October 28, 2022

Virginia Coastal Zone Management Program
Semiannual Section B.2-4 Report
For the Period from April – September, 2022

SECTION B.2 PERMIT ADMINISTRATION, MONITORING AND ENFORCEMENT

1) DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ)

a) DEQ – Virginia Coastal Zone Management Program

Virginia CZM Program staff continued to work with our partner agencies to implement the Program over the last 6 months. For a full description of staff activities, please refer to the Section A report for Task 1.01.

b) DEQ – Water Permitting Programs

DEQ- Virginia Water Protection Permit (VWPP) Program
The Virginia Water Protection (VWP) Permit Program authorizes surface water withdrawal activities[1] and activities in wetlands and surface waters that may or may not require a Clean Water Act Section 401 Water Quality certification. In addition to the permit processing and wetlands impact data for the Tidewater region of the Commonwealth, this narrative highlights any challenges encountered during the reporting period.

During the reporting period of April 1, 2022 to September 30, 2022, the VWP Permit Program issued 11 individual permits and 89 general permit coverages; processed 20 Notices of Planned Change on general permit coverages; and processed 15 individual permit modifications in Virginia's coastal counties.

The average time to process a general permit coverage was 18 days, and the average time to process an individual permit was 102 days.

Approximately 71 acres of non-tidal wetland impacts and 1 acre of tidal impacts occurred during the reporting period. During this reporting period, approximately 174 wetland credits were purchased at compensatory mitigation banks or through in-lieu fee programs, and approximately 4 acres of wetlands were created on project site(s).

During the reporting period, 7 compliance actions[2] on individual permits and 23 compliance actions on general permit coverages were taken. Compliance actions for five of the individual permits and eight of the general permit coverages are still active at the time of this report. Additionally, 13 compliance actions were taken on activities not associated with a VWP individual permit or general permit coverage, and three of these are still active at the time of this report. During this period, 260 compliance inspections took place.

The VWP Permit Program did not receive comments or concerns about expediting decision-making for the management of coastal resources; however, due to federal rulemakings[3] during 2019 to 2021, state-permitting workloads across Virginia have increased. Due to this increase, DEQ has looked for ways expedite decision making throughout the state, including in coastal areas, to the fullest extent allowed by current laws and regulations. Prioritizing of workload has also been necessary, which includes difficult decisions on how much effort and time to spend on general compliance activities. This practice will continue through next year at a

[1] While VWP permits may authorize surface water withdrawal activities, data specific to streams, stream flow, or water quantity are not included in this program summary.
[2] Warning Letter (WL) or Notice of Violation (NOV), or Request for Corrective Action (RCA).
[3] Navigable Water Protection Rule, the Clean Water Act Section 401 Certification Rule, and the USACE Reissuance and Modification of Nationwide Permits Rule.

minimum, or until revisions are made to how wetlands and streams are regulated at the federal level. DEQ is also currently test piloting the Permit Enhancement and Evaluation Platform (PEEP), a new public-facing tool that tracks various steps in permitting processes. One goal of this new tool is to identify any potential improvements in permitting efficiency on the part of applicants and relevant agencies.

DEQ – Virginia Pollution Abatement (VPA) Water Permitting Program
The Virginia Pollution Abatement permit (VPA) is required for facilities that manage wastewater, animal waste, biosolids or industrial residuals in such a manner that they do not have a discharge from the site. For example, an agricultural facility that temporarily stores wastewater to be land applied as part of an irrigation/fertilization program.

During the period between April 1, 2022 – September 30, 2022, seven permit applications were received for VPA – Individual Permits (IP). One permit action was completed for a Board Initiated Modification on a facility that is covered for the land treatment of wastewater. Five applications were received for the reissuance of a VPA IP for the land application of biosolids, one application was received for the reissuance of a VPA IP for the distribution and marketing of Exceptional Quality Biosolids. These six permit applications are pending. Four additional permit actions were completed for applications that were received during a previous reporting period – two actions were reissuances of permits that authorize the land application of biosolids; one was a reissuance of a permit that authorizes the land treatment of wastewater; one was a major modification authorizing the land application of biosolids.

During the period between April 1, 2022 – September 30, 2022, one application was received seeking a permit change-facility/operation of the coverage under the VPA General Permit for Poultry Waste Management (PWM) for farms located in the Coastal Zone Management area. Two permits were received during the previous period and were issued during this reporting period. No PWM general permits were reissued during that period. During this reporting period, one application was received seeking a permit change-facility/operation of the coverage under the VPA Animal Feeding Operations general permit, the application is pending.

DEQ – Virginia Pollution Discharge Elimination System (VPDES) Water Permitting Program
There are a total of 270 individual municipal and industrial CZM area VPDES individual permits. This includes 12 Municipal Separate Storm Sewer (MS4) individual permits. This number and the numbers in the table represent typical activity in the program. The increase in pending permits from the last report is partially due to workload and staffing issues. The number of modifications increased from the last report due to House Bill 2129 (Chesapeake Bay; Wastewater Treatment, Enhanced Nutrient Removal Certainty Program) in 6 Hampton Roads Sanitation District permits. Also, many of the pending permits are large and complicated facilities (power plants, shipyards, military installations, large industries) that require longer time periods to reissue.

There are also numerous facilities registered under general permits in CZM areas including 56 vehicle wash, 104 concrete products, 10 cooling water, 322 domestic sewage ≤ 1,000 GPD, .59 nonmetallic mineral mining, .25 petroleum, 16 potable water treatment, 43 seafood processors, and 514 industrial stormwater. These represent typical numbers for permit registrants in CZM areas in Virginia. There are also 64 registrants under the MS4 general permit. There are a number of general permit coverages that are automatically covered under a permit (e.g., pesticide applications and hydrostatic testing) and are not entered into the CEDS database. There are also 63 registrants under the nutrient trading general permit but these facilities are included in the individual permit count.

VPDES/VPA - April 1, 2022 – September 30, 2022*										
	Permits Issued / Avg Proc. Days (1)		Permits Reissued / Avg Proc. Days		Permits Modified** / Avg Proc. Days		Denied / Avg Proc. Days		Permits Reissue Pending / Avg Proc. Days	
VPDES	0	NA	16	387	9	355	0	NA	49***	NA
VPA	1	918	2	382	2	83	0	NA	6	69
VPA GP	2	80	0	NA	1	4	0	NA	1	57

Processing day is the amount of time between receiving a complete application and making the final case decision (issuance, reissuance, modification, etc.).

* Information from CEDS (Comprehensive Environmental Data System) database
** Major modifications
*** This represents existing VPDES individual permits expired but pending through September 30, 2022.

c) DEQ – Water Program Enforcement and Compliance

DEQ continues to apply both informal and formal enforcement measures in the enforcement program. Reference Table 1, below.

Informal measures, such as Warning Letters and Letters of Agreement, are used in those cases where non-compliance is not significant in nature and where compliance can be achieved in a short period of time. For the period April 1, 2022 through September 30, 2022, DEQ issued 164 Warning Letters and 1 Letter of Agreement for violations of VPDES, VPA, VWPP, and Ground Water program requirements.

Formal enforcement actions are used in those cases where non-compliance is more serious or may take a significant amount of time to correct. Formal measures generally involve the issuance of a Notice of Violation followed by a Consent Order, or an Executive Compliance Agreement in the case of a state agency. In some cases, Unilateral Administrative Orders or court orders may be sought. Between April 1, 2022 and September 30, 2022, DEQ issued 50 Notices of Violation for violations of VPDES, VPA, VWPP, and Ground Water program requirements. During the same period, the agency concluded enforcement cases with the issuance of 19 Consent Orders that assessed a total of $312,237.10 in civil charges.

Table 1

Measure	Action Type	Count	Total Civil Charges Assessed
Informal	Warning Letters	164	N/A
Informal	Letters of Agreement	1	N/A
Formal	Notices of Violation	50	N/A
Formal	Consent Order	19	**$312,237.10**
Total		**234**	**$312,237.10**

d) DEQ – Air Permitting Program

OFFICE OF AIR PERMIT PROGRAMS
PERMITS ISSUED REPORT FOR
VIRGINIA'S COASTAL RESOURCES MANAGEMENT PROGRAM

Period: April 1, 2022 – September 30, 2022

PERMIT TYPE	NUMBER OF PERMITS ISSUED	*AVERAGE PROCESSING TIME (Days)
PSD & NA	0	NA
Major	0	NA
**Minor	90	23
Administrative Amendment	2	3
Exemptions	4	59
State Operating	0	NA
Federal Operating (Title V) Initial Issuance	0	NA
Federal Operating (Title V) Renewal	3	134
Acid Rain (Title IV)	0	NA
Total Number Permits Issued	**99**	

* The average processing time is determined by computing the difference between when the application was deemed administratively complete and when the permit was issued.

** Due to a reevaluation of applicability of the Non-Metallic Mineral Processing General Permits, several general permits were reissued as minor New Source Review permits. This is a one-time event.

Note: The information provided for this report includes data from the Northern Virginia Regional Office, Portions of the Piedmont Regional Office and the Tidewater Regional Office only.

Definitions:
Prevention of Significant Deterioration (PSD) = A source which emits **250 tons or more** per year of any regulated pollutant or is one of 28 specific industries listed in the state regulations and will emit 100 tons per year of a regulated pollutant.
Major = A source which emits, or has the potential to emit, **100 tons or more** per year of any air pollutant.
Minor = A source which emits, or has the potential to emit, **less than 100 tons** per year of any air pollutant.
State Operating= Permit written pursuant to 9 VAC 5-80-800 et al.
Administrative Consent Agreement = An agreement that the owner or any other person will perform specific actions to diminish or abate the causes of air pollution for the purpose of coming into compliance with regulations, by mutual agreement of the owner or any other person and the Board.
Administrative Amendment = Administrative changes made to the permit to clarify or correct an issued permit. For example, typographical errors, name changes, etc.
Exemption = Facilities are exempted from permitting requirements by exemption levels defined in 9 VAC 5-80-1105.

Federal Operating (Title V) = a source that emits **10 tons or more** per year of any hazardous air pollutant, **or 25 tons** per year of any combination of hazardous air pollutants or emits any criteria pollutant above 100 tons per year.
Acid Rain (Title IV) = Permits issued specifically to address SO_2 and NO_x from electric generating units covered under the Acid Rain regulations.

OFFICE OF AIR PERMIT PROGRAMS
PERMITS PENDING REPORT FOR
VIRGINIA'S COASTAL RESOURCES MANAGEMENT PROGRAM

Permits pending as of September 30, 2022

PERMIT TYPE	NUMBER OF PERMITS PENDING
PSD & NA	1
Major	0
Minor	73
Administrative Amendment	3
Exemptions	3
State Operating	6
Federal Operating (Title V) Initial Issuance	10
Federal Operating (Title V) Renewal	72
Acid Rain (Title IV)	10
Total Permits Pending	**178**

Note: The information provided for this report includes data from the Northern Virginia Regional Office, Piedmont Regional Office and Tidewater Regional Office only.

OFFICE OF AIR PERMIT PROGRAMS
PERMITS WITHDRAWN AND APPLICATIONS DENIED REPORT FOR
VIRGINIA'S COASTAL RESOURCES MANAGEMENT PROGRAM

Period: April 1, 2022 – September 30, 2022

PERMIT TYPE	NUMBER OF PERMITS WITHDRAWN	NUMBER OF APPLICATIONS DENIED
PSD	0	0
Major	0	0
Minor	0	0
Administrative Amendment	0	0
Exemptions	0	0
State Operating	0	0
Federal Operating (Title V)	0	0
Acid Rain (Title IV)	0	0
Total Permits Rescinded	**0**	**0**

Note: The information provided for this report includes data from the Northern Virginia Regional Office, Piedmont Regional Office and Tidewater Regional Office only.

e) DEQ – Air Program Enforcement and Compliance

DEQ continues to apply both informal and formal enforcement measures in its air enforcement program. Reference Table 1, on the following page.

Informal measures include Requests for Corrective Action, Informal Correction Letters, Warning Letters, and Letters of Agreement. These actions are used in those cases where non-compliance is not significant in nature and where compliance can be achieved in a short period of time. During the six-month period beginning April 1, 2022 through September 30, 2022, DEQ issued 34 Requests for Corrective Action, and 28 Warning Letters.

Formal enforcement actions are used in those cases where non-compliance is more serious or may take a significant amount of time to correct. Formal measures generally involve the issuance of a Notice of Violation and negotiation of a Consent Order, or an Executive Compliance Agreement in the case of a state agency. In some cases, Unilateral Orders or court orders may be pursued. Between April 1, 2022 and September 30, 2022, DEQ initiated 20 new formal enforcement actions via issuance of Notices of Violation. Additionally, the Agency issued 11 Consent Orders; assessing $193,953.05 in civil charges.

Table 1

Measure	Action Type	Count	Total Civil Charges Assessed
Informal	Requests for Corrective Action	34	N/A
Informal	Warning Letters	28	N/A
Formal	Notices of Violation	20	N/A
Formal	Consent Orders	11	$193,953.05
Total		**93**	**$193,953.05**

f) DEQ – Erosion and Sediment Control

Summary of Specific Outputs:

Specific Outputs	Progress / Status
13 CZM Chesapeake Bay Land Disturbing Activities Permitted - Projects less than 1 acre found within Chesapeake Bay Designated Areas.	Permit coverage has been issued and projects are under construction. Compliance is achieved through ongoing permit review, technical assistance, and project inspection.
213 CZM Small Construction Activities Permitted- Land Disturbing Activities greater than or equal to 1 acre and less than 5 acres.	Permit coverage has been issued and projects are under construction. Compliance is achieved through ongoing permit review, technical assistance, and project inspection.
70 CZM Large Construction Activities Permitted- Land Disturbing Activities greater than or equal to 5 acres and less than 10 acres.	Permit coverage has been issued and projects are under construction. Compliance is achieved through ongoing permit review, technical assistance, and project inspection.
85 CZM Large Construction Activities Permitted- Land Disturbing Activities greater than or equal to 10 acres and less than 50 acres.	Permit coverage has been issued and projects are under construction. Compliance is achieved thru ongoing permit review, technical assistance, and project inspection.
9 CZM Large Construction Activities Permitted- Land Disturbing Activities greater than or equal to 50 acres and less than 100 acres.	Permit coverage has been issued and projects are under construction. Compliance is achieved thru ongoing permit review, technical assistance, and project inspection.
5 CZM Large Construction Activities Permitted- Land Disturbing Activities greater than or equal to 100 acres.	Permit coverage has been issued and projects are under construction. Compliance is achieved thru ongoing permit review, technical assistance, and project inspection.
395 Total CZM Land Disturbing Activities Permitted thru coverage under the Construction General Permit.	Coastal Zone Management resources are conserved and restored through permit compliance.

Supplemental Narrative:

Considerable erosion and sediment control and stormwater management progress occurred during the performance period. New and improved requirements for project stabilization during construction and recently enhanced post construction requirements will result in further improvements to coastal zone resources. The new post construction requirements have been developed to more closely mimic predevelopment hydrology found in a naturally wooded site condition. The implementation of these new requirements will result in less downstream sediment export and fewer nutrient export impacts from land development.

g) DEQ- Office of Stormwater Management – Local Government Assistance Programs- Chesapeake Bay Preservation Act

Summary
Program Description
The Chesapeake Bay Preservation Act program is designed to improve water quality in the Chesapeake Bay and other waters of the State by requiring the use of effective land management and land use planning. Specifically, these requirements fall into three implementation phases. Phase I consists of local governments designating and mapping Chesapeake Bay Preservation Areas (CBPAs) and adopting land use and development performance criteria to protect those features. CBPAs include Resource Protections Areas (RPAs) and Resource Management Areas (RMAs). RPAs are made up of tidal wetlands, tidal shores, nontidal wetlands connected and contiguous to tidal wetlands or perennial streams and a 100-foot fully vegetated buffer. RMAs include lands adjacent to RPAs that are made up of land features such as highly erodible soils, steep slopes, and floodplains. Sixty of the 84 Tidewater localities have identified their entire jurisdiction as RMA. Phase II consists of the incorporation of water quality protection measures into local comprehensive plans. Phase III involves the review and revision of local land use codes to include specific standards that implement water quality performance criteria.

Technical Assistance & Training
During the reporting period April, 1 2022 – September 30, 2022, staff continued to provide technical assistance and training to Bay Act localities. For this period, three outreach events were conducted, and 59 instances of technical assistance, including site plan review, were documented.

Environmental Impact Reviews
Through the Environmental Impact Review process, staff continued to review plans for State and Federal projects to ensure those projects were consistent with the Chesapeake Bay Preservation Act. During the reporting period, 69 environmental impact reviews were conducted.

Compliance Reviews
During the reporting period, one new Compliance Reviews were initiated, three were completed, and seven Condition Reviews are ongoing. Since the Compliance Review process was reinitiated in 2015 (after having been suspended for a period of three years to allow LGAP staff to work on local stormwater program development, and then again for one year for LGAP staff to work on the Phase III WIP), 84 reviews have been initiated or completed and 77 localities have been found compliant. During these reviews, staff assess how well local governments are ensuring that impervious cover and land disturbance are minimized, and indigenous vegetation is preserved on approved development projects and if other Chesapeake Bay Preservation Act general performance criteria are being applied to the use and development of land.

2) VIRGINIA MARINE RESOURCES COMMISSION (VMRC)

a) VMRC – Habitat Management Division

During the period April 1, 2022 through September 30, 2022 the Habitat Management Division received 1,410 applications for projects involving State-owned submerged lands, wetlands or dunes. These applications were for projects such as piers, boathouses, boat ramps, marinas, dredging and shoreline stabilization. As the clearinghouse for the Joint Permit Application all applications were assigned a processing number by the Division and forwarded to the appropriate agencies, including, local wetlands boards, the Norfolk District of the U.S. Army Corps of Engineers, the Department of Environmental Quality, VIMS and others as necessary.

A public interest review was initiated and site inspections were conducted for those projects requiring a permit from the Marine Resources Commission. Likewise, Habitat Management staff also conducted site inspections for all projects requiring a local wetlands board permit and evaluated each local board decision for Commissioner review. Habitat Management staff also conducted compliance inspections on permits issued by VMRC and local wetlands boards.

The Habitat Management Staff completed actions on 1,354 applications received during the period. Action on most applications was completed within 90 days after they were received. As such, a number of the actions taken during the period were for applications received prior to April 2022. Similarly, those applications received near the end of the current reporting period are still under review. Habitat Management Staff also participated in the inter-agency review process involving general permits for Virginia Department of Transportation projects.

In addition to staff actions, the full Commission considered 48 projects. During the reporting period the Commission considered 22 protested projects or projects requiring a staff briefing, The Commission also approved 26 projects over $500,000.00 in value.

During the reporting period local wetland boards throughout Tidewater Virginia acted on 188 projects involving tidal wetlands. Of this total, 141 were approved as proposed, 38 were approved as modified, 2 were denied, 5 are pending, 2 did not require a permit, and 45 required compensation either on or off site (9), or through payment of an in lieu fee (36) accounting for 51,697 square feet of tidal wetland impacts.

b) VMRC – Fisheries Management Division

At the April 2022 meeting, the agency established the 2022 recreational fishery management measures for scup, which included increased the minimum size limit of scup from eight inches to nine inches. In addition, the agency established the 2022 recreational fishery management measures for summer flounder, which included reducing the minimum size for summer flounder from 16.5” to 16” and maintaining the current four fish bag limit and year round season. Finally, the agency established the 2022 recreational fishery management measures for black sea bass, which included increasing the minimum size for recreational black sea bass from 12.5” to 13” and reducing the season to May 15 through December 11.

At the May 2022 meeting, the agency (1) modified shrimp trawl licensing harvest requirements, lottery dates, and application requirements 2) allowed the transfer of commercial shrimp trawl licenses in certain circumstances due to death, medical hardships, or military service; and 3) allowed agents for shrimp trawl licenses for a two-week period each year under certain circumstances due to death, medical hardships, or military service.

At the June 2022 meeting, the agency established a temporary reciprocal quota transfer system between the purse seine menhaden reduction sector and the purse seine menhaden bait sector of the fishery during the 2022 fishing year.

At the September 2022 meeting, the agency modified the spiny dogfish trip limit from 6,500 pounds to 7,500 pounds.

c) VMRC – Law Enforcement Division

Enforcement under "Other Agency" refers to summons issued for other agencies' laws, code or regulation sections. The majority of the summons in this category are for DGIF regulations on boating safety laws, expired boat registration, no life jackets, flares, etc.

Summons under "Police Powers" are all criminal vs fisheries. These are the reckless driving, drunk driving, driving without a license/suspended license, shoplifting, possession of controlled substances.

VIRGINIA MARINE POLICE
ARRESTS/CONVICTIONS SUMMARY BY CATEGORY

REPORT FORMAT: FEDERAL FISCAL YEAR AREA: ALL AREAS
START PERIOD: 10/01/2017
END PERIOD: 09/30/2022

Category	2017/2018		2018/2019		2019/2020		2020/2021		2021/2022	
	Convictions	Arrests	Convictions	Arrests	Convictions	Arrests	Convictions	Arrests	Convictions	Arrests
Buyers	1	1	0	3	0	0	5	5	5	6
Casting Garbage/Trash	0	0	0	0	0	0	1	2	0	0
Clams	1	1	0	0	0	0	0	0	3	3
Commercial Fishing License	12	15	8	68	15	52	11	17	12	18
Conchs	0	2	3	6	2	3	0	0	0	0
Crabs	26	34	64	75	39	54	38	54	26	37
Federal Violation	0	0	0	0	0	0	0	0	0	0
FIP Violations	36	37	32	34	2	3	14	19	1	2
Fish	130	147	322	357	250	275	194	206	83	95
Freshwater Fishing without a license	9	10	23	25	1	2	6	6	1	1
Gill Nets	2	5	3	5	16	16	4	8	7	8
Habitat/Wetlands	0	0	0	0	0	0	0	0	0	0
License Tags	0	0	0	0	0	0	1	2	0	0
Mandatory Reporting	0	0	22	65	8	38	0	4	0	0
Misc	0	0	0	27	3	18	5	5	0	2
Non-residents	0	0	0	0	0	0	0	0	0	0
NSSP	0	0	0	0	1	1	0	0	0	0
Other Agencies	481	604	506	651	253	325	164	184	89	126
Oysters	78	105	82	193	49	127	32	50	20	25
Piers	0	0	0	1	3	3	0	0	0	0
Police Powers	0	0	0	0	0	0	0	0	0	0
Removal of Obstructions	0	0	2	2	1	1	3	3	1	1
Resisting officer	0	0	0	0	0	0	0	0	0	0
Shellfish	0	0	2	7	0	1	0	0	0	0
SW Recreational Licenses	132	141	151	171	68	81	42	48	45	52
TOTALS:	**908**	**1102**	**1220**	**1690**	**711**	**1000**	**520**	**613**	**293**	**376**
PERCENT OF CONVICTIONS:	**82.40%**		**72.19%**		**71.10%**		**84.83%**		**77.93%**	

3) Virginia Department of Health (VDH) – Division of Shoreline Sanitation

From April 1, 2022 through September 30, 2022, the VDH Division of Shellfish Safety and Waterborne Hazards had…

2764 acres of shellfish grounds formerly open year-round now closed to harvesting year-round,
1312 acres of shellfish grounds formerly closed year-round now open to harvesting year-round,
258 acres of shellfish grounds formerly open year-round now seasonally closed,
1139 acres of shellfish grounds formerly closed year-round now seasonally opened,
198 acres of shellfish grounds formerly seasonally closed now closed year-round, and
2636 acres of shellfish grounds formerly seasonally opened now opened year-round.

Activities of the Virginia Department of Health for the Virginia Coastal Resources Management Report are summarized below. This includes statics on applications for sanitary facilities at marinas and other places where boats are moored.

The Department received and reviewed a total of Twenty Five (25) VMRC Permit Applications, and processed as follows:

Twenty (20) applications were approved based on meeting the requirements of providing adequate facilities of the Marina Regulations if applicable.

Five (5) applications were denied because of not meeting regulation requirements.

4) Department of Conservation and Recreation (DCR)

a) DCR - Division of Soil and Water Conservation

Nutrient Management
DCR Nutrient Management Staff have been active in developing and reviewing nutrient management plans as well as other nutrient reduction activities to achieve the Commonwealth's nutrient reduction commitments of the Chesapeake Bay TMDLs. In the coastal zones of Virginia, DCR staff have overseen the development of nutrient management plans covering 4,488.66 acres during the reporting period (4/1/2022 – 9/30/2022). Many plans are active for up to three years, all new or revised acreage developed by DCR planners in the coastal zones during the reporting period are summarized in the following table:

Table 1: Planned nutrient management acreage by land use and costal management zones. Plans started between 4/1/2022 – 9/30/2022.

CZM Basin	Number Of Plans	CZM Crop Acres	CZM Hay Acres	CZM Pasture Acres	CZM Specialty Acres	Total
Albemarle Sound	1	-	-	4.20	-	**4.20**
Atlantic Ocean	1	-	-	-	-	**-**
Chesapeake Bay Coastal	7	1,886.52	-	-	-	**1,886.52**
Chowan	2	14.39	96.08	-	-	**110.47**
James	2	405.42	-	-	-	**405.42**
Potomac	2	28.74	18.06	-	-	**46.80**
Rappahannock	6	376.94	-	-	-	**376.94**
York	10	1,570.04	9.57	74.34	4.37	**1,658.32**
Total:	**31**	**4,282.04**	**123.71**	**78.54**	**4.37**	**4,488.66**

Shoreline Erosion Advisory Service

DCR's Shoreline Erosion Advisory Service (SEAS) was established in 1980 by the Virginia General Assembly as a resource for shoreline landowners and communities. The program provides unbiased, science-based technical assistance on environmentally sound shoreline management alternatives to private property owners and public land management agencies that are experiencing erosion on tidal shorelines or non-tidal streambanks and impoundments. Services provided by SEAS include on-site field investigation and analysis of erosion concerns, written advisory reports with recommended solutions, review of engineering designs and construction plans, on-site construction inspections, and guidance on available financial incentive programs. Since its inception, SEAS has evaluated hundreds of miles of shoreline and provided invaluable technical assistance to thousands of Virginia property owners experiencing shoreline erosion.

For this reporting period, SEAS staff conducted 96 site visits, wrote 83 advisory reports, evaluated 49,494 feet of shoreline, and reviewed and provided comments to VMRC on 11 joint permit applications (JPAs). During a site visit, staff walks the shoreline with the owner and assesses the cause(s) of the erosion problem. Staff then review with the owner, what they believe are the most appropriate shoreline erosion control and protection strategies for that site. The suite of solutions to shoreline erosion varies along a continuum of green-to-grey infrastructure – planting marsh vegetation, bank grading, marsh toe revetments of oyster shell bags, stone sills with sand nourishment and marsh vegetation plantings, riprap revetments, offshore gapped breakwaters, wood or vinyl bulkheads. Living shorelines are the Commonwealth's preferred alternative – and *de facto* permitting option – for stabilizing eroding tidal shorelines.

SEAS is working with the Virginia Institute of Marine Science (VIMS), Virginia Marine Resources Commission (VMRC), DEQ, and others to 1) identify shoreline management practices (e.g., living shorelines) across tidal Virginia that qualify for Chesapeake Bay TMDL WIP pollutant reduction credits, 2) verify that installation of these practices meets the specifications set out by EPA's Chesapeake Bay Program, and 3) quantify and report the earned pollutant reduction credits as part of the Commonwealth's efforts to meet goals established in the WIP. The first round of these pollutant reduction credits was reported to DEQ in October 2017; subsequent rounds were reported in November 2018, November 2019, November 2020, and November 2021 (see table below). During this reporting period, SEAS continued to analyze data and verify practices; the number of sites verified was negatively impacted by limited field time in spring/summer 2022 due to COVID-

19 pandemic restrictions, which have eased since late summer 2022. The next round of pollutant reduction credits will be reported to DEQ in October 2022.

During this reporting period, SEAS continued implementation of a $1M, three-year grant from the National Fish and Wildlife Foundation (NFWF) to accelerate the scale and the rate of living shoreline implementation in Rural Coastal Virginia. Work focused on two of the project's four objectives: 1) grow and enhance the existing partnership of entities engaged in living shoreline implementation; and, 2) develop a cache of shovel-ready living shoreline projects on socially vulnerable sites, agricultural sites, and other priority sites.

	Total Submitted 2017-2020
Protected Shoreline (ft)	292,920
Number of Sites	1,425
Pollutant – TN [Total Reduction (lbs./yr.)]	34,010.6
Pollutant – TP [Total Reduction (lbs./yr.)]	23,142.6
Pollutant – TSS [Total Reduction (tons/yr.)]	19,005.2

b) DCR - Division of Natural Heritage

This report lists projects and activities conducted by the Department of Conservation and Recreation, Division of Natural Heritage (DCR-NH) during this period that were not funded by or otherwise reported to the VCZMP

Inventory

On April 6, 2022, Natural Heritage Botany staff attended the NC Rare Plant Discussion Meeting in Chapel Hill, NC, an annual meeting that brings together botanists from a variety of agencies, universities, and non-profits from several states to discuss rare plants and their conservation. Presentations were given on a wide range of topics related to rare plants. This meeting provided a great opportunity to share knowledge and facilitate collaborative efforts with others working with rare plants in the region.

On April 15, 2022, two previously undiscovered sites were found to harbor new populations of the Frosted Elfin (*Callophrys irus*, G2S1) in Virginia. Both of these sites are within Fort A.P. Hill in Caroline County, and are within restricted access areas that have not been available in recent years for surveys during the adult flight period for this butterfly. A return visit on 22 April, and again on 3 May also found the butterflies to be on the wing at Fort A.P. Hill. Another site, in Southampton County was discovered to have a small population of Frosted Elfin on 20 April. This site is proximal to the only other site from which this species is known in Virginia, at South Quay Sandhills Natural Area Preserve (SQSNAP). Surveys at SQSNAP in 2022 have also documented a small number of individuals. With the additional locations discovered, there are now four extant sites in Virginia. Prior to 2022, surveys by Natural Heritage, USFWS, and others have failed to find this rare butterfly anywhere other than at SQSNAP despite repeated surveys at previously known sites, and other locations with available host plants Lupine (*Lupinus perennis*) and Wild Indigo (*Baptisia tinctoria*). Populations at SQSNAP have also shown possible signs of decline with only a few individuals found there in 2020, 2021,

and 2022. These new populations will need monitoring and management efforts in the future to maintain the butterflies and their host plants. Natural Heritage staff will be working with land managers at these sites to ensure the continued existence of this rare species in the Commonwealth of Virginia.


The globally rare and state imperiled Frosted Elfin (Callophrys irus, G2S1). Left, on host plant, Lupine (Lupinus perennis).

On June 20, 2022, senior botanist John Townsend rediscovered Nees' Scalewort (*Frullania caulisequa*, G5/SH), a leafy liverwort last seen in Virginia in 1957 by liverwort expert Rudolf Schuster at two locations: First Landing State Park and Lake Drummond in the Dismal Swamp National Wildlife Refuge. The species was recently rediscovered in the same forested wetland area noted by Schuster at First Landing State Park. This southern species is at its northernmost range limit at First Landing, joining a long list of predominantly southern plants that follow the same pattern.


Nees' Scalewort (Frullania caulisequa, G5 SH) on the bark of Swamp Black Gum (Nyssa biflora, left), and a close-up view under a dissecting scope (right).

From June 15-17, 2022, DCR-Natural Heritage Senior Zoologist Steve Roble recently attended the 75th annual meeting of The Lepidopterists' Society held at Western Carolina University. Dr. Roble gave a presentation entitled "Inventory and Conservation Assessment of the Moth Fauna of Virginia (Lepidoptera)" to an audience of approximately 50 people. His talk summarized nearly 35 years of effort by zoologists and other staff of the Division of Natural Heritage to determine the composition, distribution, habitats, and conservation status of

state's moth fauna, focusing on the more than 1,200 "macromoths" among an estimated total of 2,500-2,800 moth species. Since its inception, Division of Natural Heritage staff have conducted various inventory, research, and conservation projects pertaining to the Lepidoptera of Virginia, including an extensive statewide blacklight trapping survey for moths. At least 100 new state macromoth records have been documented, some of which represent significant range extensions. The Division maintains a reference collection of more than 1,300 moth species, constituting the most comprehensive collection of the state's fauna in existence, has a continually growing database of 80,000 voucher specimen records, and an on-line atlas of the state's rare moths, butterflies, dragonflies, and damselflies. The current list of rare moths in Virginia includes 91 species, with another 100 species placed on the DCR's animal watchlist. Approximately ten species have not been seen in the state in more than a century. Despite these efforts, much remains to be learned about moth life histories, habitat preferences, population trends, and management needs. Threats to moth populations include habitat destruction and fragmentation, exotic species, parasitoids, pesticides, light pollution, and climate change.

Left: *Pheosidea elegans* (Notodontidae) A northern, state-rare species (G5/S2) that reaches its southern range limit in Virginia, where it is known only from one site on Bull Run Mountains Natural Area Preserve. The caterpillars feed on quaking aspen, poplars, and willows. Right: *Pygarctia abdominalis* (Erebidae) A globally rare (G3/S1) southern species that is primarily found in longleaf pine sandhills. Both known Virginia populations occur on state natural area preserves. The caterpillars feed on plants in the family Euphorbiaceae such as American ipecac (*Euphorbia ipecacuanhae*).

On August 3, 2022, two colonies of lilies that appeared to be the rare Sandhills Lily (*Lilium pyrophilum* – G2/S1), previously known only from southeastern Virginia and southward, were discovered at Fort A.P. Hill in Caroline County recently by CEMML/CSU natural resources specialist Brian Josey and USFWS Rapid Response Team Lepidoptera surveyors, Tessa Pemrick and Jennah Ruebens. DCR- Natural Heritage botanist Johnny Townsend and Ecologist Joey Thompson were invited to confirm the identity of these plants and determine the extent of the populations. The plants were determined to be a morphological match with other Sandhills Lily populations. The two known populations were revisited and another population was discovered in a nearby seepage bog. In this bog, a new population of the state-rare plant Common Bog-buttons (*Lachnocaulon anceps* – G5/S1) was also found, making it the first time the species has been seen on the base since 1941. This population of Common Bog-buttons is the northernmost known for this southeastern species. Continued use of fire as a management tool is directly responsible for the thriving populations of both species.

Lilium pyrophilum (Sandhills Lily) *G2/S1 (J. Townsend photos)*

Lachnocaulon anceps (Common Bog-buttons) G5/S1 (G. Fleming photo)

As part of a multi-year resilience planning project funded through The Virginia Institute of Marine Science, DCR-Natural Heritage Division inventory staff are conducting field assessments of priority Natural Heritage Resources in Virginia's coastal zone. On August 18, 2022, Ecologist Joey Thompson and Chesapeake Bay Region Steward Zach Bradford visited Bush Mill Stream Natural Area Preserve (NAP) to update community data and to survey a recently acquired addition to the NAP. The existing Coastal Plain/Outer Piedmont Acidic Seepage Swamp community (G3/S3) was found in good condition with healthy Ash trees (*Fraxinus* spp.), apparently some of which were not yet infected by the invasive, Emerald Ash Borer. The new parcel addition was found to contain a considerable extension of the Acidic Seepage Swamp community (G3/S3), as well as an extension of the rare Bog Fern (*Coryphopteris simulata*, (G4G5/S1S2) population known from the NAP.

Coastal Plain/Outer Piedmont Acidic Seepage Swamp community (G3/S3) on the new parcel addition at Bush Mill Stream NAP.

Bog Fern (*Coryphopteris simulata*, G4G5S1S2) found on the new parcel addition at Bush Mill Stream NAP.

On September 1 and September 9, 2022, DNH field botanist Jenny Stanley documented three new populations of the globally rare Raven's Seedbox (*Ludwigia ravenii*) (G1G2/S1). This species is only known from a few dozen populations across its range, and only about a dozen of them still exist. Due to its rarity, and drastic population declines over the past 50 years, the US Fish and Wildlife Service is funding field inventory to search for more populations of this species to better determine its status. During these surveys, a new population of Woolly Chaffhead (*Carphephorus tomentosus*) (G4/S1) was also discovered. This species reaches its northern limit in Virginia and occurs in four counties in the state.

Carphephorus tomentosus (left) and *Ludwigia ravenii* (right)

Prescribed Burning

On June 7, 2022, DCR's Eastern Fire Manager Rebecca Wilson directed a diverse crew from multiple organizations to treat two burn units comprising 135 acres with growing season fire at Blackwater Ecological Preserve in Isle of Wight County. This project had the objective of restoring and maintaining Pine / Scrub Oak Sandhill communities and enhancing rare species habitat for many of the 39 rare plant species located at this state natural area preserve owned by Old Dominion University. Conditions were exceptionally favorable to achieve both crew safety and fire effects objectives, with relative humidity near 50%, temperatures in the 80s, and a steady south breeze. The experienced burn crew consisted of staff from DCR-Natural Heritage, the Department of Wildlife Resources, and the U.S. Fish & Wildlife Service.

Low-intensity backing fires (left) with slow rate of spread during the growing season are especially effective at killing woody plants such as sweetgum, creating a diverse herbaceous groundcover and improving conditions for rare fire-adapted plant species. At right, burn crew members from DCR, DWR and USFWS.

Natural Area Preserve Stewardship

During the week of June 6, 2022, DCR's Chesapeake Bay Region natural area stewards oversaw the work of a contractor to repair gravel access roads at Dameron Marsh and Bush Mill Stream natural area preserves (NAPs) in Northumberland County. This work involved filling potholes, cleaning out drainage ditches, adding stone and grading road surfaces. The road into Dameron Marsh Natural Area Preserve provides access to a 5-car parking area, a primitive hand-carry boat launch site, a short birding trail, and an observation deck providing visitors with a view of the Chesapeake Bay and tidal salt marsh. The Bush Mill Stream Natural Area Preserve entrance road provides access to a parking area, hiking trails with great birding within maturing coastal plain forest, and an observation deck with views of Bush Mill Stream – a tributary of the Great Wicomico River. For more information about publicly accessible state natural area preserves, see DCR's access guide at https://www.dcr.virginia.gov/natural-heritage/document/napbook4web.pdf

The recently upgraded entrance/access road at Bush Mill Stream Natural Area Preserve

In early June 2022, DCR's Northern Region stewardship staff completed sampling of five deer browse transects previously established at Crow's Nest Natural Area Preserve. Transects are approximately 0.5 mile in length with vegetation sampling plots established at 150-ft intervals. Within each plot, plant cover data was recorded to species level for both the herb and shrub layers, along with observations on deer browse preference by species. In addition, eight previously established deer exclosure plots - each with a paired adjacent reference plot – were sampled and deer browse impacts documented. Data clearly indicate that deer browse impacts are occurring at Crow's Nest, and are especially severe within Basic Mesic Forest at lower elevations. Northern Region staff are working with partners at DCR-State Parks and the Department of Wildlife Resources to develop plans for managed deer hunting at Crow's Nest for the purpose of addressing these now-documented negative deer impacts on the preserve's plant communities. Baseline plot data from summer 2022 and on-going monitoring will allow managers to assess whether or not managed hunts result in reduced deer browse pressure and benefits to plant communities at Crow's Nest.

Two deer exclosure plots and adjacent reference plots located within Basic Mesic Forest plant communities at Crow's Nest Natural Area Preserve. Heavy deer browse impacts on vegetation are evident.

On July 7, 2022, DCR's Southeast Region Steward Darren Loomis and Chesapeake Bay Region Steward Zach Bradford conducted an intensive survey for Pale Grass-pink Orchid (*Calopogon pallidus*) (G4G5/S1) – one of Virginia's rarest and most fire-dependent plants, at Blackwater Ecological Preserve (BEP) in Isle of Wight County. This occurrence represents our only extant population of this species as well as the northernmost population in existence. Pale Grass-pink is largely restricted to frequently burned longleaf pine (*Pinus palustris*) communities along the Atlantic and Gulf coasts. Fifty plants were observed during the survey – the most ever recorded at BEP – and all known subpopulations were successfully located. DCR's Longleaf Pine Restoration Specialist, Rebecca Wilson, had overseen a prescribed fire at the site just one month prior on June 7. Consistent with known plant responses to growing season fires, this prescribed burn clearly stimulated dormant Pale Grass-pink orchids to grow quickly and produce flowers. The burn also removed understory vegetation and leaf litter, making it relatively easy to spot the orchid's small pink flowers against a charred, dark background. BEP is a state natural area preserve owned by Old Dominion University and managed in partnership with DCR's Natural Heritage Program.

While small, Pale Grass-pink orchids at Blackwater Ecological Preserve were relatively easy to locate against a recently burned, charred forest floor.

During the night hours between July 20 and 21, an unknown individual drove their vehicle on the sandy shoreline at Bethel Beach Natural Area Preserve (BBNAP), causing negative impacts to rare species habitat at this state-owned site in Mathews County. The vehicle skirted around three concrete Jersey barriers placed by DCR and VDOT to restrict vehicle access to the shoreline, then traveled the entire length of the preserve before returning and exiting. Tire tracks lead through areas where both adult and larval federally- and state-listed threatened Northeastern Beach Tiger Beetles (*Cidindela dorsalis dorsalis*) (G3G4T2/S2) had been documented by DCR's Natural Heritage Chesapeake Bay Region stewardship staff during the day (7/20/22) just prior to this incident. As Northeastern Beach Tiger Beetle has both federal and state legal protection status, persons damaging their habitat can face potentially serious charges. DCR staff will work with VDOT to relocate barriers to reduce chances for future such incidents and better protect NBTB, as well as other rare species known from the BBNAP shoreline, including nesting Least Terns (*Sternula antillarum*) (G4/S2B).

Recent tire tracks indicate vehicular trespass around Jersey barriers placed to restrict shoreline access and protect rare species habitat at Bethel Beach Natural Area Preserve in Mathews County

Wreck Island Natural Area Preserve sees record number of nesting Brown pelicans. Wreck Island Natural Area Preserve is a state-owned, dynamic barrier island preserve situated approximately 7 miles east of the Eastern Shore seaside mainland. Although important for numerous migratory shorebirds (Black Skimmer, Ibis, Little Blue Heron, Plovers, Terns), Brown Pelican (*Pelican occidentalis*) has become the most abundant species that nests on Wreck Island. Counts of nesting pairs have increased notably during the last five years: from 120 in 2018 to 200 in 2019, and from 700 in 2021 to over 1,000 in May and June of 2022. Brown Pelicans raise only one set of young each year, with clutch size ranging from one to four eggs; however, only about 70% of eggs hatch. Most nests are directly on the ground (at relatively high elevations to reduce risk of inundation) within and behind low, grassy dunes. Wreck Island is one of only two locations in Virginia where Brown Pelicans are known to nest – the other being Fort Wool along the Hampton Roads Bridge-Tunnel but which hosts only a few nests. Wreck Island Natural Area Preserve, managed by DCR's Natural Heritage Program, is the only state-owned Virginia barrier island, and the only place on the Eastern Shore where Brown Pelicans are currently known to nest.

Over 1,000 pairs of adult Brown Pelicans are nesting on Wreck Island Natural Area Preserve in summer 2022 - the most ever documented at this state-owned barrier island on the Eastern Shore.

On July 20, 2022, DCR's Chesapeake Bay Region stewardship staff Zach Bradford and Hali Haskins conducted annual monitoring for the federally listed threatened Northeastern Beach Tiger Beetle (NBTB) (*Cicindela dorsalis dorsalis*; G3G4T2/S2) at New Point Comfort Natural Area Preserve (NPC) in Mathews County. During the survey, over 2,500 adult individuals of this rare species were counted. This result is similar to the large numbers observed during a 2021 survey, and indicates a near doubling in population size from 10 years ago. NBTB was once abundant along dynamic sandy shorelines of the northeastern seaboard. However, over the last century, its range has declined markedly to just Martha's Vineyard and a few strands of sandy shoreline along both sides of the Chesapeake Bay. This extreme contraction is widely believed to have resulted from human population increases and associated development, shoreline hardening and intensive recreational beach use. The recent New Point Comfort NBTB population increase is likely associated with sandy shoreline habitat expansion at the preserve over the last 10-15 years. In addition to rare species habitat, NPC – owned by The Nature Conservancy and managed in partnership with DCR – provides public access featuring a boardwalk and viewing platform overlooking saltmarsh and Mobjack Bay.

New Point Comfort in 2005 (left) and 2021 (right). Nearly half a mile of sandy shoreline has formed on the western side during this period, providing much improved habitat for Northeastern Beach Tiger Beetles.

On July 26, 2022, Mutton Hunk Fen Natural Area Preserve hosted the release of a rehabbed Bald eagle. Mutton Hunk Fen Natural Area Preserve (MHFNAP) in Accomack County – located on the Virginia Eastern Shore seaside – protects 516 acres of critical migratory songbird habitat and coastal natural communities. Since June 6 of this year, The Wildlife Center of Virginia (TWC) has been working to rehabilitate Bald Eagle (*Haliaeetus leucocephalus*) #22-1580, found injured in late spring of 2022 in northern Accomack County. With rehab complete and the healthy bird ready to be returned to the wild, MHFNAP was selected as an ideal location for a release event. The event began with TWC founder and president Ed Clark sharing information about The Center and addressing current threats to Bald eagles – with special mention of lead toxicity from hunting ammunition. After providing information about the circumstances surrounding this particular bird, Ed released Eagle #22-1580, with an appreciative crowd of 50 observers looking on. Students and staff from TWC assisted DCR Natural Heritage staff and Eastern Shore Chapter Master Naturalist volunteers in ensuring the event went smoothly.

From left to right, DCR-DNH Coastal Region Steward Shannon Alexander, The Wildlife Center of Virginia President and Founder Ed Clark, and DCR-DNH Coastal Stewardship Technician Jack Saladino, plus 50 observers, gathered at Mutton Hunk Fen Natural Area Preserve to release a rehabbed Bald eagle on July 26, 2022 (photo by James Ford).

Ed Clark, President and Founder of The Wildlife Center of Virginia, releases a rehabilitated Bald eagle at Mutton Hunk Fen Natural Area Preserve (photo by James Ford).

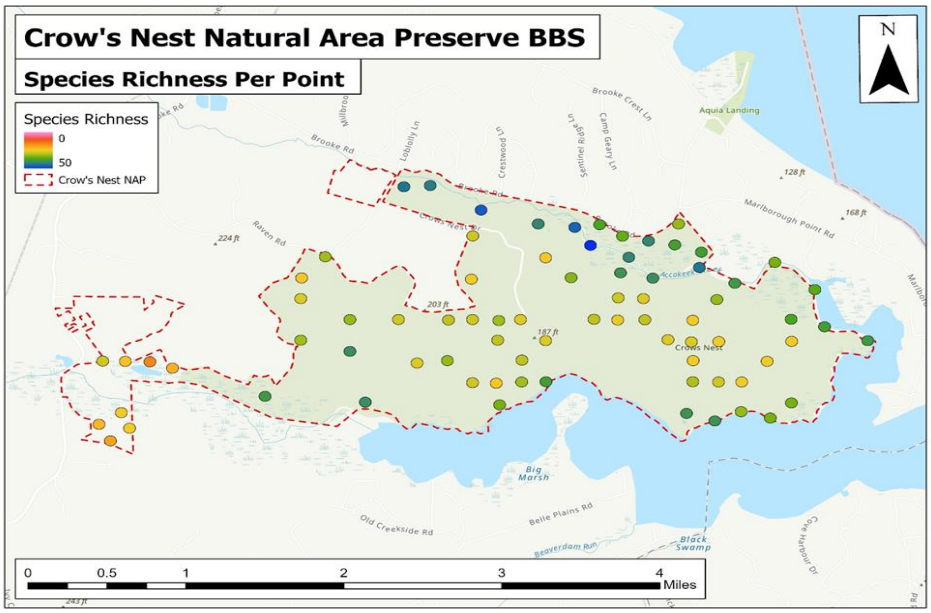
In early August 2022, DCR's Natural Heritage Northern Regional Supervisor, Michael Lott, with assistance from four volunteers, completed the ninth consecutive season of breeding bird monitoring at Crow's Nest Natural Area Preserve. A total of 1,173 point counts have now been completed across 81 monitoring points, with 83 species identified and approximately 19,000 individual birds counted. Monitoring points are randomly located with stratification by plant community type. The top three species through the nine seasons are Red-eyed Vireo, Tufted Titmouse, and Wood Thrush. Wood Thrush is one of four Watch List Species identified by Partners in Flight that breeds at Crow's Nest, along with Red-headed Woodpecker, Kentucky Warbler and Prothonotary Warbler. Least Bittern (S3B/S3N) – a species on the DCR Natural Heritage Animal Watch List –

was detected again in 2022 as breeding in the Freshwater Tidal Marsh community along Accokeek Creek. Volunteers have contributed approximately 200 hours of their time to support Crow's Nest breeding bird monitoring efforts. In early September 2022, Michael Lott will attend and present results of this long-term monitoring work, emphasizing the importance of Crow's Nest as critical breeding bird habitat, at the annual Natural Areas Conference in Duluth, Minnesota.


Red-headed Woodpecker (left) and Prothonotary Warbler (right) are two Partners in Flight Watch List Species known to breed at Crow's Nest Natural Area Preserve. Photos by Jim Goehring and Bill Hohenstein

During the first week of September 2022, Natural Heritage Stewardship Staff traveled to Duluth, MN for the 2022 Natural Areas Conference sponsored by the Natural Areas Association (NAA). The mission of NAA is to support natural areas professionals in the protection and management of natural habitats essential to biodiversity conservation. Virginia DCR staff involvement at the 2022 conference included 1) Ryan Klopf's participation as a Board of Directors member and facilitation of two Science Advisory Committee discussions; Rick Myers' presentation on Virginia's Natural Area Preserve System at the State Natural Areas Roundtable session; and, Mike Lott's presentation during a concurrent session entitled *Long-Term Monitoring of Breeding Bird Populations at Crow's Nest Natural Area Preserve*. Through these and other professional engagements with peers and colleagues from across the country, DCR's Natural Heritage Program staff raise the national profile of natural areas and biodiversity conservation efforts in Virginia, and exchange habitat conservation best practices with a broad set of resource managers beyond the borders of the Commonwealth.

The Natural Areas Association Board of Directors Meeting included a short visit to Iona's Beach State Scientific and Natural Area protected for its unusual geology and public access values.



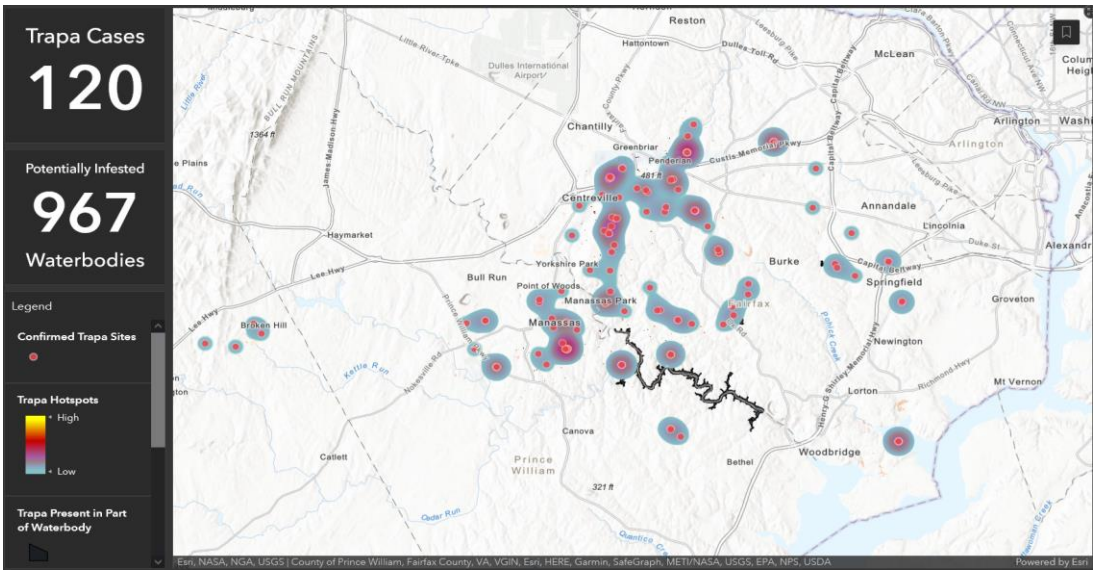
Data slide from presentation on the Crow's Nest Natural Area Preserve long term breeding bird monitoring presentation.

Invasive Species

On June 10, 2022, DCR Stewardship Biologist Kevin Heffernan and Invasive Species Technician AG Sweany presented a draft management plan to the ad hoc Trapa Task Force via teleconference. The plan is meant to bring together and guide the actions of multiple partners in Northern Virginia to address the growing threat of Two-horned Trapa (*Trapa bispinosa*) – an annual aquatic plant rapidly spreading in freshwater ponds in Fairfax, Prince William, Fauquier, and Loudon counties. With roots that grow 10 to 16 feet, it can completely cover the surface of a pond within a year or two of introduction. Historical records are known from Stafford and Westmoreland counties, but living populations have not been identified there. Two-horned Trapa is a close relative of the highly invasive European Water Chestnut (*Trapa natans*), which at one time choked the Potomac River and required millions of dollars and decades of control efforts by the Army Corps of Engineers to eradicate. Currently, Two-horned Trapa is known only from Virginia and has been identified at over 70 sites here. DCR staff are conducting field surveys, geospatial analysis, and outreach. The Department of Wildlife Resources and localities are seeking funding for full-time staff to oversee much-needed control efforts consisting mainly of chemical treatments and mechanical removal, both of which require multiple years to achieve eradication. The Trapa Task Force includes staff from various northern Virginia localities, DCR, DWR, VDACS, Northern Virginia SWCD, and the National Capital Partnership for Regional Invasive Species Management.

At left: Two-horned Trapa covers a pond in northern Virginia. At right: Two-horned Trapa seeds have two sharp barbs, enabling attachment to waterfowl, clothing, and equipment, and dispersal to new habitats.

On July 29, 2022, the Two-horned Trapa Task Force approved a management plan to guide efforts of landowners, localities, and state resource managers in addressing the rising threat of the aquatic invasive plant, Two-horned Trapa (*Trapa bispinosa*). Plan development was led by DCR Stewardship Biologist Kevin Heffernan and Invasive Species Technician AG Sweany, who coordinated input from all Task Force members including representatives from Fairfax County, Prince William County, DC Partnership for Regional Invasive Species Management, VDACS, DWR, and DCR. The plan was reviewed by staff from the Maryland Department of Natural Resources who are battling a similar species, European Water Chestnut (*Trapa natans*). A Two-horned Trapa map dashboard, developed jointly by University of Richmond and DCR, was published online with the plan, allowing users to see verified Two-horned Trapa locations and risk levels for nearby ponds. As a user zooms in and out on a location, they can see the number of known sites and total number of water bodies within a map view. Water bodies are color-coded to indicate their proximity to known Trapa infestations, giving landowners a means for assessing threat level to their pond(s). Canada Geese and other waterfowl appear to be a primary means by which Trapa is spread. The Two-horned Trapa management plan and map dashboard can be found here: https://www.invasivespeciesva.org/species/two-horned-trapa
Dashboard:
https://vdcr.maps.arcgis.com/apps/dashboards/e83a245db42f4b829881ddbb47806d1c
Management plan:
https://www.invasivespeciesva.org/document/management-plan-for-two-horned-trapa-2022-final.pdf



Two-horned Trapa dashboard - a new tool for assessing threat level from a fast-spreading, relatively new aquatic invasive species in Virginia.

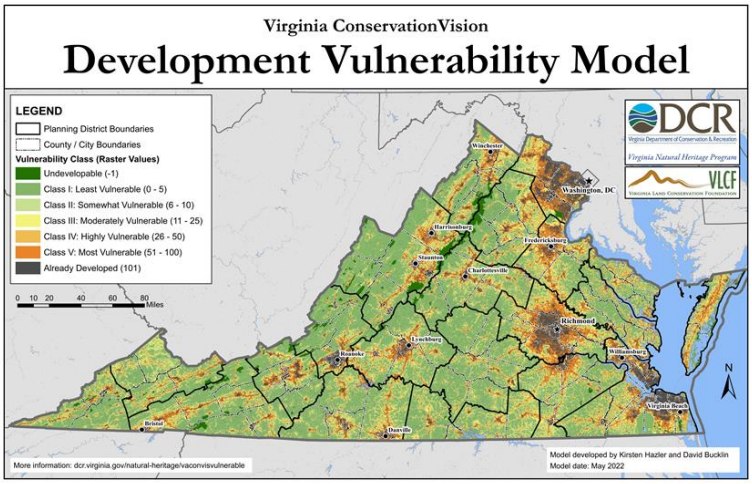
Information Management

On June 9, 2022, two Virginia Department of Conservation and Recreation staff graduated from Virginia Natural Resources Institute (VNRLI), through the University of Virginia Institute for Engagement and Negotiation (UVA-IEN). Kerry O'Neill, District 4 Resource Specialist with Virginia State Parks, and Danielle Kulas, Biodiversity Data and GIS Specialist with the Natural Heritage Program, were among 29 graduates in the class of 2022. Several state agencies were represented by course participants in addition to DCR, including Virginia Department of Forestry (VDOF), Virginia Department of Energy (VA Energy), Virginia Department of Environmental Quality (VDEQ), Virginia Department of Wildlife Resources (VDWR), and Virginia Department of Agriculture and Consumer Services (VDACS). Nonprofit organizations, private entities, local government, and academic institutions were also represented among VNRLI '22 fellows. VNRLI is a professional development program for leaders working with natural resource issues to seek new skills in conflict resolution and collaborative problem solving. During the course, six three-day sessions are held in different locations around Virginia focusing on a myriad of environmental topics. A mix of lectures, roleplays,

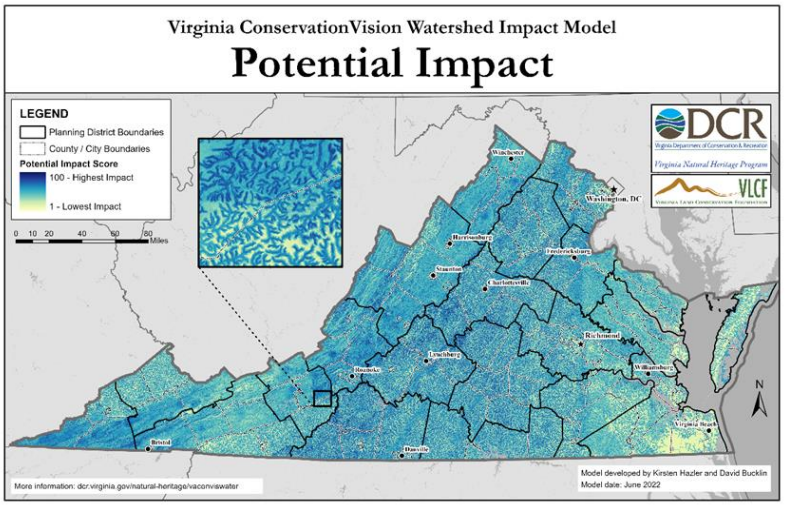
exercises, panel discussions, and field trips offer a well rounded, holistic approach to learning and skill development. VNRLI is a collaboration of UVA-IEN, Virginia Cooperative Extension at Virginia Tech, VDOF, VDCR, VDWR, and VDEQ. The 2022 graduates are excited to implement what they've learned in their workplaces and beyond!

VNRLI faculty and Class of 2022 at graduation, Boar's Head Resort, Charlottesville, Virginia.

On June 22, 2022, two Virginia ConservationVision models, the Development Vulnerability Model and the Watershed Impact Model, which were recently updated using new methodologies and input datasets, were published on the Virginia Natural Heritage Data Explorer (NHDE), replacing older versions. NHDE is an online interactive mapping application that anyone can use to map the conservation status and conservation values of lands. Subscribers to NHDE have additional access to sensitive data pertaining to Natural Heritage Resources for web-based, site specific environmental review. The purpose of the Development Vulnerability Model is to quantify the potential of conversion from greenspace (natural, rural, or other open space lands) to urbanized or other built-up land uses. The Watershed Impact Model is intended as a geospatial screening tool for assessing where activities on the land are expected to have the greatest impact on water. Technical reports and data downloads for each model can be accessed from the ConservationVision website (https://www.dcr.virginia.gov/natural-heritage/vaconvision) by clicking the links for the specific models.



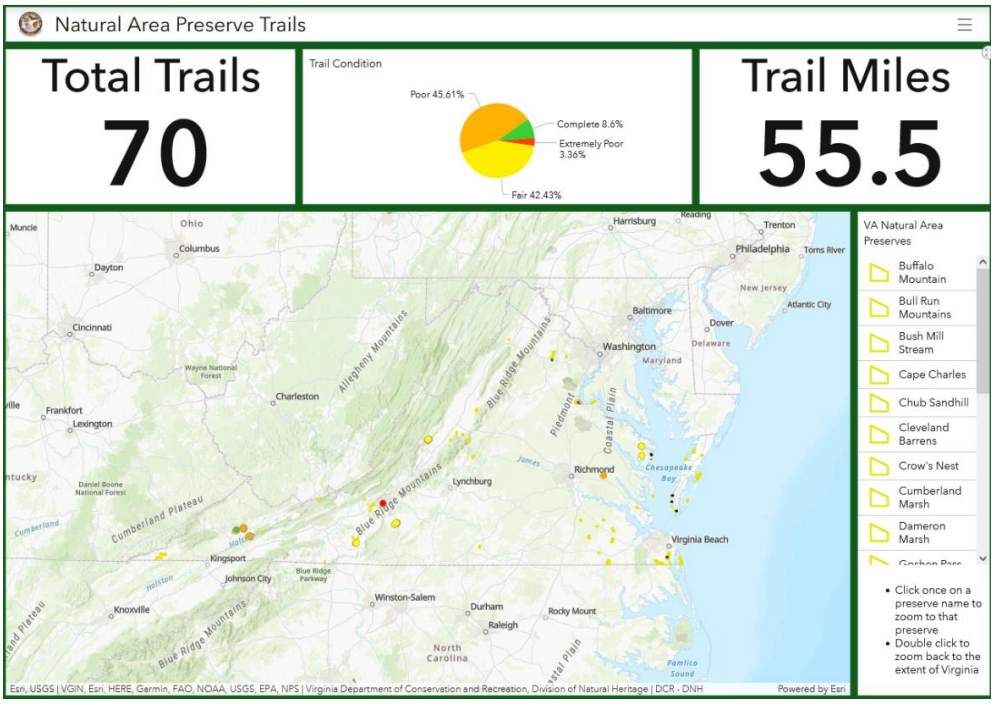
The Virginia ConservationVision, Development Vulnerability Model



The Virginia ConservationVision, Watershed Impact Model

On July 13, 2022, DCR's Chief of Biodiversity Information and Conservation Tools, Joe Weber, presented ConserveVirginia--Virginia's Land Conservation Strategy at the Esri User Conference, the world's largest GIS conference, in San Diego, CA. The theme of the conference was "Mapping Common Ground" and attendees learned the latest advances in geographic information system (GIS) technology for solving problems, increasing understanding, and mapping common ground. The ConserveVirginia paper was presented in the "Strategies for Landscape Level Conservation and 30x30" session and was highlighted in the industry flier for conservation. ConserveVirginia, which was codified into law in 2021 (§ 10.1-104.6:1) is the Commonwealth's strategic, quality over quantity land conservation initiative focused on the most important areas to conserve for a variety of values important to citizens. It has become a key tool in guiding state investments to ensure the best conservation outcomes. This data-driven approach to prioritizing land conservation is revised regularly, with Version 3.0 launched in the fall of 2021, and it relies on priorities identified by an array of state and federal agencies, universities, and conservation non-profits. The strategy prioritizes the most important lands from a statewide perspective, focuses limited resources toward those areas, and measures the progress made toward achieving multiple conservation goals. The presentation, which will be available on the conference website, covered ConserveVirginia from its beginning, including data providers, inputs, categories, land-conservation funding, and success stories. The session, which was well attended and received, ended with a panel discussion that included many thoughtful questions about ConserveVirginia and land conservation in Virginia.

On September 12, 2022, staff in DCR's Natural Heritage Division - Danielle Kulas, Biodiversity Data and GIS Specialist; Pat Davitt, Data Management Specialist; and Wes Paulos, Natural Areas Public Access Coordinator - unveiled a new in-development resource to Natural Heritage Division staff. Using ArcGIS Online, a resource provided via DCR's Enterprise License Agreement with ESRI, this assessment provides interactive map-based data from points along natural area preserve trails where data are being collected to identify trail conditions. This will enable Stewardship staff to prioritize limited resources (staff and funding) to address trail improvement needs across the NAP System. This tool will also be available in a smartphone format to enable field staff to note other trail condition concern locations and document when repairs are made. As existing resources allow, staff plan to complete this tool for all trails on the NAP System. With additional resources, the Division will further build out this resource to address various other Operations and facilities aspects of public access NAPs, thereby ensuring that NAPs continue to optimize biodiversity conservation and safe public access. This tool has also been shared with staff in DCR-State Parks, who also have access to this software, to consider for addressing these and similar aspects of State Parks management.



Screenshot of the NAP Trail Assessment map layer dashboard on ArcGISOnline.

Outreach and Education

On April 5, 2022 and at the invitation of the Cape Charles Rotary Club, DCR Coastal Region Steward Shannon Alexander presented a summary of the history and mission of DCR's Natural Heritage Program, including both stewardship strategies and accomplishments, plus future objectives for Coastal Region natural area preserves. Serving as a guest speaker for these types of events allows DCR natural areas stewards to spread awareness about the Natural Heritage Program and the state natural area preserve system. In doing so, we spread awareness of DCR's conservation mission and hopefully inspire citizens to participate in protecting Virginia's biodiversity.

On April 12, 2022, DCR Northern Region Stewardship staff led a group of 10 interested citizens on a wildflower hike at Crow's Nest Natural Area Preserve, co-organized with Stafford County Department of Parks and Recreation. While walking along the Accokeek Loop and Crow's Nest Point trails, participants learned how the underlying geology – particularly the calcium-rich Aquia Formation – influences the distribution of plant communities and abundance of constituent wildflower species. During early spring, Crow's Nest has many wildflowers in bloom including Spring Beauty, Dutchman's Breeches, Jack-in-the-Pulpit, and Early Saxifrage. In addition to seeing a wide diversity of plants, participants also learned about the conservation history of Crow's Nest, the state natural area preserve system, and the mission of DCR's Natural Heritage Program.

Wildflower hike participants at Crow's Nest Natural Area Preserve enjoyed this view of a Basic Mesic Forest slope with groundcover dominated by Dutchman's Breeches (at right).

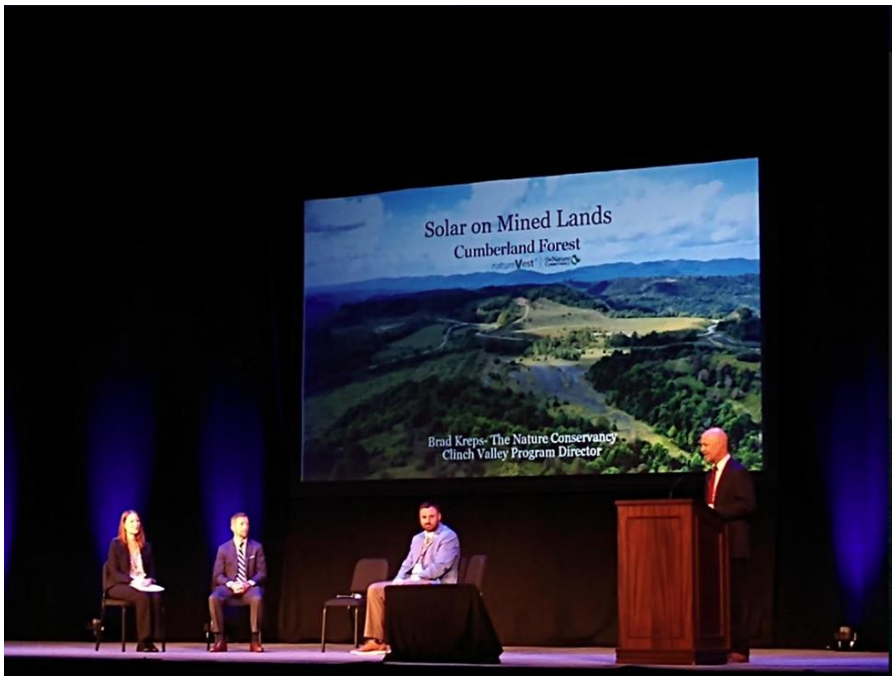
On April 24, 2022, DCR's Northern Regional Supervisor, Michael Lott, led a hike for a group of Girl Scouts and their parents at Crow's Nest Natural Area Preserve. The scouts are members of Troop 44079 based in Washington D.C. and were camping at nearby Camp Coles, a Girl Scout property along Aquia Creek in Stafford County. After a brief introduction to Crow's Nest and the Natural Heritage Program, participants hiked to Boykin's Landing. Along the trail, the scouts saw and identified numerous butterflies, five-lined skinks and Fowler's toads. While at Boykin's Landing, the group discussed how sea level rise and erosion are affecting the shoreline at Crow's Nest. In total, 17 people participated in the day's event.

Participants hiking near the junction of the Crow's Nest Point and Boykin's Landing trails (left) and enjoying the views from Boykin's Landing (right) at Crow's Nest Natural Area Preserve.

On April 27-28, 2022, the DCR-Natural Heritage Environmental Review Coordinator attended the Virginia Solar Summit in Richmond, VA. This in-person conference brought together state and federal agencies, private consultants and non-profit organizations for discussions regarding solar energy, economic development and environmental stewardship in Virginia. As solar continues to grow in the Commonwealth, the focus of solar development on brownfields (abandoned or contaminated properties) is increasing, especially in Southwest Virginia. This type of development rather than greenfield development continues to be discussed as needing to be incentivized. "Brightfield" development of these properties redeveloped through the incorporation of solar energy was a consistent theme throughout the conference.

An example of a brightfield development project highlighted during the conference was The Nature Conservancy's Cumberland Forest Project located in the Appalachians in Virginia, Tennessee and Kentucky. The multifaceted goals of this project are to expand public lands, to conserve biodiversity, to bolster climate

resilience and to increase economic development in the region. The Highlands portion of the project in Virginia includes forested land protection and development of previously surfaced mined areas for solar development. The Smart-Siting concept of avoiding forested areas will be applied to all 7 solar sites to produce 125MW in renewable energy.



Brad Kreps of The Nature Conservancy presents the Cumberland Forest Project at the Virginia 2022 Solar Summit.

On April 27-29, 2022, DCR staff presented informational posters at the Virginia Land Conservation & Greenways Conference in Richmond, VA. Land Conservation Specialist Gina DiCicco and Natural Heritage Landscape Ecologist Kirsten Hazler, respectively, prepared posters about ConserveVirginia 3.0 and the new Development Vulnerability Model. Staff were on hand to converse and answer questions during session breaks.

DCR's Kirsten Hazler speaking with conference attendees.

On April 30, 2022, project review assistant Carson Mays represented DCR-Natural Heritage at the first annual Native Plant Festival at Dorey Park in Henrico County. The festival was co-hosted by Root 5 Family Farms and Keep Henrico Beautiful to educate the public on the benefits of native plants. Local businesses and organizations were on site to sell Virginia native plants and spread awareness of ongoing efforts to conserve native plants in the region. Hundreds of people attended the event and walked away with native plants, information on removing invasive plant species, and resources for finding native species to plant at home. Keynote speaker Doug Tallamy wrapped up the event with a speech on his Homegrown National Park project, which seeks to encourage homeowners to reclaim land on their property back to its natural state through the planting of native species. The success of the event has prompted interest among organizers and attendees in making the festival an annual event.

Natural Heritage Display at Native Plant Festival -Henrico County

On May 3 and May 18, 2022, DCR's Northern Region natural areas stewardship staff led a birding hike and kayak trip at Crow's Nest Natural Area Preserve. The trips were co-organized by the Stafford County Department of Parks and Recreation and were the last of two outreach events for the spring 2022 season. Bird migration was in full swing and participants enjoyed views of summer tanager, scarlet tanager, wood thrush and several warbler species. As is typically the case at Crow's Nest, many more birds were heard then seen. Participants on the kayak trip also had great views of osprey, bald eagle and numerous red-winged blackbirds. In addition to enjoying the diversity of birds and plant life, participants learned about the conservation history of Crow's Nest and the mission of DCR's Natural Heritage Program. There were 10 participants on each trip.

Participants enjoyed views of Wood Thrush (left) and the Freshwater Tidal Marsh (right) along Accokeek Creek at Crow's Nest Natural Area Preserve.

On May 28 and May 31, 2022, DCR's Northern Regional Supervisor, Michael Lott, recently led two guided hikes at Crow's Nest Natural Area Preserve. On May 28, 19 members of the Northern Virginia Birding Club hiked the main peninsula of the preserve and looked primarily for the numerous forest interior species that breed within Crow's Nest. On May 31, the George Washington Regional Commission hosted a quarterly Coastal Planning District Commission meeting and afterward, Mike hosted attendees on a guided hike along the Boykins's Landing Trail. The group discussed coastal and climate resilience strategies relating to DCR's stewardship of Crow's Nest, as well as various approaches to rare species habitat protection and invasive species management. Participants in the hike included members of various coastal planning district commissions plus staff from the Coastal Zone Management Program at DEQ.


Recent guided hike participants enjoyed views of Eastern Wood-Pewee (left) and a Yellow-Throated Vireo (right) at Crow's Nest Natural Area Preserve in Stafford County.

On May 5, May 26, and June 6, 2022, DCR's Coastal Regional Supervisor Shannon Alexander and Stewardship Technician Jack Saladino provided outdoor education experiences for three groups at Savage Neck Dunes Natural Area Preserve (SNDNAP). On May 5, a group of 20 high school students and teachers from Broadwater Academy completed field activities including seining, dip netting and trapping aquatic organisms including minnows and turtles. On May 26, a group of 30 researchers and students from the Chincoteague Bay Field Station visited SNDNAP and were introduced to the preserve's unique and sensitive habitats and species. On June 6 and in partnership with the Eastern Shore Land Trust (ESLT), a Clean-The-Bay-Day event was hosted at the preserve, educating participants about conservation in the Coastal Region and sensitive habitats at SNDNAP, plus removing 450 pounds of debris from the preserve shoreline and adjacent easement property to the south.


Previous page: Clean-The-Bay-Day volunteers removed debris from the preserve's 1-mile Bay shoreline. Volunteers (at left) and students from Broadwater Academy (at right) learned about the preserve's unique habitats and rare species occurrences.

On June 9 and 16, 2022, DCR's Northern Region stewardship staff welcomed participants in the Fredericksburg Regional Governor's School Wetlands class to Crow's Nest Natural Area Preserve. These students are rising 7th graders from various schools in the Fredericksburg area. While at Crow's Nest, students learned about the human history of the Crow's Nest Peninsula, the conservation efforts that led to the dedication of the preserve, and the ecological importance of and ecosystem services provided by freshwater tidal wetlands along Accokeek Creek. After this introduction, students enjoyed a two-hour kayaking field trip led by DCR-Natural Heritage staff. Teachers and staff from Walker Grant Middle School (Fredericksburg) organized and taught the weeklong class. Kayaks and boating guidance were provided by the Virginia Outdoors Center. Approximately 34 students participated in each session. This was the fifth year the class has used Crow's Nest as an outdoor classroom.

Governor's School participants on Accokeek Creek
at Crow's Nest Natural Area Preserve.

On June 11, 2022, Natural Heritage Project Review Assistant, Nicki Gustafson, represented DCR at the Henrico Master Gardeners Spring Plant Sale and Pollinator Festival at Deep Run Park. The event featured 15 other exhibitors including Henricopolis Soil and Water Conservation District, Keep Henrico Beautiful, Master Naturalists, and the Virginia Native Plant Society. Approximately 950 individuals attended the event and received information on invasive species, the importance of planting native plants and pollinators. DCR's Natural Heritage educational booth was well attended all day despite inclement weather that moved the event indoors into the Deep Run Recreation Center.

Exhibitors at the Henrico Master Gardeners Spring Plant Sale and Pollinator Festival

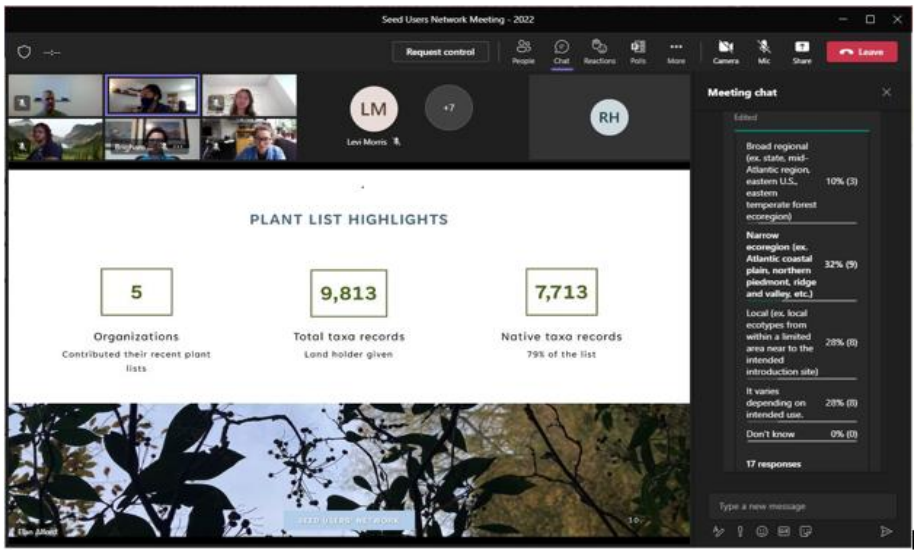
On August 11, 2022, a group of DCR-Natural Heritage Staff participated in the Heritage Half Acre (HHA) volunteer invasive plants removal event. The large amount of rain the day before the event made it easier to remove English Ivy (*Hedera helix)*, Chinese Privet (*Ligustrum sinense*) and Japanese honeysuckle (*Lonicera japonica*) from the HHA. Pawpaw (*Asimina triloba*) was one of the dominant native species along with Jumpseed (*Persicaria virginiana*) in the understory. The volunteer event provided an opportunity for Natural Heritage staff from the project review, information management and inventory sections to gather and work towards a common goal. We look forward to expanding participation in this effort throughout the agency in the coming months.

Heritage Half Acre located within the James River Park System

Pawpaw Fruit

HHA Volunteer Group

On Monday, August 1, 2022, Environmental Review Coordinator, Rene' Hypes, and Project Review Assistant, Nicki Gustafson, participated in a virtual meeting for the Mid-Atlantic Plant Conservation Alliance led by Mt. Cuba Center in Delaware for native seed users. This was a meeting with a large variety of native seed users from across the mid-Atlantic region regarding the use of native species in restoration efforts and the development of a native seed supply. This was a great opportunity to hear what efforts are being made regionally with some exciting overlap between the goals of the Virginia Native Seed Pilot Project and the Mid-Atlantic Plant Conservation Alliance.



Mid-Atlantic Seed Users Network Virtual Meeting

On Tuesday, August 2, 2022, Rene' Hypes and Nicki Gustafson met with a group from the Tennessee Valley Authority (TVA) that included biologists from the Tennessee Natural Heritage Program and staff working for the TVA on solar development. TVA is looking to develop best management practices for eco-friendly commercial scale solar development in executing a defined clean energy strategy to reduce carbon from 2005 levels by 70% by 2030, 80% by 2035, and net-zero by 2050. They were interested in learning more about the Virginia Pollinator Smart Scorecard and Comprehensive Manual to inform the development of a guidance document for solar developers in their state. The meeting was a great opportunity to showcase Virginia's

Pollinator Smart Program and to learn about TVA's efforts to promote the establishment of pollinator friendly habitat on their renewable energy sites.

Both of these follow-up meetings were a result of Nicki Gustafson's presentation on the Virginia's Pollinator Smart Program and the startup of a Virginia Native Seed Industry during the 2022 NatureServe Biodiversity without Boundaries Conference in March. This continued outreach and collaboration continues to promote the utilization of native species in development and restoration projects.

Land Conservation

Natural Heritage Data Management Totals for FY2021:

Activity 4-1-22 – 9-30-22

New Mapped Locations (EOs) – 12
Updated Mapped Locations (EOs) - 121
New Conservation Sites – 9
Updated Conservation Sites – 56

Total Number in Database 9-30-22:

Animal Mapped Locations (EOs) – 698
Plant Mapped Locations (EOs) – 1,318
Community Mapped Locations – 616
Conservation Sites – 690

Managed Areas: (Acres added 4-1-22 – 9-30-22) –2, 449.29 Acres
Mapped Tracts: (total number in coastal zone) – 4, 997 Tracts
Mapped Managed Areas: (total number in coastal zone) – 3,533 Managed Areas

Healthy Waters

For the grant reporting period, the Environmental Scientist/Analyst with the Virginia Commonwealth University, Rice Rivers Center in the Department of Life Sciences (VCU) continued to serve as the Program Manager of the Virginia Healthy Waters Program (HWP) at the Virginia Department of Conservation and Recreation-Division of Natural Heritage (DCR-DNH.

The Healthy Waters Program is supported through funding from several grant sources including the VA CZM Section 306, US EPA Section 319 Nonpoint Source Program, and the Chesapeake Bay Implementation Grant. These sources fund various aspects of the Program including the administration and oversight, Program growth and expansion, improvement in capacity, acquisition and analysis of new data, tool and model development and data integration at the DCR-DNH.

Programmatically, the identification of funding, maintenance of models and tools and increasing capacity have been the foci of the HWP. While progress continues to be made on the refinement of the redefinition of Stream Conservation Units (SCUs) to a new polygon, Stream Conservation Catchments (SCC), the effort during the reporting period was most heavily weighted on the development of on-the-ground capacity for the HWP. Grants were developed to support the continued need for ongoing data development and geographic expansion.

Ongoing discussions of the long-term funding for the HWP was undertaken through coordinated communication with DEQ/VCZM, DCR-DNH and VCU to discuss the need for programmatic capacity to

support on-the-ground implementation of the Program. The diverse funding has supported the program, model development and data development but the program has reached a point to move further. Ongoing data development continues to be a need but a deficiency is in the ability to influence the outcome of conserving those identified HW sites, including meeting the Chesapeake Bay Healthy Waters Goal. The HWP Manager was able to garner support from the DCR-DNH Director to increase field capacity for the Program and presented the concept to the DCR management. By working with the VCZM Director and VCU a concept position was developed and the first grant proposal was developed to support a HWP Field Coordinator (FC). That position would take those tools created at the DCR-DNH and work closely with conservation partners to advance those conservation actions from planning tools into tangible implementation. The position would be supported through resources from VCZM, USEPA Section 319 and Chesapeake Bay Implementation Grant. The HWP Field Coordinator would employ leverage the application of agricultural or forestry best management practices to meet local TMDL WIP measures in impaired but ecologically healthy waters. The HWP Field Coordinator will likely leverage the work of the eight (8) Coastal Planning District Commissions (PDCs) to assist coastal communities, Conservation Districts, VDOF, Land Trusts, Nature Conservancy and coordinate with other agencies on HWP community-based natural resource identification and protection.

The DCR Director requested additional information to understand how the position would work with private landowners. Two primary points were highlighted to the DCR Management, Funding and Programmatic Refinement for the new HWP FC. Under the Funding, it was identified, the HWP FC will be a VCU employee utilizing soft funding but will be stationed at and represent the DCR-DNH and have access to those resources within the DCR-DNH. The DCR-DNH has reaffirmed funding from the VA CZM program, US EPA CBIG and US EPA Section 319. A contract from the VA CZM is moving through the approval process, a subaward to VCU with US EPA CBIG is being finalized and the DCR-DNH is awaiting award from US EPA for the new US EPA Section 319. Given the funding, the position will primarily target areas in the Chesapeake Bay Watershed both upper and coastal areas.

Under the heading of Programmatic Refinement for the new HW FC, the HWP has met with the DCR-DNH Land Conservation and Information Management sections to refine the goals of the fieldwork and to focus the geographic area for this field position. The HWP FC will leverage and partner with the Soil and Water Conservation Districts, VA DOF, localities, Planning District Commissions and NGOs to achieve multi-goal benefits within the overall Bay Agreement and to achieve TMDL WIP implementation for impaired waters. The DCR-DNH HWP Manager had also met with the VCU Healthy Waters field team to refine the fieldwork and opportunities to advance conservation within the upper Tye, Piney, and Rockfish Rivers and is evaluating the focus elsewhere. The HWP Manager is seeking to leverage a partnership with the Wintergreen Home-Owners Association due to their ownership of 1600ac of upper watershed of the Rockfish River, Stoney Creek and are interested in better land management to maintain a cold-water recreational fishery. The HWP Manager met with the Department of Wildlife Resources to discuss utilizing the HWP, INSTAR data (the basis of the ecological characterization of the HWP) and tools at DCR-DNH to implement brook trout conservation measures in the upper Tye, Piney and Rockfish Rivers.

The HWP Manager continued to work with the DCR-DNH staff refine the prioritizing of statewide SCUs and the possible redefinition of those areas draining to aquatic and riverine EOs. The proposed approach is based on the NHD+HD catchment areas, instead of a linear buffer as currently employed for SCUs. The process will assist in the repackaging of those polygons the Commonwealth applies for designation of "Healthy Water*sheds*" as submitted to the CB Program for the CB Program HW Goal. That polygon is consistent with the scale proposed by the Bay Program. The HWP Manager continued to serve as the VA representative on the HW Goal team remaining consistent that the Commonwealth will set their own course for long-term protection action. The HWP Manager attending the Chesapeake Bay Goal Team meetings on April 11 and August 8.

The challenge posed by the new polygon (SCU to SCC) is that conservation planning on a watershed basis would be divergent from the opportunistic approach under which some conservation actions are achieved and

that the effort for the Environmental Review section would significantly change. The HWP Manager and staff from the Information Management and Environmental Review sections discussed the challenges and opportunities, and revised language was proposed for Environmental Review to consider as a means to address those sites that would be added to their workload.

c) DCR- Division of Planning and Recreational Resources

During the reporting period, DCR-PRR awarded grant money for the following trail construction and improvement projects and water access points.

Isle of Wight County – Heritage Park ATV Trails
City of Norfolk - Elizabeth River Trailhead
Fairfax County, NOVA Parks - Bull Run Occoquan Trail
City of Hopewell - Riverwalk Connection Phase II
Chesterfield County - James River Conservation Area Trails
Fairfax County – Pohick Stream Valley Trail Connections
Prince William County – Julie Metz Boardwalk Phase II
James River National Wildlife Refuge – Universal Access Trail
City of Newport News, Hampton Roads Sanitation District– Flax Mill Creek Trail
City of Richmond - Pump House ADA Trail Access and Amenities
City of Newport News, The Mariners' Museum - Martha's Way Trail
Surry County - Gray's Point Marina Water Access Point
City of Alexandria – Four Mile Run All-Ability Water Access Point

5) Department of Wildlife Resources (DWR)

I. Wetlands

Mitigation Banking

DWR continues to participate on the Interagency Review Team that oversees stream and wetland mitigation banking and provide input on new banks all over Virginia, including the coastal zone. Numerous proposals were made for new banks and/or additions to existing banks within the coastal region of Virginia during this reporting cycle. DWR is also now part of the IRT overseeing the Virginia Aquatic Resources Trust Fund projects.

Wetland Restoration

DWR continues to have an active voluntary wetland restoration program. The program assists private, state, local, and federal government landowners to restore wetlands on their property. Landowners receive assistance with site selection, cost-share programs, restoration design, and permit issues. The Virginia Department of Wildlife Resources is actively restoring wetland habitats in Virginia. Partnerships with organizations such as The U.S. Fish and Wildlife Service's Partners for Fish and Wildlife Program, The U.S. Department of Agriculture's farm bill programs, Ducks Unlimited, The Chesapeake Bay Foundation, and many others have resulted in additional wetland acres restored. We also administer and utilize funds from the Virginia Migratory Waterfowl Stamp to provide assistance to non-profit organizations for wetland restoration and enhancement activities. These funds are provided from a mandatory stamp required of waterfowl hunters.

DWR currently has two wetland restoration projects within the coastal zone that have been recently accepted or recommended for grant funding. In partnership with Ducks Unlimited, DWR has been awarded a NFWF Small Watershed Grant replacing several outdated water control structures, repair dike damage, and clear trees at our Doe Creek Wildlife Management Area. Some of the match funding for this project will be coming from the Virginia Migratory Waterfowl Stamp Grant which was applied for by Ducks Unlimited in early 2022. Also in partnership with Duck Unlimited, a NAWCA proposal has been recommended for approval for a project on Mattaponi WMA which will include road/dike maintenance, ditch cleanout, and the installation of water control structures. This project will result in the enhanced management of approximately 85 acres of wetland habitat. DWR is also included as a lead applicant or partner on several other restoration focused grant applications that have not yet been awarded.

II. Nongame Species Monitoring and Research

Piping Plovers and Wilson's Plovers

2022 Virginia Plover Survey: The Annual Virginia Plover Survey (VPS) was conducted from June 1 - 9, 2022 to obtain statewide breeding population estimates for the federally threatened piping plover and the state endangered Wilson's plover. VPS participants examined all suitable nesting habitats shared by both species of plovers in coastal Virginia.

A preliminary total of 140 piping plover breeding pairs were observed during the 2022 survey. This year's pair total reflects an 8% decrease over last year's survey total of 153 pairs. Breeding distribution did not change in 2022; all pairs were confined to the barrier islands (Assateague Island to Fisherman Island) with the majority of birds occurring on the northern half of the island chain (Assateague Island to Cedar Island). The preliminary 2022 end-of-season piping plover breeding pair total, which includes additional pairs discovered after the breeding survey was 162, which is a 11% decrease from last year's end-of-season total of 183 pairs. This year's breeding population decrease is the continuation of a declining trend that began in 2016 and is likely driven by multiple years of low reproductive success.

A preliminary total of 18 Wilson's plover breeding pairs were recorded during the 2022 VPS (Table X), a 40% decrease from last year's VPS and end-of-season total of 30 pairs. The 2022 preliminary end-of-season total was 20 pairs, a 33% decrease from last year's final total. Wilson's plover breeding activity in 2022 was confined to Metompkin and Cedar islands. Prior to 2006, up to 25% of the state's breeding population was reported on the southern islands (Parramore Island - Fisherman Island; DWR unpubl. data). It is not clear why Wilson's plovers have remained absent from the southern islands since then. Moreover, this is the first year no Wilson's plover breeding activity was observed on Assawoman Island. From 2012 – 2018, four to ten pairs nested on the island. In 2019 and 2020, only one pair was reported and in 2021, the number increased to 2 pairs. It is not clear what is causing the apparent withdrawal of Wilson's plovers from the island.

Plover Breeding Productivity: Staff from the DWR, The Nature Conservancy's Virginia Coast Reserve (VCR), Chincoteague National Wildlife Refuge (CNWR), Wallops Flight Facility and Fisherman Island NWR (FINWR) monitored the breeding success of 92% (n = 149 pairs) of Virginia's preliminary piping plover breeding population (n = 162) in 2022. This year's preliminary statewide productivity estimate was 0.30 fledged young per pair, the lowest value reported in the 33 years of monitoring in Virginia and well below the value (0.93 fledged young per pair) necessary to maintain a stable population in the Atlantic coast Southern Recovery Unit (Delaware – North Carolina). This year's record low reproductive success is the continuation of a declining trend that began in 2016. Based on demographic trends observed in Virginia and in other states, increases in annual breeding populations are often preceded by several years of productivity estimates above the value necessary to maintain a stable population. Conversely, annual population declines are often correlated with consecutive years of low

productivity, which is what appears to be occurring in Virginia. Factors contributing to the low productivity are not clear, but may include increasing populations of ghost crabs on several of the islands, which are known nest and brood predators, increased activity by avian predators such as gulls, peregrine falcons and great horned owls, and encroaching vegetation creating barriers to backside foraging areas. This year's preliminary site specific productivity estimates are presented in Table 1.

Table 1. 2022 preliminary Piping Plover productivity estimates on Virginia's barrier islands. The number of pairs monitored for productivity (n = 149 pairs) represents 92% of Virginia's end-of-season Piping Plover breeding population (n = 162 pairs). Numbers in parentheses represent 2021 data.

SITE	**# OF PAIRS MONITORED**	**# OF CHICKS FLEDGED**	**PROD.EST.**
NORTHERN BARRIER ISLANDS			
Assateague Island[1]	18 (23)	10 (12)	0.56 (0.52)
Wallops Island[2]	3 (3)	0 (0)	0.00 (0.00)
Assawoman Island[1]	9 (12)	3 (3)	0.33 (0.25)
Gargatha Beach[3]	9 (7)	0 (5)	0.00 (0.71)
Metompkin Is.[3]	37 (42)	18 (26)	0.49 (0.62)
Cedar Island[3]	38 (49)	1 (24)	0.03 (0.49)
N. ISLAND TOTALS	**114 (136)**	**32 (70)**	**0.28 (0.51)**
SOUTHERN BARRIER ISLANDS			
Parramore Island[4]	7 (9)	4 (3)	0.33 (0.38)
Myrtle Island[4]	8 (8)	5 (7)	0.63 (0.88)
Smith Island[4]	15 (15)	2 (7)	0.13 (0.47)
Fisherman Island[5]	5 (5)	1 (3)	0.20 (0.60)
S. ISLAND TOTALS	**35 (37)**	**12 (20)**	**0.34 (0.54)**
STATEWIDE EST.	**149 (173)**	**44 (90)**	**0.30 (0.52)**

[1]Data provided by the Chincoteague National Wildlife Refuge.
[2] Data provided by Wallop's Island Flight Facility biological staff.
[3] Data provided by the DWR.
[4] Data provided by The Nature Conservancy's Virginia Coast Reserve.
[5] Data provided by the Fisherman Island National Wildlife Refuge.

The DWR staff monitored the breeding success of 95% of Virginia's 2022 Wilson's plover breeding population. A total of 15 young fledged among the 19 pairs monitored which yielded a productivity estimate of 0.79 fledged young per pair. This year's productivity estimate represents an increase over last's estimate of 0.68 fledged young per pair, which was the lowest value reported since Wilson's plover productivity studies began in 2004.

Annual Atlantic Coast Least Tern Survey

In 2022, DWR staff coordinated the 17th annual Atlantic coast least tern (*Sterna antillarum*) breeding survey in Virginia, an effort which began in 2006. The least tern is ranked as a Tier III Species of Greatest Conservation Need in the VA Wildlife Action Plan. The survey window for the southern Mid-Atlantic States (MD – NC) is June 1 – 15. Least terns are one of the more difficult seabird species for which to obtain accurate breeding population estimates. They are highly ephemeral (abandon one site in favor of another, often several times during a single breeding season), patchy in distribution within colonies, and eggs are small and well-camouflaged making

them difficult to see. Thus, the information gathered by participating Atlantic coast states are viewed as trend data rather than actual population estimates and efforts are made by the states to maintain a similar level of effort from year to year within in the survey window. Several methods have been used to survey least terns; however, results from a study examining the accuracy and precision of each of these techniques suggested that incubating adult counts yield the most accurate estimates with the least amount of disturbance to the birds (Matthew D. Hillman, pers. comm.) As such, Virginia survey participants continue to use this method at most colonies.

Through the combined efforts of the VCR, CNWR, and FINWR, DWR obtained an estimate of 1,138 least tern breeding pairs in 44 colonies. This preliminary estimate represents a 24% increase from last year's total of 917 pairs and is the highest documented since surveys began in 2006. Ninety-seven percent of this year's breeding pairs (n = 1,101) occurred on Virginia's barrier islands and the remaining 3% (n = 37 pairs) occurred at Craney Island Dredge Material Management Area in Portsmouth, VA. This was the fourth year no colonies were reported on the western shore of the Chesapeake Bay likely due to the persistent erosion and frequent flooding of shorelines and islands previously occupied by the terns. Approximately 100 least terns were found nesting on Langley Air Force Exchange Building in late July. Because of the colony's apparent late formation in the breeding season and the fact that no effort was made to survey the colony by Base staff, the visual estimate was not included in the state total. Despite the considerable annual fluctuations observed since 2006, it appears the Virginia least tern population is on an increasing trajectory.

American Oystercatcher Productivity Studies in the Seaside Marshes and Barrier Islands

American oystercatcher productivity has been monitored at varying sites and varying degrees of intensity along the Virginia barrier islands and in the seaside marshes since 2001. Oystercatchers are listed as a Tier II SGCN in VA's Wildlife Action Plan. This year, DWR staff continued to conduct productivity studies in the marshes east of the town of Wachapreague (Wachapreague Route), including a sand shoal in Wachapreague Inlet. During this performance period, a total of 34 pairs was monitored, which collectively produced only six fledged young and yielded a productivity estimate of 0.18 fledged young per pair, well the level required to maintain a growing population (i.e., 0.36 fledged young per pair). Department staff also conducted productivity studies on Gargatha Beach, a recently formed beach on a marsh headland between Assawoman and Metompkin islands. DWR monitored three pairs that produced zero fledged young.

Creation of Alternative Seabird Nesting Habitat for the Displaced Hampton Roads Bridge and Tunnel Seabird Colony

On February 14, 2020, Governor Northam directed the DWR to provide temporary alternative nesting habitat for seabirds displaced by the Hampton Roads Bridge and Tunnel (HRBT) Expansion Project through the construction period (~2025). In 2020, DWR staff obtained the necessary permits and hired contractors to transform the parade grounds of Ft. Wool, an island adjacent to the HRBT, into suitable seabird nesting habitat. At the same time, Wildlife Division staff obtained permits to lease and moor a sufficient number of flat-top barges in the embayment between the HRBT and Ft. Wool to create additional nesting habitat. The department acquired decoys and audio lures to help attract target species and engaged the Virginia Tech Shorebird Program Team (VT Team) to install and maintain the seabird attraction equipment along with remote monitoring cameras, and evaluate nesting success on Ft. Wool and the barges through regular nest and adult counts, adult and chick banding, and weekly resighting surveys of banded individuals to obtain breeding population and chick survival estimates and to gain information on post-breeding movement patterns (see previous year's report for more details). This year, DWR staff prepared Ft. Wool and once again acquired three large barges that, combined, yielded approximately 2.5 acres of suitable habitat. The department also contracted with the VT Team for a third year of bird monitoring on Ft. Wool and the barges. Table 2 presents final results from the 2020 and 2021 breeding seasons along with preliminary 2022 results. Although the numbers from this year are incomplete and subject to change following data proofing and analyses, generally it appears the number of birds nesting on Ft. Wool and the barges and the number of young banded in 2022 increased for most species.

The estimated number of adults breeding and number of young banded on Ft. Wool and barges, by species in 2020 - 2022, can be viewed in Table 2. Please note all 2022 numbers are preliminary.

Table 2. Estimated number of breeding adults and number of adults and young banded on Ft. Wool and barges. All 2022 numbers are preliminary. Data provided by the VT Shorebird program.

Species	No. of breeding adults in 2020	No. of breeding adults in 2021	No. of breeding adults in 2022	No. banded in 2020	No. banded in 2021	No. banded in 2022
Royal terns	10,542	11,462	13,682	2,115	3,280	3,291
Sandwich terns	236	272	298	46	77	149
Common terns	828	1,120	1,026	553	687	411
Black skimmers	142	258	254	105	149	132
Gull-billed terns	2	30	40	2	29	35
Laughing gulls	830	Not measured	Not measured	85	72	262

Brown pelicans nested on Ft. Wool for the first time this year. A minimum of 112 Brown pelican nests were estimated by way of a post-breeding nest structure count. Ft. Wool is a major winter roost site for brown pelicans and Double-crested cormorants; thus it is possible cormorants may begin nesting there next year.

Department staff continued to engage in a variety of outreach efforts that included regular blog updates on the Ft. Wool/barges seabird project, presentations to bird clubs and Master Naturalist groups, and newspaper interviews.

Sea Turtles

Based on preliminary reports received from partners, a total of 10 loggerhead sea turtle (*Caretta caretta*) loggerhead nests were documented in Virginia this year. Two were laid at False Cape State Park, two at Back Bay NWR, one at Sandbridge Beach, three at Dam Neck Naval Base and two at Chincoteague NWR. Additionally, three loggerhead crawls were reported near the mouth of the Piankatank River on the shore of Godfrey Bay. The first two were obvious non-nesting emergences. The third crawl showed some evidence that a nest was laid, however, a careful search by USFWS Virginia Field Office staff revealed no eggs.

III. Wildlife Management Areas

Doe Creek WMA (Accomack County): Existing impoundments were overgrown with woody upland vegetation, reducing their value as wetland habitat. Staff used selective herbicides as well as mowing and discing to set back succession. A forestry mulcher was used to eliminate heavy woody growth. Eight acres of Japanese Millet were planted to supplement natural food sources for waterfowl. In addition, 30 acres of invasive Common Reed (Phragmites australis) were treated via hand spraying of aquatic herbicides.

Hog Island WMA (Surry County): Hundred and ninety one acres of the invasive Common Reed (Phragmites australis) were treated via aerial herbicide. An amphibious tracked vehicle was used to create openings in marsh vegetation for waterfowl. Four thousand liner feet were planted with native seeds via native seed drill. This

project was associated with the shoreline work previously documented in this report. Areas of this project were treated with a hand spryer to control invasive and undesirable species.

Princess Anne WMA (Virginia Beach): Whitehurst/Beasly tract was overgrown with woody upland vegetation reducing their value as wetland habitat. Staff used selective herbicides as well as mowing and discing to set back succession. We continued progress on converting an unusable impoundment to an early successional field with the express purpose of supporting pollinators. Twenty-two acres of the invasive Common Reed (Phragmites australis) were treated via hand spraying of aquatic herbicides.

IV. Fisheries

Tidal Rivers Program, Chesapeake Bay drainage:
DWR conducted active tracking of Blue Catfish and Atlantic sturgeon throughout the James and Chickahominy Rivers from April 1, 2021 to September 30, 2022.

- DWR conducted active tracking of Blue Catfish in the James River and tributaries on five days from April 1, 2022 to June 3, 2022. Unique tag identification numbers were recorded for all detections and datetime, signal decibels, coordinates, conductivity, temperature, and turbidity was noted. These data provided information on Blue Catfish overwinter survival from fall tagging efforts in addition to movement and aggregation data.
- DWR conducted active tracking of Blue Catfish and Atlantic Sturgeon alongside the commercial blue catfish low-frequency electrofishing (LFEF) operation in the James River and tributaries on 20 days from June 6, 2022 to September 30, 2022. Unique tag identification numbers were recorded for all detections and datetime, signal decibels, coordinates, conductivity, temperature, and turbidity was noted. These data provide information on the behavioral response of Blue Catfish and Atlantic Sturgeon to the commercial LFEF operation.

DWR conducted Blue Catfish sampling in the James, Chickahominy, and Piankatank Rivers via low-frequency electrofishing from July 25 to August 5. All fish were weighed and measured; otoliths were collected from a subsample of Blue Catfish. Otoliths will provide age and growth data for Blue Catfish in these systems and allow VDWR to track long term trends in population age and size structure.

DWR conducted fall community sampling in the Pamunkey and Mattaponi Rivers via boat electrofishing from September 26 to September 30, 2022. All fish were weighed and measured; otoliths were collected from a subsample of White Perch. Otoliths will provide baseline age and growth data for White Perch across tidal waters. Community sampling in the James, Chickahominy, Rapphannock, and Piankatank Rivers will be conducted throughout October 2022.

DWR Fisheries staff conducted approximately 15 days of sampling on the tidal Rappahannock River to capture and tag Largemouth Bass (> 12 inches). Electrofishing surveys were conducted between April 1 and September 30, 2022 on the Rappahannock and tributaries below Port Royal. This effort is part of an ongoing Largemouth Bass tagging project that aims to assess movement and angler translocations of Largemouth Bass from tributaries below Port Royal to mainstem reaches above Port Royal. Approximately 300 fish were tagged as of September 30, 2022.

Albemarle-Pamlico Drainage:

- North Landing river and Northwest River – Anadromous fisheries sampling targeting Blueback Herring, Alewife and Striped Bass.

- Anadromous fish sampling on Nottoway and Blackwater Rivers – Weekly electrofishing samples were conducted from early March through the end of May. Fish were collected weighed and measured and released. Population level information will be used to inform managers' decisions and anglers
- Blackbanded sunfish were sampled using dip nets in coastal swamps and beaver ponds. Biologists collected population data on the geographical extent and abundance of BBS. Fish were collected, weighed and measured.

Fish Passage Project

Stream Monitoring, Adult Anadromous Fishes

a. Chesapeake Tributaries: The Fish Passage Project of the Department of Wildlife Resources (DWR) continued with the weekly boat electrofishing for adult anadromous fish that began in mid-February and continued until the beginning of June. James River samples included the tidal/non-tidal interface area at the lower end of the fall zone and other fall zone areas such as just below Boshers Dam (vertical slot fishway). Rappahannock River samples included the tidal area just below the tidal/non-tidal interface at Fredericksburg and at Motts Run (five miles upstream of the former Embrey Dam that was removed in 2004/2005). Chickahominy River samples were above and below Walkers Dam (Denil fishway). The tidal Mattaponi River was also sampled again this spring three times during April and May in the Aylett area. A few James River tributaries were sampled by backpack electrofishing to determine river herring distribution as part of the effort to prioritize road stream crossings for fish passage improvement projects.

Overall river herring and Hickory Shad catch rates were in the typical range for the main areas sampled. American Shad catch rates were down in both the James and Rappahannock rivers. Only four adult American Shad were collected from the James River for otolith analysis (oxytetracycline mark on hatchery fish) in 2022, which is well below the annual goal of at least 100 (last achieved in 2020). Only 15 American Shad were collected from the Rappahannock River (none in upper tidal and 15 at Motts). Rappahannock American Shad were not sacrificed and checked for otc marks because only rare eight-year old Shad could possibly be of hatchery origin since the last stocking occurred in 2014. With such low catch rates the likelihood of encountering a hatchery fish in the Rappahannock was extremely low. Origin analysis of the James fish has not yet been completed. The last American Shad fry stocking in the James was in 2017. Spawning American Shad range from three to as high as nine years old with the majority falling in the 4-7 range. American Shad were also present in low numbers in the Mattaponi and Chickahominy rivers.

As previously reported in Spring 2022, Alewife were found all the way up to the tidal/non-tidal interface of Cornelius Creek (James tributary) in March 2022, but Blueback Herring were not found during limited sampling in April and May. The double box culvert crossing at Mill Road in Henrico County is a severe barrier as scored by the North Atlantic Aquatic Connectivity Collaborative (NAACC) assessment tool. This site is only 0.6 miles upstream of where Alewife were found in March. Documentation of herring up to this crossing would raise the fish passage priority of this site.

Both Virginia Commonwealth University and the United State Fish and Wildlife Service (USFWS) now have specialized equipment that allows for water collection and filtration onto sample media in the field. Some selected James watershed tributaries were sampled using this specialized equipment in spring of 2022. Results from 2022 samples are still pending.

Striped Bass were also collected in the upper tidal reaches of the rivers sampled in 2022. In addition to catch per unit effort (CPUE), length and weight data was collected for additional analysis. More than 400 Striped Bass were collected on the James resulting in a CPUE in the expected range. However, 2022 Striped Bass catch rates

in the Rappahannock (only 31 collected) were poor in comparison and when the data is analyzed the 2022 CPUE will likely be below the long-term average.

DWR continued to monitor Alosine passage through the double Denil fishway at Walkers Dam located at river mile 24 on the Chickahominy River using an electronic counter in both exit channels and frequent, periodic exit channel trapping to obtain species composition. With the absence of commercial and recreational harvest numbers, this type of run count is critical to evaluating the overall health of herring populations. All count estimates are up to date through 2022 and the data was recently submitted to the Atlantic States Marine Fisheries Commission for consideration for use in the upcoming river herring benchmark stock assessment. Results are as follows:

- Total fish annual passage estimates and Alewife and Blueback Herring (combined) portions to date:
    - 2018=487,470 total; 183,298 river herring
    - 2019=250,393 total; 86,980 river herring
    - 2020=255,460 total; 100,509 river herring
    - 2021=166,424 total; 78,843 river herring
    - 2022= 280,508 total; 151,430 river herring
- Gizzard Shad make up an average of approximately 55% of the total count annually
- Hickory Shad and American Shad are found in small numbers but not in every year
- Hickory Shad estimates: 222 in 2018 and 60 in 2020
- American Shad estimates: 491 in 2021 and 620 in 2022

Stream Monitoring, Juvenile Anadromous Fishes

2022 sampling in progress: Approximately bi-weekly sampling using a bow-mounted push net was conducted from June through September on the tidal James River between Osborne Landing and the City of Richmond, the upper tidal Rappahannock River near Fredericksburg, and the Chickahominy River both in the lake above Walkers Dam and in the tidal reach below the dam. Catch rate is expressed as the number of juveniles per $100m^3$ of water sampled. Moderate numbers of juveniles of at least three of the Alosines were collected so far this year on the James and Rappahannock (American Shad, Blueback Herring, and Alewife). Numerous Blueback Herring have been collected on the Chickahominy, and possibly Alewife and a few American Shad. Samples will be processed in the near future.

a. Boshers Dam Vertical Slot Fishway (James River mile 113): Digital video data was collected during the 2022 spring spawning run at the Boshers Dam vertical slot fishway viewing window on the James River (river mile 113) near Richmond. Fishway evaluation has occurred annually since the 1999 inaugural season. Starting in 2016 the 15 minute per hour sub-sampling approach was modified to randomly select the ¼-hour increment of video to be reviewed. To generate species' passage estimates, the 15-minute count is multiplied by a factor of four. Review of the 2022 video is not yet complete. American Eel elvers (4" – 6" range) were collected with small nets and plastic scoops on several occasions throughout the spring, summer and fall of 2021 from the fishway channel with the head gate almost closed to nearly stop flow. Highlights of the 2021 season are as follows:

- 1,234 daytime and 656 night hours of video were subsampled (randomly chosen ¼ hour of each hour of reviewable video)
- Total passage estimate for all species for was 48,528 fish (1999-2020 average=81,488)
- Four American Shad (well below long-term average of 150)
- 30,596 Gizzard Shad; 2,920 Sea Lamprey (native anadromous species); 2,808 Quillback; 9,592 catfish (three species); 956 Shorthead Redhorse; American Eel elvers observed and/or collected from channel; several other species (Smallmouth Bass, etc.)
- 30 fish species documented using the fishway to date

Fish Passage Projects

a. Flowerdew Hundred road crossing removal: The DWR is a partner in this James River Association led project along with the USFWS and the Virginia Department of Transportation (VDOT). This road crossing (Rt. 614 – Nobles Road) was removed using National Fish and Wildlife Foundation grant funds in the spring of 2022. VDOT was able to abandon the road because the only house at the end of the dead end gravel road had been abandoned and demolished. DWR conducted fish sampling of the stream in support of the project, and also helped with planning and stream bank plantings following removal. Lower Flowerdew Hundred Creek is known to have a river herring run and this crossing was not far upstream. The crossing scored as a minor barrier to fish passage in the NAACC tool primarily due to being undersized causing it to often get blocked with debris Complete removal of the crossing resulted in full Aquatic Organism Passage at this location.

b. Chandlers Dam: Chandlers Dam, a DWR operated fishing lake dam near Montross failed in 2015. Major renovations, completed in spring 2020, included the construction of a pool and weir fishway to provide passage for American Eel, resident fish species and possibly river herring. The fishway is also the primary spillway for the rebuilt dam. Two extraordinary high water events since the fall of 2020 resulted in severe damage to the dam. No sampling occurred in 2021 or 2022 because the lake remains drawn down below normal pool since the damage occurred. DWR plans to make major repairs and is currently seeking funding.

c. Rapidan Mill Dam: Rapidan Mill Dam is the first impediment on the Rapidan River and is accessible by migratory fish since Embrey Dam was removed from the Rappahannock River in 2004. DWR has been working with a local NGO and several other partners on plans to remove this 12’ high dam located in the Town of Rapidan. This project either will move forward as a “removal for mitigation banking” or with multiple partners contributing funding.

d. Ashland Mill Dam: Ashland Mill Dam is the first impediment on the South Anna River. DWR consistently documented the presence of all four Alosine species, Striped Bass, Sea Lamprey and American Eel at this dam making it the highest priority fish passage project in terms of diadromous fishes in Virginia. DWR has been providing technical assistance in the effort to remove this dam. This project may move forward as a “removal for mitigation banking.”

SECTION B.3 FEDERAL CONSISTENCY

During the period of April 1, 2022 and September 30, 2022, the Office of Environmental Impact Review/Federal Consistency (OEIR) reviewed 108 development projects for consistency with the Virginia Coastal Zone Management Program (VCP). This represents 75% of the total amount of projects reviewed (143) during this period. Major state projects accounted for 34 projects, 4 were State Corporation Commission reviews, 1 Department of Aviation review, 8 were National Environmental Policy Act (NEPA) documents without a federal consistency component, 52 were federal actions, and 46 were federally funded projects to state or local governments. The 52 federal actions included 42 federal agency activities, 20 federal licenses and approvals, and 0 outer continental shelf projects. The 42 federal agency activities included 12 projects submitted under the residual category pursuant to the federal consistency regulation (15 CFR 930.31(c)), which consisted of federal funding to private citizens such as U. S. Department of Housing and Urban Development (HUD) mortgage insurance projects. All federal consistency determinations and federal consistency certifications were completed within the established legal deadlines.

The OEIR continues to provide informal training on federal consistency requirements to consultants who prepare consistency documents for federal agencies and applicants for federal permits and maintains a website for Federal Consistency Reviews which can be accessed through DEQ's main webpage or found at https://www.deq.virginia.gov/permits-regulations/environmental-impact-review/federal-consistency. The OEIR webpage is updated weekly. OEIR successfully submitted a program change to revise the enforceable policies (received April 30, 2021).

Table 1 depicts federal projects in Tidewater Virginia reviewed from 4/1/22 to 9/30/22.

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TYPE OF FEDERAL PROJECTS REVIEWED*	NUMBER OF PROJECTS COMPLETED	REVIEW PERIOD
*Direct Federal Actions	42	30-60 Days
** Federal Activities (approvals & permits)	20	90 Days
***Federally Funded Projects	46	30 Days
Outer Continental Shelf	0	45-60 Days
TOTAL	108	30-90 DAYS

*Includes 12 FCDs reviewed under the residual category of Subpart C of the Regulations. (eg. HUD Mortgage Insurances).
**These are projects reviewed under Subpart D of the Regulations. These projects include individual permits issued pursuant to Section 404 of the Clean Water Act administered by the U.S. Army Corps of Engineers and Federal Aviation Administration approvals.
*** These include federal assistance to state and local government reviewed under Subpart F.

FEDERAL PROJECTS REVIEWED FOR CONSISTENCY

I. Federal Agency Projects

The following projects are examples of federal agency projects subject to Subpart C of 15 CFR 930.33(a).

City of Norfolk Downtown Floodwall - The U.S. Army Corps of Engineers Norfolk District (Corps) is reviewing the proposed City of Norfolk Downtown Floodwall Modifications (Project) under the Section 408 Review Program. The purpose of a Section 408 review is to ensure that the congressionally authorized benefits of a Corps project are not undermined by an alteration made by others, and to ensure the alteration is not injurious to the public interest (e.g., flood risk management, coastal storm damage reduction, navigation). Authorized by the Flood Control Act of 1962, the Floodwall, Central Business District project was a Corps project that was completed in 1971. In order to ensure that Corps civil works projects continue to provide benefits to the public, congress mandated that any use or alteration of a civil works project by another party be subject to the approval of the Corps. The City of Norfolk (applicant) proposes to raise the height of the existing floodwall by approximately 1-4 feet, in anticipation of potentially revised future Federal Emergency Management Agency (FEMA) criteria for level of protection. The impetus for the project is based on future increases in stillwater surge elevations (SWL) due to anticipated sea level rise (SLR) and impacts of such on continued FEMA accreditation of the floodwall system.

Great Dismal Swamp National Wildlife Refuge Land Acquisition - The U.S. Fish and Wildlife Service (USFWS) proposes to acquire four parcels of land, totaling approximately 37 acres, near the Great Dismal Swamp National Wildlife Refuge in the City of Suffolk, Virginia. The parcels, identified in Tax Maps as #35*169A (11 acres); #35*169E (1 acre); #35*171 (24 acres); and #35*171C (0.92 acres) are located along Whitemarsh Road, adjacent to Jericho Lane. The properties consist of forested, agricultural, and residential land. Two residential houses will be demolished and their lots will be left to natural revegetation or the restoration of native vegetation. No construction is proposed for the parcels. Acquisition of this land will help

maintain a buffer to existing refuge lands. Buffer lands in this area will help to ensure future water quality for the refuge and its wetlands. Acquisition would permanently protect important habitat and enhance existing public access by adding this property to the National Wildlife Refuge System. The refuge proposes to enhance public access in this area for passive activities such as wildlife observation, photography, hunting, and environmental education in accordance with existing refuge management plans, policies, and regulations.

AFETA Camp Peary North Colonial Road Breakwater Improvements - The U.S. Department of Defense (DOD) proposes to construct breakwaters in the nearshore of the York River fronting North Colonial Road at the Armed Forces Experimental Training Activity (AFETA) Camp Peary in York County, Virginia. Approximately 500 linear feet of existing shore, wetlands, and the adjacent roadway is either stabilized or unprotected and is experiencing severe erosion. The Proposed Action Alternative includes the construction of four additional breakwaters downstream of an existing gabion basket system and upstream of an existing breakwater system. The project area is less than one acre. The breakwater structures will include a high sill designed to transition to the marsh areas, native plantings, and beach nourishment. Each breakwater will have a sill elevation of approximately 5-6 feet above mean low water and will be approximately 3-4 feet in width at the top and 25 feet in width at the base with a reinforced Class III rip rap toe. The breakwater slope will be 2:1 on each of the slope faces. Each breakwater is approximately 50 feet in length. Plantings are proposed on the sand fill, with plugs placed at 2-3 feet on center. Spartina alterniflora will be planted in lower areas near breakwater interface and along the toe. Spartina patens will be planted in higher areas near the clean sand fill. The proposed shoreline stabilization is designed to increase the level of protection of the upper portion of the roadway by providing an elevated breakwater/revetment adjacent to the existing road. The proposed breakwater is expected to create an additional 0.170 acres of tidal wetlands along the York River and expand the existing wetland system currently in place.

Issuance of State Programmatic General Permits 22-SPGP-RCIR and 22-SPGP-LT - The U.S. Army Corps of Engineers-Norfolk District (Corps) proposes the issuance of two 2022 State Programmatic General Permits in Virginia. The SPGPs authorize the discharge of dredged/fill material in non-tidal waters of the United States (WOTUS), including wetlands, and that is associated with certain residential, commercial, institutional, and recreational (RCIR) and linear transportation (LT) projects. The purpose of the SPGPs is to reduce duplicative review for activity-specific projects where state and federal regulations overlap regulatory purview. The SPGPs will provide streamlined review of permit applications processed by the Corps and the Virginia Department of Environmental Quality (DEQ). The 22-SPGP-RCIR will be a modified version of and replacement for the residential, commercial, and institutional portion of the 17-SPGP-01, which is set to expire May 31, 2022. The 22-SPGP-LT will be a modified version of and replacement for the linear transportation portion of the 17-SPGP-01, which is set to expire May 31, 2022. The proposed changes are intended to further expedite the review of permit applications and expedite response to public inquiries.

II. Residual Category

The following consistency determinations were submitted as a residual category of Subpart C pursuant to the federal consistency regulation 15 CFR 930.31(c).

City Line Apartments - The U.S. Department of Housing and Urban Development (HUD) proposes to provide Section 8 with capital improvements funding to Community Preservation Partners (applicant/developer) to support construction and rehabilitation activities at the City Line Apartments multifamily apartment development, located at 155 Mytilene Drive in the City of Newport News, Virginia. The development is located on a 12.374-acre parcel in a residential area. The complex, which was constructed in 1977, consists of 18 two-story buildings with 200 dwelling units. Additional existing onsite improvements consist of a single-story leasing office, maintenance shed, basketball court, two playgrounds, concrete sidewalks, asphalt paved parking areas, and associated landscaping. The project includes the construction of a new clubhouse, grading and

earthwork, a stormwater detention system, tree removal, exterior improvements, facade improvements, and interior demolition, renovation, and upgrades.

Bonney Road Apartments - The U.S. Department of Housing and Urban Development (HUD) proposes to provide Section 221(d)(4) mortgage insurance to AGM Financial Services, Inc. (applicant) to support the construction of the proposed Bonney Road Apartments multifamily apartment development, located on an approximately 11.78 acre undeveloped site (Parcel #14775245160000) in the City of Virginia Beach, Virginia. The site is comprised of partially cleared land, along with wooded land, grassland, and marshland. The property is bounded by Bonney Road, Thalia Creek, undeveloped marshland, and Columbus Station Condominiums to the north; Thalia Creek, a walking path/bridge, undeveloped wooded and marshland, Midtown at Town Center Apartments, Beach Funeral & Cremation Services, Inc., and Crowne Plaza to the east; Bonney Road, Extended Stay America Suites, and Dragas Office Park to the south; and Bonney Road, B&L Food Market, and Days Inn to the west. The development will consist of two four-story buildings with 242 residential units.

III. Federal Activities (Permits, Licenses and Approval)
These projects were reviewed pursuant to Subpart D of the Consistency Regulations (15 CFR §930.53)

Ladysmith Retail Pad Site - The Norfolk District of the U.S. Army Corps of Engineers (Corps) is reviewing a Joint Permit Application submitted by Ladysmith HHH, LLC (applicant) for the issuance of an individual permit pursuant to Section 404 of the Clean Water Act (CWA) (Public Law 95-217) for proposed impacts to jurisdictional waters of the United States from the Ladysmith Retail Pad Site in Caroline County, Virginia. The proposed project site is located along Ladysmith Road abutting an existing McDonald's immediately west of I-95 at Exit 110. Site access is available via Ladysmith Road, located immediately south of the property. The project vicinity includes forested areas that are currently under construction for commercial development. The purpose of the proposed development to meet the needs of an underserved market for fast food restaurants, gas stations, car washes, and general retail development in the area.

Project Door Last Mile Delivery Station - Samet Corporation (applicant) is applying for an individual permit from the U.S. Army Corps of Engineers (Corps) pursuant to Sections 401 and 404 of the Clean Water Act for impacts associated from the proposed Project Door – Last Mile Delivery Station (LMDS) project in Virginia Beach. The approximately 77-acre project site is located at the northeast corner of the intersection of Dam Neck Road and Harpers Road in Virginia Beach, VA and is owned by the Taylor Farm Land Company, LLC. The applicant proposes to construct a +/- 219,000 square foot warehouse building, employee parking lots, and truck loading and unloading areas, as well as the required stormwater systems to accommodate the large-scale delivery of freight to the Virginia Beach area. The freight will be dividing onto smaller trucks and vans for fast local door-to-door delivery. The Virginia Beach area does currently not have such a delivery station. The project will help meet the demands of increasing online shopping, and home and business delivery of packages. Currently such delivery efforts are divided among various smaller stations in the vicinity or requiring travel from a larger center in Suffolk. The applicant certifies that the project is consistent with the enforceable policies of the Virginia Coastal Zone Management Program.

VEPCO Canal – Exposed Pipeline Replacement Pro - Columbia Gas Transmission, LLC (Columbia or applicant) is seeking approval from the Federal Energy Regulatory Commission (FERC) to conduct the VEPCO Canal Replacement Project, a FERC Blanket Automatic Authority Project. The project is located in the City of Chesapeake, Virginia at the inactive Chesapeake Energy Center. Columbia is proposing to replace approximately 372 feet of Columbia's existing exposed 12-inch pipeline (VM-107) within the VEPCO Canal with a new suspended 12-inch pipeline within Columbia's existing easement. The VM-107 pipeline was built in the 1950s and is exposed during low tide across the VEPCO Canal, an unused manmade discharge canal from the Chesapeake Energy Center. Currently, the exposed pipeline is periodically submerged and then exposed to air, depending on tidal conditions. The new suspended pipeline will prevent potential oxidation of the pipeline

metals that could corrode the pipeline. The applicant certifies that the project is consistent with the enforceable policies of the Virginia Coastal Zone Management Program.

On-Airport Improvement Projects - The Norfolk Airport Authority (applicant) proposes to make on-airport improvements at the Norfolk International Airport (ORF) in the City of Norfolk, Virginia. The three proposed projects would take place on airport property, on previously disturbed sites and structures, and would not create additional impervious surfaces. The projects proposed include the following:

- Project 1: Convert Long-Term East Parking Lot to Aircraft Parking. The proposal would include the conversion of approximately 35,000 square yards of existing automobile parking to aircraft parking.
- Project 2: Replace Roof on Concourse A. The existing approximately 55,000-square-foot asphalt and gravel roof would be replaced with a PVC membrane system.
- Project 3: Modernization of the Federal Inspection Services Facility. The U.S. Customs and Border Patrol (CBP) has notified the Airport Authority that the existing commercial air carrier international clearance facilities located in Concourse A at Gate 1, require certain modifications in order to stay current with CBP's layout and processing standards. The Airport Authority will coordinate the design with CBP and provide a cost estimate for construction. All improvements will occur within the existing footprint of the concourse.

IV. Outer Continental Shelf Activities
No projects were reviewed during the time period of this report for this category.

V. Federal Funds
The following consistency determinations were submitted as a residual category of Subpart F pursuant to the federal consistency regulation 15 CFR 930.90.

931 14th Street Roof & HVAC Replacement - The City of Newport News expects to receive Community Development Block Grant funding from the U.S. Department of Housing and Urban Development for repairs at 931 14th Street in the City of Newport News. The proposed project will involve a roof replacement of up to 18 squares and a 2-ton HVAC replacement.

Docks at Downtown Hampton - The City of Hampton will be using Boating Infrastructure Grant (BIG) Tier I FY-22 funds for the Docks at Downtown Hampton. The project involves the removal of existing inboard piles on floating finger piers to accommodate the extension of finger piers; replacement of damaged deck boards and installation of deck bumpers; installation of security cameras; replacement of the ADA ramp; and renovation of existing bathroom facilities.

Madison Wastewater Treatment Plant - The Rapidan Service Authority proposes to construct improvements to the existing Madison Wastewater Treatment Plant (Madison WWTP) using USDA RD funds.

SECTION B.4 PROGRAM CHANGES

During the reporting period (April 1, 2022 through September 30, 2022), Virginia has been waiting for NOAA’s final decision on the draft important fishing areas Geographic Location Description (GLD) that was submitted during the last reporting cycle. Virginia has been reviewing the approved listed activities of other states in preparation to resubmit Virginia’s listed activities. However, since the listed activities and GLD effects justification are so tied and NOAA stated that they are very backed up with GLD approvals, no additional actions have been taken. The draft list was presented at the September Virginia Coastal Policy Team meeting for comment by team members. Coordination is ongoing with team members.