

October 29, 2018

**Virginia Coastal Zone Management Program
Semiannual Section B.2-4 Report
For the Period from April 1 – September 30, 2018**

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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 activities¹ 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, 2018 through September 30, 2018, the VWP Permit Program issued 10 individual permits and 39 general permit coverages; processed two Notices of Planned Change on general permit coverages; no individual permit modifications; and no individual permit reissuances. For the purposes of this report, no permit application denials, withdrawals, or waivers were included.

The average time to process a general permit coverage was 26 days, and the average time to process an individual permit was 139 days. No processing delays occurred during this reporting period.

Approximately 31 acres of wetland impacts occurred during the reporting period. During this reporting period, approximately 55 wetland credits were purchased at compensatory mitigation banks and about five acres of wetland was created through permittee-responsible compensation.

During the reporting period, 15 compliance actions were taken on individual permits and 41 on general permit coverages. Compliance actions for eight of the individual permits and 16 of the general permit coverages are still active. Additionally, 11 compliance actions were taken on activities not having a VWP permit, and all but one of these are still active. During this period, 73 inspections took place in conjunction with the total of 74 compliance actions.

A pilot compliance initiative was launched in September 2017 to fast-track the resolution of minor compliance issues in certain situations. The pilot was rolled out in DEQ's Piedmont Regional Office with future plans to expand the pilot based on the agency's assessment of success. Initial feedback to date suggests the approach is useful and reduces the time spent by staff resolving such issues.

The VWP Permit Program did not receive comments or concerns about, or make changes to procedures associated with, expediting decision-making for the management of coastal resources.

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.

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 sludges 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, 2018 and September 30, 2018, two applications were received for modification of VPA Individual Permits that authorize the land application of biosolids, each remains pending. One other VPA permit application was received during that period for non-biosolids activities for a minor modification; that modification was signed and became effective during the period.

During the period between April 1, 2018 and September 30, 2018, 3 applications were received for coverage under the VPA General Permit for Poultry Waste Management: the applicant received coverage during the same period. Two applications for ownership change were received and the modifications completed during the period. No applications were received for farms, located in the Coastal Zone Management area, seeking coverage under the VPA General Permit for Animal Feeding Operations, during this period.

DEQ – Virginia Pollution Discharge Elimination System (VPDES) Water Permitting Program

There are a total of 296 individual municipal and industrial CZM area VPDES permits. This number and the numbers in the table above represent typical activity in the program.

There are also numerous facilities registered under general permits in CZM areas including 66 car wash, 105 concrete products, 11 cooling water, 291 domestic sewage ≤ 1,000 GPD, 60 nonmetallic mineral mining, 24 petroleum, 13 potable water treatment, 50 seafood processors, and 532 industrial stormwater. These represent typical numbers for permit registrants in CZM areas in Virginia. 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.

VPDES/VPA - April 1, 2018 – September 30, 2018*										
	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	30	351	2	242	0	NA	26***	NA
VPA	0	NA	0	NA	1	53	0	NA	1	247
VPA GP	3	93	0	NA	2	27	0	NA	0	0

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, 2018.

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, 2018 through September 30, 2018, DEQ issued 150 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, 2018 through September 30, 2018, DEQ issued 22 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 17 Consent Orders that assessed a total of \$261,683.69 in civil charges.

Table 1

Measure	Action Type	Count	Total Civil Charges Assessed
Informal	Warning Letters	150	N/A
Informal	Letters of Agreement	1	N/A
Formal	Notices of Violation	22	N/A
Formal	Consent Order	17	\$261,683.69
Total		190	\$261,683.69

d) DEQ – Air Permitting Program

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

Period: April 1, 2018 – September 30, 2018

PERMIT TYPE	NUMBER OF PERMITS ISSUED	AVERAGE PROCESSING TIME (Days)
PSD & NA	2	111
Major	0	NA
Minor	41	68
Administrative Amendment	8	28
Exemptions	10	94
State Operating	1	326
Federal Operating (Title V) Initial Issuance	0	NA
Federal Operating (Title V) Renewal	4	439
Acid Rain (Title IV)	0	NA
Total Number Permits Issued	<u>66</u>	

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

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 SO₂ 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, 2018

PERMIT TYPE	NUMBER OF PERMITS PENDING
PSD & NA	1
Major	2
Minor	46
Administrative Amendment	1
Exemptions	3
State Operating	7
Federal Operating (Title V) Initial Issuance	8
Federal Operating (Title V) Renewal	41
Acid Rain (Title IV) Initial Issuance	1
Acid Rain (Title IV) Renewal	5
Total Permits Pending	<u>115</u>

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, 2018 – September 30, 2018

PERMIT TYPE	NUMBER OF PERMITS WITHDRAWN	NUMBER OF APPLICATIONS DENIED
PSD	0	0
Major	0	0
Minor	1	0
Administrative Amendment	0	0
Exemptions	0	0
State Operating	1	0
Federal Operating (Title V)	0	0
Acid Rain (Title IV)	0	0
Total Permits Rescinded	<u>2</u>	<u>0</u>

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, 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, 2018 through September 30, 2018, DEQ issued 36 Requests for Corrective Action and 22 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, 2018 and September 30, 2018, DEQ initiated 16 new formal enforcement actions via issuance of Notices of Violation. Additionally, the Agency issued 9 Consent Orders; assessing \$261,054.99 in civil charges.

Table 1

Measure	Action Type	Count	Total Civil Charges Assessed
Informal	Requests for Corrective Action	36	N/A
Informal	Warning Letters	22	N/A
Formal	Notices of Violation	16	N/A
Formal	Consent Orders	9	\$261,054.99
Total		83	\$261,054.99

f) DEQ – Erosion and Sediment Control

Summary of Specific Outputs:

Specific Outputs	Progress / Status
9 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.
234 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.
73 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.
91 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.
7 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.
423 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:

Erosion & Sediment Control (ESC) and Stormwater Management (SWM) Laws and Regulation are designed to help reduce pollutants in the Chesapeake Bay, and require localities, developers, and consultants to be certified in various knowledge and practices.

The law requires DEQ to offer two certification tracks, one for ESC and another for SWM.

Each track includes training courses to assist people to become certified as: Program Administrators, Inspectors, Plan Reviewers and Combined Administrators, and requires individuals to pass a professionally administered certification exam. Each certification type is valid for 3 years and individuals can recertify by completing continuing education throughout the certification period.

As of September 30, 2018, total certified individuals in Virginia are as follows:

- 1,236 total people dual certified (both ESC/SWM). (1,090 people as of March 31, 2018)
- 791 total additional people certified in SWM only. (742 people as of March 31, 2018)
- 2,184 total additional people certified in ESC only. (2,245 people as of March 31, 2018).

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

Summary

Program Description

The Bay 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 eighty-four Tidewater localities have identified their entire jurisdiction as an 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, October 1, 2017 – September 30, 2018, staff continued to provide assistance and training to the Bay Act localities. For this period, 9 formal training, 14 outreach and 72 technical assistance events were conducted.

Environmental Impact Reviews

Through the Environmental Impact Review process, staff also continued to review plans for State and Federal project to ensure those projects were consistent with the Bay Act. During the reporting period, 11 environmental impact reviews were conducted.

Compliance Reviews

As indicated in the previous semi-annual report, the Chesapeake Bay Preservation Act Compliance Review process was re-initiated in September of 2015, after having been suspended for a period of three years to allow Local Government Assistance Programs (LGAP) staff to work on local stormwater program development.

During the reporting period, 13 new compliance reviews were initiated, and 12 have been completed. Since the compliance reviews were reinitiated in 2015, a total of 42 reviews were initiated and 2 have been completed.

During these reviews, staff assess whether or not the locality is implementing soil & water quality conservation assessments for agricultural lands, the status of the water quality provisions of the local comprehensive plans, how well local governments are ensuring that impervious cover is minimized, indigenous vegetation is maintained and land disturbance is minimized on approved development projects and how well 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, 2018 through September 30, 2018, the Habitat Management Division received 1,048 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. No notices to comply were required to be issued during the period.

The Habitat Management Staff completed actions on 1,052 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 2018. 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 33 projects. During the reporting period, the Commission considered 22 protested projects or projects requiring a staff briefing, The Commission also approved 11 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, 159 were approved as proposed, 22 were approved as modified, two were denied, three are pending, two were determined not to require a permit, and 36 required compensation either on or off site (11), or through payment of an in lieu fee (25) accounting for 13,479 square feet of tidal wetland impacts.

b) VMRC – Fisheries Management Division

At the April 2018 meeting, the agency established amendments to the shark regulation for that would set the May 1, 2018 through April 30, 2019 commercial spiny dogfish harvest quota as 4,123,239 pounds; and establish a 6,000 pound spiny dogfish trip limit. Also, the agency established the 2018 open recreational season for blueline tilefish from May 1 through October 31 and adopted a recreational possession limit of three blueline

tilefish per person per trip aboard a private vessel, five blue-line tilefish per person per trip aboard a for-hire vessel that has been issued a valid Tilefish Charter/Party Permit, but does not have a current U.S. Coast Guard safety inspection sticker and seven blue-line tilefish per person per trip aboard a for-hire vessel that has both a valid Tilefish Charter/Party Permit and a current U.S. Coast Guard safety inspection sticker.

At the May 2018 meeting, the agency established the 2018 black sea bass recreational season as May 15 through December 31.

At the June 2018 meeting, the agency adopted amendments to the bluefish regulation that established the 2018 commercial bluefish quota as 860,518 pounds.

At the August 2018 meeting, the agency adopted amendments to: Chapters 4 VAC 20-252-10 et seq., "Pertaining to the Taking of Striped Bass;" 4 VAC 20-280-10 et seq., "Pertaining to Speckled Trout and Red Drum;" 4 VAC 20-320-10 et seq., "Pertaining to the Taking of Black Drum;" Chapter 4 VAC 20-380-10 et seq., "Pertaining to Grey Trout (Weakfish);" Chapter 4 VAC 20-490-10 et seq., "Pertaining to Sharks;" 4 VAC 20-500-10 et seq., "Pertaining to the Catching of Eels;" 4 VAC 20-510-10 et seq., "Pertaining to Amberjack and Cobia;" 4 VAC 20-540-10 et seq., "Pertaining to Spanish and King Mackerel;" 4 VAC 20-620-10 et seq., "Pertaining to Summer Flounder;" 4 VAC 20-910-10 et seq., "Pertaining to Scup (Porgy);" 4 VAC 20-950-10 et seq., "Pertaining to Black Sea Bass;" and, 4 VAC 20-960-10 et seq., "Pertaining to Tautog," and to establish Chapter 4 VAC 20-1340-10 et seq., "Pertaining to the Measuring of Finfish," that established a definition of measurement for the total length of fish species. Also at this meeting, the agency adopted an emergency amendment to establish the closure of the commercial cobia season in state waters as October 1, 2018.

At the September 2018 meeting, the agency adopted the emergency amendments as final for cobia that established a closure of the commercial season in state waters as October 1, 2018.

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: 10/01/2013
 END PERIOD: 09/30/2018

Category	2013/2014		2014/2015		2015/2016		2016/2017		2017/2018	
	Convictions	Arrests	Convictions	Arrests	Convictions	Arrests	Convictions	Arrests	Convictions	Arrests
Buyers	10	10	5	6	2	2	1	4	1	1
Casting Garbage/Trash	5	5	1	1	3	3	2	2	0	0
Clams	4	7	2	3	3	3	1	1	0	0
Commercial Fishing License	6	10	7	10	21	30	13	16	3	3
Conchs	7	9	1	1	3	3	0	0	0	1
Crabs	92	120	121	138	70	102	68	89	16	19
Federal Violation	0	0	0	0	0	0	0	0	0	0
FIP Violations	58	60	76	81	47	48	41	42	13	14
Fish	75	81	150	163	168	197	193	216	82	98
Freshwater Fishing without a license	12	16	20	22	24	34	19	20	9	10
Gill Nets	14	18	17	24	13	27	20	34	2	3
Habitat/Wetlands	0	0	0	0	0	0	0	0	0	0
License Tags	3	4	1	1	4	9	0	2	0	0
Mandatory Reporting	0	0	9	18	10	20	2	11	0	0
Misc	0	0	0	0	0	0	0	0	0	0
Non-residents	0	0	0	0	0	0	1	1	0	0
NSSP	0	0	0	0	0	0	0	0	0	0
Other Agencies	227	279	383	462	285	343	364	440	296	353
Oysters	109	161	177	299	111	222	75	100	70	81
Piers	0	0	0	0	0	0	0	0	0	0
Police Powers	78	90	95	114	118	129	87	103	0	0
Removal of Obstructions	1	1	1	1	3	3	1	12	0	0
Resisting officer	0	0	0	0	0	0	1	1	0	0
Shellfish	5	6	14	25	7	8	10	16	0	0
SW Recreational Licenses	190	241	205	234	232	254	191	200	66	69
TOTALS:	896	1118	1285	1603	1124	1437	1090	1310	558	652
PERCENT OF CONVICTIONS:	80.14%		80.16%		78.22%		83.21%		85.58%	

3) VIRGINIA DEPARTMENT OF HEALTH (VDH) – DIVISION OF SHORELINE SANITATION

From April 1, 2018 through September 30, 2018, the VDH Division of Shellfish Sanitation had the following acreage changes to classification of shellfish harvesting waters ("shellfish grounds") in Virginia:

- 2733 acres formerly Open Year-round, now Closed Year-round.
- 1096 acres formerly Closed Year-round, now Open Year-round.
- 345 acres formerly Open Year-round, now Closed Seasonally.
- 649 acres formerly Closed Year-round, now Closed Seasonally.
- 1157 acres formerly Open Seasonally, now Closed Year-round.
- 437 acres formerly Open Seasonally, now Open 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 nineteen (19) VMRC Permit Applications, and processed as follows:

Two (2) Permit Applications needed action in the Marina Program.

Seventeen (17) applications were approved based on meeting the requirements of providing adequate facilities of the Marina Regulations if applicable.

One (1) application was denied because of inadequate facilities. That (1) one facility that was rejected was later approved after meeting our regulatory requirements.

4) DEPARTMENT OF CONSERVATION AND RECREATION (DCR)

a) DCR - Division of Soil and Water Conservation

Nutrient Management

Department of Conservation and Recreation (DCR) Nutrient Management staff have been active in developing and reviewing nutrient management plans, enhancing private sector plan development, and other nutrient reduction activities to achieve the Commonwealth's nutrient reduction commitments to meet the Chesapeake Bay TMDL. In the coastal zone of Virginia, DCR staff have overseen the development of nutrient management plans covering 9,189.21 acres during the reporting period (4/1/2018 – 9/30/2018). Many plans are active for up to three years, all new or revised acreage developed 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 4/1/2018 – 9/30/2018.

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	4	-	-	-	-	-
Chesapeake Bay Coastal	6	3,333.14	-	-	-	3,333.14
Chowan	2	260.60	-	23.70	-	284.30
James	2	283.65	-	-	-	283.65
Potomac	1	927.52	-	-	-	927.52
Rappahannock	4	2,401.22	-	-	-	2,401.22
York	3	1,955.18	-	-	-	1,955.18
Total:	23	9,161.31	0.00	27.90	0.00	9,189.21

Shoreline Erosion Advisory Service

The Shoreline Erosion Advisory Service (SEAS) was created in 1980 by the Virginia General Assembly. The program was created to provide technical assistance to private landowners and local, state and federal agencies owning property that is experiencing shoreline erosion in tidal Virginia. Today, SEAS provides advisory assistance to both tidal and non-tidal shorelines in Virginia. The SEAS services include: site investigations, written reports, plan reviews, construction inspections, permitting assistance and education. Since its inception, the SEAS program has evaluated hundreds of miles of shoreline and provided invaluable technical assistance to thousands of Virginia property owners experiencing shoreline erosion.

An additional SEAS engineer came on board at the Department of Conservation and Recreation (DCR) on April 25, 2017. The new staff person has completed the training necessary to work independently.

For this reporting period, SEAS staff conducted 62 site visits, wrote 42 advisory reports, evaluated 49,343 feet of shoreline and reviewed and provided comments on 5 joint permit applications. During a site visit, staff walks the shoreline with the owner and assesses the cause or causes of the erosion problem. The staff then review with the owner, what they believe are the most appropriate shoreline erosion control and protection strategies for that site. The options range from planting vegetation, to bank grading, to large rock structures such as riprap revetments and breakwaters.

The SEAS program is currently working with the Virginia Institute of Marine Science (VIMS), Virginia Marine Resources Commission (VMRC), and Virginia Department of Environmental Quality (DEQ) to develop a process to calculate, track, and report, to the EPA Chesapeake Bay Program, sediment and nutrient reductions from completed tidal shoreline erosion stabilization projects. These reductions will help Virginia meet its Chesapeake Bay Total Maximum Daily Load goals. The first set of these reductions was reported to DEQ in late October, 2017. 514 additional sites have been verified and the associated sediment and nutrient reductions will be reported to DEQ in late October 2018.

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 June 4, 2018, DCR, DEQ and Attorney General's Office Staff, visited the Southampton Solar Facility to gain a better understanding of the opportunities for the use of pollinator-benefitting native plants at renewable energy sites. During the site visit, the group observed the habitat characteristics around and under the panels including panel height; the amounts and patterns of sunlight and shade; as well as the buffer areas surrounding the facility. The group discussed how to manage these facilities to maximize their values as habitats for pollinators, grassland birds and other wildlife. The group observed several native bee species and grassland-breeding birds (Grasshopper Sparrow and Horned Lark) and heard about Dominion's interest in the establishment of native pollinator habitats. This information will help inform the development and enhancement of solar resources such as DCR's [Solar Native Plant Finder](#) web application and a guidance document for establishing native pollinator habitat on solar sites as part of the recent DEQ Solar RFP.



Solar Arrays at the Southampton County Solar Facility

To provide an a better understanding of the native pollinator diversity that potentially could be established at solar facilities, the group also visited the Cherry Orchard Bog Natural Area Preserve in Sussex/Prince George Counties. The native plant diversity observed in the maintained powerline right-of-way at the preserve provided a reference for group discussion led by DCR Natural Heritage Inventory and Stewardship.



100% Native Plant Habitat at Cherry Orchard Bog Natural Area Preserve

On June 12, 2018, DCR and USFWS staff conducted four site visits of development projects associated with Small whorled pogonia (*Isotria medeoloides*, G2/S2/LT/LE) conservation areas in Prince William and Stafford Counties. The intent of the visits was to determine the long-term viability of these sites for the federally and state listed orchid to inform future protection decision making. At three of the four sites, Small whorled pogonia was observed with stem counts ranging from 1 individual to 35. Based on the survey findings for these four protection areas, current and adjacent land use, protection area size, landowner/easement holder oversight appear to be key factors in determining long-term success on a project-by-project basis. These survey results will help inform the on-going broader discussion with USFWS on potential strategies to meet the goals of the Small whorled pogonia recovery plan including potential off-site protection of the best occurrences of this rare plant using funds paid by project proponents.



USFWS staff search for Small whorled pogonia (Left). Small whorled pogonia (Right).

On Tuesday, August 28, 2018, DCR's Natural Heritage Vegetation Ecologists Gary Fleming and Karen Patterson, and Chesapeake Bay Region Steward Zach Bradford, found and inventoried a previously unknown occurrence of the globally rare Coastal Plain Xeric Fluvial Terrace Woodland natural community at Cumberland Marsh Natural Area Preserve in New Kent County. Coastal Plain Xeric Fluvial Terrace Woodlands are characterized by their landscape position directly adjacent to large coastal rivers, sandy and therefore excessively well-drained soils, low density of trees characterized by hickories (*Carya pallida*, *C. tomentosa*) and drought-tolerant oaks, plus a high diversity of sun-loving herbaceous plants. A large occurrence of Narrowleaf Silk-grass (*Pityopsis graminifolia* var. *tenuifolia*) – a rare plant species in Virginia known from just three sites in New Kent County – was documented within the community.

Cumberland Marsh Natural Area Preserve was originally dedicated to protect high-quality swamp forest and freshwater tidal marsh supporting one of the world's largest populations of the federally listed as endangered plant, Sensitive Joint-vetch (*Aeschynomene virginica*). Over the past year, surveys of adjacent upland portions of the preserve by Natural Heritage Stewardship and Inventory staff have resulted in the discovery of one rare natural community as well as four rare plant species, two of which had not been seen in Virginia for decades.



Coastal Plain Xeric Fluvial Terrace Woodland and the state-rare Narrowleaf Silk-grass (small yellow flowers at left) discovered at Cumberland Marsh Natural Area Preserve in New Kent County.

On a recent Sunday afternoon, Natural Heritage Zoologist Chris Hobson received a call from his former seasonal assistant, Erin Thady, about a bat discovered by her mom roosting on an exterior wall of their home near Sandston. Chris immediately went to investigate and found it was an Eastern Big-eared Bat (*Corynorhinus rafinesquii macrotis*) (G3G4T3 S2), a state listed endangered species. A young female, it may have arrived from the nearby Chickahominy bottomlands, which has suitable breeding habitat, or possibly even migrated from the Carolinas ahead of Hurricane Florence. Chris fitted it with a radio transmitter to monitor its movements. It stayed close to the Thady residence for several days before the signal was lost.



Natural Heritage Zoologist identifies the Eastern Big-eared Bat



Eastern Big-eared Bat (Corynorhinus rafinesquii macrotis) (G3G4T3 S2)

Prescribed Burning

On Friday, April 20, 2018, DCR Natural Heritage staff and its fire management partners conducted a demonstration prescribed fire to maintain a wildflower meadow at Lee Memorial Park in Petersburg. Assisting were staff from Petersburg Fire Department, U.S. Fish & Wildlife Service and The Nature Conservancy. Objectives were threefold: conduct a prescribed burn for the public to observe and learn from, provide a hands-on experience with prescribed fire for structural firefighters with the Petersburg Fire Department and enhance meadow habitat for rare plant species by removing thatch and reducing competition from invading trees and shrubs. The meadow at Lee Park is home to an unusually high diversity of fire-adapted plants, including the northernmost population of Eaton's Ladies'-tresses (*Spiranthes eatonii*), a rare southeast coastal plain orchid species associated with fire-maintained pine savannas. Fall Witch Grass (*Digitaria cognata*) and American Bluehearts (*Buchnera americana*) are known historically from the meadow and/or nearby locations. With continued burning, these plants may reappear at Lee Park.



Prescribed burn to maintain wildflower meadow at Lee Memorial Park in Petersburg

During the first half of 2018, DCR Natural Heritage staff completed over 1,700 acres of burning on lands of the state natural area preserve system across Virginia, with great support from interagency fire partners at DCR-State Parks, The Nature Conservancy, Department of Game and Inland Fisheries, Department of Forestry, U.S. Fish & Wildlife Service, U.S. Forest Service and AmeriCorps volunteers. These burns were conducted to improve rare species habitat and enhance/restore fire-maintained natural communities. Burning started on February 28, 2018 with a prescribed burn to reduce competition in a young longleaf pine woodland at Cherry Orchard Bog Natural Area Preserve, south of Petersburg. Although the first half of 2018 was extremely wet and only six burn days were available to burn on natural area preserves, many acres were treated with fire in the short time window available. Overall, the Virginia interagency fire partners completed 27 prescribed burn projects during 19 burn days for a total of 5,826 acres burned on lands owned by eight different entities.



DCR Natural Heritage staff and their interagency fire partners completed over 1,700 acres of burning on state natural area preserves in the first half of 2018 to improve rare species habitat and maintain natural communities.

In late August, members of DCR's Natural Heritage prescribed fire crew met at the Coastal Operations Center on the Eastern Shore to prepare the Eastern fire engine, UTV and other equipment for the upcoming fall and winter fire seasons. This is the *Red Engine's* 20th year of service. In observance of that milestone and as preparation for the next 20 years, improvements were made to align this apparatus with current national fire equipment standards and make changes for more efficient single firefighter engine operations. Engine tools and equipment were serviced and/or repaired, and fuel containers and drip torches were repainted and given new visual identification and safety markings. On a Friday afternoon, all equipment was re-packed and ready to go. The next Monday, Natural Heritage burn crew put the spruced up equipment to good use in assisting Department of Game and Inland Fisheries staff with a prescribed burn at Ware Creek Wildlife Management area. The fall 2018 fire season is underway.



DCR's Natural Heritage Eastern Red Engine and other fire management apparatus after recent maintenance completed in preparation for upcoming prescribed burn operations.

Natural Area Preserve Stewardship

On March 15, 2018, Old Dominion University (ODU) faculty member Lytton Musselman hosted a field trip at the ODU-owned Blackwater Ecological Preserve (Isle of Wight County) featuring renowned fire ecologist and longleaf pine historian, Cecil Frost. The field trip was co-led by DCR's Southeast Region Natural Areas Steward, Darren Loomis. Field trip topics and discussion covered the history of the preserve, fire history, rare plants, longleaf pine restoration and ongoing scientific research by ODU staff, students and others. DCR's Longleaf Pine Restoration Specialist and Eastern Fire Manager, Rebecca Wilson, recounted the history of prescribed burning at the preserve and its use to maintain fire-dependent plant communities, enhance rare species habitats and restore longleaf pine and its associates.



At left, Lytton Musselman introduces Cecil Frost to field trip attendees. At right, Cecil Frost and Darren Loomis inspect an ancient longleaf pine stump – a last vestige of the original longleaf pine forest that once covered much of southeastern Virginia.

On April 26, 2018, DCR’s Eastern Operations Steward, Neil Gunter, installed wooden fencing to discourage continued use of unauthorized social trails by visitors at Dameron Marsh Natural Area Preserve. This step is intended to reduce the number of persons accessing a closed section of sandy shoreline in order to better protect habitat for nesting shorebirds and Northeastern Beach Tiger Beetles – a rare animal occurring at the preserve. Sandy shorelines at Dameron Marsh are annually closed to visitors from April 15 to September 15 to benefit populations of shorebirds and tiger beetles. Once vegetation grows back and obscures social trails, fencing can be easily removed. During the winter “open” season, birdwatchers and other visitors will continue to be provided with access the shoreline, but via use of DCR-designated access routes.



Barrier fencing and closure sign installed to allow vegetation to obscure a social trail at Dameron Marsh Natural Area Preserve.

On Sunday, April 15, 2018, DCR Natural Heritage staff (Rebecca Wilson; Tim Craig) and The Nature Conservancy’s (TNC’s) Bobby Clontz hosted a field trip for College of William & Mary fire ecology students. In February 2018, DCR and TNC staff gave a presentation at William & Mary about the historical and current role of fire in southeast Virginia ecosystems. At that time, students expressed an interest in visiting sites highlighted in the presentation. Thus in April, they traveled to Piney Grove Preserve in Sussex County and then visited the Zuni Pine Barrens (Antioch Pines Natural Area Preserve; Blackwater Ecological Preserve) in Isle of Wight County. Dr. Harmony Dalglish and her students (and children) learned how TNC manages for enhanced Red-cockaded Woodpecker habitat at Piney Grove using a combination of forest thinning and prescribed fire. At Zuni Pine Barrens, students investigated a recently-burned young longleaf pine stand and compared those stand characteristics with nearby unburned sites.



College of William & Mary fire ecology students recently visited sites in southeast Virginia being managed by DCR and TNC with prescribed fire.

On April 16, 2018, DCR’s Longleaf Pine Specialist (Rebecca Wilson) and Southeast Region Steward (Darren Loomis) worked alongside tree planters from Rock Springs Forestry Inc. to plant 10,688 longleaf pine seedlings at Cherry Orchard Bog Natural Area Preserve. This action was needed due to freeze mortality to some of the 45,000 longleaf seedlings planted at this site in mid-December 2017. A portion of these were apparently killed by an extended period of near-zero temperatures during the first week of January 2018. This extreme weather, coming soon after the initial planting, is believed to have caused above-average seedling mortality observed in a more exposed portion of the 84-acre restoration area. Seedlings were first visually-inspected by tree planters for signs of life. Then, a new seedling was planted adjacent to each seedling determined to be dead. Seedling survival rates are monitored for all longleaf restoration plantings on state natural area preserves.



Tree planting crew prepares to re-plant longleaf seedlings killed by near-zero temperatures in early 2018 at Cherry Orchard Bog Natural Area Preserve.

On April 25, 2018, Leonard Jordan, Acting Chief for the (U.S.) Natural Resources Conservation Service (NRCS), visited Virginia to tour a longleaf pine restoration project on private lands in Sussex County. Jordan traveled to Yale, VA from Washington D.C. at the invitation of the landowner to view – firsthand – results of NRCS program support for longleaf pine reforestation measures, and also to meet members of the Longleaf Cooperators of Virginia (LCV). The LCV includes staff from DCR, NRCS, Department of Forestry (DOF), The Nature Conservancy (TNC) and others that have worked together for almost a decade to further longleaf pine restoration efforts on private and public lands in Virginia. The group toured several longleaf sites, observed effects of prescribed burning and discussed the impacts of NRCS incentive programs. DCR Natural Heritage staff (Rebecca Wilson; Darren Loomis) participated on the field trip, along with staff from TNC, DOF and NRCS. Virginia’s new Secretary of Agriculture and Forestry, Bettina Ring, also participated on the tour with Chief Jordan.



(Left) Southeast Region Steward, Darren Loomis, points out a population of Euphorbia exserta – a fire adapted rare plant - to NRCS Chief Leonard Jordan and other participants. Group photo with Jordan, landowner Bill Owen and Secretary Ring, at far right.

On May 1 - 2, 2018, DCR's Natural Heritage Northern Region staff assisted Department of Game and Inland Fisheries (DGIF) biologists with Bald Eagle research at Crow's Nest Natural Area Preserve. DGIF staff climbed four nest trees and captured six bald eagle chicks, all approximately eight weeks old. After taking several measurements, transmitters were placed on each chick. Data collected will allow researchers to better understand and model spatial movements of eagles throughout the region. Data could also be useful in helping to reduce collisions between eagles and military as well as civilian aircraft.



At left, DGIF's Kevin Rose and DCR's Geoff Austin band an eagle chick. At right, an eagle chick with transmitter.

On Friday, May 4, 2018, staff from DCR-Natural Heritage (Rebecca Wilson; Tim Craig) and The Nature Conservancy (Bobby Clontz) hosted a field trip for two fire ecology/fire science researchers. Dr. Adam Coates (Virginia Tech) and Dr. Morgan Varner (Pacific Wildland Fire Sciences Laboratory) visited Piney Grove Preserve in Sussex County and Antioch Pines Natural Area Preserve in Isle of Wight County. These fire ecologists are collaborating to initiate new fire science research in the coastal plain of Virginia. State natural area preserves are especially well suited for conducting multi-year field research studies for many reasons; among them, the stability of long-term state ownership, relatively low human impacts, and availability of agency staff to initiate projects and assist with data collection. A follow up trip to South Quay Sandhills Natural Area Preserve is being planned for the near future.



Dr. Morgan Varner and Dr. Adam Coates met recently with staff from DCR and The Nature Conservancy to discuss potential fire research in southeast Virginia.

On Friday, May 4, 2018, Dameron Marsh Natural Area Preserve was closed to the public to allow DCR's Eastern Operations Steward, Neil Gunter, and a contractor to perform needed repairs and maintenance to the 0.6-mile-long preserve access road. Using a tractor-mounted power rake the road was first graded, then dressed

with fill dirt and existing stone. These steps removed existing potholes and reestablished a crowned road surface to promote water runoff and reduce new pothole formation. New stone was added to complete the work and Dameron Marsh was re-opened for the weekend.



Before (left) and after (right) photos of interior access road at Dameron Marsh Natural Area Preserve in Northumberland County, showing recent improvements.

On April 26, 2018, DCR's Eastern Shore Region Steward, Dot Field, attended a Salt Marsh Sea-Level Rise Workshop sponsored by the University of Virginia (UVA). The workshop focused on potential effects of sea-level rise on ocean-facing salt marshes on the Eastern Shore. Topics explored included predicted changes in marsh area, causes and rates of change, public perception of salt marsh values and the importance of land conservation strategies that allow for salt marsh migration and persistence. Speakers and facilitators included staff and faculty from UVA, Virginia Institute of Marine Science, University of Florida and Clark University. The workshop was held at UVA's Anheuser-Busch Coastal Research Center in the town of Oyster.

On May 26, 2018, a group of 17 Boy Scouts and adult leaders assisted Natural Heritage Northern Region Stewardship staff at Crow's Nest Natural Area Preserve with trail maintenance. This Eagle Scout project focused on installing erosion control measures on a section of the Boykins Landing Trail impacted by high levels of hiker use and recent heavy rains. Eagle Scout Johnathan Arner of Troop 1221 in Stafford County, along with other scouts and leaders, plus DCR's Geoff Austin and Mike Lott, constructed five water control diversions to reduce trail erosion impacts. The scouts also placed mulch around benches and eroding areas at the Boykins Landing overlook to reduce soil loss from high traffic areas.





Eagle Scout project participants at Crow's Nest Natural Area Preserve built erosion control structures on a high use section of the Boykins Landing Trail.

During the week of May 29, 2018, DCR's Eastern Operations Steward, Neil Gunter and Chesapeake Bay Region Steward, Zach Bradford completed parking area upgrades at Hughlett Point Natural Area Preserve in Northumberland County in order to provide clearer messages to visitors about use regulations, and to improve parking control. A new entrance sign, plus revised preserve use regulations and traffic control signs were installed. Work also involved removing old wooden fencing and guardrails.



Recent parking area improvements at Hughlett Point Natural Area Preserve included new sign installation.

Recently, DCR's Conservation Drone was airborne and in use on the Eastern Shore, both at Magothy Bay and Wreck Island natural area preserves. On Thursday, May 31, 2018, DCR Stewardship Biologist - Kevin Heffernan, Eastern Shore Region Steward - Dot Field and Project Review Assistant - Colleen O'Brien worked at Magothy Bay Natural Area Preserve to acquire aerial imagery of a Phragmites infestation in seaside tidal marsh. These images will assist management planning and provide information for monitoring effectiveness of on-going Phragmites control efforts. See a video here: <https://seeingisbelieving.smugmug.com/Dragonfly-20/n-8w59pz/i-Cx2gM48/A>



Phragmites (blue-green) invading a marsh at Magothy Bay Natural Area Preserve.

On Friday, June 1, 2018, DCR Natural Heritage stewards plus staff from The Nature Conservancy ventured to Wreck Island to collect georeferenced drone imagery of marsh and beach nesting birds, as well as to map the extent of current Phragmites infestation. Drone imagery is being assessed for utility with bird nesting surveys. See video here:

<https://seeingisbelieving.smugmug.com/Dragonfly-20/n-8w59pz/i-cMtzBBg/A>



Phragmites (blue-green at left), bird nesting habitat (green at center) and barrier island beach (right) at Wreck Island Natural Area Preserve.

On July 9, 2018, Natural Heritage Northern Region Supervisor, Michael Lott, with assistance from other DCR staff and several volunteers, completed 2018 breeding bird monitoring at Crow's Nest Natural Area Preserve. In total, 140 point counts were completed at 70 randomly-placed locations within the preserve. In total, 57 species and approximately 2,000 birds were tallied during the 2018 monitoring season. The top three species detected over the past four seasons were Red-eyed Vireos, Tufted-titmice and Wood Thrush, identified in 85%, 79% and 68% of the point counts, respectively. Wood Thrush, Red-headed Woodpeckers, Kentucky Warblers and Prothonotary Warblers are four *Watch List Species* identified by Partners in Flight that breed in the preserve. In addition, a small population of King Rail (G4/S2B/S3N) was again detected in 2018 within the Freshwater Tidal Marsh community along Accokeek Creek. Data from breeding bird surveys is being used to monitor changes in bird species composition and population numbers over time.



Kentucky Warbler (left) and Wood Thrush (right) at Crow's Nest Natural Area Preserve (Photos by Brian Smith).

During the week of August 13-17, 2018, DCR's Natural Heritage Northern Region Stewardship staff spent considerable time clearing storm-damaged trees at Crow's Nest Natural Area Preserve in Stafford County. A severe thunderstorm with strong straight-line winds crossed the region on the evening of August 12, resulting in widespread wind-throw and tree breakage. Damage was especially severe on ridgeline sections of the Crow's Nest Point and Boykin's Landing trails – and along the Accokeek Creek Overlook trail – where multiple trees either snapped off or were uprooted. Staff have assessed the extent of damage and used chainsaws to clear woody debris from the main access road, parking areas primary trails. Additional effort will be needed in the coming weeks to assess damage and clear debris along secondary access trails throughout the preserve.



Downed trees blocked trails and roads at Crow's Nest Natural Area Preserve after a strong storm on August 12.

Invasive Species

On Wednesday, June 6, 2018, DCR Stewardship Biologist, Kevin Heffernan, presented a talk on wavyleaf grass to the Southern Forester's Group Conference in Richmond, attended by State Foresters from 13 southern states. Wavyleaf grass is a highly invasive plant that will alter forests throughout the eastern U.S. Found in Maryland and Virginia, with recent invasions reported from Pennsylvania and West Virginia. Wavyleaf grass carpets the ground layer in mesic upland and well-drained bottomland forests where it outcompetes native herbs and crowds out tree seedlings. It spreads rapidly due to its sticky seeds that attach to hikers, dogs, deer and other animals. This plant thus poses a clear threat to America's native forests due to its ability to profoundly alter forest composition and structure. The conference presentation covered wavyleaf biology, identification and currently available management strategies.



Wavyleaf grass invading a white pine forest in Augusta County, Virginia

As part of DCR’s ongoing management actions to control the spread of Phragmites or Common Reed (*Phragmites australis*), 15 acres of this highly invasive, tall wetland grass were sprayed at Magothy Bay NAP on the Eastern Shore during the second week of September 2018. Phragmites threatens marshes and other wetland edge coastal natural communities by displacing native vegetation, decreasing habitat values and disrupting normal ecological functions. The site was treated on September 11 with an approved herbicide by a contracted aerial applicator using a small helicopter. Coastal Operations Steward, Richard Ayers, supervised the control operations.



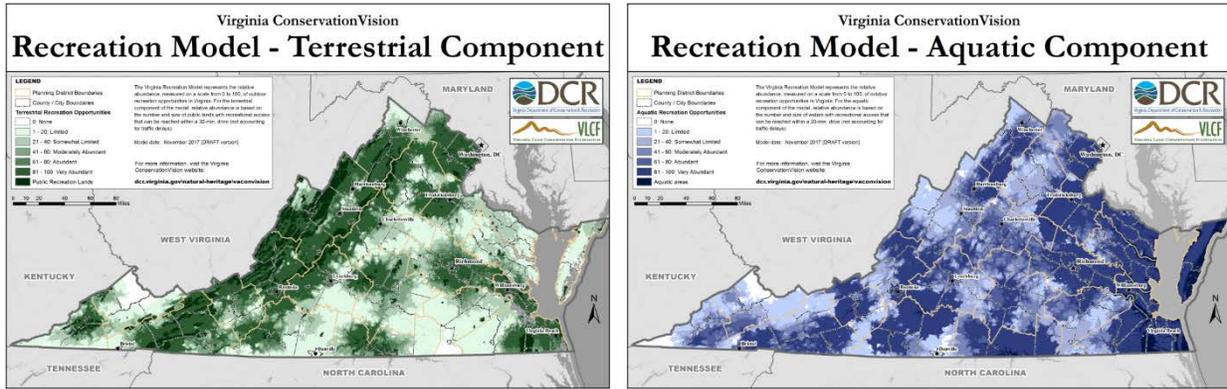
Phragmites control site at Magothy Bay Natural Area Preserve on the Seaside of the Eastern Shore. Phragmites can be readily-identified on the photo as the blue-green hued vegetation flanking the shrubs and trees.

Information Management

The Natural Heritage Program’s information management staff recently completed a first draft of an update to the Recreation Model, one of seven statewide models included in the suite of conservation planning tools called Virginia ConservationVision. Currently under review, the new Recreation Model uses a “Service Area” approach to score areas relative to the number and area (size) of public-access recreational sites within a 30-

minute drive in the state of Virginia. Terrestrial and aquatic recreation opportunities were analyzed as separate components of the Recreation Model. Currently, the model focuses on water access points and hiking trailheads. DCR will be collaborating with partners to bolster the model inputs, for a more comprehensive model. For more information, visit <http://www.dcr.virginia.gov/natural-heritage/vaconvisrec>.

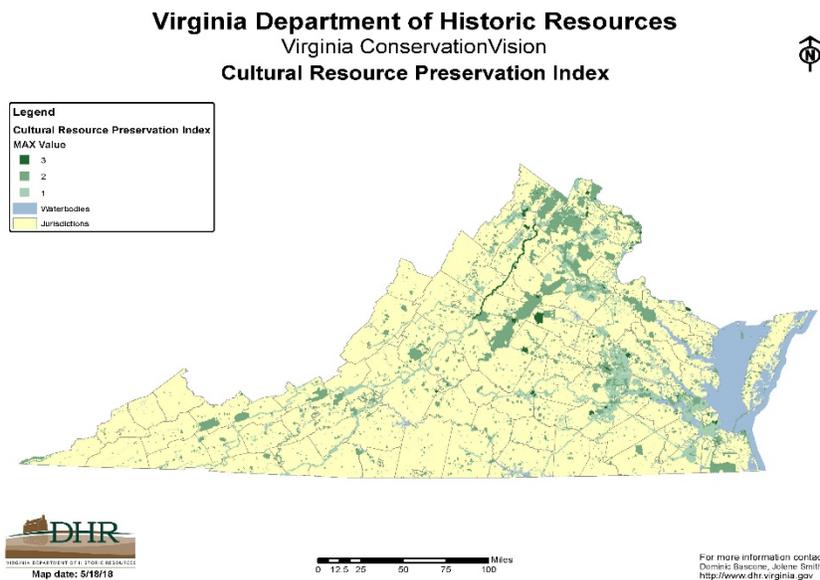
The Recreation Model helps identify recreational facility access, from abundant to scarce, based on travel on the road network in Virginia. As such, it can be used in conjunction with other data for conservation and recreation targeting activities, to prioritize areas for new and/or expanded recreational facilities.



Map products from the new draft version of the ConservationVision Recreation Model, for both terrestrial and aquatic components. Areas are scored based on number and area of recreational facilities available within a 30-minute drive. Darker shades represent higher scores (more abundant recreational opportunities).

The Department of Historic Resources completed a GIS-based Cultural Resource Preservation Index (CRPI). The index ranks cultural resources according to cultural interest and displays the likelihood of a given location to include known and evaluated cultural heritage resources. Resources considered permanently protected (fee or conservation easement) were excluded from this index, to provide a map product for prioritizing future land conservation. The model methods and final map were designed to obscure locations of sensitive resources.

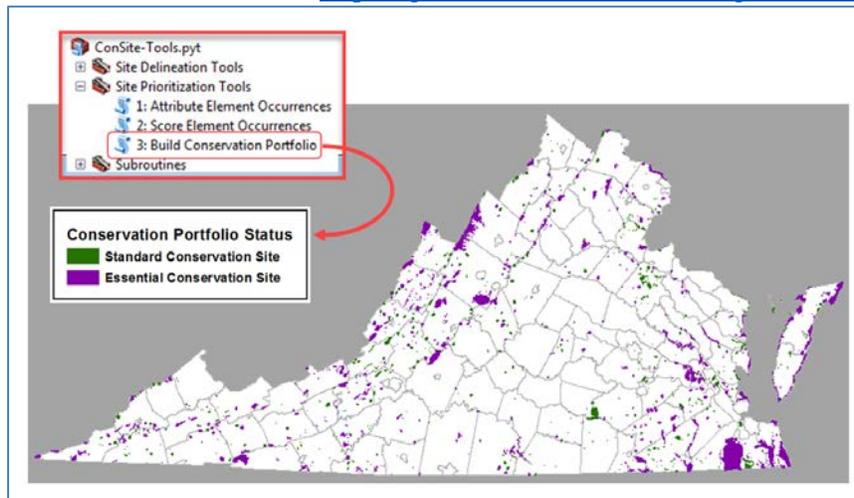
The CRPI compliments the Natural Heritage suite of ConservationVision models and serves as an update to the original Cultural Model. DCR’s website has been updated to include the CRPI and the model is available for download. The Natural Heritage Data Explorer will include the CRPI after the mid-June quarterly data update.



A Conservation Site is a non-regulatory planning boundary delineated by the Virginia Natural Heritage Program to identify key areas of the landscape worthy of conservation. Since funding for land acquisition and management is limited, it is important to have a means of objectively prioritizing among sites. Therefore, Natural Heritage staff have developed a standardized methodology for identifying a statewide set of Essential Conservation Sites (ECS). ECS are the subset of mapped Conservation Sites where protection and stewardship actions are most critically needed to ensure the long-term viability of the best known examples of Virginia’s rarest plant and animal species and the natural communities that provide necessary habitats.

The foundation of this effort is the Element Occurrence (EO) data gathered and managed by Natural Heritage over several decades. EOs represent known locations of rare species and exemplary natural communities, and are assigned ranks based on health and viability of each occurrence; threats; level of protection; its management if protected; and state and global rarity ranks. The highest ranked occurrences of each species or natural community type are assembled in a portfolio of the Essential Conservation Sites: those needed to protect at least 2 (or 5 if globally rare) of the very best occurrences of each species or community. This protection takes place not only at DCR, but via collaborating with partners, with the ECS as guidance.

The ECS methodology has been codified as a set of tools in a custom ArcGIS toolbox. With these tools, both EOs and Conservation Sites can be ranked and prioritized in a matter of minutes, so regular updates to the conservation portfolio in the face of dynamic input data can be readily achieved. The set of Python scripts comprising the ConSite toolbox is available at <https://github.com/VANatHeritage/ConSiteTools>.



This map displays the set of 1427 Terrestrial Conservation Sites, of which 662 are deemed “essential”.

On July 25, 2018, DCR’s Natural Heritage Information Manager, Joe Weber, led a visit to Grafton Ponds Natural Area Preserve by the small animals workgroup of the Virginia Safe Wildlife Corridors Collaborative (VSWCC) to determine the feasibility of improving habitat connectivity for Mabee's salamander (*Ambystoma mabeei*) and other rare or vulnerable species. The surrounding area is highly urbanized and amphibians are especially sensitive to habitat fragmentation, isolation, and degradation. An additional threat at this site is Fort Eustis Blvd., a four-lane highway that bisects the preserve, separates species populations and habitats, and may be a significant cause of road mortalities when adult salamanders move to and from breeding ponds in January and February and when juveniles disperse from natal ponds in late spring. During this visit, participants surveyed the roadways along the natural area preserve to determine if any form of safe wildlife passage could be developed. Several existing culverts running underneath the roadway were identified as possible passage points and participants discussed fencing options that could be used to direct small animals towards these features. The VSWCC will research fencing techniques and materials, which could include relatively inexpensive solutions, and develop a project proposal. Participants of the visit included several personnel from

the Virginia Department of Game and Inland Fisheries, including the State Herpetologist, the Executive Director of Wild Virginia, and a DCR Natural Heritage Intern, Morgan Obenchain.

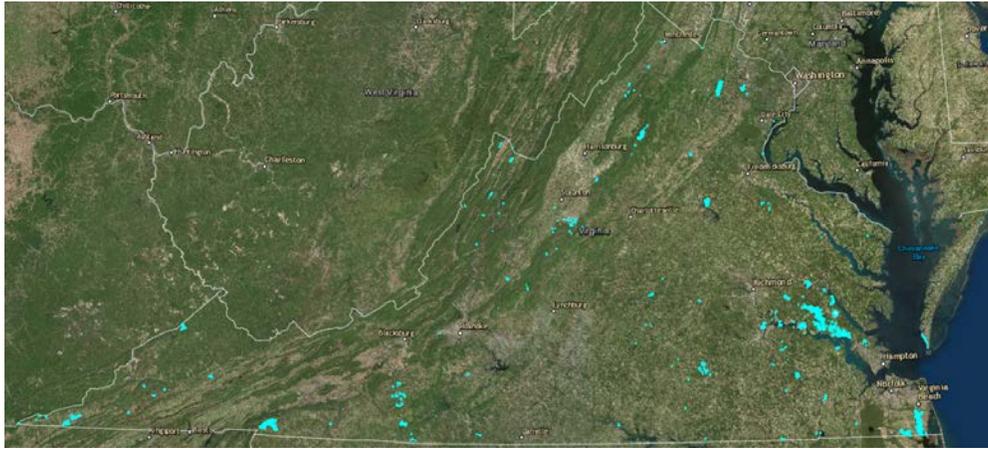


Boundaries of Grafton Ponds Natural Area Preserve showing surrounding urbanization and Fort Eustis Blvd., a four-lane highway bisecting the preserve and separating species populations and habitats (Left). A partially flooded culvert that potentially offers passage to aquatic and amphibious species. Also visible is fencing along much of Fort Eustis Blvd. that might be used in the design of passage enhancement (Right.)



Morgan Obenchain, DCR Natural Heritage Intern, stands next to a large culvert that passes under Fort Eustis Blvd. This culvert had no standing water in it despite recent heavy rainfall, meaning it potentially offers passage to terrestrial species of interest.

As of August 31, 2018, the Natural Heritage Data Management Specialist and Information Specialist have processed data into Biotics for 497 Element Occurrences collected in 2017 by DNH Inventory Biologists. The 497 EOs include updates as well as new locations, and span the entire state of Virginia, showcasing the breadth of field work performed last year by Natural Heritage biologists. The Element Occurrence updates coincide with 195 Conservation Site updates, all of which have been converted to new methodology for generating site boundaries, by using a suite of custom-built GIS tools. Information Management staff are working to convert ALL terrestrial conservation sites to this new methodology, and have completed 1156 out of 1334 total sites, or about 86% conversion overall. These numbers will continue to increase as the last of 2017 field data are submitted by Inventory Biologists and Natural Area Stewards to Information Management staff.



Distribution of the 497 Element Occurrences updated via 2017 fieldwork in Biotics as of 8/31/2018

On September 7, 2018, DCR’s Natural Heritage Information Manager, Joe Weber, participated in a panel entitled “Opportunities to Improve Driver Safety, Reduce Animal/Vehicle Collisions, and Improve Habitat Connectivity in Virginia” at the Virginia Environmental Assembly in Williamsburg. The panelists were all on the steering committee of the Virginia Safe Wildlife Corridors Collaborative and the talks provided overviews of the collaborative, wildlife and transportation conflicts, research and mitigation to reduce animal-vehicle collisions in Virginia, corridors and natural land networks from DCR’s Virginia Natural Landscape Assessment, and a few of the group’s most promising initiatives. The panelist included staff from the Department of Game and Inland Fisheries (DGIF), the Virginia Transportation Research Council (VTRC), and Wild Virginia. In a separate presentation during the same session, Wild Virginia and the Wildlands Network presented draft legislation pertaining to wildlife corridors that is being prepared for the 2019 General Assembly session. The event had record attendance and included members and partners of the Virginia Conservation Network, elected officials, and the public.



From left to right, Misty Boos, Chris Burkett, Joe Weber, and Susan Holmes, of Wild Virginia, DGIF, DCR, and the Wildlands Network, respectively. Absent was Bridget Donaldson of VTRC.

Outreach and Education

Natural Heritage Senior Project Review Assistant, Barbara Gregory, participated in the Fort A.P. Hill Earth Day on April 26, 2018. Approximately 1,000 children and adults participated in the event. The Natural Heritage display had information and pictures of rare, threatened and endangered species found in the region and an example of a natural heritage resource found on the base, the Northern pitcher plant (*Sarracenia purpurea*, G5/S2/NL/NL). Visitors had an opportunity to hear about the Natural Heritage program, the Northern pitcher plant and make a “fortune teller”, which highlights a few examples of the rare plants and animals and their habitat that DCR-Natural Heritage works to protect.



Natural Heritage Program display at 2018 Fort A.P. Hill Earth Day event.

On April 29, 2018, DCR’s Northern Region Supervisor, Michael Lott along with with Dr. Jackie Gallagher, Associate Professor of Geography with the University of Mary Washington presented a talk highlighting the challenges and opportunities associated with opening public access at Crow’s Nest Natural Area Preserve. The presentation was part of the 14th Annual Conference of The International Association for the Study of Environment, Place and Space, which had a theme of “*Wild Places – Natural Spaces.*” The Crow’s Nest talk outlined DCR staff concerns prior to the opening, including questions about how many visitors to expect, sufficiency of parking capacity and staffing levels, litter management and the potential for ecological harm resulting from recreational user impacts. Happily, one year after opening the Raven Road public access point, visitor use and resource protection issues have for the most part been manageable.

On May 5, 2018, DCR’s Southeast Region Steward, Darren Loomis, led a field trip for 13 members of the Historic Southside Chapter of the Virginia Master Naturalists (VMN) to Blackwater Ecological Preserve (BEP) in Isle of Wight County. This trip served as part of the training curriculum for new VMN participants who learned about the history of the preserve, fire ecology and the rare plants that occur at BEP – a state natural area preserve owned by Old Dominion University and managed in partnership with DCR. Students learned plant taxonomy skills and used a key to identify tree species. Staff from the Virginia Department of Forestry assisted.



Department of Forestry Senior Area Forester Scott Bachman helps Master Naturalist trainees use a taxonomic key to identify oak species at Blackwater Ecological Preserve.

On April 27, 2018, 12 students and their teacher from the oceanography class at Northampton High School visited Savage Neck Dunes Natural Area Preserve on the Eastern Shore to gain a greater understanding about how ocean and bay physical forces shape adjoining landscapes. DCR's Eastern Shore Region Steward, Dot Field, led a field trip through the preserve and pointed out changes in soil composition, natural community vegetation and landscape features as the students progressed east to west from upland to water's edge. The field trip highlighted effects of salinity, wind and other coastal physical factors on ecological/site parameters.



Northampton High oceanography students exploring the Maritime Dune Woodland natural community at Savage Neck Dunes.

On May 12, 2018, 15 members of the Historic Rivers Chapter of the Virginia Master Naturalists (VMN) visited Blackwater Ecological Preserve, a component of the state natural area preserve system owned by Old Dominion University (ODU) and located in Isle of Wight County. Southeast Region Steward, Darren Loomis, led the trip and helped VMN members learn about the history of the preserve, DCR's collaborative stewardship with ODU and other partners, and the ecology of fire-adapted species. Many plants were in flower, giving participants great views of Sheep Laurel, Staggerbush, Fetterbush, a variety of blueberries and the carnivorous Purple Pitcher Plant.



*Virginia Master Naturalists visited Blackwater Ecological Preserve and learned about the ecology of fire-adapted plants including the state rare Purple Pitcher Plant (*Sarracenia purpurea*), shown at right.*

On May 17, 2018, DCR’s Chesapeake Bay Region Steward, Zach Bradford, gave a presentation to the John Clayton Chapter of the Virginia Native Plant Society (VNPS) in Williamsburg. Over 20 attendees were introduced to the Grafton Ponds – an extensive group of highly biologically significant Coastal Plain Seasonal Depression ponds that occur in York County, Virginia. Some ponds and their surrounding uplands are protected within Grafton Ponds Natural Area Preserve (GPNAP), a 375-acre dedicated state natural area owned by Newport News Waterworks and managed in partnership with DCR to protect rare plants, natural communities and Virginia’s largest population of the state-listed (as threatened) Mabee’s salamander (*Ambystoma mabeei*). Virginia Native Plant Society members will have an opportunity to explore GPNAP during an upcoming guided field trip at the VNPS annual meeting in September 2018.



Mabee’s salamander – a rare animal in Virginia – at Grafton Ponds Natural Area Preserve.

On May 20, 2018, DCR-Natural Heritage Project Review Staff Barbara Gregory and Colleen O’Brien participated in the Explore the Outdoors event, sponsored by WCVE in North Chesterfield. The display included information on natural heritage resources found in the area, native plant brochures and information booklets about DCR’s natural area preserves. Children were encouraged to color a dragonfly, increasing their awareness about natural heritage resources and their habitats. Many adults inquired about which native plants they should plant on their property. They were given a native plant brochure, and were directed to the link to

DCR's on-line native plant finder. Over 150 individuals stopped by the booth and all walked away with a better understanding of the DCR's Natural Heritage Program.



DCR-Natural Heritage Display at Explore the Outdoors

On June 8, 2018, DCR's Natural Heritage Eastern Operations Steward, Neil Gunter, participated in a "Community Helpers" outreach event for 2nd grade students at Beaverdam Park in Gloucester County. Students visited multiple stations to learn about Virginia's various law enforcement agencies: the Virginia State Police, VMRC Marine Patrol Officers, DGIF Wildlife Conservation Officers and DCR Operations Stewards. Officer Gunter taught students about his duties to protect natural heritage resources, provide for visitor safety at state natural area preserves with public access and support preserve management actions such as prescribed fire. Approximately 100 students participated.

On June 20, 2018, DCR's Northern Regional Supervisor, Michael Lott, gave a presentation on the ecological communities at Crow's Nest Natural Area Preserve to the Master Gardener Association of the Central Rappahannock Area. After a brief introduction about the DCR Natural Heritage Program and the cultural history of the Crow's Nest Peninsula, the presentation focused on the biotic and abiotic factors that influence the ecological communities found within the preserve. The presentation also covered many of the plant species associated with the ecological communities and their use in native plant gardens. Approximately 30 people attended.



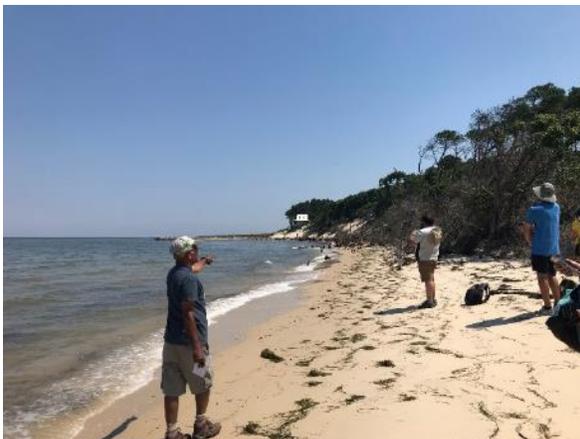
*Basic Mesic Forest (left) and Freshwater Tidal Marsh (right) natural communities at Crow's Nest
(photos by Gary Fleming)*

On June 21 and June 28, 2018, DCR Natural Heritage staff welcomed students taking the Fredericksburg Regional Governor’s School Wetlands class to Crow’s Nest Natural Area Preserve. 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 the ecosystem services provided by the freshwater tidal wetlands along Accokeek Creek. After this introduction, students enjoyed a two-hour paddle. The class was led by teachers and staff with the City of Fredericksburg’s Walker Grant Middle School. Kayaks and boating guidance were provided by the Virginia Outdoors Center. Approximately 35 students participated in each session.



Walker Grant Middle School students and teachers paddling along Accokeek Creek at Crow’s Nest.

On July 11, 2018, students and faculty from Lock Haven University (Lock Haven, PA) visited Savage Neck Dunes and Magothy Bay natural area preserves on the Eastern Shore. The students are studying coastal geology under Dr. Khalequzzaman, Professor of Geology. DCR’s Eastern Shore Region Steward, Dot Field, led the field trip. Students gained insights into the formation of dunes, marshes and other geologic features of the outer coastal plain, and the relationship between these features and the organisms that inhabit natural communities. Field trips and research conducted at state natural area preserves can provide valuable educational experiences that enhance student understanding of ecosystem structure and function. Six Lock Haven students participated in this field trip.



At left, Dr. Khalequzzaman explains factors driving dune erosion at Savage Neck Dunes; at right, extracting a sediment core taken from an interdunal pond to assess sediment layers and associated geological processes.

On July 11, 2018, DCR Natural Heritage Northern Region Supervisor, Michael Lott, participated as a guest on the radio program *Town Talk* hosted by Ted Schubel. *Town Talk* is a one-hour live format radio show broadcast every weekday on WFVA AM 1230 in Fredericksburg. Guests discuss events and places of interest in the Fredericksburg area. Lott discussed the mission of DCR’s Natural Heritage Program, the history of the Crow’s Nest peninsula, the ecological importance of Crow’s Nest Natural Area Preserve, and public access

opportunities at the preserve. Much of the conversation focused on the access and visitor facility additions completed since the last time DCR staff appeared as a guest on *Town Talk* in May 2014.



DCR's Michael Lott appeared as a guest on the Town Talk radio program, discussing topics mostly related to Crow's Nest Natural Area Preserve.

On July 25 and 26, 2018, the DCR Natural Heritage Locality Liaison attended the Virginia Association of Planning District Commissions Summer Conference. The theme of this year's conference was "Leveraging Your Region's Assets for Success" with a focus on outdoor recreation and natural resources. The theme lent itself to many discussions with participants about the benefits of incorporating natural heritage data into the planning process, as well as educating other attendees on the mission and work of the Division of Natural Heritage.

The Natural Heritage Program made another dent in the invasive species dominating Richmond's James River Park on August 3. Efforts focused on cutting Chinese Privet (*Ligustrum sinense*), a non-native shrub whose stems have been crowding out local natives such as Paw-Paw (*Asimina triloba*). This was the second such workday in the location, sometimes known as the Heritage Half-Acre, adopted as part of broader efforts across the James River Park System to control invasive species. Participants were heartened to see positive results from the 1st workday, and the growing impact of our work.



A portion of the Chinese privet stems cut & removed (left), and a top-killed English Ivy vine (right), releasing its hold on an American Sycamore tree.

On August 27, 2018, DCR's Natural Heritage Northern Regional Supervisor, Michael Lott, gave a presentation on Ecological Concepts to the current class of the Central Rappahannock Chapter (CRC) of the Virginia Master Naturalists. The lecture covered population growth and dynamics, interactions between species, energy

movement in ecosystems, communities and food webs, element cycles and issues in biodiversity. Examples and photographs from Crow's Nest Natural Area Preserve were used to illustrate many of the concepts. CRC Master Naturalist classes are held at the University of Mary Washington in Fredericksburg. A total of 23 Master Naturalists-in-training attended the lecture.



Overwintering Tundra Swans and an occurrence of Dry Calcareous Forest at Crow's Nest Natural Area Preserve

A few hardy staff and friends of the Natural Heritage Program volunteered during Labor Day weekend to further reduce the invasive species dominating the James River Park in Richmond. Two of the participants travelled from Norfolk to participate! The group has begun to believe the end may be in sight for the Chinese Privet inhabiting the Heritage Half Acre (HHA). In the image below, a few of the trunks of the cut stems are shown. Several new native floodplain species were noted for the first time within the HHA, but unfortunately so was the non-native Chinese Yam, whose vines were already producing the distinctive aerial tubers that are one of main means by which this vine spreads.



*Figure 1: Aerial tuber or "bulbil" of Chinese Yam (*Dioscorea polystachya*) in HHA*



Some of the crew that participated in the Labor Day “beat-down.”

On September 8 and 9, 2018, Northern Regional Supervisor, Michael Lott, participated in the Virginia Master Naturalist Statewide Conference held at the Fredericksburg Expo and Conference Center. On Saturday, he led an ecology walk at Crow’s Nest Natural Area Preserve. The hike focused on the various plant communities within the preserve, past land use and logging, invasive species and forest interior birds. Heavy rain on Sunday forced the cancelation of a birding walk at Crow’s Nest. Instead, Michael gave a presentation on the birds of Crow’s Nest. The presentation focused on the breeding bird monitoring program, including objectives of the program, survey protocol, a summary of the four years of data, and how the data collected could inform management decisions in the future. There was also a focus on how different bird species utilize the varied plant communities at Crow’s Nest during the year, including over wintering species. Twenty-three participants signed up for each of the two Crow’s Nest events.

On September 12, 2018, the James River Advisory Council, James River Outdoor Coalition and the James River Association hosted a small, outdoor film event on the floodwall in downtown Richmond. The Natural Heritage Program used this as a public outreach opportunity to spread awareness about the program and its mission of conserving Virginia’s biodiversity. Emmy Scates, who works as administrative support, represented the program and discussed a number of topics with individuals from the public, including some of the natural heritage resources found in the James River and public access to some of our natural area preserves. This event also served as an opportunity to distribute native plant brochures, natural area preserve access guides, and the new Virginia Natural Heritage Rack Cards, which cover a variety of topics ranging from natural community highlights to plant or animal species highlights. Those who visited the Heritage display gained an even greater appreciation for Virginia’s biodiversity and the river that flows through their beloved City of Richmond.



Natural Heritage Display at Films on the Floodwall Event

On September 20, 2018, the Eastern Shore Chapter of the Virginia Master Naturalists held a field-based class at Savage Neck Dunes Natural Area Preserve focusing on field botany and coastal natural communities. This outdoor classroom session was led by DCR's Eastern Shore Region Steward Dot Field with assistance from Coastal Operations Steward Richard Ayers and Coastal Stewardship Technician Brooke Rodgers. Students heard a short presentation on botanical principles and plant characters important to field identification, followed by a field trip examining ecological roles and adaptations of coastal plant species in relation to the natural communities in which they occur. Co-occurring insects and other organisms that contribute to the ecological functioning of the various natural communities were also noted and discussed. In addition to plants, students got a close-up look at fish and aquatic turtles retrieved from an interdunal pond by Ayers and Rodgers. Rodgers presented a short explanatory talk on turtle morphology and life history.



Eastern Shore Chapter Virginia Master Naturalists outdoor classroom at Savage Neck Dunes Natural Area Preserve.

On September 22, 2018, the Northern Regional Supervisor led a hike at Crow's Nest Natural Area Preserve for the Historic Rivers Chapter of the Virginia Master Naturalists. The hike along the Accokeek Loop Trail focused on the history of the peninsula, past land use and logging and invasive species. Another focus was the different abiotic and biotic factors that influence the distribution of the different plant communities within the preserve. Participants also enjoyed the many fall neotropical migratory birds passing through the preserve and the numerous fungi visible along the trail. Thirteen members of the chapter joined the hike.



Members of the Historic Rivers Chapter at Crow's Nest

To mark the beginning of Public Lands Week on September 22, 2018, DCR’s Eastern Shore natural areas stewards Dot Field and Richard Ayers provided a field trip to Wreck Island Natural Area Preserve for members of the Cape Charles Yacht Club. The 14 attendees included Northampton County Supervisor, John Coker and his wife Martina – who is also a member of the Eastern Shore Chapter of the Virginia Master Naturalists. The club members walked the shorelines and learned about the natural heritage resources protected at this barrier island natural area. Upon their arrival at Wreck Island, participants were greeted by a large flock of roosting American Oystercatchers – one of the numerous shorebird species that utilize the preserve as a winter roost and summer breeding ground. During the 2018 breeding season, the Wreck Island supported colonies of Brown Pelicans, Black Skimmers, Least Terns, a wading bird rookery and three pairs of Piping Plovers – a federally-listed species. Club members also participated in shoreline cleanup, picking up balloons and other debris along the beach strand. The group returned to the mainland with a better understanding of barrier island communities and dynamics, and a greater appreciation of the mission of DCR’s Natural Heritage Program and the state natural area preserve system.



American Oystercatchers (above) lift into flight during a visit by members of the Cape Charles Yacht Club to Wreck Island Natural Area Preserve on the Eastern Shore.

On September 29, 2018, DCR’s Northern Regional Supervisor, Michael Lott, led a hike at Crow’s Nest Natural Area Preserve for Stafford County Cub Scout Pack 845. This field trip allowed pack members to work on their Ecosystem STEM merit badge, which requires scouts to visit and learn about an ecosystem in their local area. A variety of merit badge topics were covered during the hike including the value of biodiversity, food chains, the plants and animals found at Crow’s Nest, and issues associated with invasive species and habitat destruction. Each scout is expected to draw a food web diagram representing what he learned. Twenty-three scouts attended the hike.



Stafford County Cub Scout Pack 845 visited Crow's Nest.

On September 29, 2018, eight graduate students from the University of Virginia's Urban and Environmental Planning program visited Cape Charles Natural Area Preserve to learn about Chesapeake Bay-fronting natural communities on the Eastern Shore. DCR's Eastern Shore Region Steward, Dot Field, led a field trip and interpreted the vegetation and ecological parameters of various natural communities. Cape Charles NAP encompasses Maritime Loblolly Pine/Hardwood Forest, Dune Scrub and Beach Strand communities. The preserve provides important habitat for neotropical migratory songbirds and the federally-listed Northeastern Beach Tiger Beetle. These graduate students are engaged in a project designed to help inform planning decisions for the Town of Cape Charles.



Eastern Shore Region Steward, Dot Field, points out migratory songbird habitat characteristics to UVA graduate students.

Land Conservation

Protecting the best examples of Natural Heritage resources requires state-wide efforts. This fact is epitomized by the most recent property additions to the Natural Area Preserve system, which occurred at opposite ends of the Commonwealth. The Cedars Natural Area Preserve (TCNAP), in southwestern Virginia's Lee County, and the Eastern Shore's Magothy Bay Natural Area Preserve (MBNAP), in Northampton County, both saw expansions during the last week of September.

Approximately 44 acres, purchased from 2 different landowners, were added to TCNAP. These acquisitions required willing and patient landowners, and funding support from both the Virginia Land Conservation Foundation (VLCF) and the Virginia Native Plant Society (VNPS). The Cedars is an undeniable biodiversity hot-spot, and DCR-Natural Heritage continues to work to achieve our legislative mandate to protect Virginia's rare biodiversity.

Approximately 53 acres were added to MBNAP with significant funds provided by the Virginia Coastal Zone Management Program (administered in Virginia's Department of Environmental Quality), with matching funds provided by VLCF. This tract will be restored to a native plant community to provide cover, perches, and food for migrating songbirds. The tract is located in one of the most significant locations for migrating birds in the eastern U.S. where millions of birds, representing nearly 200 species, pass through and stop over each fall. Our conservation and restoration efforts here have benefits well beyond the Commonwealth's borders.



Within 2 years, unused agricultural lands can be restored to densely populated native plant species, providing cover and food for migratory songbirds on Virginia's Eastern Shore.

Natural Heritage Data Management Totals for FY2017:

Activity 4-01-18 – 9-30-18

New Mapped Locations (EOs) - 47
Updated Mapped Locations (EOs) -98
New Conservation Sites – 72
Updated Conservation Sites - 210

Total Number in Database 9-30-18:

Animal Mapped Locations (EOs) – 614
Plant Mapped Locations (EOs) – 1244
Community Mapped Locations – 586
Conservation Sites – 616

Managed Areas: (Acres added 4-01-18 – 9-30-18) – 2,027.50 Acres
Mapped Tracts: (total in coastal zone) – 41 Tracts
Mapped Managed Areas: (total in coastal zone) - 28 Managed Areas

Healthy Waters

For the grant reporting period, the Environmental Scientist/Analyst with the Virginia Commonwealth University, Center for Environmental Studies in the Department of Life Sciences continued to serve as the Program Manager of the Virginia Healthy Waters Program at the Virginia Department of Conservation and Recreation, Division of Natural Heritage.

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 and data integration.

Programmatically, data integration, geographic expansion and data re-sampling continue to be the top focal areas of the analysis with immediate attention addressed to integrate existing INSTAR data into the DNH data explorer and the creation of new Ecological Occurrences (EOs) and Stream Conservation Units (SCUs). Challenges to administering the Program are development of new data to complete the statewide coverage, and the resource and staffing needs to conduct field assessments. Due to an intensely wet spring and summer, INSTAR sampling was not conducted to the intensity as the norm. Therefore, the Heritage staff involvement with the VCU field crew to collect INSTAR data was limited. However, this increased capacity in the program advances the program within the Division of Natural Heritage.

The Program Manager continued to participate in the Chesapeake Bay Program Healthy Watershed Goal Implementation Team to coordinate the involvement of VA Departments of Conservation and Recreation, Environmental Quality and Forestry. To continue the progress being made by the Commonwealth, the HW Program Manager coordinated with the Heritage Division staff to begin the process of conducting a threat assessment to the 2014 HW sites in the Chesapeake Bay. The outcome is an identified list of HW sites that are most vulnerable to changes and most likely to be lost to future changes to meet the goal of protecting 100% of the 2014 list by 2025.

The development of an analysis and prioritization of statewide SCUs and a vulnerability assessment of existing healthy water sites in the Chesapeake Bay watershed has continued and bridges the DNH Sections of Healthy Waters, Protection and Stewardship. The analysis and prioritization of the SCUs are to result in an identification of those SCUs deemed “most valuable” to guide conservation planning on a watershed scale ensuring ecologically healthy aquatic conditions are maintained. Conservation planning on a watershed basis would be a divergent from the opportunistic approach under which some conservation actions are achieved. To support this approach, the VDCR HWP developed and submitted a proposal to the US Endowment of Forestry and Communities to support the Healthy Waters Program. That proposal included a field position that would directly work in support of conservation and protection actions to ensure ecologically healthy aquatic conditions are maintained under the Healthy Waters Program and would have established a land trust to manage those protected resources. However, DCR was informed that despite the high ranking of the proposal, it was not awarded.

The HW Program Manager met with a regional land broker to identify opportunities to inform land protection and direct acquisition. Several basins were identified with a specific focus on the Chickahominy River. The HWP Manger met with faculty to develop an internship, course or special study to permit those data to be cross-walked with INSTAR to inform the identification of opportunities most beneficial to the HWP.

The HWP Manager also met with faculty of VCU to discuss integrating the HWP into the Scenic Rivers Course for the Fall, 2018 semester. Plans are underway for instructional opportunities for students on the HWP and INSTAR data in a conservation planning context.

c) DCR – Planning and Recreation Resources

This report lists projects and activities conducted by the Department of Conservation and Recreation, Division of Planning and Recreational Resources during this period that were not funded by or otherwise reported to the VCZMP

Over the past fiscal year, DCR documented 24 scenic views along water trails in the Northern Neck. Working with interns from Mary Washington, DCR upgraded statewide GIS databases on trails, trailheads and local parks.

Planning for the 50th anniversary of the state's scenic rivers program, DCR is working with the River Management Society to host a conference in Richmond in 2020.

The Land Conservation and Greenways Conference will be held in Richmond April 8-10, 2019.

DCR is assisting multiple state, local and nonprofit partners with the development of a water trail along the upper Rappahannock River that runs the length between Culpeper and Fauquier counties.

5) Department of Game and Inland Fisheries (DGIF)

I. Wetlands:

1. Mitigation Banking:

VDGIF continues to participate on the Inter-Agency Review Team that oversees stream and wetland mitigation banking and provide input on new banks all over Virginia, including the coastal zone. Numerous proposals have been made for new banks and/or additions to existing banks within the coastal region of Virginia during this reporting cycle. DGIF is also now part of the IRT overseeing the Virginia Aquatic Resources Trust Fund projects. Of note of this year is the addition of two tidal mitigation banks to the program.

II. Nongame Species Monitoring and Research:

1. Nongame Birds:

a. Bald Eagles

Bald Eagle populations have increased dramatically over the past 30 years across North America. The Chesapeake Bay Region (CBR), which houses one of the densest populations of Bald Eagles in North America, has experienced nearly a 20-fold increase of breeding pairs of Bald Eagles, since the 1970s. During the early 1970s VA had only ~30 breeding pairs of Bald Eagles; there are now more than 1,000 breeding pairs in the coastal plain during 2017, and more than 2,000 across the CBR. Moreover, the CBR houses thousands of migrant Bald Eagles from northern and southern states during mid-winter and mid-summer, respectively. In addition, there are large numbers of resident, non-breeding individuals, of multiple age classes, that exploit the CBR's rich prey resources and high quality habitat. As populations of Bald Eagles have increased so have conflicts with human activities. Two of the most pressing management issues wildlife agencies face in the Mid-Atlantic region are: 1) eagle collisions with military and civilian aircraft and 2) the potential negative impacts that commercial wind facilities may have on eagles due to strikes with turbines. Both of these issues are important to human safety and economic development, as well as conservation of VA's natural resources. In addition, although bald eagle populations have recovered, human activity still impacts them and it is important to understand the scope and consequences of these impacts to eagles.

Air-strike: Work on this program has continued during the reporting period. Pertinent information is updated below:

To date, DGIF biologists have telemetered approximately 91 Bald Eagles of every age class. Out of 109 transmitters purchased (by DGIF and DOD) 91 have been deployed and we plan to deploy the remaining 18 transmitters within the next year. To date, among the 91 individuals tagged, DGIF has documented greater than 6 million GPS locations. The final report for this project is attached which outlines detailed results from this research. Although funding for this project has expired, we anticipate, due to the large number of active transmitters, continuing research and data management with Dr. Todd Katzner (USGS) to complete more research and answer more management questions in the coming years.

b. Golden eagles

Demography is among the most critical of fields for conservation, yet population biology is not well understood for most species of conservation concern. In eastern North America, golden eagles (*Aquila chrysaetos*) are threatened by a variety of anthropogenic impacts including lead poisoning, collision with wind turbines and habitat loss. Because eagles in general are at the top of the food chain, they are considered to be indicators of environmental quality. Recent research on movement ecology of golden eagles by West Virginia University and numerous conservation partners (including VDGIF) resulted in tremendous knowledge and information gained such as winter and breeding home range size and use, use of topography and landscape during migration, influence of weather on migration patterns, and identification of core wintering ranges and new breeding locations. However, virtually no effort has been expended to estimate the most basic parameters of this population, including size, age structure, and survivorship rates. Basic demographic data are needed to better assess and manage this vulnerable population of eagles. Monitoring bait locations with wildlife trail cameras offers a useful tool for occupancy modeling and assessment of age structure of this unique population.

In order to answer these basic questions the Virginia Department of Game and Inland Fisheries, in conjunction with West Virginia University and USGS (Dr. Todd Katzner) studied demography and habitat use of golden eagles that inhabited Virginia and neighboring states. This project used data collected throughout the region from ~250 motion-sensitive and baited camera traps (spread throughout the eastern U.S.) and GPS-GSM telemetry systems that collected ~3 million locations of eagles. Golden eagles occurred most frequently on camera traps at mid-latitudes in the Appalachian Mountains, especially in Virginia, West Virginia and Pennsylvania. Other scavengers also occurred in spatially and temporally distinct patterns we describe. DGIF did not detect latitudinal patterns in golden eagle density and distribution, suggesting that Virginia's population contains similar proportion of young and adult eagles as do other regions of the species winter distribution.

Home ranges of eastern golden eagles were smaller on winter range in Virginia and nearby states than they were in summer on breeding grounds in Canada. Likewise, smaller winter home ranges had higher proportions of ridge tops, hillsides and cliffs, and open cover than did larger ranges. Finally, golden eagles preferentially selected resting sites on steep slopes that provided thermal protection for birds. DGIF's work suggests that Virginia is a core part of the winter distribution for all age classes of this small eastern population. Furthermore, protection of resources that eagles uses – areas of high topographic diversity and well-forested landscapes with small openings – would likely benefit the long-term persistence of this population. This publication was completed with funds provided by the Virginia Department of Game and Inland Fisheries, through a Federal Aid in Wildlife Restoration Grant from the US Fish and Wildlife Service.

To date, three publications stemming from this project are published at peer-reviewed scientific journals. Two stem from the camera trapping efforts and both rely on the network of camera trappers within and outside of the state of Virginia. One focuses on use of telemetry data and habitat characteristics of those data. Finally, two more publications are expected, one nearly complete, the other will be completed by approximately the time this funding expires. Publications from this project are as follows:

Miller, T. A., R. P. Brooks, M. J. Lanzone, J. Cooper, K. O'Malley, D. Brandes, A. Duerr, and T. E. Katzner. In Press. Space use and home range characteristics of Golden Eagles (*Aquila chrysaetos*) in eastern North America during breeding season and winter. *The Condor: Ornithological Applications*. *In press*.

Katzner, T.E., T.A. Miller, J. Rodrigue & S. Shaffer. 2015. A most dangerous game: death and injury to birds from porcupine quills. *Wilson Journal of Ornithology*. 127: 102 - 108.

c. Falconry

DGIF continues to maintain a good relationship with falconers to address issues related to capture and management of wild raptors for falconry purposes, and to the potential impacts of falconry on wild raptor populations. Further, DGIF administers their falconry program through inspection of falconry facilities and requiring falconry tests to apprentice falconers. Moreover, DGIF spends significant time with the Virginia Falconers Association to better administer falconry testing, administer inspections, and education of the public to the craft of falconry. DGIF implemented their 2018 program for the take of passage Peregrine Falcons for the fall of 2018. DGIF will select five falconers this year from a pool of 17 applicants. Virginia was allocated five falcons for the fall 2018 trapping season by the Atlantic Flyway Council. Interest in the take of Peregrine Falcons increased significantly during 2018 (17 applicants). During 2017, DGIF only had six eligible applicants apply for the program.

d. King and Clapper Rail

In 2014, DGIF contracted with West Virginia University (WVU) on a study of king and clapper rails in the tidal marsh systems of the Pamunkey and Mattaponi Rivers, where the two species are believed to co-occur. King rails are ranked as Tier II Species of Greatest Conservation Need (SGCN) in the VA Wildlife Action Plan and are commonly associated with lower-salinity marshes, while clapper rails are a lower-ranked SGCN associated with higher salinity marshes. The species are difficult to distinguish with reliability and consistency due to their secretive nature, which limits visual identification, and to the broad overlap in their calls, which is the primary means used to detect them. Addressing conservation efforts toward the higher-priority king rail in this geographic area requires knowledge of its status, which in turns necessitates development of a method to distinguish between the two rail species. The study sought to establish a methodology to acoustically differentiate between the two species using analysis of recordings of their calls. The project further sought to estimate king and clapper rail occupancy, abundance, distribution and habitat associations at the local and landscape scales within the study area.

Field work was implemented in 2014-2016, and included testing of rail trapping techniques, playback surveys, vegetation sampling, and deployment of autonomous recording units (ARUs) in target marshes.

Genetic analyses of rail samples collected from two marshes in the August-October period (hunter harvest and live capture with airboat and dip net) revealed the majority of rails to be clappers, but with varying levels of king rail genetic introgression in phenotypically pure clapper rails. The target marsh with intermediate salinity (Eltham, 0-15 PPT) had higher frequency of introgression (40% backcrossed, one hybrid) than a more saline VA reference marsh (Mockhorn Island, 14-31 PPT, 12% backcrossed). These introgression levels match a scenario in which clapper rails have progressively invaded inland along the decreasing salinity gradient. Historic data from the target marsh complex and from the broader Chesapeake Bay tidal marsh system support the notion of displacement of king rails by clapper rails across a broader geography. The management implications of introgression in this system are twofold. First, introgression is likely the result of both natural (e.g. climate change) and anthropogenic (e.g., ditches or diking) factors and this may influence the management strategy. Second, although patterns of introgression suggest clapper rails are displacing king rails in hybrid zones, clapper rails are not known to invade freshwater marshes, so there should still be habitat available for king rails. DGIF's results therefore suggest that long-term monitoring may be important to understand the consequences of climate change on introgression and to explore hybrid fitness in this system.

In order to allow more time for analysis and interpretation of the other data collected, the project timeline has been extended until September 2018. As such, there are currently no further updates to report.

The following publications arising from the project were completed during the reporting period, and include two co-authored by DGIF:

Stiffler, L.L., Anderson, J.T., Welsh, A.B., Harding, S.R., Costanzo, G.R. and Katzner, T.E. (2017). Diel Variation in Detection and Vocalization Rates of King (*Rallus elegans*) and Clapper (*Rallus crepitans*) Rails in Intracoastal Waterways. *Waterbirds*. 40. 263-271.

Coster S.S., Welsh A.B., Costanzo G., Harding S.R., Anderson J.T., and Katzner T.E. (2018) Gene flow connects coastal populations of a habitat specialist, the Clapper Rail *Rallus crepitans*. *IBIS*, doi: 10.1111/ibi.12599

Stiffler, L.L., Anderson, J.T. & Katzner, T.E. (2018). Occupancy Modeling of Autonomously Recorded Vocalizations to Predict Distribution of Rallids in Tidal Wetlands. *Wetlands* 38: 605-612.

Stiffler, L.L., Anderson, J.T. & Katzner, T.E. (2018). Evaluating Autonomous Acoustic Surveying Techniques for Rails in Tidal Marshes. *Wildlife Society Bulletin* 42(1):78–83.

e. Red-cockaded Woodpeckers

The Piney Grove Preserve (PGP) in Sussex County is owned by The Nature Conservancy (TNC) and represents one of two known red-cockaded woodpecker sites in VA and the northernmost population of the species across its range. Management and monitoring of this population is conducted annually by the College of William and Mary & VA Commonwealth University (CCB) with support from DGIF and other partners. Monitoring is conducted via a post-breeding winter survey and a spring pre-breeding survey, in addition to annual nest monitoring and banding activities; results are reported to us on a calendar year basis. Watts et al. (2018) report the following for 2017. A total of 84 red-cockaded woodpeckers were identified in 2017. Moving into the breeding season, there were 53 adult birds distributed among 14 clusters, with 13 potential breeding groups. Twelve of the groups attempted to breed, producing 25 fledglings. Surveys in early winter 2017/2018 identified 64 birds roosting in 14 cluster areas, including 50 adults and 14 of the 25 birds that fledged in 2017.

In 2010 DGIF acquired Big Woods WMA, a property abutting PGP. The WMA is actively managed to create and maintain open pine savanna to provide supporting habitat for the PGP woodpecker population and/or for expansion of that population, as well as a host of other species including Northern Bobwhite. A site visit to Big Woods on July 27, 2017 documented an active woodpecker cavity. Subsequent visits on Sept 18, 2017, January 23, 2018 and Feb 1, 2018 documented a banded bird roosting in the cavity, as well as an inactive cavity in a second tree. Breeding season monitoring confirmed that a banded second year female from PGP had paired

with the male, forming the WMA's first documented potential breeding group. The pair did not breed in 2018. Drilling of an artificial cavity and discovery of an additional naturally excavated cavity brought the cavity total for the cluster up to 4.

In FY18, DGIF participated in the third consecutive year of translocation efforts of red-cockaded woodpeckers to the Great Dismal Swamp NWR (GDSNWR) in Suffolk, VA as part of a team that included the South Carolina Department of Natural Resources, MPJ Wildlife Consulting, USFWS, The Nature Conservancy, CCB and volunteer biologists. This effort seeks not only to re-establish a breeding population in an area in which it historically occurred, but to better secure the viability of the Virginia population by expanding its range beyond PGP, which is vulnerable to potential stochastic events. Four hatch year males and four hatch year females were translocated from the Carolina Sandhills NWR donor population on October 5, 2017. One hatch-year (HY) male and one HY female were translocated from PGP on October 19. The GDSNWR population held three potential breeding groups (seven total birds) at the start of the breeding season, but, despite extensive monitoring efforts, none were documented to lay eggs.

f. Second Virginia Breeding Bird Atlas

DGIF has partnered with the VA Society of Ornithology (VSO) for a second VA Breeding Bird Atlas (VABBA2), which was officially launched in April of 2016. The project has several objectives, including: 1) documenting the current distribution of VA's breeding birds; 2) assessing changes in species distribution since the first VA BBA (1985-1989); 3) collecting information on species of interest for which current data are lacking and for which targeted surveys may yield low returns on effort; 4) collecting data on the abundance of VA's breeding birds via a point count approach; and 5) engaging birders, ornithologists, government agencies, non-governmental organizations, K-12 students and educators, institutions of higher education, and industry in the pursuit of scientific information and a broad conservation message. The VABBA2 is being implemented through three different contracts as outlined below.

This is an on-going project. Relevant updates are provided below:

- The cumulative number to date of eBird checklists submitted through the VABBA2 portal by volunteer Atlasers is >52,000.
- Cumulative data since project inception amounted to data for 84.8% of designated Atlas Priority Blocks (n = 798), with 203 species reported and 167 species having been confirmed as breeders
- Cumulative data since project inception amounted to data for 76.4% of all Atlas blocks (n = 4399), with 230 species reported and 184 species having been confirmed as breeders.
- Over 950 individuals have contributed data through the VABBA2 portal since the beginning of the Atlas project.

In addition: criteria for designating Atlas block completion (i.e. when survey effort for a block is no longer needed) were finalized and communicated to Atlas volunteers; assessment of geographic data gaps in coverage continued; implementation of blockbusting efforts began through self-guided volunteer-led blockbusting in particular regions; funding for paid blockbusting efforts in year 4 was secured via the VSO; methodology for data review and clean-up was developed and applied to the first two years of VABBA2 data by the Atlas Coordinator in partnership with the University of Richmond; and development of strategies for recruitment and continued retention of volunteers continued.

2018 marked the second year of data collection under this four-year effort. Fifteen full-time technicians were hired and worked broadly across the state. Two training sessions were conducted for survey protocols, device usage, familiarity with species identifications, and consistencies with distance estimations. As of this writing, data for 4,908 points surveyed in 2018 have been entered; data entry is ongoing and >6,000 points are estimated to have been surveyed. Although exact numbers are not available as of this writing, the cumulative number of points surveyed to date is estimated to comprise 55-60% of the target total.

2. Avian Scavengers:

Lead has, for several millennia, been recognized as dangerous to humans. More recently, lead has also proven to be toxic to wildlife. In fact, lead has no physiological value to vertebrates (Pain 1995) and is a potent neurotoxin. When developing humans are exposed to lead, consequences can include impaired cognitive function, as well as less severe but still highly relevant changes in blood pressure and blood chemistry (Hu et al. 1998). Likewise, in wildlife, exposure to lead usually results in either lethal or demographically consequential sub-lethal effects, including changes in behavior, reproductive output, and long-term survivorship. Historically, lead has entered into the environment through a number of different mechanisms. Some of these sources included paint manufacturing and various industries, as well as shotgun pellets; all of these sources of lead exposure are now tightly controlled. More recently concern has been raised about lead exposure from rifle bullets used in hunting (Watson et al. 2009). Elevated blood lead levels have been documented in people who rely on hunted meat as a protein source, although these studies were not able to differentiate between lead from shotguns and rifles (Tsuji et al. 2008a, b). Wildlife too, is impacted by spent lead bullets and an increasing number of studies point to this as the predominant modern source of lead poisoning in scavenging birds. In particular, California condors (*Gymnogyps californianus*; Cade 2007), common ravens (*Corvus corax*; Craighead and Bedrosian 2008), golden eagles (*Aquila chrysaetos*; Kenntner et al. 2007) and bald eagles (*Haliaeetus leucocephalus*; Clark and Scheuhammer 2003) have all shown lead poisoning from spent lead ammunition. This lead enters into the environment either through big-game hunting, where it appears primarily in offal piles, or through “sport” hunting of rodents such as prairie dogs (*Cynomys ludovicianus*; Pauli and Buskirk 2007). In the eastern United States, rifles are used for hunting big game (deer, elk, bear) and rodents (squirrels and woodchuck, primarily). A number of scavenging wildlife are potentially at risk from lead exposure; these include mammals (Canids, Felids, Procyonids, Ursids, etc.), as well as birds (eagles, vultures, Corvids, and many others). Thus, there is a need both to determine the degree to which lead from spent bullets is entering the ecosystem and to understand the threat that lead presents to wildlife and to people. Satisfying this need is of particular importance because of the high political visibility of the concern over the continued use of, and the EPA's recent consideration of a ban, on lead bullets. There is currently no comprehensive data set or research that provides scientifically based information related to base-line blood lead-levels in avian scavengers, sources of lead contamination (i.e., industrial lead in the environment or lead from ammunition), and temporal associations with lead toxicosis. In this project we are assessing lead concentrations in blood and other tissues of avian scavengers throughout VA. Primary species groups include Corvids, Eagles, Vultures and Buteos, as well as Osprey.

To date, DGIF has sampled blood from 793 birds in Virginia. This included 21 American crows, 252 Bald eagles, 33 Black vultures, 2 Common ravens, 24 Golden eagles, 259 Osprey, 84 Red-shouldered hawks, 62 Red-tailed hawks, and 56 Turkey vultures. A total of 524 blood samples from Virginia were sent for lead analyses and 269 are not analyzed. Of those tested, 8 birds were above 40ug/dL (elevated level) and the remaining were < 40ug/dL (low level). All samples are analyzed for lead isotope ratios. To date these ratios are nearly all consistent with published isotope ratios for lead ammunition. DGIF has also recently developed multivariate approaches to analysis of lead isotope data that will provide further insight into sources of lead.

In addition to the above progress, since the last report, a graduate student (Vincent Slabe) has continued his education at WVU and led field research activities. Vince is expected to finish his PhD. during the spring of 2019.

This work is being paired with a nationwide project to understand the effects of lead poisoning of bald and golden eagles. For that project DGIF has collected 2238 samples from 31 states. Of these samples, 274 (12%) are from Virginia. Further, DGIF has published peer-reviewed papers, given conference presentations and organized a conference workshop on lead poisoning, as follows:

Peer-reviewed publications:

Franzen-Klein, D., D. McRuer, V.A. Slabe & T. Katzner. 2017. The use of lead isotope analysis to identify potential sources of lead toxicosis in a juvenile bald eagle (*Haliaeetus leucocephalus*) with numerous ventricular foreign bodies. *Journal of Avian Medicine and Surgery*. *In press*.

Katzner, TE, MJ Stuber, VA Slabe, JT Anderson, JL Cooper, LL Rhea & BA Millsap. 2018. Origins of lead in populations of raptors. *Animal Conservation*. *In review*.

Conference Presentations & Sessions Organized

Session organizers: Lead and Raptors. Annual Meeting of the Raptor Research Foundation. Cape May, NJ, USA.

Slabe, V.A., J. Cooper, D. McRuer & T.Katzner. 2016. Blood lead levels of piscivorous raptors in the coastal plain of Virginia. Raptor Research Foundation Annual Conference. Cape May, NJ. Oral presentation.

3. Waterbirds:

a. Piping Plovers and Wilson's Plovers

The 33rd Annual Virginia Plover Survey (VPS) was conducted from June 1 - 9, 2018 to obtain statewide breeding population estimates for the federally threatened piping plover (*Charadrius melodus*) and the state endangered Wilson's plover (*Charadrius wilsonia*). VPS participants examined all suitable nesting habitats shared by both species of plovers in coastal Virginia. It should be noted, a new beach, approximately 0.5 km in length, formed during the winter of 2017/2018 on the marsh headland of Gargatha Inlet located between Assawoman and Metompkin islands (hereafter referred to as Gargatha Beach). Several species of beach nesting birds occupied the site in 2018, including piping plovers, Wilson's plovers, American oystercatcher (*Haematopus palliatus*; 3 pairs) and least terns (*Sterna antillarum*; 12 pairs).

A preliminary total of 212 piping plover breeding pairs were observed during the 2018 survey. This year's survey pair total reflects a 4% decrease over last year's total of 220 pairs. Breeding distribution did not change in 2018; 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; Table X). The preliminary 2018 end-of-season piping plover breeding pair total, which includes additional pairs discovered after the breeding survey was 227, is a 16% decrease from last year's end-of-season total of 269 pairs.

A total of 39 Wilson's plover breeding pairs were recorded during the 2018 VPS. The end-of-season total of 40 pairs reflects a slight increase from last year's total of 39 pairs. Wilson's plover breeding activity was confined to four northern barrier islands and Gargatha Beach. Prior to 2006, up to 25% of the state's breeding population was reported on the southern islands (Parramore Island - Fisherman Island; DGIF unpubl. data). It is not clear why Wilson's plovers have remained absent from the southern islands since then.

b. Plover breeding productivity

Staff from The Nature Conservancy's Virginia Coast Reserve, Chincoteague National Wildlife Refuge (CNWR), Wallops Flight Facility, Fisherman Island NWR and DGIF monitored the breeding success of 98% of Virginia's piping plover breeding population in 2018. This year's statewide productivity estimate was 0.72 fledged young per pair, slightly above last year's estimate of 0.68 fledged young per pair, but still 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).

The staff from the DGIF and the CNWR monitored the breeding success of 93% of Virginia's 2018 Wilson's plover breeding population. A total of 33 young fledged among the 37 pairs monitored which yielded a productivity estimate of 0.89 fledged young per pair. This year's productivity estimate is slightly above last year's estimate of 0.82 fledged young per pair, which was the lowest since the DGIF began monitoring the species' reproductive success in 2004.

c. 2018 Annual Atlantic Coast Least Tern Survey

In 2018, DGIF staff coordinated the 13th 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.

In 2018, DGIF counted a record total of 1,002 least tern breeding pairs at 54 colonies. This preliminary estimate represents a 40% increase from last year's total of 713 pairs. The majority (82%) of breeding pairs occurred on Virginia's barrier islands (including the newly formed Gargatha Beach), 6% at Craney Island Dredge Material Management Area in Portsmouth, 5% on rooftops in the tidewater area, 4% in the seaside marshes of the lower Delmarva Peninsula, and 3% on the western shore of the Chesapeake Bay.

d. American Oystercatcher Productivity Studies in the Seaside Marshes and Barrier Islands

American oystercatcher productivity has been monitored at varying sites and at 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, DGIF staff once again agreed to take over the ongoing productivity studies in the marshes located east of the Town of Wachapreague and on a sand shoal in Wachapreague Inlet. DGIF monitored a total of 28 pairs, which produced a total of 18 fledged young and yielded a productivity estimate of 0.64 fledged young per pair, which is well above level required (0.36 fledged young per pair) to maintain a growing population. Department staff also conducted productivity studies on three pairs of oystercatchers on Gargatha Beach, three pairs on Mink Island and 17 pairs on Myrtle Island during this reporting period. The following preliminary productivity estimates were calculated for the three sites: 0.00 fledged young per pair, 0.67 fledged young per pair and 0.82 fledged young per pair, respectively.

e. 2018 Coastwide American Oystercatcher Breeding Survey

During this reporting period, the DGIF and The Nature Conservancy VA Coast Reserve coordinated and participated in VA's fourth coastwide American oystercatcher breeding survey. Previous surveys were

conducted in 2003, 2008 and 2013 in conjunction with VA's coastwide colonial waterbird breeding surveys. Department staff surveyed over 20 islands, marshes and shorelines from April 15 – June 15. Final results from the 2018 coastwide survey were still pending at the time of this writing and will be presented in next performance report.

f. 2018 Coastwide Colonial Waterbird Survey

Virginia's fifth coastwide colonial Waterbird (CWB) survey was conducted during this performance period. In the fall of 1992, a consortium of agencies and individuals agreed that a comprehensive monitoring program for the Virginia CWB community was needed and that assessments should be made every 10 years for trend analyses. Following the 2003 survey, the same consortium agreed the survey intervals should be shortened to every five years to increase the accuracy of the trend analyses. Past surveys (i.e., 1993, 2003, 2008 and 2013) systematically covered all 24 species of CWBs throughout the Coastal Plain of Virginia. The primary objective of all coastwide CWB surveys is to generate population estimates for colonial waterbird species currently nesting on the Coastal Plain of Virginia. A secondary objective is to produce map coverages for all colonies of waterbirds within the Coastal Plain. Taken together, these two products have and will continue to allow for the assessment of status and distribution for all colonial nesters in the eastern portion of the state. The comparison of the 2018 survey to the 1993, 2003, 2008 and 2013 surveys will allow for an evaluation of trends. It should be noted that all Great Blue Herons and extensive colonies of Great Egrets located along the coastal plain's major river systems were excluded from the 2018 survey to reduce the high costs associated with conducting aerial surveys over a large geographic area. Both species received complete coverage in 2013 and this level coverage will be repeated in 2023.

The 2018 VA CWB survey team was comprised of several partners including the DGIF, The U.S. Fish and Wildlife Service, The Nature Conservancy – VA Coast Reserve and the Center for Conservation Biology (CCB). As with previous coastwide surveys, the DGIF used Wildlife Restoration Program funds to contract with the CCB to: (1) conduct a single extensive aerial survey during the early stages of the breeding season to direct ground surveys; (2) conduct aerial surveys of laughing gull (*Leucophaeus atricilla*) and forster's tern (*Sterna forsteri*) colonies located in inaccessible marshes; (3) conduct aerial surveys of double-crested cormorant (*Phalacrocorax auritus*) and brown pelican (*Pelecanus occidentalis*) colonies too large to survey on the ground; (4) conduct ground surveys of urban wading bird colonies in the Hampton Roads area; (5) compile, proof, enter and summarize all data collected by CCB staff and cooperating partners; (6) map all colony locations; and (7) generate a final 2018 CWB report. The CCB successfully completed the first four activities and is currently working on completing the final three actions. The final report is scheduled to be submitted to the DGIF on May 31, 2019 and will be provided in the next performance report.

The DGIF conducted ground surveys of 50 colonies and 20 CWB species in the Chesapeake Bay and adjacent shorelines and on the seaside marshes and barrier islands of the lower Delmarva Peninsula. Results from these and all other surveys were pending at the time of this writing and will be reported in the next performance report.

4. Atlantic Slope Freshwater Mussel Propagation:

The VA Department of Game & Inland Fisheries continued its cooperative Atlantic Slope freshwater mussel propagation facility with the U.S. Fish & Wildlife Services' Harrison Lake National Fish Hatchery in Charles City, which marks the 11th year of production and 12th year of operation at the VA Fisheries and Aquatic Wildlife Center (VFAWC). Propagation started in March and ended in October resulting in the production of

nearly 900,000 juvenile mussels from ten species (Table 1), which was well over our target number of 732,500 juveniles. VFAWC continued propagation with the federal and state endangered James spiny mussel (*Parvaspina collina*, JSM), the state threatened and federally petitioned Green floater (*Lasmigona subviridis*), began propagation work with state endangered and federally petitioned Brook floater (*Alasmidonta varicosa*), and increased efforts in the South River. DGIF produced just under 3,000 juveniles of two species, Eastern lampmussel (*Lampsilis radiata*) and Creeper (*Strophitus undulatus*), using in-vitro propagation at the Virginia Commonwealth University's Rice Rivers Center. This procedure substitutes the use of a fish host with a sterile nutrient medium, in which, the glochidia complete their metamorphosis. This method is important for propagation of mussel species whose host fish are unknown or difficult to obtain.

This season, DGIF provided just over 14,000 mussels of four species to outside organizations in support of research and propagation in the region (Table 2). DGIF continued to release propagated mussels from DGIF 2014-2017 stocks, with nearly 17,000 tagged mussels of 7 species released in the lower Nottoway River, Southampton County, Rappahannock River, King George County, Dan River, Patrick County and Pittsylvania County, South River, Augusta County, and Tye River, Nelson County (Table 3). Additional mussels will be released in October and November 2018 with any remaining mussels released in 2019. Juvenile mussels from DGIF 2018 stock will start to be released in 2019, depending on species and size. All mussels were or will be tagged for future monitoring of survival and reproduction.

Table 1. 2018 Propagation goals versus actual production numbers.

Mussel Species	River	Production goal	Actual Number of Juveniles
<i>Alasmidonta undulata</i> ¹	South River	1,000	1,343
	Dan River*	1,000	-
<i>Alasmidonta varicosa</i>	Cacapon River	1,000	11,101
<i>Elliptio complanata</i> ¹	Licking Run	2,000	-
<i>Elliptio fisheriana</i> ¹	Licking Run	-	-
<i>Fusconaia masoni</i>	Dan River*	500	-
<i>Lampsilis cardium</i>	Cacapon River	150,000	44,138
<i>Lampsilis cariosa</i>	Dan River	50,000	246,842
<i>Ligumia nasuta</i>	Anacostia River	1,000	15,885
<i>Lampsilis radiata</i>	Nottoway River	50,000	13,025
<i>Lasmigona subviridis</i>	Cacapon River	100,000	2,629
	Dan River	100,000	224,735
<i>Parvaspina collina</i>	Mill Creek	15,000	2,432
	Dan River	10,000	-
<i>Strophitus undulatus</i> ¹	South River	1,000	725
<i>Utterbackiana implicata</i>	Rappahannock River	250,000	316,219
	Anacostia River**	-	18,498
Total		732,500	897,572

* No adult brooding females collected. ** Added to propagation plan.

¹Plan to supplement with in vitro propagation.

Table 2. Mussels distributed to outside organizations.

Species	Destination	River	Number	Age (days)	Purpose
<i>Lampsilis radiata</i>	NCSU	Nottoway	310	315	Toxicology
	NCSU	Nottoway	48	410	Toxicology
	CBFO	Potomac	201	212	Field Research
	CBFO	Potomac	1273	223	Field Research
	UMESC	Meherrin	660	680	Toxicology
<i>Ligumia nasuta</i>	UMESC	Nottoway	665	353	Toxicology
	AWS	Anacostia	3,050	116	Field Research
	USGS Leestown	Nottoway	10	480	Research
<i>Lampsilis cariosa</i>	UGA	Nottoway	12	710	Field Research
	UGA	Nottoway	85	738	Field Research
	NCWRC	Dan	1,000	153	Propagation
<i>Utterbackiana implicata</i>	AWS	Anacostia	3,770	105	Field Research
	MD DNR	Anacostia	3,000	105	Propagation
Total			14,084		

Note: North Carolina State University (NCSU), USFWS Chesapeake Bay Field Office (CBFO), USFWS Upper Midwest Environmental Science Center (UMESC), Anacostia Watershed Society (AWS), United States Geological Survey Leestown (USGS Leestown), University of Georgia (UGA), North Carolina Wildlife Resources Commission (NCWRC), Maryland Department of Natural Resources (MD DNR).

Table 3. Release information for tagged mussels.

Species	Release River	Number	Release Date	Age (years)	Mean Length (mm)
<i>Alasmidonta undulata</i>	South River	30	10/02/2018	1	36.4
<i>Lampsilis cariosa</i>	Nottoway	4,333	08/02/2018	1	37.2
	Nottoway	493	10/04/2018	2	37.0
<i>Lampsilis radiata</i>	Nottoway	515	10/04/2018	1	47.0
<i>Lasmigona subviridis</i>	Dan River	2,815	09/07/2018	1	33.9
	Tye River	120	10/02/2018	1	36.5
<i>Ligumia nasuta</i>	Nottoway	2,070	08/02/2018	1-2	65.7
	Nottoway	2,400	10/04/2018	1	68.4
<i>Utterbackiana implicata</i>	Rappahannock	293	07/10/2018	4	82.4
<i>Villosa constricta</i>	Dan River	535	09/06/2018	1	24.9
		3,355	09/07/2018	1	26.0
Total		16,959			

5. Sea Turtles:

Nest management

In the past, Back Bay NWR staff and volunteers conducted sea turtle nest patrols from the VA/NC state line to Ft. Story Military Reservation (hereafter referred to as the southern mainland beaches) and all nests found were

relocated to the refuge and planted behind the primary dune system. This practice is no longer condoned by the USFWS or the VDGIF. In 2016, the VDGIF prepared a sea turtle conservation plan template for the City of Virginia Beach (City) to assist the City in its efforts to develop a comprehensive Sea Turtle Conservation Plan that will avoid and minimize the impacts of artificial lighting and other human impacts on nesting and hatchling sea turtles within City boundaries. As in the previous performance period, the City made no progress on developing a conservation plan because of staff shortages.

During this performance period, the City notified the VDGIF and the USFWS of its plans to begin daily beach grooming on portions of Sandbridge Beach during the sea turtle nesting and hatching season. This work entails driving a tractor with an attached rake along the berm of the beach parallel to the water's edge as a means of removing trash and other debris and smoothing out the beach. This activity has the potential to obliterate all fresh sea turtle crawls and destroy nests and hatchlings if not conducted in coordination with daily sea turtle nest monitoring efforts. The VDGIF, USFWS and staff from the Virginia Aquarium and Marine Science Center met with the City's Public Works Department in May and developed a plan to avoid take of nests and hatchlings. This plan was put into effect immediately and has proven to be extremely successful so far.

A total of seven loggerhead nests, one green sea turtle nest and one probable Kemp's ridley nest have been documented in Virginia this year. All nine nests were laid on ocean beaches between Dam Neck Naval Base and the Virginia/North Carolina state line to the south. Virginia's first green turtle nest was reported in 2005 and in 2017 two additional green turtle nests were documented, both at False Cape State Park. The first confirmed Kemp's ridley nest in Virginia was laid at Dam Neck Naval Base in 2012 and the second confirmed nest was deposited at False Cape State Park in 2014. This year's possible Kemp's ridley nest was also found at False Cape State Park and if confirmed, will be the state's third ridley nest. One egg was collected from each sea turtle clutch this year as part of an ongoing regional sea turtle genetics study that identifies individual nesting females and maternal relationships (mother/daughter and mother granddaughter pairs) by way of maternally inherited mitochondrial DNA markers. Results from this study thus far suggest females nesting in Virginia exhibit low within-season site fidelity and often nest out-of-state before arriving in Virginia to nest.

III. Invasive Species

1. Nutria:

Nutria (*Myocastor coypus*) were first confirmed in Virginia near Back Bay in 1956, and are believed to have entered Virginia from North Carolina via the North Landing River. Nutria exhibit high reproductive potential, theoretically increasing from a single pair to 16,000 individuals in just three years. Nutria can be extremely destructive to marsh vegetation, possessing voracious appetites and consuming a quarter of their body weight daily, feeding on the tender roots of marsh grasses and succulent portions of aquatic vegetation. These activities result in significant adverse impacts upon native wildlife and natural communities. The core Virginia population is centered in the Back Bay / Virginia Beach area. Virginia's current nutria distribution extends westward to Southampton and Prince George counties; unfortunately, recent observations indicate an expanding population in the Meherrin River system from the Virginia / North Carolina line upstream to at least Emporia. Marsh systems of coastal Virginia north of the James River are considered to be threatened by nutria. Early detection and rapid response is viewed as the most effective means of preventing nutria range expansion; unfortunately, detecting a small population of nutria in a vast natural marsh can be very difficult.

To address these issues, and with partial funding by MAPAIS, DGIF trained and deployed employee canine trainers and canines to detect nutria, and acquired a shallow-draft watercraft and GPS tracking systems to facilitate detection of nutria range expansion. During this project year, we investigated approximately 20 reported nutria sightings in the "Early Detection, Rapid Response" nutria management zone north of the James River, but no evidence of nutria at these sites was detected; the sites will be monitored and searched periodically with canines. Our canine "Birdee" detected nutria scat in Accomack County on the Eastern Shore, but we were unable to otherwise confirm presence of nutria at that location. DGIF continues to solicit reports of

nutria sightings by placing nutria identification signs at boat ramps near likely invasion sites, and to respond to public reports of nutria with a canine detection team to detect early range expansion.

SECTION B.3 FEDERAL CONSISTENCY

During the period of April 1, 2018 and September 30, 2018, the Office of Environmental Impact Review/Federal Consistency (OEIR) reviewed 93 development projects for consistency with the Virginia Coastal Zone Management Program (VCP). This represents 78% of the total amount of projects reviewed (120) during this period. Major state projects accounted for 17 projects, 4 were State Corporation Commission reviews, 6 were National Environmental Policy Act (NEPA) documents without a federal consistency component, 27 were federal actions, and 66 were federally funded projects. The 27 federal actions included 13 federal agency activities, 14 federal licenses and approvals, and 0 outer continental shelf projects. The 13 federal agency activities included 6 projects submitted under the residual category pursuant to the federal consistency regulation (15 CFR 930.31(c)), which consisted of 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 <http://www.deq.virginia.gov/Programs/EnvironmentalImpactReview.aspx>. The OEIR webpage is updated weekly.

Table 1 depicts federal projects in Tidewater Virginia reviewed from 4-1-18 to 9-30-18.

TYPE OF FEDERAL PROJECTS REVIEWED*	NUMBER OF PROJECTS COMPLETED	REVIEW PERIOD
*Direct Federal Actions	13	30-60 Days
** Federal Activities (approvals & permits)	14	90 Days
***Federally Funded Projects	66	30 Days
Outer Continental Shelf	0	45-60 Days
TOTAL	93	30-90 DAYS

*Includes 6 FCDs reviewed under the residual category of Subpart C of the Regulations. (HUD Mortgage Insurances and US Department of Agriculture funding).

**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.

*** These include federal assistance to state and local government reviewed under Subpart F.

FEDERAL PROJECTS REVIEWED FOR CONSISTENCY WITH THE VCP from 4/1/18 to 9/30/18

I. Federal Agency Projects

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

Relocation of Glide Slope and Shelter for Runway 07 and Replacement/ Relocation of Runway 25 VASI with PAPI Newport News/Williamsburg International Airport

The Federal Aviation Administration (FAA) submitted a FCD for proposed improvements at the Newport News/Williamsburg International Airport in the City of Newport News and York County. The FAA plans to relocate and replace existing navigational aids for the airport runways. The improvements consist of relocating a glide slope tower and shelter and replacing an existing visual approach slope indicator (VASI) with a precision approach path indicator (PAPI) outside of the runway safety area. The projects will disturb approximately 0.07 acre of land in areas that have been previously graded and are maintained as mowed fields. Underground power conduits also are proposed to be installed. The FCD states that the project is consistent to the maximum extent practicable with the enforceable policies of the Virginia CZM Program. The reviewing agencies that are responsible for the administration of the enforceable policies generally agree with the FCD. Based on the review of the FCD and the comments submitted by agencies administering the enforceable policies of the Virginia CZM Program, DEQ concurs that the proposed project is consistent to the maximum extent practicable with the enforceable policies of the Virginia CZM Program provided all applicable permits and approvals are obtained.

Oyster Channel Federal Navigation Project

The U.S. Army Corps of Engineers (Corps) is proposing to perform maintenance dredging of the Oyster Channel Federal Navigation Project. The purpose is to restore channel depths for safe navigation. The channel provides access for both commercial and recreational vessels to the seaside barrier islands and Sand Shoal Inlet located in Northampton County. The mouth of the channel is approximately 15 miles north of the Chesapeake Bay Bridge Tunnel. The general course of the channel is easterly with a length of approximately 1 mile from the turning basin to the interchange with Virginia's Inside Passage. The current upland placement site for dredged materials is approximately 14 acres in size and is located adjacent to the Northampton County Landfill. Approximately 50,000 – 75,000 cubic yards of mostly fine-grained silts and clays are usually removed per maintenance dredging event. The disposal area will require rehabilitation of containment dikes to ensure sufficient storage capacity and maintain stability in accordance with Corps policy. Based on the review of the FCD and the comments submitted by agencies administering the enforceable policies of the Virginia CZM Program, DEQ concurs that the proposed project is consistent to the maximum extent practicable with the enforceable policies of the Virginia CZM Program provided all applicable permits and approvals are obtained.

Mallows Bay-Potomac River National Marine Sanctuary

The National Oceanic and Atmospheric Administration (NOAA) submitted a FCD related to the proposed designation of the Mallows Bay — Potomac River National Marine Sanctuary as well as the proposed sanctuary regulations and management plan actions. NOAA proposes to designate an area of Maryland waters around Mallows Bay in the tidal Potomac River as a national marine sanctuary. No Virginia waters or bottomlands are included in the proposed designation. The proposed designation would allow NOAA to complement current Maryland-led efforts to conserve and manage the nationally significant maritime cultural heritage resources. NOAA states that the proposal may have beneficial impacts to Virginia fisheries. According to the FCD, the project will be consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Zone Management (CZM) Program. Based on the review of the FCD and the comments submitted by agencies administering the enforceable policies of the Virginia CZM Program, DEQ concurs that the proposed project is consistent to the maximum extent practicable with the enforceable policies of the Virginia CZM Program provided all applicable permits and approvals are obtained.

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).

Glenwood Ridge Apartments

The U.S. Department of Housing and Urban Development proposes to provide mortgage insurance under the HUD Section 221(d)(4) program to the James Doran Company (applicant), which will finance the construction of the proposed Glenwood Ridge Apartments in the City of Richmond by Glenwood Ridge Apartments, LLC (developer). The Section 221(d)(4) program insures mortgage loans to assist private industry in the construction or rehabilitation of rental or cooperative housing for moderate-income and displaced families. The proposed development site is a 3.491-acre property located at 3801 Glenwood Avenue, the location of a former trolley maintenance facility, in the City of Richmond. The site contains a one- and two-story former warehouse structure that was constructed in 1920. The existing building will be partially demolished, with the southernmost bay and a portion of the west wall preserved for historical integrity. The 82-unit multifamily apartment complex development will include the construction of two three-story apartment buildings that will be connected to municipal utilities. According to the FCD, the project is consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Zone Management (CZM) Program. Based on the review of the FCD and the comments submitted by agencies administering the enforceable policies of the Virginia CZM Program, DEQ concurs that the proposed project is consistent to the maximum extent practicable with the enforceable policies of the Virginia CZM Program provided all applicable permits and approvals are obtained.

Bay Aging Administrative Building

The U.S. Department of Agriculture (USDA) Rural Development proposes to provide a loan under its Communities Facilities Program to Bay Aging (applicant), which will finance the construction of a new administrative office building for Bay Aging in Middlesex County. The Community Facilities Program offers loans, grants and loan guarantees to develop or improve essential public services and facilities in rural areas. Bay Aging is proposing to consolidate its thirteen departments into a single 24,000-square-foot new office building. The proposed building will be located on a 4.8077 acre site at Old Virginia Street (Route 602) and Red Hill Drive (Route 1011) in Urbanna, Virginia. The proposed single-story metal frame building will be connected to the existing sewer main via a new sewer lateral and will be served by public water and other utilities. Associated walkways, parking, landscaped areas, and stormwater structures will also be constructed as part of this project. According to the FCD, the project is consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Zone Management (CZM) Program. Based on the review of the FCD and the comments submitted by agencies administering the enforceable policies of the Virginia CZM Program, DEQ concurs that the proposed project is consistent to the maximum extent practicable with the enforceable policies of the Virginia CZM Program provided all applicable permits and approvals are obtained.

III. Federal Activities (Permits, Licenses and Approval)

These projects were reviewed pursuant to Subpart D of the Consistency Regulations (15 CFR §930.53)

Northlake 7

ECS Mid-Atlantic, LLC behalf of General RV Center, Inc. (the applicant), submitted a FCC for the proposed development of a recreational vehicle dealership in Hanover County. The applicant is seeking reauthorization for the associated U.S. Army Corps of Engineers (Corps) permit. The proposed project site is approximately 67 acres of forested land that is located to the west of Long Road and the north of Harley Club Drive in the county. The applicant proposes to construct a 51,000-square-foot facility, two warehouse buildings, associated parking/display area, bioretention areas, and an extension of the existing Harley Club Drive to the south. Approximately 1.46 acres of palustrine-forested wetlands would be impacted to allow for grading. Based on the review of the federal consistency certification (FCC) and the comments submitted by agencies administering the

enforceable policies of the Virginia CZM Program, DEQ concurs that the proposed project is consistent to the maximum extent practicable with the enforceable policies of the Virginia CZM Program provided all applicable permits and approvals are obtained.

Cape Charles Harbor Marine Terminal and Boat Yard

Cape Harbor Holdings, LLC (applicant) is applying for a U.S. Army Corps of Engineers (Corps) permit pursuant to Sections 401 and 404 of the Clean Water Act (CWA) (Public Law 95-217) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) for impacts to jurisdictional waters of the United States from the proposed Cape Charles Harbor Marine Terminal and Boat Yard in the Town of Cape Charles. The project proposes to establish a new marine terminal for servicing the Eastern Shore of Virginia and to develop a highly skilled boat yard operation for servicing motor and sailing yachts that move between New England and Florida. The project site is located on a former seafood and grain offloading facility in Cape Charles Harbor that has been dormant for decades. The facility is compatible with existing zoning and surrounding uses and is ideally located in a federally-maintained deep water harbor. The project involves the construction of access piers, docks, shoreline protection and the deepening of the adjacent harbor area. Both tidal and non-tidal wetlands will be affected. The applicant has submitted a FCC which finds the proposed action consistent with the enforceable policies of the Virginia Coastal Zone Management Program. Based on the review of the FCC and the comments submitted by agencies administering the enforceable policies of the Virginia CZM Program, DEQ concurs that the proposed project is consistent to the maximum extent practicable with the enforceable policies of the Virginia CZM Program provided all applicable permits and approvals are obtained.

Waterford Water Park

Rummel, Klepper & Kahl, LLP (RK&K), on behalf of Waterford Park LLC, submitted a FCC for the proposed development of an outdoor adventure and waterpark with residential units located on a 120-acre parcel at 13400 Genito Road and 2601 Genito Place in Chesterfield County. The FCC was submitted because the project qualifies for an individual permit from the U.S. Army Corps of Engineers (Corps) due to proposed wetland impacts. As proposed, the project would affect 5.31 acres of wetlands. The applicant proposes to purchase wetland and stream credits from an approved compensation bank. The proposed facility, called Waterford Water Park, would be a mixed-use active lifestyle entertainment community. The development would be anchored by a main lake and whitewater park that would be approximately 40 acres. The proposed project also would include 115,000 square feet of retail space, 330,000 square feet of a business park, 330 apartments, 360 townhomes, and 50,000 square feet of restaurants. The applicant has submitted a FCC which finds the proposed action consistent with the enforceable policies of the Virginia Coastal Zone Management Program. Based on the review of the FCC and the comments submitted by agencies administering the enforceable policies of the Virginia CZM Program, DEQ concurs that the proposed project is consistent to the maximum extent practicable with the enforceable policies of the Virginia CZM Program provided all applicable permits and approvals are obtained.

IV. Outer Continental Shelf Activities

No projects were reviewed during the time period of this report for this category.

V. Federal Funds

DEQ completed the reviews of 66 projects from April 1, 2018 to September 30, 2018 that were submitted under 15 CFR, Part 930, Subpart F for federal financial assistance to state and local governments. The projects break out as follows:

- 4 new home construction
- 30 single family home rehabilitations/weatherizations
- 4 new home construction
- 1 water quality improvement project
- 1 airport hanger project
- 6 new multifamily housing construction/rehabilitation
- 6 demolitions of blighted property
- 1 wastewater and water system improvement
- 10 recreational facility construction and improvements
- 7 Clean Vessel Act Pump-out station projects

Examples of Federally –funded projects which were reviewed:

Cape Charles Town Harbor

According to the submission dated March 13, 2018, the Virginia Department of Health (VDH) proposes to use U.S. Fish and Wildlife Service Clean Vessel Act (CVA) funding to conduct maintenance activities on an existing sewage pump-out unit at the Cape Charles Town Harbor located on Cape Charles Harbor in Northampton County. VDH receives CVA funding to assist Virginia localities and private sector entities in the construction, renovation, operation, and maintenance of pump-out stations and waste reception facilities for recreational boaters and also for educational programs that inform boaters of the importance of proper disposal of their sewage through the Sport Fish Restoration and Boating Trust Fund. This particular project will include replacement of parts in the existing pump-out unit to ensure continuous operation. Maintenance personnel will be required to remove the protective housing of the system to gain access to the electric motor and pump apparatus. No ground disturbance will be necessary. Based on the review of the FCC and the comments submitted by agencies administering the enforceable policies of the Virginia CZM Program, DEQ concurs that the proposed project is consistent to the maximum extent practicable with the enforceable policies of the Virginia CZM Program provided all applicable permits and approvals are obtained.

Federal Consistency Review, Repairs for 7001 Roanoke Ave, City of Newport News, Virginia

The Newport News Redevelopment and Housing Authority (NNRHA) proposes to use Community Development Block Grant funding from the U.S. Department of Housing and Urban Development for the replacement of the existing asphalt roof shingles on an owner-occupied single family residence located at 7001 Roanoke Ave in the City of Newport News. The property encompasses approximately 0.28 acres of developed land. Based on the review of the FCC and the comments submitted by agencies administering the enforceable policies of the Virginia CZM Program, DEQ concurs that the proposed project is consistent to the maximum extent practicable with the enforceable policies of the Virginia CZM Program provided all applicable permits and approvals are obtained.

Playground Installation 605 Pond Lane

Chesapeake County proposes to install a playground in an existing neighborhood park, Plymouth Park, in Chesapeake that borders the Elizabeth River with the assistance of Community Development Block Grant funds from the U.S. Department of Housing and Urban Development. The proposed project area will cover 3,600 square feet and will consist of a layer of landscape fabric and 12 inches of engineered wood fiber chips. Inside there will be two play anchored with posts that are 20 inches into the ground and set with concrete. A timber edging will outline the perimeter of the playground area. Based on the review of the FCC and the comments

submitted by agencies administering the enforceable policies of the Virginia CZM Program, DEQ concurs that the proposed project is consistent to the maximum extent practicable with the enforceable policies of the Virginia CZM Program provided all applicable permits and approvals are obtained.

SECTION B.4 PROGRAM CHANGES

During the reporting period, the Virginia CZM Program continued efforts to develop draft narrative enforceable policies. Work focused on policies implemented by the Virginia Department of Environmental Quality (DEQ) and the Virginia Department of Health (VDH). Topics included coastal lands (Chesapeake Bay Preservation Act), air pollution control, point source management, erosion and sediment control, stormwater management (DEQ), and shoreline sanitation (VDH). Meetings were held in April, May, June, July, and twice in August 2018 by the William & Mary Coastal Policy Center (CPC) supported by a Virginia CZM FY 17 grant. The advisory committee consisted of representatives from NOAA, DEQ, VDH, the Office of the Attorney General, the Department of Defense, and the Hampton Roads Planning District Commission. CPC staff drafted narrative policies and provided an update to the Virginia CZM Program's Coastal Policy Team at its September meeting. Work is still underway, and the grant has been extended to March 31, 2019.