
0208020402	South Fork Rivanna River	0	0	0	0

HUC 10 Number	Subwatershed Name	Nontidal Wetland Restoration Opportunities Acres that intersect with Conservation Opportunities	Nontidal Existing Wetland Acres that intersect with Conservation Opportunities	Tidal Wetland Restoration Opportunities Acres that intersect with Conservation Opportunities	Tidal Existing Wetland Acres that intersect with Conservation Opportunities
0208020404	Mechunk Creek-Rivanna River	0	0	0	0
0208020405	Cunningham Creek-Rivanna River	0	0	0	0
0208020501	Byrd Creek	0	0	0	0
0208020502	Upper Willis River	0	0	0	0
0208020503	Lower Willis River	0	0	0	0
0208020504	Deep Creek-James River	0	0	0	0
0208020505	Lickinghole Creek-James River	0	0	0	0
0208020506	Tuckahoe Creek-James River	0	0	0	0
0208020601	Falling Creek-James River	0	0	0	0
0208020604	Upper Chickahominy River	0	0	0	0
0208020605	Middle Chickahominy River	0	0	0	0
0208020606	Lower Chickahominy River	0	0	0	0
0208020607	Powhatan Creek-James River	0	0	0	0
0208020608	Lawnes Creek-James River	0	0	0	0
0208020609	Pagan River-James River	0	0	0	0
0208020701	Buffalo Creek	0	0	0	0
0208020702	Vaughans Creek-Appomattox River	0	0	0	0
0208020703	Bush River	0	0	0	0
0208020704	Big Guinea Creek-Appomattox River	0	0	0	0
0208020705	Flat Creek	0	0	0	0
0208020706	Rocky Ford Creek-Appomattox River	0	0	0	0
0208020707	Deep Creek	0	0	0	0
0208020708	Lake Chesdin-Appomattox River	0	0	0	0
0208020709	Swift Creek	0	0	0	0
0208020710	Ashton Creek-Appomattox River	0	0	0	0

HUC 10 Number	Subwatershed Name	Nontidal Wetland Restoration Opportunities Acres that intersect with Conservation Opportunities	Nontidal Existing Wetland Acres that intersect with Conservation Opportunities	Tidal Wetland Restoration Opportunities Acres that intersect with Conservation Opportunities	Tidal Existing Wetland Acres that intersect with Conservation Opportunities
0208020801	Nansemond River	0	0	0	0
0208020802	Elizabeth River	0	0	0	0
0208020803	Hampton Roads	0	0	0	0

Table A14. Socioeconomic Analysis for Virginia

HUC 10 Number	Subwatershed Name	Recreation Parks (Acres)	Underserved (Minority) Population (Acres)	Underserved (Low Income) Population (Acres)	Public Access Sites Counts	Water Supply Counts	National Inventory Dams Counts
0207000103	Upper South Branch Potomac River	57,916	0	1,115	2	4	0
0207000105	South Fork South Branch Potomac River	89,340	225	6,472	0	0	23
0207000305	Lost River	28,655	0	40,248	0	1	4
0207000402	Sleepy Creek	3,654	0	88	0	0	5
0207000404	Back Creek	0	0	1,217	0	18	32
0207000409	Opequon Creek	401	6,739	12,417	0	16	13
0208010603	Lower South Anna River	0	1,890	0	0	7	39
0208010604	Gold Mine Creek-North Anna River	0	18	0	0	13	6
0208010605	Pamunkey Creek	1,331	0	0	1	1	4
0208010606	Lake Anna	1,612	0	134	0	5	10
0208010607	Little River	0	2,189	0	0	0	18
0208010608	Northeast Creek-North Anna River	0	28,344	21,283	0	2	13
0208010609	Upper Pamunkey River	0	7,894	0	1	17	28
0208010610	Middle Pamunkey River	0	11,108	0	0	17	28
0208010611	Lower Pamunkey River	1,058	15,862	0	2	11	14
0208010701	Upper York River	2,529	33,203	0	3	25	12
0208010702	Lower York River	5,777	4,707	1,110	9	13	15

HUC 10 Number	Subwatershed Name	Recreation Parks (Acres)	Underserved (Minority) Population (Acres)	Underserved (Low Income) Population (Acres)	Public Access Sites Counts	Water Supply Counts	National Inventory Dams Counts
0208010801	Back River-Lower Chesapeake Bay	2,936	21,060	3,900	10	8	7
0207000501	Upper Middle River	84,527	0	6,612	0	10	4
0207000502	Christians Creek	58	0	0	0	0	2
0207000503	Lower Middle River	229	359	1,528	0	12	2
0207000504	Upper North River	220,519	0	0	0	1	8
0207000505	Dry River	155,267	0	0	0	5	3
0207000506	Lower North River	62	3,326	4,105	0	19	3
0207000507	South River	64,172	525	37,735	1	26	18
0207000603	Linville Creek-North Fork Shenandoah River	13,095	56	14,856	0	33	2
0207000604	Stony Creek	90,217	0	2,644	0	19	4
0207000605	Narrow Passage Creek-North Fork Shenandoah River	22,614	0	4,688	1	14	3
0207000803	Catoctin Creek	0	0	0	0	17	16
0207000806	North Fork Goose Creek	14	0	0	0	31	21
0207000807	Lower Goose Creek	1,080	9,131	19,129	0	17	33
0207001005	Broad Run	1,166	14,840	3,296	0	21	24
0207001006	Cedar Run	318	10,650	0	0	36	20
0207001007	Bull Run	12,148	41,707	2,297	0	37	31
0208010201	Great Wicomico River-Lower Chesapeake Bay	607	28,574	12,015	10	11	5
0208010202	Dragon Swamp	4,353	50,440	74	0	0	8
0208010203	Piankatank River-Lower Chesapeake Bay	0	0	0	5	3	5
0208010204	Mobjack Bay-Lower Chesapeake Bay	186	0	72	10	10	6
0208010305	Mountain Run	32	8,913	16,641	0	18	20
0208010306	Marsh Run-Rappahannock River	0	9,077	8,122	1	21	16
0208010308	Blue Run-Rapidan River	254	0	0	0	6	16
0208010310	Cedar Run-Rapidan River	0	17,922	595	0	1	5

HUC 10 Number	Subwatershed Name	Recreation Parks (Acres)	Underserved (Minority) Population (Acres)	Underserved (Low Income) Population (Acres)	Public Access Sites Counts	Water Supply Counts	National Inventory Dams Counts
0208010403	Occupacia Creek-Rappahannock River	0	96,571	25,841	6	3	7
0208010404	Cat Point Creek-Rappahannock River	0	78,030	3,578	6	16	23
0208010405	Totuskey Creek-Rappahannock River	0	66,431	600	4	1	5
0208010406	Lancaster Creek-Rappahannock River	1,119	33,732	17,928	8	14	13
0207000809	Broad Run-Potomac River	4,779	42,271	74	1	15	39
0207000810	Difficult Run-Potomac River	12,169	30,870	51	6	15	40
0207001101	Quantico Creek-Potomac River	15,656	110,872	0	8	2	12
0207001108	Nomini Creek-Potomac River	0	60,518	30,079	9	20	11
0208010100	Lower Chesapeake Bay	0	161	0	1	0	0
0208011006	Lower Tangier Sound	2,885	6,542	9,167	12	0	0
0208011104	Pitts Creek-Pocomoke River	0	20,566	3,157	3	1	0
0208011105	Marumsco Creek-Pocomoke Sound	0	18	5,799	3	0	0
0208011107	Deep Creek-Pocomoke Sound	637	4,276	5,724	6	9	0
0208020114	Looney Creek-James River	26,551	0	12,735	2	5	2
0208020115	Cedar Creek-James River	5,830	0	0	4	5	2
0208020201	Calfpasture River	407,706	0	27,436	0	5	3
0208020202	Little Calfpasture River-Upper Maury River	61,057	159	31,633	0	7	2
0208020203	Middle Maury River	9,312	0	11,942	0	3	1
0208020204	South River	45,195	0	33,645	0	1	3
0208020205	Lower Maury River	56,316	0	6,229	2	15	5
0208020301	Reed Creek-James River	31,852	0	0	2	0	10
0208020302	Pedlar River	40,557	0	22	0	2	8
0208020303	Harris Creek-James River	30	21,963	24,941	1	31	34
0208020304	Wreck Island Creek-James River	0	13,579	5,036	1	1	12
0208020305	Upper Tye River	55,290	0	65	0	0	7
0208020306	Buffalo River	21,883	0	3,651	0	4	12

HUC 10 Number	Subwatershed Name	Recreation Parks (Acres)	Underserved (Minority) Population (Acres)	Underserved (Low Income) Population (Acres)	Public Access Sites Counts	Water Supply Counts	National Inventory Dams Counts
0208020704	Big Guinea Creek-Appomattox River	404	47,677	15,964	0	2	38
0208020705	Flat Creek	26	40,853	3,231	0	6	11
0208020706	Rocky Ford Creek-Appomattox River	0	214	0	0	5	26
0208010407	Corrotoman River-Rappahannock River	251	41,625	16	3	31	4
0208010503	Polecat Creek-Mattaponi River	0	29,178	4,955	0	5	28
0208010504	Maracossic Creek	0	35,595	17,465	0	13	25
0208010505	Chapel Creek-Mattaponi River	378	61,397	0	2	10	23
0208010506	Garnetts Creek-Mattaponi River	7,056	40,017	0	6	4	17
0208010601	Upper South Anna River	0	10,524	0	0	7	24
0208010602	Middle South Anna River	0	42,317	0	0	7	21
0208020707	Deep Creek	0	39,786	18,776	0	0	19
0208020708	Lake Chesdin-Appomattox River	44	42,712	0	1	0	7
0208020709	Swift Creek	8,201	13,202	0	1	2	32
0208020710	Ashton Creek-Appomattox River	2,161	31,555	5,624	6	14	8
0208020702	Vaughans Creek-Appomattox River	16,266	17,675	17,826	0	7	25
0208020703	Bush River	7,914	54,899	28,761	0	0	26
0208020803	Hampton Roads	716	31,471	10,166	9	0	1
0208020307	Lower Tye River	0	0	22,032	0	48	3
0208020308	David Creek-James River	1,579	17,921	28,680	3	0	4
0208020309	Upper Rockfish River	26,823	0	18	0	9	7
0208020310	Lower Rockfish River	0	0	0	0	2	6
0208020311	Ballinger Creek-James River	0	6,539	6,539	2	2	17
0207001001	Rock Creek-Potomac River	11,702	33,559	1,491	16	4	3
0208020312	Hardware River	0	9,738	0	0	0	21
0208020313	Upper Slate River	3,494	13,689	13,605	0	0	15
0208020314	Lower Slate River	0	33,951	74	0	0	7

HUC 10 Number	Subwatershed Name	Recreation Parks (Acres)	Underserved (Minority) Population (Acres)	Underserved (Low Income) Population (Acres)	Public Access Sites Counts	Water Supply Counts	National Inventory Dams Counts
0208020315	Bear Garden Creek-James River	0	25,149	13,327	1	4	14
0208020401	Moormans River-Mechums River	11,533	0	0	0	21	37
0208020402	South Fork Rivanna River	1,883	10	8	0	3	30
0208020404	Mechunk Creek-Rivanna River	326	8,853	3,333	0	7	69
0208020405	Cunningham Creek-Rivanna River	0	15,589	0	2	10	14
0208020501	Byrd Creek	0	3,772	0	0	0	11
0208020502	Upper Willis River	9,859	46,693	1,240	0	4	40
0208020503	Lower Willis River	9,064	38,141	27,340	0	2	10
0208020504	Deep Creek-James River	0	15,273	1,672	3	2	34
0208020505	Lickinghole Creek-James River	0	42,753	0	3	9	53
0208020506	Tuckahoe Creek-James River	1,279	14,346	5,639	3	35	95
0208011106	Messongo Creek-Pocomoke Sound	1,681	16,070	26,678	5	8	1
0208011108	Pungoteague Creek-Lower Chesapeake Bay	0	48,369	15,103	4	0	5
0208011109	Cherrystone Inlet-Lower Chesapeake Bay	855	15,646	14,694	2	29	14
0208020101	Upper Jackson River	164,561	0	0	0	5	1
0208020102	Back Creek-Middle Jackson River	309,284	0	5	0	0	9
0208020105	Lower Jackson River	406,309	326	10,405	8	27	3
0208020107	Middle Cowpasture River	277,613	0	1	0	1	2
0208020108	Lower Cowpasture River	255,442	0	578	1	0	1
0208020109	Mill Creek-James River	145,524	0	10	3	3	0
0208020110	Upper Craig Creek	190,302	0	0	0	1	0
0208020112	Lower Craig Creek	294,018	0	381	1	1	0
0208020113	Catawba Creek	60,854	0	5,848	0	5	4
0208020601	Falling Creek-James River	4,106	88,539	20,372	13	6	37
0208020602	Herring Creek-James River	52	65,961	1,497	3	12	6
0208020604	Upper Chickahominy River	892	16,286	2,212	0	7	13

HUC 10 Number	Subwatershed Name	Recreation Parks (Acres)	Underserved (Minority) Population (Acres)	Underserved (Low Income) Population (Acres)	Public Access Sites Counts	Water Supply Counts	National Inventory Dams Counts
0208020605	Middle Chickahominy River	1,039	28,868	771	1	39	21
0208020606	Lower Chickahominy River	2,031	8,033	0	5	64	13
0208020608	Lawnes Creek-James River	1,256	44,115	2,760	5	26	10
0208020609	Pagan River-James River	7,785	64,169	6,114	9	57	18
0208020701	Buffalo Creek	177	23,996	2,428	0	0	21
0207001008	Occoquan River-Potomac River	7,375	38,409	369	8	22	15
0207001102	Potomac Creek-Potomac River	3,834	31,825	0	2	15	16
0207001106	Machodoc Creek-Potomac River	1,939	11,466	7,740	5	50	8
0207000601	Shoemaker River-North Fork Shenandoah River	337,613	0	18	0	0	3
0207000702	Long Marsh Run-Shenandoah River	14	711	0	2	10	3
0208020103	Dunlap Creek	263,836	0	0	0	2	1
0208020106	Upper Cowpasture River	123,805	0	0	0	2	0
0207001003	Cameron Run-Potomac River	13,038	116,534	5,666	27	20	18
0207000510	Gooney Run-South Fork Shenandoah River	46,320	524	3,667	5	12	6
0207000602	Smith Creek	23,367	3,855	4,991	0	2	0
0207000607	Passage Creek-North Fork Shenandoah River	55,767	0	0	2	2	7
0207000701	Crooked Run-Shenandoah River	270	3	81	2	13	14
0207000805	Upper Goose Creek	1,776	0	10,331	0	11	26
0208010301	Thumb Run-Rappahannock River	4,094	0	121	0	0	27
0208010302	Carter Run-Rappahannock River	170	0	0	0	11	23
0208010303	Thornton River	21,200	0	2	0	4	22
0208010304	Hazel River	17,204	110	6	0	17	10
0208010307	Conway River-Rapidan River	16,172	0	5	0	4	7
0208010309	Robinson River	13,584	4,276	5	0	11	10
0208010311	Mine Run-Rapidan River	2,247	0	0	3	17	15
0208010401	Massaponax Creek-Rappahannock River	1,933	26,050	1,975	10	19	21

HUC 10 Number	Subwatershed Name	Recreation Parks (Acres)	Underserved (Minority) Population (Acres)	Underserved (Low Income) Population (Acres)	Public Access Sites Counts	Water Supply Counts	National Inventory Dams Counts
0208010402	Mill Creek-Rappahannock River	0	56,916	42,456	3	37	31
0208010501	Poni River	3,449	6,103	2,105	0	4	22
0208010502	Matta River-Mattaponi River	0	26,747	14,125	0	26	24
0208020403	North Fork Rivanna River	7,963	0	33,103	0	4	32
0208020104	Potts Creek	276,468	0	0	0	0	1
0207000703	Bullskin Run-Shenandoah River	906	269	140	9	0	4
0207001004	Pohick Creek	5,565	32,847	202	2	9	26
0207001110	0207001110-Potomac River	18	461	468	0	0	0
0207000508	Naked Creek-South Fork Shenandoah River	49,929	15	22	2	11	1
0207000509	Hawksbill Creek-South Fork Shenandoah River	38,280	0	27,325	7	17	6
0208020111	Johns Creek	200,013	0	0	0	3	4
0207000101	North Fork South Branch Potomac River	155,432	0	90,198	0	0	0
0207000606	Cedar Creek	79,734	0	61	0	1	7
0208020603	Upper Chippokes Creek-James River	0	37,320	512	0	2	7
0208020607	Powhatan Creek-James River	5,435	49,988	24,256	7	50	13
0208020801	Nansemond River	127	41,869	7,896	5	54	16
0208010802	Lynnhaven River-Lower Chesapeake Bay	3,269	23,177	8,823	12	1	5
0208020802	Elizabeth River	903	64,398	11,988	12	50	1

Table A15. Watershed Threats Analysis for Virginia

HUC 10 Number	Subwatershed Name	Tidal Threats (Acres)	Nontidal Threats (Acres)
0208020604	Upper Chickahominy River	0	18402
0208020506	Tuckahoe Creek-James River	0	16782
0207000409	Opequon Creek	0	11812
0207000805	Upper Goose Creek	0	10667
0207000807	Lower Goose Creek	0	9599
0207000506	Lower North River	0	7484
0207000702	Long Marsh Run-Shenandoah River	0	6759
0207001006	Cedar Run	0	6501
0207001005	Broad Run	0	6339
0207000701	Crooked Run-Shenandoah River	0	4773
0207000803	Catoctin Creek	0	4694
0208020303	Harris Creek-James River	0	4603
0208010302	Carter Run-Rappahannock River	0	4099
0207000806	North Fork Goose Creek	0	3808
0208010305	Mountain Run	0	3316
0208010306	Marsh Run-Rappahannock River	0	3014
0208020404	Mechunk Creek-Rivanna River	0	2442
0207000703	Bullskin Run-Shenandoah River	0	2326
0207000606	Cedar Creek	0	2119
0207000507	South River	0	1978
0208010301	Thumb Run-Rappahannock River	0	1483
0208010310	Cedar Run-Rapidan River	0	1479
0207000501	Upper Middle River	0	1441
0207000603	Linville Creek-North Fork Shenandoah River	0	1440
0208010501	Poni River	0	1396
0207000502	Christians Creek	0	1307
0207000503	Lower Middle River	0	1074
0208020403	North Fork Rivanna River	0	978
0208020402	South Fork Rivanna River	0	919
0208010308	Blue Run-Rapidan River	0	886
0207000404	Back Creek	0	878
0208010603	Lower South Anna River	0	864
0208020704	Big Guinea Creek-Appomattox River	0	856
0208020702	Vaughans Creek-Appomattox River	0	820
0207000504	Upper North River	0	678
0208020505	Lickinghole Creek-James River	0	673
0208010307	Conway River-Rapidan River	0	633
0208010608	Northeast Creek-North Anna River	0	582

HUC 10 Number	Subwatershed Name	Tidal Threats (Acres)	Nontidal Threats (Acres)
0208020304	Wreck Island Creek-James River	0	580
0208020305	Upper Tye River	0	579
0208010502	Matta River-Mattaponi River	0	574
0208020202	Little Calfpasture River-Upper Maury River	0	447
0208020706	Rocky Ford Creek-Appomattox River	0	445
0208010601	Upper South Anna River	0	434
0207000510	Gooney Run-South Fork Shenandoah River	0	433
0208020401	Moormans River-Mechums River	0	430
0208010311	Mine Run-Rapidan River	0	412
0207000508	Naked Creek-South Fork Shenandoah River	0	402
0208020707	Deep Creek	0	324
0208010602	Middle South Anna River	0	319
0208020405	Cunningham Creek-Rivanna River	0	317
0208020301	Reed Creek-James River	0	317
0208010304	Hazel River	0	306
0208020703	Bush River	0	292
0207000509	Hawksbill Creek-South Fork Shenandoah River	0	258
0208010504	Maracossic Creek	0	248
0207000604	Stony Creek	0	245
0208010605	Pamunkey Creek	0	231
0208020102	Back Creek-Middle Jackson River	0	226
0208010607	Little River	0	219
0208020701	Buffalo Creek	0	213
0208010503	Polecat Creek-Mattaponi River	0	199
0208020309	Upper Rockfish River	0	190
0208020105	Lower Jackson River	0	189
0208020306	Buffalo River	0	186
0208010604	Gold Mine Creek-North Anna River	0	183
0208020504	Deep Creek-James River	0	173
0208020204	South River	0	139
0207000505	Dry River	0	139
0208020203	Middle Maury River	0	139
0207000605	Narrow Passage Creek-North Fork Shenandoah River	0	132
0208020708	Lake Chesdin-Appomattox River	0	114
0208020502	Upper Willis River	0	105
0208020113	Catawba Creek	0	93
0208010309	Robinson River	0	86
0208020115	Cedar Creek-James River	0	86
0208020705	Flat Creek	0	85
0208010606	Lake Anna	0	85

HUC 10 Number	Subwatershed Name	Tidal Threats (Acres)	Nontidal Threats (Acres)
0208020315	Bear Garden Creek-James River	0	78
0208020501	Byrd Creek	0	77
0208020108	Lower Cowpasture River	0	73
0208020314	Lower Slate River	0	71
0208020312	Hardware River	0	65
0208020302	Pedlar River	0	62
0208020503	Lower Willis River	0	60
0208020311	Ballinger Creek-James River	0	45
0208020313	Upper Slate River	0	39
0207000607	Passage Creek-North Fork Shenandoah River	0	39
0208020205	Lower Maury River	0	33
0207000103	Upper South Branch Potomac River	0	33
0207000602	Smith Creek	0	33
0208020114	Looney Creek-James River	0	31
0207000105	South Fork South Branch Potomac River	0	30
0208020308	David Creek-James River	0	28
0208020111	Johns Creek	0	23
0208020110	Upper Craig Creek	0	18
0208020112	Lower Craig Creek	0	17
0208020103	Dunlap Creek	0	15
0208020310	Lower Rockfish River	0	14
0208020201	Calfpasture River	0	10
0208020104	Potts Creek	0	8
0208020107	Middle Cowpasture River	0	7
0207000601	Shoemaker River-North Fork Shenandoah River	0	6
0208020109	Mill Creek-James River	0	5
0207000402	Sleepy Creek	0	3
0207000305	Lost River	0	3
0208020307	Lower Tye River	0	1
0207000101	North Fork South Branch Potomac River	0	1
0208010303	Thornton River	0	0
0208020106	Upper Cowpasture River	0	0
0208020101	Upper Jackson River	0	0
0207001110	0207001110-Potomac River	0	
0208020710	Ashton Creek-Appomattox River	196	
0208010801	Back River-Lower Chesapeake Bay	702	
0207000809	Broad Run-Potomac River	0	
0207001007	Bull Run	0	
0207001003	Cameron Run-Potomac River	417	
0208010404	Cat Point Creek-Rappahannock River	3	

HUC 10 Number	Subwatershed Name	Tidal Threats (Acres)	Nontidal Threats (Acres)
0208010505	Chapel Creek-Mattaponi River	0	
0208011109	Cherrystone Inlet-Lower Chesapeake Bay	16892	
0208010407	Corrotoman River-Rappahannock River	9969	
0208011107	Deep Creek-Pocomoke Sound	2162	
0207000810	Difficult Run-Potomac River	0	
0208010202	Dragon Swamp	0	
0208020802	Elizabeth River	8830	
0208020601	Falling Creek-James River	175	
0208010506	Garnetts Creek-Mattaponi River	12	
0208010201	Great Wicomico River-Lower Chesapeake Bay	22153	
0208020803	Hampton Roads	10845	
0208020602	Herring Creek-James River	16	
0208010406	Lancaster Creek-Rappahannock River	1494	
0208020608	Lawnes Creek-James River	5753	
0208010100	Lower Chesapeake Bay	0	
0208020606	Lower Chickahominy River	139	
0208010611	Lower Pamunkey River	94	
0208011006	Lower Tangier Sound	46350	
0208010702	Lower York River	19281	
0208010802	Lynnhaven River-Lower Chesapeake Bay	6936	
0207001106	Machodoc Creek-Potomac River	457	
0208011105	Marumsco Creek-Pocomoke Sound	165	
0208010401	Massaponax Creek-Rappahannock River	7	
0208011106	Messongo Creek-Pocomoke Sound	51	
0208020605	Middle Chickahominy River	22	
0208010610	Middle Pamunkey River	5	
0208010402	Mill Creek-Rappahannock River	5	
0208010204	Mobjack Bay-Lower Chesapeake Bay	552	
0208020801	Nansemond River	379	
0207001108	Nomini Creek-Potomac River	3510	
0207001008	Occoquan River-Potomac River	236	
0208010403	Occupacia Creek-Rappahannock River	0	
0208020609	Pagan River-James River	326	
0208010203	Piankatank River-Lower Chesapeake Bay	132	
0208011104	Pitts Creek-Pocomoke River	2712	
0207001004	Pohick Creek	0	
0207001102	Potomac Creek-Potomac River	330	
0208020607	Powhatan Creek-James River	145	
0208011108	Pungoteague Creek-Lower Chesapeake Bay	230	
0207001101	Quantico Creek-Potomac River	172	

HUC 10 Number	Subwatershed Name	Tidal Threats (Acres)	Nontidal Threats (Acres)
0207001001	Rock Creek-Potomac River	38	
0208020709	Swift Creek	56	
0208010405	Totuskey Creek-Rappahannock River	0	
0208020603	Upper Chippokes Creek-James River	0	
0208010609	Upper Pamunkey River	0	
0208010701	Upper York River	24	

Table A16. Wetland Migration Analysis for Virginia

HUC 10 Number	Subwatershed Name	Wetland Migration Low Cost (Acres)
0208010403	Occupacia Creek-Rappahannock River	2,253
0208010204	Mobjack Bay-Lower Chesapeake Bay	2,173
0207001108	Nomini Creek-Potomac River	2,166
0208011108	Pungoteague Creek-Lower Chesapeake Bay	2,001
0208011109	Cherrystone Inlet-Lower Chesapeake Bay	1,427
0208010201	Great Wicomico River-Lower Chesapeake Bay	1,286
0208020609	Pagan River-James River	1,044
0208010404	Cat Point Creek-Rappahannock River	1,005
0208011104	Pitts Creek-Pocomoke River	876
0208010611	Lower Pamunkey River	748
0208020801	Nansemond River	728
0208010801	Back River-Lower Chesapeake Bay	719
0208010203	Piankatank River-Lower Chesapeake Bay	707
0208010702	Lower York River	621
0207001106	Machodoc Creek-Potomac River	566
0208010405	Totuskey Creek-Rappahannock River	552
0208010406	Lancaster Creek-Rappahannock River	532
0208020802	Elizabeth River	525
0208020606	Lower Chickahominy River	505
0208020602	Herring Creek-James River	496
0208020603	Upper Chippokes Creek-James River	467
0208010407	Corrotoman River-Rappahannock River	464
0208011106	Messongo Creek-Pocomoke Sound	438
0208011105	Marumsco Creek-Pocomoke Sound	433
0208020608	Lawnes Creek-James River	407
0208011107	Deep Creek-Pocomoke Sound	390
0208010802	Lynnhaven River-Lower Chesapeake Bay	366

HUC 10 Number	Subwatershed Name	Wetland Migration Low Cost (Acres)
0208010506	Garnetts Creek-Mattaponi River	355
0208010402	Mill Creek-Rappahannock River	323
0207001008	Occoquan River-Potomac River	260
0208010701	Upper York River	259
0208020601	Falling Creek-James River	243
0208020607	Powhatan Creek-James River	237
0207001102	Potomac Creek-Potomac River	190
0208010610	Middle Pamunkey River	147
0207001004	Pohick Creek	144
0207001003	Cameron Run-Potomac River	140
0207001101	Quantico Creek-Potomac River	134
0208020710	Ashton Creek-Appomattox River	110
0208010505	Chapel Creek-Mattaponi River	92
0208011006	Lower Tangier Sound	86
0208020803	Hampton Roads	74
0208010401	Massaponax Creek-Rappahannock River	66
0208020709	Swift Creek	22
0207001001	Rock Creek-Potomac River	15
0208010202	Dragon Swamp	3
0208020605	Middle Chickahominy River	1
0208010100	Lower Chesapeake Bay	1

Table A17. Wetland restoration opportunities intersection regional flow in Virginia

HUC 10 Number	Subwatershed Name	Wetland Restoration Opportunities Intersecting Regional Flow (Acres)
0207000103	Upper South Branch Potomac River	15,462
0207000101	North Fork South Branch Potomac River	12,678
0207000305	Lost River	10,754
0207000105	South Fork South Branch Potomac River	9,268
0207000404	Back Creek	8,887
0208020201	Calfpasture River	8,008
0208020101	Upper Jackson River	7,920
0208020404	Mechunk Creek-Rivanna River	6,968
0208020312	Hardware River	6,925
0208020106	Upper Cowpasture River	6,550
0208020105	Lower Jackson River	6,244
0208010304	Hazel River	6,103
0208020107	Middle Cowpasture River	6,035

HUC 10 Number	Subwatershed Name	Wetland Restoration Opportunities Intersecting Regional Flow (Acres)
0208020112	Lower Craig Creek	5,700
0208010303	Thornton River	5,625
0207000601	Shoemaker River-North Fork Shenandoah River	5,554
0207000805	Upper Goose Creek	5,543
0208010609	Upper Pamunkey River	5,429
0208010403	Occupacia Creek-Rappahannock River	5,246
0208020502	Upper Willis River	5,147
0208010602	Middle South Anna River	5,147
0208020202	Little Calfpasture River-Upper Maury River	5,081
0208020707	Deep Creek	5,061
0208010309	Robinson River	5,057
0207001102	Potomac Creek-Potomac River	4,954
0208010404	Cat Point Creek-Rappahannock River	4,766
0208020104	Potts Creek	4,646
0208020705	Flat Creek	4,630
0208010301	Thumb Run-Rappahannock River	4,609
0208020103	Dunlap Creek	4,587
0208020304	Wreck Island Creek-James River	4,561
0208010308	Blue Run-Rapidan River	4,490
0208020403	North Fork Rivanna River	4,435
0208020303	Harris Creek-James River	4,269
0208020702	Vaughans Creek-Appomattox River	4,249
0208020505	Lickinghole Creek-James River	4,155
0208010610	Middle Pamunkey River	4,134
0208020401	Moormans River-Mechums River	4,088
0208020706	Rocky Ford Creek-Appomattox River	3,848
0208010311	Mine Run-Rapidan River	3,845
0207001101	Quantico Creek-Potomac River	3,815
0207000606	Cedar Creek	3,767
0208010604	Gold Mine Creek-North Anna River	3,751
0208020504	Deep Creek-James River	3,750
0207001006	Cedar Run	3,747
0208020102	Back Creek-Middle Jackson River	3,735
0208010302	Carter Run-Rappahannock River	3,666
0208020305	Upper Tye River	3,643
0208010306	Marsh Run-Rappahannock River	3,612
0208020108	Lower Cowpasture River	3,530
0207000510	Gooney Run-South Fork Shenandoah River	3,506
0208010310	Cedar Run-Rapidan River	3,466
0208020205	Lower Maury River	3,451

HUC 10 Number	Subwatershed Name	Wetland Restoration Opportunities Intersecting Regional Flow (Acres)
0208010607	Little River	3,424
0208020605	Middle Chickahominy River	3,384
0207001005	Broad Run	3,372
0207000605	Narrow Passage Creek-North Fork Shenandoah River	3,285
0208020306	Buffalo River	3,275
0208020110	Upper Craig Creek	3,250
0208010611	Lower Pamunkey River	3,242
0208010501	Poni River	3,142
0208020307	Lower Tye River	3,116
0207000509	Hawksbill Creek-South Fork Shenandoah River	3,088
0208020501	Byrd Creek	3,021
0208010402	Mill Creek-Rappahannock River	2,885
0207000607	Passage Creek-North Fork Shenandoah River	2,873
0208020309	Upper Rockfish River	2,851
0207000402	Sleepy Creek	2,786
0208010502	Matta River-Mattaponi River	2,783
0207000604	Stony Creek	2,774
0208020310	Lower Rockfish River	2,740
0208020506	Tuckahoe Creek-James River	2,721
0207000803	Catoctin Creek	2,679
0208010605	Pamunkey Creek	2,644
0208020111	Johns Creek	2,641
0208020315	Bear Garden Creek-James River	2,638
0208020311	Ballinger Creek-James River	2,609
0208020113	Catawba Creek	2,518
0208020701	Buffalo Creek	2,467
0207000603	Linville Creek-North Fork Shenandoah River	2,463
0208020308	David Creek-James River	2,452
0207001106	Machodoc Creek-Potomac River	2,444
0208020115	Cedar Creek-James River	2,434
0208010601	Upper South Anna River	2,381
0208010503	Polecat Creek-Mattaponi River	2,341
0208020703	Bush River	2,318
0208020801	Nansemond River	2,232
0208020704	Big Guinea Creek-Appomattox River	2,231
0208010603	Lower South Anna River	2,209
0207000807	Lower Goose Creek	2,177
0208020503	Lower Willis River	2,148
0208020601	Falling Creek-James River	2,128
0208010307	Conway River-Rapidan River	2,123

HUC 10 Number	Subwatershed Name	Wetland Restoration Opportunities Intersecting Regional Flow (Acres)
0207000501	Upper Middle River	2,036
0208020405	Cunningham Creek-Rivanna River	2,031
0208010506	Garnetts Creek-Mattaponi River	2,018
0207001108	Nomini Creek-Potomac River	1,929
0208020709	Swift Creek	1,901
0208010401	Massaponax Creek-Rappahannock River	1,823
0208010202	Dragon Swamp	1,780
0208020313	Upper Slate River	1,737
0208020109	Mill Creek-James River	1,719
0208010204	Mobjack Bay-Lower Chesapeake Bay	1,692
0207000806	North Fork Goose Creek	1,688
0208010505	Chapel Creek-Mattaponi River	1,687
0208020402	South Fork Rivanna River	1,632
0207000508	Naked Creek-South Fork Shenandoah River	1,624
0207000702	Long Marsh Run-Shenandoah River	1,603
0207000409	Opequon Creek	1,595
0208020203	Middle Maury River	1,595
0208020708	Lake Chesdin-Appomattox River	1,551
0208020114	Looney Creek-James River	1,519
0207000507	South River	1,497
0208020606	Lower Chickahominy River	1,397
0208010606	Lake Anna	1,390
0208020302	Pedlar River	1,277
0207001008	Occoquan River-Potomac River	1,265
0207000602	Smith Creek	1,258
0207000809	Broad Run-Potomac River	1,228
0208010504	Maracossic Creek	1,225
0207000701	Crooked Run-Shenandoah River	1,193
0208011104	Pitts Creek-Pocomoke River	1,190
0207000810	Difficult Run-Potomac River	1,133
0208010608	Northeast Creek-North Anna River	1,112
0207000703	Bullskin Run-Shenandoah River	1,056
0208010305	Mountain Run	1,005
0208010701	Upper York River	926
0208020301	Reed Creek-James River	904
0207001003	Cameron Run-Potomac River	883
0208020609	Pagan River-James River	881
0208020204	South River	839
0208020607	Powhatan Creek-James River	800
0207001007	Bull Run	797

HUC 10 Number	Subwatershed Name	Wetland Restoration Opportunities Intersecting Regional Flow (Acres)
0208011106	Messongo Creek-Pocomoke Sound	775
0208011105	Marumsco Creek-Pocomoke Sound	706
0208020602	Herring Creek-James River	694
0208011108	Pungoteague Creek-Lower Chesapeake Bay	678
0208020710	Ashton Creek-Appomattox River	662
0208010405	Totuskey Creek-Rappahannock River	649
0208020802	Elizabeth River	563
0208020314	Lower Slate River	543
0208020603	Upper Chippokes Creek-James River	507
0208020608	Lawnes Creek-James River	486
0207000505	Dry River	394
0208010702	Lower York River	392
0207000504	Upper North River	265
0208010406	Lancaster Creek-Rappahannock River	232
0208011107	Deep Creek-Pocomoke Sound	218
0208010801	Back River-Lower Chesapeake Bay	200
0208020604	Upper Chickahominy River	125
0207001004	Pohick Creek	101
0208010802	Lynnhaven River-Lower Chesapeake Bay	95
0208010203	Piankatank River-Lower Chesapeake Bay	95
0208010201	Great Wicomico River-Lower Chesapeake Bay	42
0208011006	Lower Tangier Sound	16
0208011109	Cherrystone Inlet-Lower Chesapeake Bay	9
0208010407	Corrotoman River-Rappahannock River	3

Table A18. Shoreline Erosion Opportunities Assessment for Virginia

HUC 10 Number	Subwatershed Name	Combined Existing Wetland acres affected by Shoreline Erosion	Combined Wetland Restoration Opportunities acres affected by Shoreline Erosion	Acres shoreline that have high erosion rates
0208010201	Great Wicomico River-Lower Chesapeake Bay	176	642	5,744
0207001108	Nomini Creek-Potomac River	149	484	4,103
0208010204	Mobjack Bay-Lower Chesapeake Bay	423	336	2,862
0208011109	Cherrystone Inlet-Lower Chesapeake Bay	112	298	2,386
0208010802	Falling Creek-James River	391	199	2,296
0207001107	Lynnhaven River-Lower Chesapeake Bay	49	295	2,216

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