

October 27, 2016

**Virginia Coastal Zone Management Program
Semiannual Section B.2-4 Report
For the Period from April 1, 2016 – September 30, 2016**

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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 Clean Water Act section 401 water quality certifications. 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. The data has been revised from past reporting periods due to the agency's update of database and reporting software and re-focus of the reported data in the coastal regions of Virginia.

During the reporting period of April 1, 2016 through September 30, 2016, the VWP Permit Program issued two individual permits and 64 general permit coverages; processed four Notices of Planned Change on general permit coverages; and did not process any individual permit modifications, individual permit reissuances, or permit application denials.

The average time to process a general permit coverage was 28 days, and the average time to process an individual permit was 103 days. Permit coverage processing delays occurred for four general permit coverages, exceeding the statutory limits for coverage issuance. Delays were due to resource coordination requirements associated with the issuance of the State Program General Permit (SPGP) for the U.S. Army Corps of Engineers on the same projects. Applications for 10 general permit projects were suspended for the same reason. One VWP individual permit exceeded the statutory processing limit by eight days due to coordination on threatened and endangered species and addressing public comment.

Approximately 33 acres of wetland impacts occurred during the reporting period, and approximately 60 wetland credits were purchased at compensatory mitigation banks during this reporting period.

The following programmatic efforts occurred during the reporting period:

- DEQ updated the permitting and compliance databases and its reporting software tools.
- The VWP Permit Program concluded a 3-year regulatory amendment process during the reporting cycle.
- The VWP Permit Program continued to work with the Virginia Institute of Marine Science to develop wetland condition assessment tools under existing grant funding from the U.S. Environmental Protection Agency's nontidal wetland grants program.

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.

The VWP Permit Program did not receive comments, concerns, or procedures for expediting decision-making for the management of coastal resources.

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, 2016 and September 31, 2016, three applications were received for modification of VPA Individual Permits that authorize the land application of biosolids. The modifications were completed for two of the three permit applications; one application is pending. One VPA Individual Permit was issued to authorize the land application of biosolids; the application was submitted during an earlier reporting period.

During the period between April 1, 2016 and September 31, 2016, two applications were received for coverage under the VPA General Permit for Poultry Waste Management: one application received coverage, the other is pending coverage. An application received during the previous period received coverage during this 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 295 individual municipal and industrial CZM area VPDES permits. This number and the numbers in the table above represent typical activity in the program. There is one possible reason for increases or decreases in numbers of permits from the last reporting period. The VA DEQ recently moved to a new environmental database and querying system. The new querying tool allows for a more accurate method to mine the permits in the CZM area.

There are also numerous facilities registered under general permits in CZM areas including 64 car wash, 104 concrete products, 11 cooling water, 268 domestic sewage ≤ 1,000 GPD, 61 nonmetallic mineral mining, 34 petroleum, 13 potable water treatment, 54 seafood processors, and 534 industrial storm water. These represent typical numbers for general 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, 2015 – September 30, 2015										
	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	N/A	26	424	5	86	0	N/A	13**	N/A
VPA	1	244	0	0	2	61	0	0	1	162
VPA GP	2	20	0	0	0	0	0	0	1	155

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

**This represents existing VPDES individual permits expired but pending through September 30, 2016.

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, 2016 through September 30, 2016, DEQ issued 167 Warning Letters 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, 2016 and September 30, 2016, DEQ issued 34 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 four Consent Orders that assessed a total of \$50,874.50 in civil charges.

Table 1

Measure	Action Type	Count	Total Civil Charges Assessed
Informal	Warning Letters	167	N/A
Informal	Letters of Agreement	0	N/A
Formal	Notices of Violation	34	N/A
Formal	Consent Order	4	\$50,874.50
Total		205	\$50,874.50

d) DEQ – Air Permitting Program

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

Period: April 1, 2016 – September 30, 2016

PERMIT TYPE	NUMBER OF PERMITS ISSUED	AVERAGE PROCESSING TIME (Days)
PSD & NA	0	N/A
State Major	0	N/A
Minor	36	28
Administrative Amendment	8	29
Exemptions	10	10
State Operating	0	N/A
Federal Operating (Title V) Initial Issuance	1	755
Federal Operating (Title V) Renewal	9	598
Acid Rain (Title IV)	0	N/A
Total Number Permits Issued	<u>64</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, 2016

PERMIT TYPE	NUMBER OF PERMITS PENDING
PSD & NA	3
State Major	1
Minor	35
Administrative Amendment	1
Exemptions	3
State Operating	10
Federal Operating (Title V) Initial Issuance	2
Federal Operating (Title V) Renewal	35
Acid Rain (Title IV)	0
Total Permits Pending	<u>90</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, 2016 – September 30, 2016

PERMIT TYPE	NUMBER OF PERMITS WITHDRAWN	NUMBER OF APPLICATIONS DENIED
PSD	0	0
Major	0	0
Minor	6	0
Administrative Amendment	2	0
Exemptions	0	0
State Operating	0	0
Federal Operating (Title V)	0	0
Acid Rain (Title IV)	0	0
Total Permits Rescinded	<u>8</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 2, on the following page.

Informal measures include Requests for Corrective Action, Informal Correction Letters, Warning Letters, and Letters of Agreement. These actions are used in those cases where non-compliance is not significant in nature and where compliance can be achieved in a short period of time. During the six-month period beginning April 1, 2016 through September 30, 2016, DEQ issued 22 Requests for Corrective Action, and 24 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, 2016 and September 30, 2016, DEQ initiated eight new formal enforcement actions via issuance of Notices of Violation. Additionally, the Agency issued six Consent Orders; assessing a total of \$33,421.28 in civil charges.

Table 1

Measure	Action Type	Count	Total Civil Charges Assessed
Informal	Requests for Corrective Action	22	N/A
Informal	Informal Correction Letter	0	N/A
Informal	Warning Letters	24	N/A
Formal	Notices of Violation	8	N/A
Formal	Consent Orders	6	\$33,421.28
Total		62	\$33,421.28

f) DEQ – Erosion and Sediment Control

Summary of Specific Outputs:

Specific Outputs	Progress / Status
17 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.
256 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.
84 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 thru ongoing permit review, technical assistance, and project inspection.
96 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.
11 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.
6 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.
470 Total CZM Land Disturbing Activities Permitted thru coverage under the Construction General Permit.	Coastal Zone Management resources are conserved and restored through permit compliance.

Supplemental Narrative:

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

Erosion & Sediment Control (ESC) and Stormwater Management (SWM) Laws and Regulations 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.

Between April 1, 2016 and September 30, 2016, Virginia certified or recertified:

- 142 people in both Stormwater and Erosion – called “Dual Certification”
- 163 people in Stormwater Management only
- 448 people in Erosion and Sediment Control only.

As of September 30, 2016, total certified individuals in Virginia are as follows:

- 610 total people Dual Certified. (408 people as of March 31, 2016)
- 626 total people certified in Stormwater Management only. (558 people as of March 31, 2016)
- 2,523 total people certified in Erosion and Sediment Control only. (2,757 people as of March 31, 2016).

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, April 1, 2016 – September 30, 2016, staff continued to provide assistance and training to the Bay Act localities. For this period, 5 formal outreach and 22 technical assistance events 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, 14 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 sixteen compliance reviews were undertaken, nine remain on-going and seven 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, 2016 through September 30, 2016, the Habitat Management Division received 1088 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. Ten notices to comply were issued during the period.

The Habitat Management Staff completed actions on 1082 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 2016. 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 30 projects. During the reporting period the Commission considered 17 protested projects or projects requiring a staff briefing, The Commission also approved 13 projects over \$500,000.00 in value.

During the reporting, period local wetland boards throughout Tidewater Virginia acted on 205 projects involving tidal wetlands. Of this total, 154 were approved as proposed, 41 were approved as modified, 1 was denied, 4 are pending, 5 no permit was required, and 48 required compensation either on or off site (27), or through payment of an in lieu fee (21) accounting for 20,613 square feet of tidal wetland impacts.

b) VMRC – Fisheries Management Division

At its April 2016 meeting, the VMRC set the 2016-2017 spiny dogfish quota at 4,356,944 pounds. The VMRC also amended regulations to prohibit the harvest of horseshoe crabs within 500 feet in any direction of mean low water by pound net gear from May 1 through June 7. The VMRC set the 2016 Virginia commercial summer (May through October) scup quota at 13,154 pounds. The VMRC adopted emergency amendments to modify the summer flounder landing period to increase the number of days that summer flounder harvested commercially from offshore may be landed in Virginia during the second landing period that began April 7. The VMRC requested a May public hearing to adopt the summer flounder amendments as a permanent part of the regulation. The VMRC also requested May public hearings for the modification of recreational cobia regulations, and the establishment of minimum size limits, gear restrictions, and possession limits for the harvest of Jonah crab.

At its May 2016 meeting, the VMRC permanently modified the summer flounder landing period to increase the number of days that summer flounder harvested commercially from offshore may be landed in Virginia during the second landing period that began April 8. The VMRC prohibited the retention of egg-bearing female Jonah crabs, established a commercial minimum size on Jonah crabs, established limited entry directed and claw fisheries, and established a commercial bycatch permit. Commercial and recreational trip limits, and mandatory buyer reporting for Jonah crabs were also established. Regarding cobia, the VMRC set the recreational cobia fishing season to last until August 30, 2016, with a one fish per person limit and a two fish daily vessel limit, for all recreational fishing vessels including for-hire vessels. The cobia minimum size was set at 40" total length with an allowance for one of the two fish to exceed 50" total length. The VMRC prohibited gaffing cobia, and established mandatory reporting for recreational and charter boat cobia catch (harvested and released fish) to begin in 2017, with a voluntary pilot reporting system for 2016.

At its June 2016 meeting, VMRC requested an August public hearing to raise the fee for a recreational five crab pot license to \$46 for those license holders who do not install a turtle/terrapin excluder device on their crab pots; those who install the excluder devices may still purchase a 5 crab pot license for \$36. These statutory changes were initiated by Senate Bill 283 to encourage terrapin conservation in the recreational crab pot fishery.

At its July 2016 meeting, the VMRC raised the fee for a recreational five crab pot license to \$46 for those license holders who do not install a turtle/terrapin excluder device on their crab pots, allowing those who install the excluder devices to purchase a 5 crab pot license for \$36. The VMRC requested August public hearings to establish the 2016 commercial bluefish quota.

At its August 2016 meeting, the VMRC established the 2016 commercial bluefish quota as 580,287 pounds.

At its September 2016 meeting, the VMRC adopted emergency amendments to modify commercial summer flounder landing periods and trip limits to lower the trip limit to 7,500 pounds and to only allow each vessel to land the 7,500 pound trip limit one time from November 10 through December 31, 2016. The VMRC requested a November public hearing to adopt these amendments as a permanent part of the regulation. The VMRC also

requested a November public hearing to modify the commercial smoothound shark filleting at sea provision to comply with Addendum IV to the Atlantic States Marine Fisheries Commission's Interstate Fishery Management Plan for Atlantic Coastal Sharks. The VMRC requested a public hearing for a 5% tolerance to the shark 5,000-pound commercial trip limit and to increase the shark trip limit to 6,000 pounds, if by February 15, 2017 landings in Virginia are less than 80% of the 2016-17 quota. The VMRC also requested a public hearing to streamline striped bass buyer reporting requirements.

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: 10/01/2011
END PERIOD: 09/30/2016

Category	2011/2012		2012/2013		2013/2014		2014/2015		2015/2016	
	Convictions	Arrests	Convictions	Arrests	Convictions	Arrests	Convictions	Arrests	Convictions	Arrests
Buyers	7	7	6	8	10	10	5	6	2	2
Casting Garbage/Trash	1	1	0	0	5	5	1	1	1	1
Clams	6	6	7	9	4	7	2	3	2	2
Commercial Fishing License	8	9	4	6	6	10	7	10	5	7
Conchs	6	6	6	8	7	9	1	1	3	3
Crabs	79	96	43	50	92	120	120	137	39	53
Federal Violation	0	0	0	0	0	0	0	0	0	0
FIP Violations	142	156	63	63	58	60	76	81	15	16
Fish	522	610	219	253	75	81	150	163	105	117
Freshwater Fishing without a license	9	11	14	18	12	16	20	22	21	21
Gill Nets	7	14	9	11	14	18	17	24	12	18
Habitat/Wetlands	0	0	0	0	0	0	0	0	0	0
License Tags	4	10	0	2	3	4	1	1	3	6
Mandatory Reporting	0	0	1	58	0	0	9	18	1	3
Misc	0	0	0	0	0	0	0	0	0	0
Non-residents	0	0	0	0	0	0	0	0	0	0
NSSP	0	0	0	0	0	0	0	0	0	0
Other Agencies	318	355	220	255	227	279	384	463	200	238
Oysters	147	194	139	226	109	161	174	297	86	143
Piers	0	0	0	0	0	0	0	0	0	0
Police Powers	87	97	95	109	76	88	95	113	72	79
Removal of Obstructions	3	3	3	5	1	1	1	1	3	3
Resisting officer	0	0	0	0	0	0	0	0	0	0
Shellfish	12	13	11	14	5	6	14	25	7	7
SW Recreational Licenses	210	250	204	262	190	241	205	234	167	183
TOTALS:	1568	1838	1044	1357	894	1116	1282	1600	744	902
PERCENT OF CONVICTIONS:	85.31%		76.93%		80.11%		80.13%		82.48%	

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

From April 1, 2016 through September 30, 2016, the VDH Division of Shellfish Sanitation had 2184 acres of shellfish grounds closed to harvesting. There were 1194 acres of shellfish grounds reopened.

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 14 VMRC Permit Applications, and processed as follows:

Three (3) Permit Applications needed action in the Marina Program.

Eleven (11) applications were approved based on meeting the requirements of providing adequate facilities.

One (1) applications were denied because of inadequate facilities.

4) Department of Conservation and Recreation (DCR)

a) DCR - Division of Soil and Water Conservation

Nutrient Management

DCR Nutrient Management Staff have been active in developing, reviewing nutrient management plans, enhancing private sector plan development, and other nutrient reduction activities to achieve the Commonwealth's nutrient reduction commitments of Chesapeake Bay TMDLs. In the coastal zones of Virginia, DCR staff have overseen the development of nutrient management plans covering 10,466.75 acres during the reporting period (4/1/2016 – 9/30/2016). Many plans are active for up to three years, but all new or revised acreage developed in the coastal zones during the reporting period watershed is summarized in the following table:

Table 1: Planned nutrient management acreage by land use and costal management zones. Plans started between 4/1/2016 – 9/30/2016.

CZM Basin	Number Of Plans	CZM Crop Acres	CZM Hay Acres	CZM Pasture Acres	CZM Specialty Acres	Total
Albemarle Sound	3	2,420.35	-	-	-	2,420.35
Atlantic Ocean	4	2,110.80	-	-	58.00	2,168.80
Chesapeake Bay Coastal	3	2,894.80	-	21.40	73.50	2,989.70
Chowan	7	811.72	-	28.49	-	840.21
James	5	1,619.73	3.10	-	213.25	1,836.08
Potomac	-	-	-	-	-	-
Rappahannock	2	120.10	-	26.21	65.30	211.61
York	1	-	-	-	-	-
Total:	21	9,977.50	3.10	76.10	410.05	10,466.75

Shoreline Erosion Advisory Service

The Shoreline Erosion Advisory Service (SEAS) was created in 1980 by the Virginia General Assembly. The program provides technical assistance to private landowners and local, state and federal agencies owning property that is experiencing shoreline erosion in tidal 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.

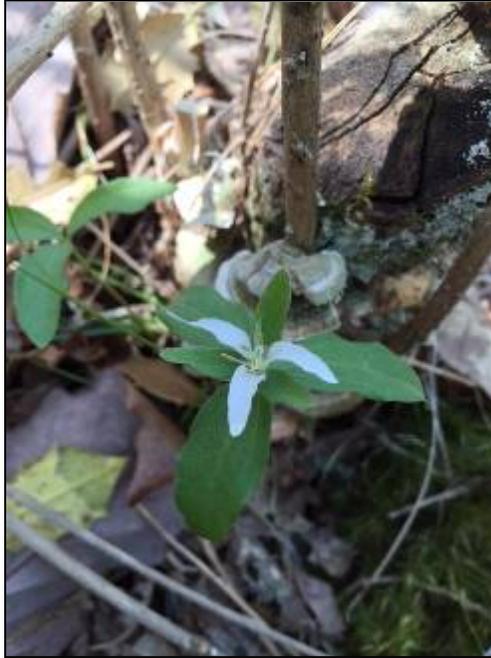
In the past, budget cuts greatly reduced the availability of services provided by the SEAS program. However, recent funding increases in 2015 have led to the hiring of one engineer. Additional funding, approved in 2016, will provide for a second fulltime engineer. Currently, that position has not been filled. It is anticipated that this increase in resources will allow the program to timely meet the demand for SEAS services.

For this reporting period, SEAS staff conducted 67 site visits, wrote 55 advisory reports, evaluated 32,840 feet of shoreline and reviewed and provided comments on four joint permit applications. SEAS provides advisory assistance to tidal and non-tidal shorelines in Virginia. During a site visit, SEAS walks the shoreline with the owner and assesses the cause or causes of the erosion problem. SEAS then reviews with the owner, what SEAS believes 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. SEAS has been as far West as Rockbridge County and the Maury River and to the East, Accomack County and Onancock Creek. The SEAS program also conducts education and outreach activities. Topics presented include shoreline erosion rates in Virginia, the causes of shoreline erosion, a review of strategies to protect eroding shorelines and an overview of SEAS services. During the report period, SEAS staff have presented this program to State University and agency staff, local Wetland Boards and to the general public.

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



Virginia least trillium Photo: Jill Spear

Globally rare spring wildflower discovered in Caroline County – 4/29/16

The globally rare plant Virginia least trillium (*Trillium pusillum* var. *virginianum*, G3T2/S2) in the Trillium family (Trilliaceae) was found by the DCR Natural Heritage Field Botanist and Botany Intern during a survey for the federal and state listed species swamp-pink (*Helonias bullata*, G3/S2/LT/LE). This occurrence is the first for least trillium in Caroline County. The colony of more than 100 plants was found on privately-owned land held in a Virginia Outdoors Foundation conservation easement. Although appropriate forested seepage habitat for swamp-pink was present, no plants of this species were found. Virginia least trillium is known from a number of other counties in the coastal plain including adjacent Hanover County and several counties in the mountains. This survey was conducted with funding from the Virginia Department of Transportation under a contract focused on federal and state listed species.

Ant Species Discovered at Savage Neck Dunes NAP is New Record for Virginia – 5/27/16

Researchers from the Virginia Museum of Natural History (VMNH) discovered an ant species new to the state at Savage Neck Dunes NAP. The species, *Strumigenys louisianae* had not been previously recorded as occurring in Virginia. Dr. Kal Ivanov, Assistant Curator, Department of Recent Invertebrates at VMNH, and associates made the discovery during surveys of ground-dwelling arthropods conducted during the summer and autumn of 2015. The surveys also documented a total of 30 ant species at the preserve, representing over 20% of the ant species known from Virginia. Dr. Ivanov will be continuing his work at Savage Neck Dunes NAP in 2016. The Virginia Natural Area Preserve System provides the academic research community with ecologically robust sites for field work that benefits the Commonwealth and informs preserve management decisions.

Bethel Beach NAP – 6/1/16

The Field Zoologist and Chesapeake Bay Region Steward surveyed Bethel Beach Natural Area Preserve for breeding shorebird activity. They found a single American oystercatcher nest and at least 40 nests of the rare least tern. A least tern breeding population of this size is unprecedented at Bethel Beach Natural Area Preserve and cooperation from the public will be vital to the success of this breeding colony. It is critical that visitors keep dogs on leashes and respect the posted shoreline closure at the south end of the preserve; even seemingly minor disturbances can flush these birds from their nests, repeatedly and/or for long periods of time, and expose their eggs and young to predation from other birds.



Bethel Beach NAP

New Colonies of Federal/State listed Plant Species Found in Caroline County – 6/6/16

The Natural Heritage Field Botanist and Botany Assistant found two new locations for the federal and state listed plant, swamp-pink (*Helonias bullata*, G3/S2/LT/LE), in Caroline County. Swamp-pink, a spring blooming perennial herb that grows in acidic seepage swamps, is known in Virginia only from Caroline, Henrico, Augusta, and Nelson counties. Since mid-April surveys for new locations of swamp-pink have been conducted by DNH in Caroline and Henrico Counties at numerous sites. Two new colonies were found: one with 11 vegetative rosettes and another with more than 2,200 vegetative rosettes with 11 fruiting plants on land owned by a single private owner. These are the only new colonies found by DNH this year. Surveys were guided by communications with a private landowner contacted by the Central Rappahannock Chapter RareQuest team of Virginia Master Naturalists as part of the RareQuest project. RareQuest is a project in collaboration with the Virginia Master Naturalists, Virginia Native Plant Society, and the Natural Heritage Program that seeks to update historical occurrences of rare plants and animals within the state.



Early season swamp-pink in flower in April with previous year's leaves and newly emerging leaves



Acidic seepage swamp with clusters of swamp-pink basal rosettes along channel (center of photo) in early June at one of the new locations.

Rare Fire-dependent Orchids Found – 6/22/16

DCR's Southeast and Chesapeake Bay Region natural area stewards teamed up to make two rare orchid discoveries at Blackwater Ecological Preserve (BEP) in Isle of Wight County. BEP is owned by Old Dominion University and jointly managed with frequent fire by DCR-Division of Natural Heritage (DNH) and its partners, The Nature Conservancy and U.S. Fish & Wildlife Service. The preserve is home to the northernmost occurrence of longleaf pine savanna and supports over a dozen rare plant and animal species. Frequent prescribed fires maintain both the open character of the pine savanna and conditions required by many fire-dependent plant and animal species. Recent plant surveys resulted in discovery of three stems of Large Spreading Pogonia (*Cleistosopsis divaricata*; G4/S1). Despite the area's long history of extensive botanical exploration dating back to the 1930s, this species - a critically imperiled species in Virginia, had not previously been found at BEP and is known from just one other natural site in the state, plus artificially-maintained transmission line rights-of-way. On the same day, a close examination of early-blooming ladies' tresses orchids revealed them to be Eaton's Ladies' Tresses (*Spiranthes eatonii*; G3/SH), a species last seen in Virginia in 1935. Eaton's Ladies' Tresses are an elusive and rarely encountered plant of pine savannas of the southeastern coastal plain which until now had been presumed lost from the Virginia flora.



Rosebud orchid (*Cleistesopsis divaricata*)



Eaton's Ladies Tresses (*Spiranthes eatonii*)

Northeastern Beach Tiger Beetle Recovery Following Hurricane Isabel – 7/11/16

Following Hurricane Isabel's landfall in 2003, the Northeastern beach tiger beetle (NEBTB; *Cicindela dorsalis dorsalis*), a federally-listed (as threatened) species endemic to sandy shorelines on the Chesapeake Bay and a few scattered populations in the northeast, nearly disappeared from the shorelines of Dameron Marsh Natural Area Preserve (DMNAP) in Northumberland County. The northern shorelines of the preserve, inhabited by over 700 NEBTB in the months before Hurricane Isabel struck, experienced extensive rollback and sand movement that decimated the resident NEBTB population. While NEBTB are adapted to life on dynamic, shifting shorelines, the impacts of Hurricane Isabel were too severe and swift for the sand-dwelling larvae. In the following years, from 2004 to 2011, between zero and four adult NEBTB were found during summer population surveys. However, in July of 2016, DCR's Chesapeake Bay Region Steward resurveyed the area and found 894 NEBTB on DMNAP's northern sandy shorelines. This decade-long recovery represents a return to a pre-Hurricane Isabel population size at DMNAP.



Northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*)

Dominion Powerline Monitoring Field Visits Conducted in Sussex and City of Suffolk – 7/22/16

The Division of Natural Heritage (DNH) Field Botanist and Botany Assistant worked over the last couple of weeks with a Dominion Biologist to complete the early summer visits to a subset of powerlines containing rare plants in Sussex and the City of Suffolk. This is part of a multiple year monitoring project initiated between DNH and Dominion in 2015 and funded by Dominion, to update the status of the rare plants and overall site conditions, including more accurately mapping and counting plants, in a subset of the powerlines managed by Dominion. Powerlines support some of the remaining occurrences of some rare plants in Virginia that require the maintenance of open, usually boggy conditions. Some of the species surveyed for in the powerlines targeted in June and July included red milkweed (*Asclepias rubra*, G4G5/S2), golden colicroot (*Aletris aurea*, G5/S1), slender nutrush (*Scleria minor*, G4/S2), and yellow pitcher plant (*Sarracenia flava*, G5/S1). Conditions in the powerline that affect the habitat quality and continued presence of the rare species were noted including the evidence for recent mowing or herbiciding, presence of invasive alien plant species, “weedy” native species

such as bracken fern, the status of trees and shrubs, and soil disturbances, usually vehicle rutting. The data collected in this project will inform discussions between DNH and Dominion over management needs to maintain the rare plant populations. Results included confirming the continued presence of some species not observed on previous less intensive surveys and the finding of a new occurrence of the orchid large spreading pogonia (*Cleistesiopsis divaricata*, G4/S1), spotted in a Sussex County powerline site by the Dominion Biologist.



Yellow Pitcher Plant



Golden Colicroot



Large Spreading Pogonia

Continued Presence of Only Virginia Occurrence of Endangered Plant Confirmed – 9/22/16

The DCR-Natura Heritage Field Botanist and Botany Assistant along with staff of the Natural Resources Environmental Affairs Branch of Marine Corps Base Quantico conducted a site visit along a creek in Stafford County to assess the current status of the only known Virginia occurrence of the federal and state listed plant harperella (*Harperella nodosa*, G2/S1/LE/LE). Harperella is an herbaceous member of the parsley family (Apiaceae) with quill-shaped leaves and small clusters of tiny white flowers found in seasonal ponds and along small seasonally flooded rocky/gravelly waterways throughout its spotty range in the southeastern United States. Sedimentation is a major threat to stream-dwelling populations of Harperella because the bedrock cracks and gravelly substrates preferred by the species can be smothered by excessive siltation. Population levels have fluctuated since 2002 when the occurrence, consisting of 350 stems, was first found by a DCR- Natural Heritage Field Botanist; declines in some years were likely associated with heavy siltation events. This year, three colonies of plants were observed, totaling 108 stems, about twice the number last observed in 2009.



Harperella (cluster of fine-leaved plants growing in rock crevice in creek).
Photo: Tim Stamps, MCB Quantico

Prescribed Burning

Assisting U.S. Fish & Wildlife Service on Prescribed Burn – 4/14/16

DCR Natural Heritage staff assisted the U.S. Fish and Wildlife Service in completing a 90-acre prescribed burn project at the Rappahannock River Valley National Wildlife Refuge. The primary objective was wildlife habitat management with a secondary goal of reducing fuel loading during the current spring wildfire season. Warm season grasslands require fire to provide quality habitat for bird species dependent on grassland ecosystems, such as the grasshopper sparrow. Other agencies assisting the Service included The Nature Conservancy, National Park Service and the AmeriCorps National Civilian Community Corps.



AmeriCorps firefighter using a drip torch



Holding crew use Type 6 engine to contain fire

Natural Heritage Staff Assist with Controlled Burns – 4/18/16 – 4/22/16

Natural Heritage (NH) staff assisted The Nature Conservancy and the U.S. Fish & Wildlife Service (USF&WS) with two days of controlled burning. On Tuesday, April 19, the Longleaf Pine Restoration Specialist, Prescribed Fire Technician, Southeast and Chesapeake Bay region stewards participated in burning two units for a total of 361 acres at Piney Grove Preserve, owned and managed by The Nature Conservancy. The goal of these burns was to enhance habitat for the federally endangered Red Cockaded Woodpecker. On Thursday, April 21, the Southeast Region Steward and Coastal Operations Steward helped the USF&WS and State Park staff burn a 90-acre impoundment at False Cape State Park to improve waterfowl habitat.



Burning out around Red-cockaded woodpecker Cavity Trees



Controlled burning in impoundments at False Cape

Longleaf Pine Burning Complete on Natural Area Preserves – 4/20/16

The Natural Heritage Longleaf Pine Restoration Specialist led a 39-acre prescribed fire in a three-year-old grass stage longleaf pine restoration unit at Antioch Pines Natural Area Preserve. Marking the completion of longleaf pine burning for the Spring 2016 burn season, this fire will set back competing vegetation and will provide valuable nutrients to these young trees. Critical crew assistance was provided by staff from The Nature Conservancy, Department of Game and Inland Fisheries, U.S. Fish & Wildlife Service, AmeriCorps, and Wildland Restoration International.



Grass stage longleaf pine tree before burning



The same (living) grass stage tree after burning



April 20, 2016, Interagency burn crew at Antioch Pines Natural Area Preserve

Eastern Interagency Fire Planning Meeting – 8/18/16

DCR's Natural Heritage Eastern Fire Manager facilitated a meeting in Petersburg attended by fire management partner staff from the U.S. Fish and Wildlife Service (USFWS), Department of Game and Inland Fisheries, The Nature Conservancy and Department of Forestry (DOF) to discuss and coordinate Fall 2016 and Winter 2017 prescribed fire plans and challenges. The meeting provided partners a chance to meet the new Eastern Region Forester and Longleaf Pine Coordinator at DOF; the new USFWS Prescribed Fire/Fuels Technician; and an opportunity to discuss topics including agency plans for upcoming prescribed burn projects, staffing and capacity, an online fire database, annual operating plan/fire budget updates, communications challenges and upcoming fire training/conference opportunities. This group meets twice per year in order to maintain close, well-coordinated working relationships that result in mutually increased capacity to complete safe and effective fire management actions.



Eastern Virginia Interagency Fire Management Partners met in Petersburg in August to coordinate upcoming prescribed fire projects.

Natural Heritage Staff Assist DGIF with Prescribed Burns – 8/29/16

DCR's Longleaf Pine Restoration Specialist and Southeast Region Steward assisted Department of Game and Inland Fisheries staff in completing prescribed burns to maintain early succession habitat at Chickahominy State Wildlife Management Area (WMA) in Charles City County. This WMA is comprised of 5,217 acres of upland woodlands and fringe tidal wetlands along the Chickahominy River near its confluence with the James River.



DCR staff assisted DGIF with prescribed burns at Chickahominy WMA in Charles City County.

Natural Area Preserve Stewardship

Crow's Nest Access Road Construction Update – 4/14/16

VDOT workers finalized the pipe replacement for all stream crossings and drainage areas along the future 1.5 mile access road into Crow's Nest Natural Area Preserve. Replacing these pipes was the first major phase of the road improvement project, and VDOT has now begun installing the initial foundation of the future access road into Crow's Nest by leveling and scraping the surface, laying down retention fabric, and covering the material with an initial foundation of rock. Weather permitting, road construction should be finalized by May 2016, at which point DCR staff will install trail signage and complete several trail improvements with the goal of opening the eight miles of hiking trail to the public by Summer/Fall 2016.



Newly installed pipe under the main access road



VDOT installing initial roadbed and matting material

Longleaf Pine Restoration Partners Field Meeting – 7/14/16

DCR's Southeast Region Steward and Longleaf Pine Restoration Specialist met with staff from the Department of Forestry (DOF) and The Nature Conservancy (TNC) at the Garland Gray Forestry Center in Sussex County. DOF's newly-hired Longleaf Pine Coordinator and Forest Health Specialist were introduced to the group. Discussion centered on progress to date in accomplishing Longleaf Stewardship Fund grant goals, opportunities for improved communication and increasing prescribed burn cooperation among the three agencies. The group also discussed the upcoming (November 2016) Biennial Longleaf Alliance Conference in Savannah, Georgia in order to coordinate travel and presentations from Virginia attendees. An afternoon field trip to South Quay Sandhills Natural Area Preserve / South Quay State Forest allowed recently hired DOF staff to see longleaf pine restoration progress on both DCR and DOF lands.

Crow's Nest Breeding Bird Monitoring Program – 7/15/16

The DCR Natural Heritage Northern Region Steward, with the assistance of several volunteers, completed the 2016 breeding bird monitoring at Crow's Nest Natural Area Preserve (CNNAP). In total, 100 point counts were completed at 60 randomly placed locations within the preserve. In total, 57 species and 1807 birds were tallied during the monitoring season. A goal in upcoming seasons will be to recruit additional volunteers to assist with the monitoring program. The top three species detected were tufted-titmice, red-eyed vireos and eastern wood pewees, identified in 86%, 83% and 71% of the point counts, respectively. Data from the breeding bird surveys will be used to track changes in both species composition and population numbers over time. A summary report of the first three breeding bird monitoring seasons at CNNAP will be completed this winter.



A prothonotary warbler at Crow's Nest

Benefits of Natural Area Preserves beyond their boundaries: Sea-beach Knotweed in the Chesapeake Bay Region – 7/15/16

Sea-beach knotweed (*Polygonum glaucum*; G3S2) is a globally vulnerable inhabitant of sandy shorelines from Maine to Florida. Known from fewer than 80 occurrences in the world, sea-beach knotweed is negatively impacted by coastal development, shoreline hardening, high-impact recreation, and other activities that disturb the dynamic, shifting sandy shorelines it requires. As an annual plant, it is entirely dependent on high seed production and dispersal of the floating seeds by storm currents to both maintain existing populations as well as colonize new, suitable areas. The species was first observed at Hughlett Point Natural Area Preserve (HPNAP) in 2004. At that time only 25 plants were observed, and the population fluctuated, sometimes reaching 200

plants, for the following decade. In July, 2016, DCR’s Chesapeake Bay Region Steward resurveyed HPNAP and found over 2,000 sea-beach knotweed individuals, including several in areas they had never been observed before. It is likely that such a large population will serve as a source for the Chesapeake Bay system (i.e. input a large number of seeds into the region), potentially resulting in the establishment of additional sea-beach knotweed populations in suitable, adjacent areas on the western shore of the Bay. This is a prime example of the importance of preserving and managing rare species populations in the Natural Area Preserve System, and how benefits transcend preserve boundaries.



Sea-beach knotweed (*Polygonum glaucum*, G3S2)

Natural Heritage and State Park Staff Provide Mutual Assistance – 7/22/16

In the spirit of “One DCR”, the Natural Heritage Eastern Operations Steward and staff at Belle Isle State Park have provided each other with mutual assistance to achieve both park and natural area preserve management objectives. This summer, Belle Isle staff has assisted with law enforcement patrols and site presence at Hughlett Point and Dameron Marsh natural area preserves on the Northern Neck during weekends. In return, on Thursday, June 17, the Eastern Operations Steward provided equipment and assisted Belle Isle staff with landscaping improvements at a park residence.

Natural Heritage Begins Installation of Signs and Gates at Crow’s Nest – 8/5/16

On August 3, the DCR Natural Heritage Northern Region Steward and Operations Steward completed the installation of the first set of gates and signs at Crow’s Nest Natural Area Preserve. Additional trail and road signage will be installed over the next month. Other infrastructure to be installed includes several new kiosks and a stream crossing. The Grand Opening of the eight miles of trails at Crow’s Nest is tentatively scheduled for November 2016 following VDOT’s planned road improvements along Raven Road.



Start of the Potomac Overlook Trail



Start of Accokeek Loop Trail

Crow's Nest Public Access Facility Work Days –8/29/16– 8/31/16

DCR's Natural Heritage Operations Stewards from across the Commonwealth met at Crow's Nest Natural Area Preserve to assist Northern Region stewardship staff with several projects associated with the upcoming opening of public access into the preserve via the Raven Road Access Point. Two information kiosks were installed, one at the interior parking area accessed from the Raven Road entrance, and the other at Boykin's Landing – which was ferried to this location by boat. An ADA-accessible Porta John enclosure was also built at the interior parking area. Facilities are being installed as preparations continue for the opening of the main Crow's Nest peninsula to visitors, expected in late 2016.



Porta John enclosure and information kiosks installed at Crow's Nest Natural Area Preserve in late August 2016.

Cumberland Marsh NAP Wetland Restoration and Sensitive Joint Vetch – 9/16/16

A site visit was conducted by DCR, DEQ, DGIF, Army Corps of Engineers and TNC of the wetland restoration area within the Cumberland Marsh Natural Area Preserve (NAP) in New Kent County. The Cumberland Marsh NAP supports one of the largest, healthiest populations of the federally and state listed plant, Sensitive Joint Vetch (*Aeschynomene virginica*). Loss of habitat is likely the greatest threat to this plant species and Cumberland Marsh is one of its last strongholds. The DCR and TNC, in partnership, have been monitoring Sensitive Joint Vetch at the preserve for nearly 20 years. The population has been more or less holding steady and has colonized most of the suitable habitat at the site. In 2010-2011, the Virginia Aquatic Resources Trust Fund removed both the upper and lower dams that were impounding a small tidal stream on the site in an effort to restore both tidal and non-tidal wetlands in an area that had been converted to a small lake. Removing the dams addressed concerns for the stability of the dams considering recent storm-related breaches, and created additional wetlands that might be suitable for colonization of additional patches of Sensitive Joint Vetch. Recent surveys conducted by DCR stewardship staff and TNC have documented this rare plant in the wetland restoration area.



Cumberland Marsh NAP Virginia Aquatic Resources Trust Fund Wetland Restoration Area



Federally and State Listed Sensitive Joint Vetch in Cumberland Marsh NAP Wetland Restoration Area

Invasive Species

Natural Heritage Working with the NPS to Treat Japanese Stiltgrass at Crow's Nest – 8/8/16

The National Capital Region Exotic Plant Management Team (EPMT) with the National Park Service recently completed their 2016 season at Crow's Nest Natural Area Preserve. This was the fourth season the team has assisted with exotic plant management at Crow's Nest. This season, they treated Japanese stiltgrass (*Microstegium vimineum*) along approximately 4.5 miles of roads and trails. They used both a truck spray unit as well as back sprayers this season. In addition to Japanese stiltgrass, the team also treated beefsteak plant (*Perilla frutescens*) and garlic mustard (*Alliaria petiolata*). DCR's Northern Region Steward and Stewardship Technician have also treated Japanese stiltgrass and beefsteak plant along approximately three miles of trail and adjacent areas this season. This work will continue over the coming weeks.



EPMT working at Crow's Nest Natural Area Preserve

Invasive Beach Vitex Shrub Discovered/Removed at Bethel Beach Natural Area Preserve – 8/12/16

On Tuesday, August 9, DCR's Chesapeake Bay Region Steward was contacted by a vigilant local citizen who reported seeing a single Beach vitex (*Vitex rotundifolia*) plant at Bethel Beach Natural Area Preserve in Mathews County. Beach vitex is a highly invasive, sprawling non-native shrub from Asia that has been unwisely planted along the Atlantic coast for shoreline stabilization. Ironically, it is a poor dune stabilizer compared to the native plants on the same habitat that it displaces. Nicknamed "kudzu of the coast," Beach vitex aggressively invades maritime natural communities. Making use of the "Early Detection/Rapid

Response” strategy for dealing effectively with invasive species, DCR staff responded quickly and removed the reported plant. This is the first reported occurrence of Beach vitex on the western shore of the Chesapeake Bay. After finding this plant colonizing shorelines in Virginia Beach, Norfolk and the Eastern Shore, the Virginia Department of Agriculture and Consumer Services (VDACS) issued a Beach vitex quarantine for those areas. However, Mathews and other western shore Chesapeake Bay counties were not subject to the quarantine; so, it is possible that recent introductions have been made. In January 2015, VDACS added Beach vitex to the list of Tier I Noxious Weeds in Virginia, making it illegal to import or sell in the state. Surveys are needed to understand the extent of Beach vitex establishment on western Chesapeake Bay shorelines so that appropriate responses can be made.



Beach vitex at Bethel Beach Natural Area Preserve in Mathews County
... since removed.

Work with University of Richmond on Phragmites Genetic Research –9/6/16 – 9/9/16
DCR’s Natural Heritage Stewardship Biologist assisted University of Richmond (UR) Biology professor Dr. Carrie Wu for a fifth consecutive year of collaboration to study genetics of Phragmites in Virginia. As part of this year’s work, two sections of Dr. Wu’s freshman biology class were introduced to invasive species issues and conducted related field work. Field assistance by Northern and Chesapeake Bay region stewardship staff was provided via boat transportation for students to reach remote Phragmites patches and collect plant tissue samples for lab analysis at UR. This multi-year project has helped DCR’s resource managers to better distinguish native from non-native Phragmites in Virginia, and also confirmed existence of native Phragmites stands, including some on Crow’s Nest Natural Area Preserve. Past tests also found one instance of a native-invasive hybrid. Research results have been published in the American Journal of Botany.

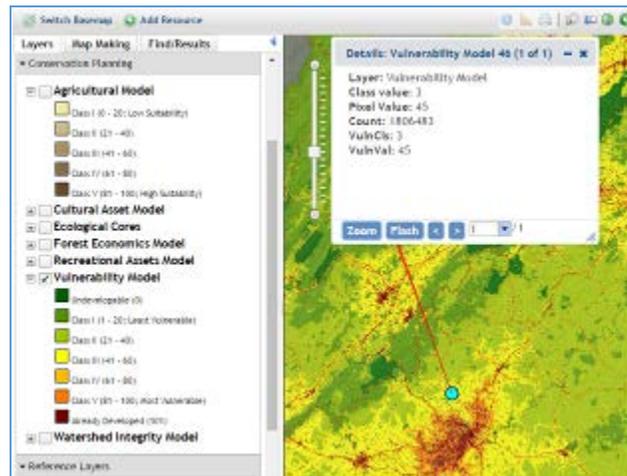


University of Richmond students heading out, collecting and labeling bagged Phragmites samples as part of on-going cooperative genetics research.

Information Management

Virginia ConservationVision updates on the Natural Heritage Data Explorer– 7/11/16
The Natural Heritage Data Explorer (NHDE), an online map service, has been updated to include the most current versions of the Development Vulnerability Model and the Agricultural Model. These two revised map products are part of the Virginia ConservationVision, a suite of tools used by DCR and partners for

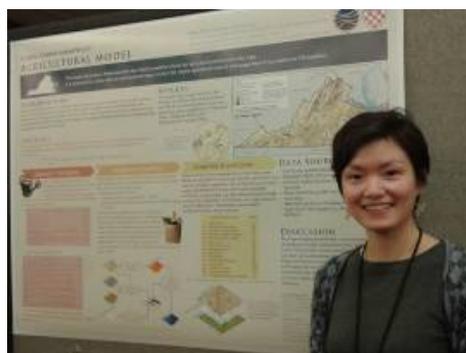
comprehensively assessing the conservation values lands in Virginia. Without downloading any data files or having access to specialized GIS software, users can quickly display the new model versions for a statewide overview. It is also easy to zoom in to areas of interest, and click on the map to determine model values at a specific location. Maps can be accessed at <https://vanhde.org/content/map>.



Sample of a Vulnerability Model

Outreach and Education

Natural Heritage at the International Association for Landscape Ecology Conference – 4/3/16 – 4/4/16
The Natural Heritage Landscape Ecologist, and University of Richmond student intern participated in the annual meeting of the US Regional Association of the International Association for Landscape Ecology (US-IALE) in Asheville, NC. Pre-conference training workshops were held on Sunday, April 3, followed by several days of plenary presentations, 14 concurrent sessions of oral presentations, a scientific poster session, field trips, and networking events. Over 500 professional landscape ecologists and students attended the conference. The Natural Heritage Landscape Ecologist gave an oral presentation about the Virginia Development Vulnerability Model on Monday, April 4, moderated sessions, and served as judge evaluating student presentations competing for awards. University of Richmond Intern presented the Virginia Agricultural Model during the poster session on Monday evening. The IALE conference was an excellent opportunity to network with, and learn from, professionals and students working on a variety of topics relevant to the Virginia Natural Heritage Program.



University of Richmond intern, Tracy Tien, presenting a poster on the revised Conservation Vision Agricultural Model.

Longleaf Pine Restoration Field Trip for First Lady McAuliffe and Secretary Ward – 4/11/16
On Monday, April 11, DCR staff accompanied First Lady Dorothy McAuliffe, Secretary of Natural Resources Molly Ward and DCR Director Clyde Cristman on a field visit to see longleaf pine restoration projects underway at South Quay Sandhills and Chub Sandhill State Natural Area Preserves. DCR's Natural Heritage

Program has now restored over 1,000 acres of longleaf and uses prescribed fire to manage restored sites, enhancing fire-adapted longleaf pine community types and the rare species populations known to be associated with them.



Darren Loomis and Rebecca Wilson with First Lady McAuliffe and Clyde Cristman



Secretary Ward visits Virginia's only remaining natural longleaf pine forest, located within South Quay Sandhills Natural Area Preserve

Master Naturalists Hike at Crow's Nest – 4/16/16

The DCR Natural Heritage Northern Region Steward welcomed members from the Central Rappahannock and Arlington Master Naturalist Chapters to Crow's Nest Natural Area Preserve. After a brief introduction to the Virginian Natural Heritage Program and Crow's Nest, participants set out on a 3-mile hike along the Accokeek Creek Loop Trail. Spring is an excellent time to visit Crow's Nest and participants enjoyed seeing many spring wildflowers, including spring beauty, jack-in-the-pulpit, mayapple and showy orchid. Participants also had nice views of Louisiana waterthrush and ovenbird, two neotropical migrants that have recently returned to breed at Crow's Nest. Staff shared information on the ecological value of the preserve and the history of the Crow's Nest peninsula at various points along the trail. Approximately 20 people participated in the hike.



Master Naturalists enjoying a hike at Crow's Nest

Attendance and Accolades at the 2016 Biodiversity without Boundaries conference - 4/18/16 – 4/22/16

DCR Deputy Director Tom Smith joined two employees of the Division of Natural Heritage at the 2016 Biodiversity without Boundaries (BWB) conference held in San Juan, Puerto Rico. This annual conference is organized by NatureServe, the non-profit science organization that works closely with Natural Heritage Programs throughout the Western Hemisphere. Every year, employees of Virginia Natural Heritage attend this conference to share information about conservation science and Natural Heritage methodologies, and innovation within the network.

As in past years, NatureServe bestows a Conservation Impact award for a Natural Heritage Program that excels in its commitment to science-based conservation through intra- and extra-network collaboration, integrity, respect for others, and the production of high-quality data, tools and knowledge. This year, the Virginia Natural

Heritage Program was the recipient of this honor for their contributions to the network via use of GIS for conservation decision-making; development of mobile data collection procedures; the development of a unique statewide Wetlands Catalog for prioritizing wetland conservation and restoration opportunities; the pioneering development and use of the Natural Heritage Data Explorer environmental review tool; and significant advances in predicting suitable habitat for rare plant and animal species (i.e. Species Distribution Modeling). This and many other successful efforts over the past decade have maintained Virginia Natural Heritage as an international leader and role model for conservation organizations.

Moreover, Virginia was also the recipient of a brand new award, the NatureServe Lifetime Achievement Award, given to a Natural Heritage Program employee that has excelled during his or her professional career within the Natural Heritage Network. There was no question that Tom Smith, recently moving on from his position as the Virginia Natural Heritage Director, should be the first recipient of this award! This year's Biodiversity without Boundaries conference was celebratory and monumental for Virginia Natural Heritage and the Department of Conservation and Recreation.

Natural Heritage Presentation to a VCU Environmental Studies Senior Class – 4/20/16

The DCR Natural Heritage Information Manager provided a presentation to a senior year Capstone class in the VCU Environmental Studies Program. The presentation consisted of a description of the mission and work of DCR-Natural Heritage; an overview of several projects currently underway in the DCR-Natural Heritage Information Management section; a summary of the presenter's career steps leading to their current DCR position; remarks about the value and role of interns and volunteers at DCR; and some guidance on ways to strengthen a graduate's profile as they enter the job market or apply to graduate schools. The presentation was followed by plenty of time for questions, answers and discussion.

Presentation to the Northern Virginia Bird Club – 4/20/16

The DCR Natural Heritage Northern Region Steward gave a presentation on the Virginia Breeding Bird Atlas 2 (VABBA2) to the Northern Virginia Bird Club at St. Andrew's Episcopal Church in Arlington. The VABBA2 is a five-year citizen science project designed to identify the distribution and breeding status of birds across Virginia and is co-led by the Virginia Department of Game and Inland Fisheries and the Virginia Society of Ornithology. The presentation focused on how volunteers can sign up for areas to survey, survey protocol and how to enter data into an eBird database set up for the project. DCR staff, including the Northern Region Steward and the Field Zoologist, has volunteered to serve as Regional Coordinators for the Atlas.

Field Trip to Grafton Ponds NAP – 4/21/16

The Chesapeake Bay Region Steward accompanied a field trip of 15 ecology and AP biology students from Collegiate School to Grafton Ponds Natural Area Preserve. The students learned about the geologic history and ecologic importance of the Grafton Ponds Complex and sampled one of the seasonal coastal plain depression ponds for amphibians and invertebrates. The students identified their finds and made corresponding hypotheses about water quality before releasing all specimens back into the pond.

Earth Day 2016 at Fort AP Hill – 4/21/16

The DCR Natural Heritage Locality Liaison participated in "Earth Day 2016" at Fort A. P. Hill. There were approximately 1175 students, teachers and parents participating in the event that included approximately 59 exhibitors. The DCR - Natural Heritage display included information and photos of resources in Caroline County as well as a terrarium housing a red pitcher plant. Hands-on activities included making a pitcher plant "fly catcher" or a "Fortune Teller" that provides information on four species and their habitats.



DCR Natural Heritage Locality Liaison at Earth Day 2016 – Ft AP Hill

Earth Day Educational Event with Students from Thomas Hunter Middle School – 4/22/16

The Natural Heritage Chesapeake Bay Region Steward assisted with an Earth Day educational event hosted by the Friends of the Tiger Beetle and Chesapeake Bay Habitat Foundation at Bavon Beach in Mathews County. Seventy-five students from Thomas Hunter Middle School learned about the federally-threatened northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*) and shoreline dynamics from representatives from the U.S. Fish and Wildlife Service and the Virginia Institute of Marine Science. Additionally, the students learned about living shorelines and got hands-on experience in planting native dune grasses.

Natural Heritage Participates in Earth Day Festival – 4/23/16

The DCR Natural Heritage Project Review Coordinator and DCR Intern participated in the 23rd Earth Day Richmond Festival celebration at Great Shiplock Park in Richmond, Virginia. Hosted by the Enrichmond Foundation, the event had kayak rides along the James River, guided bike rides on the VA Capital Trail, performers, exhibitors, rock climbing walls, a craft market, and 5K Race. The DCR display promoted various aspects of the Natural Heritage Program, including information on natural heritage resources in the City of Richmond, the statewide natural area preserve system, and invasive vs. native species of Virginia. In addition, Natural Heritage rare species fortune tellers, natural area preserve booklets, native plants brochures, and information on the invasive wavy leaf grass were distributed to approximately 150 children and adults that visited the DCR booth located on Chapel Island.



DCR Natural Heritage booth at the 2016 Earth Day Festival.

DCR field trips and presentation at the Virginia Land Conservation Conference – 4/27/16

The DCR Natural Heritage Northern Region Steward and Operations Steward led field trips for participants of the 10th Annual Virginia Land Conservation Conference held in Fredericksburg. The Northern Region Operations Steward led a kayak trip for ten participants at Crow's Nest Natural Area Preserve. The trip gave staff an opportunity to discuss the mission of the Natural Heritage Program as well as the ecological value of Crow's Nest. Participants enjoyed many excellent views of bald eagles along with many other birds. A hike along the City of Fredericksburg's Rappahannock River easement property was led by the Northern Region Steward. The seven participants enjoyed nice views of the Rappahannock River, including the remains of the

Embrey Dam that was removed in 2004. In addition, the Northern Region Steward participated in a group presentation, along with staff and officials from Stafford County and the Northern Virginia Conservation Trust, entitled “Crow’s Nest Natural Area Preserve: Success Through Collaboration.” The presentation touched on the ecological value of the Crow’s Nest Peninsula, past development proposals, the public efforts to preserve the peninsula, and continued efforts to protect land adjacent to the preserve.



Paddlers along Accokeek Creek



Group photo along the Rappahannock River

NatureServe Core Methodology Training 2016 – 5/2/16 – 5/5/16

Four Virginia Natural Heritage Program staff attended, and one staff member served as an instructor for, the NatureServe Core Methodology Training at the NatureServe Offices in Arlington, Virginia. Training consisted of four webinars and three in-person training days, including an afternoon collecting field data on a rare natural community and rare plant species at Cabin John Island in Great Falls, Maryland. Sessions covered species and ecosystem mapping and assessment; uses of Natural Heritage information; and challenges and opportunities in biodiversity conservation. Training provided hands-on introduction to standards, methods, and tools that are "core" to the success of the NatureServe and Natural Heritage Network. This training also strengthens the evolving Natural Heritage Network by enabling a forum among new and seasoned professionals to discuss how well Natural Heritage methodology is informing and achieving conservation across programs. Attendees left the training energized, with a better understanding of how Natural Heritage methodology uses current science to facilitate on-the-ground conservation impacts locally, regionally and internationally. A total of 22 attendees from Natural Heritage Programs, Conservation Data Centers, and the US Geological Survey were present for training, representing several states and Nunavut, a Canadian territory.

Natural Heritage Co-hosts Longleaf Pine Workshop – 5/5/16

DCR Natural Heritage staff participated in a workshop for landowners and resource professionals titled “The Growing Interest in Longleaf Pine” with the objective of focusing on longleaf pine reforestation at the northern range limit of this species. The workshop was held in Franklin, Virginia at the Paul D. Camp Community College and included an afternoon field trip to DCR’s South Quay Sandhills Natural Area Preserve. The workshop organizers (NC Forest Service, VA Department of Forestry, NC and VA Cooperative Extension) considered the event a huge success, with good representation from both VA and NC, excellent presentations, multiple exhibitors providing informative materials, genuine interest and engagement from attending landowners, and outstanding participation on the field tour. A total of 86 persons attended the workshop. DCR’s Natural Areas Stewardship Manager gave a 30-minute talk on ‘The Importance of Using Prescribed Fire to Achieve Objectives in Longleaf Pine Management’ and the DCR Longleaf Pine Restoration Specialist and Southeast Region Steward led the field tour at South Quay Sandhills. Participants saw longleaf pine reforestation practices implemented in 2015 and the native seed collection area within Virginia’s last remaining natural mature stand of longleaf pine, located on the Preserve.



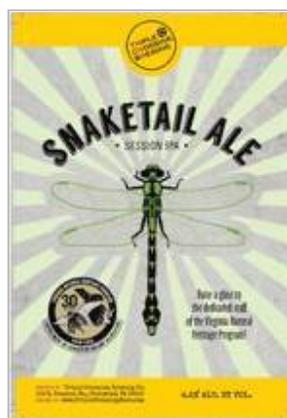
Longleaf pine workshop on May 5, 2016 held at Paul Camp Community College with field trip to South Quay Sandhills NAP.



Workshop field trip included stops at South Quay State Forest and the last natural longleaf pine forest in VA - at SQSNAP.

Natural Heritage Snaketail Ale Release and Preserve Reserve Coffee – 5/7/16

As one of the 30th Anniversary events, the Natural Heritage Program celebrated the release of “Snaketail Ale” at the Triple Crossing Brewery in Richmond. The beer was inspired by the St. Croix Snaketail, a globally rare dragonfly documented in only five places in the world including along the banks of the James River. The celebration was well attended by over 75 friends and family of Natural Heritage staff as well as colleagues from DCR, DEQ, VDGIF, NatureServe and TNC. A Natural Heritage display board was on hand to provide information about the rare dragonfly and the Natural Heritage Program.



This postcard brochure was disseminated to generate public awareness of the Natural Heritage Program, the Snaketail dragonfly, and the event.



Natural Heritage staff educated the public about the program’s mission at this well-attended event.

In addition, Preserve Reserve Coffee, roasted on the eastern shore in honor of the Natural Heritage 30th Anniversary was available for purchase. This unique shade and ethically grown coffee is currently on sale in camp stores throughout Virginia’s State Parks.



Each bag of coffee features this attractive label which references our Natural Area Preserves, and displays our 30th Anniversary logo.

Special thanks to DCR’s Public Communication Office Staff who designed the labels and information cards for both Snaketail Ale and Preserve Reserve.

Field Trip to Wreck Island Natural Area Preserve – 5/9/16

DCR’s Deputy Director for Administration & Finance and staff visited Wreck Island Natural Area Preserve on the Eastern Shore. The Eastern Shore Region Steward led them on a walking tour of the island. Wreck Island NAP is part of the chain of Atlantic Ocean barrier islands that flank the mainland of the Eastern Shore. The preserve is a haven for breeding shorebirds and supports prime examples of maritime natural communities. Among the shorebirds sighted during the visit were Double-crested Cormorant, Dunlin, White Ibis, Glossy Ibis, Tri-colored Heron, Great Egret, American Oystercatcher, Black Skimmer and three species of gulls. The highlight was finding a Brown Pelican nesting colony and the sighting of three Piping Plovers.



DCR Administration staff leave Oyster, VA for the 7-mile trip to Wreck Island Natural Area Preserve on the Eastern Shore.



DCR staff posted bird nesting area signs and discovered that Brown Pelicans had returned to Wreck Island in 2016 to nest.

2nd Annual Bird Blitz – 5/13/16

Natural Heritage Biologists assisted The Nature Conservancy (TNC) with their 2nd annual Virginia Bird Blitz. During this May event, TNC gathers its staff as well as Virginia Natural Heritage biologists and other cooperators for a day of exploration, and partnership building while gathering a list of all the bird species that can be found on lands either owned by The Nature Conservancy, or protected with the help of TNC. Many Natural Area Preserves fall into one of these two categories. There were 54 participants in this year’s events, 12 of which were from DCR’s Natural Heritage Program.

The final day’s count included 182 bird species that were observed from protected lands far and wide including Atlantic barrier islands, pinelands from south of the James River, and mountain forests from Highland to Washington Counties.

During the day, to celebrate the 30th anniversary of the Virginia Natural Heritage Program, birders kept a separate list of the birds found on our Natural Area Preserves. Of the 182 species, 153 were found on at least one Natural Area Preserve. Throughout the day, social media staff from DCR and TNC kept an account of the efforts, tweeting pictures and stories, and providing more information on Facebook. The Bird Blitz was a success from the first bird of the day to the last and the partnership of Virginia Natural Heritage and The Nature Conservancy has never been stronger. Partnerships and events like this are important reminders, to partners and the public, of the importance of preserving lands and managing them for biodiversity conservation.



Red-headed Woodpecker, one of the 178 Bird Blitz species for the day

Go Wild” Celebration at Rappahannock River Valley National Wildlife Refuge – 5/15/16

A Project Review Assistant from Natural Heritage participated in the “Go Wild” celebration at Rappahannock River Valley National Wildlife Refuge near Tappahannock on May 15. Approximately 100 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 also included a display about nearby state Natural Area Preserves. Visitors had an opportunity to hear about the Natural Heritage program and the natural heritage resources documented in the surrounding counties. In addition, stickers celebrating Natural Heritage’s 30th anniversary were handed out to participants.

Northern Neck Chapter of the Virginia Master Naturalists – 5/19/16

The Chesapeake Bay Region Steward instructed 16 members of the 2016 class of the Northern Neck Chapter of the Virginia Master Naturalists in mammalogy, herpetology, and shorelines dynamics in the Chesapeake Bay. The day-long class included a classroom component as well as field trips to nearby Dameron Marsh and Hughlett Point Natural Area Preserves to observe native mammals, reptiles, and amphibians in their natural habitats. The Virginia Master Naturalist Program is a statewide corps of volunteers providing education, outreach, and service dedicated to the beneficial management of natural resources and natural areas within their communities.

Staff Zoologist Makes Guest Appearance on WCVE (88.9 FM) radio program – 5/24/16

A Natural Heritage Staff Zoologist was the invited guest on a recent installment of “What’s Bugging You?”, a weekly program aired on WCVE public radio (88.9 FM, Richmond). He joined producer Steve Clark and entomologist Dr. Art Evans to discuss the geographic distribution and biology of the St. Croix Snaketail, a globally rare dragonfly. First discovered in the late 1980s in the St. Croix River and two smaller rivers in northern Wisconsin, it has since been found only in the James River in Virginia and a short reach of the Potomac River along the Virginia-Maryland border. Such a large gap – 900 miles between Wisconsin and Virginia - in the distribution of a species is unusual.

Virginia Master Naturalist Eastern Shore Chapter at Mutton Hunk Fen NAP 6/1/16

On June 1, The Virginia Master Naturalist Eastern Shore Chapter held their annual picnic at Mutton Hunk Fen Natural Area Preserve. In addition to general camaraderie, members engaged in advanced training activities focused on botany, insects and birds led by the Eastern DCR-DNH Eastern Shore Region Steward and chapter experts.



Master Naturalists Picnic Participants

Natural Heritage Eastern Shore Region Steward Completes VNRLI Course – 6/9/16

The DCR-DNH Eastern Shore Region Steward received a certificate of completion for the Virginia Natural Resources Leadership Institute (VNRLI) leadership course. The 6-session, 120-hour course develops skills in leadership, conflict resolution and group facilitation. Upon completion of the course, participants are designated as VNRLI Fellows. The objective of the VNRLI is to create a network of people who provide leadership for collaborative problem solving around environmental issues, to move beyond conflict, and to find creative solutions.

Gloucester County Second Grade Field Trip – 6/10/16

The Eastern Operations Steward and Law Enforcement Officer for Natural Heritage, traveled to Beaverdam Creek Park in Gloucester to assist with a field trip for approximately 100, second grade students from Gloucester County’s Botetourt Elementary School. Organized by the Virginia Marine Police, the field trip consisted of three stations: a fishing station, wildlife station, and patrol vehicle station. DCR staff worked at the patrol vehicle station, along with officers from other agencies, allowing the children up-close views of law enforcement vehicles and to ask questions of the officers. Having such a diverse showing of law enforcement agencies was interesting for the children since each agency had unique equipment for their respective jobs. DCR-Natural Heritage staff showed wildland firefighting gear, chainsaw equipment and personal protective equipment (PPE). The children learned that in addition to having ‘police officers’, DCR staff also use prescribed fire to manage our Parks and Natural Areas. In total, 6 different law enforcement agencies were represented: VMRC’s Marine Police, DGIF’s Conservation Police, DCR’s Park Police, Virginia State Police, Gloucester County Sheriff’s Office, and the York-Poquoson Sheriff’s Office.

Northeastern Beach Tiger Beetle field Trip – 6/13/16

The Eastern Shore Region Steward, at the request of the Virginia Eastern Shore Landtrust (VESLT), led a field trip focusing on the Northeastern Beach Tiger Beetle, *Cicindela dorsalis dorsalis*. In Virginia, the beetle inhabits the sandy beaches on the eastern and western shores of the Chesapeake Bay. Federally and state-designated as “threatened”, the Eastern Shore of Virginia harbors the largest population in the world. Adult beetles can be seen foraging in the intertidal zone of high energy beaches from mid-June through October. Larvae develop in burrows along the upper high tide line, feeding on small crustaceans brought in by the tide. The larvae take up to 2 years to develop into adults, and are extremely sensitive to human-induced modifications to the shoreline. The VESLT routinely includes Northeastern Beach Tiger Beetle habitat protection language in their conservation easement agreements. Five Natural Area Preserves on the Eastern Shore also protect tiger beetle habitat. The field trip was held at one of the VESLT easement properties. Eighteen people participated.



VESLT on Eastern Shore

Natural Heritage Quarterly Volunteer Event – 6/30/16

Five DCR-Natural Heritage employees volunteered with the James River Association to remove invasive plants in Great Shiplock Park on Chapel Island. Over the course of three hours, the volunteers filled seven large bags with Japanese honeysuckle, privet, Japanese hops, and grapevine.



Natural Heritage's volunteer team

Administration Division Staff Visit Wreck Island Natural Area Preserve – 8/16/16

DCR central office staff braved the summer heat and traveled to Wreck Island Natural Area Preserve to learn about the natural heritage resources protected at this Eastern Shore preserve. Birds, shells, natural communities and barrier island dynamics (natural and cultural) were all explored by this intrepid crew. The seven-mile boat trip and three-mile hike were led by the Natural Heritage Eastern Shore Region and Coastal Operations stewards. Wreck Island is part of the chain of barrier islands flanking the Atlantic coast of Virginia's Eastern Shore peninsula. During the summer months, the preserve is an important breeding ground for a variety of shorebird species including Brown Pelicans, Piping Plovers, Black Skimmers, American Oystercatchers and several heron species. Wreck Island also serves as an important stopover habitat for Red Knots and other migratory shorebirds.



DCR Administration staff visited Wreck Island Natural Area Preserve with Natural Heritage stewards providing transportation and an interpretive tour of the resources protected at this Eastern Shore barrier island preserve.

Community Volunteer Service – 8/22/16

Four DCR Natural Heritage staff participated in a morning of volunteering at Lewis Ginter Botanical Garden. The volunteers helped with garden maintenance activities including weeding and removal of invasive species.



DCR-Natural Heritage Volunteers at Lewis Ginter Botanical Gardens

Presentation to Northern Neck Master Naturalists on Northern Neck Orchids – 9/13/16

DCR's Chesapeake Bay Region Steward gave a presentation at the September Northern Neck Master Naturalists meeting entitled "Northern Neck orchids, with an emphasis on what could be here." Through this presentation, twenty-five Northern Neck Master Naturalists learned not only about the twenty-one species that have been documented from the area, but they were also introduced to twelve additional orchids that could occur in the region but haven't been found yet. Following the presentation, several Northern Neck Master Naturalists expressed interest in immediately going out and looking for some of the Autumn-blooming species discussed.



Florida adder's-mouth orchid (*Malaxis spicata*), a species that reaches its known northern limit just across the Rappahannock River in Middlesex County, but could potentially be found growing on the Northern Neck due to the presence of appropriate calcareous seepage swamp habitat.

Fire Partnership and Longleaf Pine Restoration Presentation – 9/14/16

The Natural Heritage Longleaf Pine Restoration Specialist and the Department of Forestry (DOF) Longleaf Pine and Southern Pine Beetle Prevention Coordinator gave a presentation to the Virginia Prescribed Fire Council at a meeting at Pocahontas State Park. The presentation focused on the historic and current status of longleaf pine ecosystems in Virginia and reported on accomplishments of each agency. There were over 100 participants at this meeting

Natural Heritage at Richmond Kickers Game – 9/14/16

As one of the 30th Anniversary events, the Natural Heritage Program celebrated in the field-level party area at a Richmond Kickers game. It was a night of good food, comradery, and an exciting soccer match. The celebration was well attended by about 30 friends and family of Natural Heritage staff as well as colleagues from DCR and VOF, who all purchased special tickets to reserve the Party Deck. Natural Heritage signs and a staffed display board were used to provide information about the Natural Heritage Program.



The Party Deck--better than front row seats!



Kickeroo paid a visit



Natural Heritage Staff and friends enjoying the game



Natural Heritage Staff educated the public about the program's mission at the game

Films on the Floodwall Event at Diversity Park – 9/14/16

DCR- Natural Heritage was represented at the Films on the Floodwall Event at Diversity Park, part of the JRAC James River Week. A display board provided general information about the Natural Heritage Program, Natural Area Preserves (NAPs), and specific rare species information that focused on the James River. Children were encouraged to interact through paper “fortune tellers” about species habitat, and adults were encouraged to ask questions about the Natural Heritage Program. Native plant brochures, 30th anniversary stickers, and NAP guides were also handed out. Approximately 50 individuals stopped by the booth and ultimately walked away with a better understanding of the Natural Heritage Program.



Kristin Burton – Natural Heritage Intern

Natural Heritage Assists with Wonder of Wetlands Event – 9/17/16

The DCR Natural Heritage Northern Region Steward assisted staff with Stafford County Parks, Recreation and Community Facilities and the Tri-County/City Soil and Water Conservation District to host an event entitled “Wonders of Wetlands.” The event was originally planned to be held at Crow’s Nest Natural Area Preserve but low water conditions in the streams forced the event to be moved to the Stafford County Civil War Park. The focus of the event was to explore how different water quality parameters (e.g. dissolved oxygen, pH) influence the health of a water body and its diversity of macroinvertebrates. Participants had a chance to use nets to capture a diversity of macroinvertebrates within Accokeek Creek, including crayfish, mayfly, caddisfly, stonefly, and dragonfly larvae. Participants were provided with a variety of resources to help identify the different organisms captured. Ten people of varying ages participated in the event.



Participants in the “Wonders of Wetlands” event in Stafford County.

Fire Partnership and Longleaf Pine Restoration Presentation – 9/21/16

The Natural Heritage Longleaf Pine Restoration Specialist gave a presentation at the DOF Eastern Region meeting at the New Kent Forestry Center. The talk gave a ten-year overview of the partnership between DCR and The Nature Conservancy, U.S. Fish and Wildlife Service, Virginia Department of Game and Inland Fisheries and AmeriCorps and focused on what each agency offered the group. The meeting was attended by approximately 40 DOF staff.

Natural Heritage All Staff Meeting on the Eastern Shore-9/26/16-9/28/16

DCR Natural Heritage staff convened for an All Staff meeting, hosted by the Sunset Resort (day meeting space, free of charge) and Kiptopeke State Park (lodging). Over forty staff gathered - full time and wage staff – representing all five sections of the Natural Heritage Program. Monthly AllStaff meetings, and this once-a-year multi-day meeting provide invaluable opportunities for staff from Inventory, Data Management, Stewardship, Environmental Review and Protection sections to come together and share technical knowledge, lessons learned and develop the upcoming years’ Action Plan, which provides the basis for all staff Employee Work Profiles. This meeting, on the Eastern Shore of Virginia, included presentations by Stephen Nash, University of Richmond professor and author of the award-winning *Virginia Climate Fever*; Laura McKay, Director of the Virginia Coastal Zone Management Program; Tom Smith and Rochelle Altholz, Deputy DCR Directors; and over thirty short presentations by Natural Heritage staff. All staff attended optional early morning (as early as 6 AM) and afternoon field trips as well, to several Natural Area Preserves on the shore, getting firsthand accounts of the challenges and successes of managing these Preserves. With thanks to staff prioritizing travel and attendance to this meeting, to the speakers, and for the hospitality of Kiptopeke State Park and Sunset Resort, the meeting was time very well spent to gear up for a successful 2017 at DCR Natural Heritage.



DCR-DNH staff birding at Mutton Hunk Fen NAP



DCR-DNH staff learning about Mutton Hunk Fen from the Eastern Shore Steward

Land Protection

Dedication of 63rd Virginia Natural Area Preserve – 5/6/16

DCR celebrated the establishment of its 63rd Natural Area Preserve from a historic landmark building in downtown Rocky Mount, with views of the adjacent Preserve. Molly Ward, Clyde Cristman, and Bruce Wingo (Chair, Board of Conservation and Recreation) joined interested citizens, staff of Rocky Mount and Franklin County, DCR-Public Communications staff and several staff of the DCR-Natural Heritage Program for an introduction to the Preserve system and its newest addition. The approximately 80-acre property was purchased with funds from the Virginia Land Conservation Foundation and the Land & Water Conservation Fund, administered by the National Park Service. Bald Knob has been a protection priority for many years due to several outstanding natural heritage resources, including the largest known population of Piedmont fameflower (*Phemeranthus piedmontanus*) in the world, the only Virginia population of Keever's bristle-moss (*Orthotrichum keeverae*) and the largest and finest known example of the Piedmont Mafic Barren natural community type.



Emma Parcell represented the Perdue Family at the dedication ceremony. She relayed numerous stories about the property during her family's tenure and showed great enthusiasm that DCR will be "saving" the special natural heritage resources present for future generations.

Natural Heritage Data Management Totals for FY2016:

Activity 04-01-16 – 9-30-16

New Mapped Locations (EOs) 36
Updated Mapped Locations (EOs) 13
New Conservation Sites 15
Updated Conservation Sites 9

Total Number in Database 9-30-16:

Animal Mapped Locations (EOs) 601
Plant Mapped Locations (EOs) 1208
Community Mapped Locations 543
Conservation Sites 559

Managed Areas: (Acres added 04-01-16 – 9-30-16) -3,367.34 Acres
Mapped Tracts: (total in coastal zone) -17 Tracts
Mapped Managed Areas: (total in coastal zone) - 16 Managed Areas

Healthy Waters

April 2016-Sept 2016

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, the assessment of program resources and needs has continued to determine gaps and areas of improvement. 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 NHD 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. The DNH continues to support the Healthy Waters Program by contributing one field biologist for the purpose of being trained in the INSTAR data collection and field identification process. For the upcoming sampling season in October, 2016, two Heritage staff will participate with the VCU field crew. This increased capacity in the program is a critical advancement in the program within the Division of Natural Heritage and permits the collection of data by additional field personnel aside from specific grant related activities. This process provides the Healthy Waters Program the ability to identify and track trends in Healthy Waters. Planning is underway to continue those two staff for field sampling in the Spring, 2017 season.

While VDCR DNH has directed staff to include collecting data relevant to the HWP, the data will be in a raw form still requiring the development of models to interpret such information to make relevant to the Program, as a whole. The development of an INSTAR model is typically done on a basin scale to provide for comparable

results within a defined area. The collection of raw data will permit an additional cataloging of resources to further inform the development of an INSTAR model when resources are present for the specific region or basin.

The Program Manager continued to participate in the Chesapeake Bay Management Strategy development process to coordinate the involvement of VA Departments of Conservation and Recreation, Environmental Quality and Forestry.

Through funding from EPA 319, the Program Manager continued to manage the process by which watersheds and waterbodies are identified as Healthy and how the Program communicates outward. The Watershed Integrity Model, used and developed by the Natural Heritage Division and VCU, has been updated and streamlined to improve the utility and integrate new data from the latest sampling. Considerable effort was put toward the final refinement of the Stream Ecological Health Assessment for the Chowan River Basin, Virginia and North Carolina; Watershed-based Ecological Health Conservation Plan for Raccoon Creek. While not a coastal basin, the outcome of this project will have significant influence on the development and implementation of conservation planning activities specifically related to Healthy Waters. The US EPA provided a final formal approval of the proposed criteria, paving the way for other similar projects in the Commonwealth. The US EPA requested the Program Manager present the findings at the upcoming National Nonpoint Monitoring conference in Boston in November, 2016.

c) DCR – Division of Outdoor Recreation

Virginia Outdoors Plan

The Virginia Department of Conservation and Recreation is working with Virginia's planning district commissions and regional councils to review outdoor recreation and land conservation initiatives related to the [Virginia Outdoors Plan](#). Meetings are being held in each region this fall. Input regarding water trails and public access along with scenic resource information is being gathered at these meetings. The annual meetings provide citizens an opportunity to inform local decision makers.

DCR – *Virginia Outdoors Plan*-Annual Regional Meetings – During the last week in August and the first week in September, five regional *Virginia Outdoors Plan* update meetings were hosted by DCR at [Virginia Planning District Commission offices](#). At each meeting, a video was shown which highlights progress on implementation of the 2013 *Virginia Outdoors Plan* (VOP). These meetings offer opportunities for DCR outdoor recreation planners to learn about recreation and land conservation accomplishments and identify needs for the 2018 VOP.

Following is a brief summary of the regional meetings held to date.

Accomack-Northampton Planning District -- On August 23, twenty attended this meeting held at the Eastern Shore Community College. DCR planners learned about regional interest in integrating health and wellness objectives into regional outdoor planning. A representative from Eastern Shore Healthy Communities brought up the desirability of connecting trails to Eastern Shore towns. Water trails and land trails are a high priority in this region. The importance of Kiptopeke State Park and the National Park Service lands were mentioned.

Northern Neck Planning District -- On August 30, eighteen attended this meeting at the Planning District's office in Warsaw. Discussions centered around the ways outdoor recreation benefits the regional economy. Many of the specific projects mentioned incorporated water trails and water access, including Windmill Point Marina, Bush Mill Stream access and Cat Point Creek launch at Menokin.

Interest was expressed in a Scenic River evaluation for the Rappahannock River in Lancaster and Middlesex Counties.

Northern Virginia Regional Commission -- On September 7, thirty-nine attended the meeting at the Commission's office in Fairfax. NOVA Regional Commission staff used this opportunity to gain input on two new outdoor recreation and tourism initiatives – Familiarity Tours for Fort Belvoir and Prince William and Loudoun Counties and a regional scenic inventory. Many of the featured projects in this region relate to trails with shared opportunities for outdoor recreation and transportation alternatives. [W&OD Trail](#) carrying capacity issues were mentioned. Funds are needed for regional planners to begin work on a regional public water access plan.

Hampton Roads Planning District Commission (Two Meetings) -- A total of thirty interested persons attended the two meetings – the first on September 6 in York County at the Tabb Library, and the second on September 8 in Chesapeake at the Commission's office. Updates provided on the projects listed in the 2013 VOP included the regional greenways and trails network, the Dismal Swamp Canal Connector Trail between Chesapeake and North Carolina, Fort Monroe, and projects along the rivers and creeks including the Elizabeth River and Grays Creek in Surry County. Projects reported completed are Pleasure House Point and the North Landing River Natural Area Preserve, which will open to the public later this fall.

Each meeting concluded with staff thanking attendees for their time and interest in outdoor recreation. Following the meeting, notes will be shared with the planning regions for distribution to all invitees.

5) Department of Game and Inland Fisheries (DGIF)

Fisheries

1. Stream Monitoring, Adult Anadromous Fishes

Weekly boat electrofishing for adult anadromous fish was begun in late February 2016 and continued through early June on the James, Appomattox and Rappahannock rivers in the fall zones and on the tidal Chickahominy River downstream and upstream of Walkers Dam. American Shad catch rates were down compared to recent years, especially on the Rappahannock. The goal of collecting 100 adult American Shad for otolith analysis was almost reached on the James. However, only six American Shad were collected on the Rappahannock and three of them were found approximately five miles upstream of the Embrey Dam removal site. The otoliths of these fish have not yet been examined for origin determination (hatchery vs wild).

Hickory Shad and Blueback Herring catch rates were typical on the James and Rappahannock. Alewife numbers were typically lower on the tidal James compared to the Rappahannock Alewife run. Alewife and Blueback Herring were documented upstream of the Denil fishway at Walkers Dam on the Chickahominy River.

Of special note are the sampling results of the second year of post-removal sampling upstream of the Harvell Dam removal on the Appomattox River. Hickory Shad, Alewife and Blueback Herring were again found upstream of the removal. However, American Shad were again not found upstream of the removal nor were they found downstream throughout the spring.

To continue a monitoring effort initiated in 2015 we conducted backpack electrofishing surveys in two tidal Rappahannock tributaries near Fredericksburg (Claiborne Run and White Oak Run) in 2016. We did not sample Hazel Run (Alewife and Blueback Herring documented in 2015), and we added nearby Little Falls Run,

in 2016. This sampling has three major goals: 1) document the presence or absence of Alewife and/or Blueback Herring spawning runs in these tributaries that had not been sampled for over ten years; 2) generate baseline information on relative run strength and timing of the runs; 3) evaluate a nature-like fishway on Claiborne Run and a pool and weir fishway on White Oak Run. In 2016, water temperature was slow to warm up and flow remained well below normal for spring in all sampled tributaries. Only one Alewife was found in White Oak Run downstream of the pool and weir fishway (none above as in 2015). A few Alewives were found about one mile downstream in Muddy Run (direct trib of Rappahannock). No Alosines were found in Claiborne Run or Little Falls Run. The Alewife and Blueback Herring runs were decent in the mainstem Rappahannock but the low flow condition in the tributaries appeared to inhibit use by the herring. The tidal James tributaries sampled by other DGIF Aquatics staff in 2015 were not sampled in 2016. However, water samples for eDNA analysis were collected in both the Rappahannock and James tributaries as part of a collaborative effort with SERC.

2. Stream Monitoring, Juvenile Anadromous Fishes

Juvenile alosine collections are being done to determine origin (James only), monitor habitat use, and track relative abundance and growth rates. Sampling using a bow-mounted push net was conducted from June into early September on the James (Boshers pool and upper tidal) and on the tidal Rappahannock from June through July. Rappahannock collections were typical for American Shad and herring juveniles. American Shad juveniles were found in the Boshers pool in 2015 but were absent in 2016 samples.

Boat electrofishing for juveniles began in late July and continued through September also resulting in typical collections of target fish from the tidal Rappahannock at Fredericksburg and Port Royal. Shad juveniles were also absent from electrofishing in the Boshers pool on the James. Only one million American Shad fry were stocked at upstream locations in 2016. This may help to explain the reduced opportunity to collect juveniles upstream of Boshers Dam. Electrofishing in the tidal James did result in the collection of American Shad, especially at some of the power plant discharge locations. River herring were also found in tidal James electrofishing samples. Oxytetracycline treatment of fry in the hatchery results in a visible ring in the otoliths (earstones) under black light. Otoliths are extracted from the American Shad juveniles collected in the James and examined under a black light microscope to determine origin. Some of the American Shad juveniles from the tidal James have been processed and a mix of wild and hatchery fish were found. American Shad fry stocking operations have ceased on the Rappahannock so all juveniles collected are known to be of wild origin.

3. Boshers Dam Fishway

In 2015, an estimated 68 American Shad made it through the fishway with an hourly rate of less than 0.1 per hour. Over 90,000 fish of all species (mostly Gizzard Shad) used the fishway in 2015 (all species counts resumed in 2014). The long-term average is now below 200 American Shad passed annually. American Shad counts have been low so far in the review of the 2016 migration season digital video. Estimates for the 2016 season will be available in the near future. It is worth noting that American Shad boat electrofishing catch rates immediately downstream of the dam and eight miles downstream at the tidal/non-tidal interface were relatively low in 2016.

4. Fish Passage Projects

Harvell Dam was removed from the Appomattox River in the summer of 2014. Photo documentation of the site for five years is a requirement of the USACE permit. The first year report was accepted by the USACE permit representative. Photos were taken in May 2016 for the second year report.

For the 2016 migration season, stop logs were installed in the concrete channel portion of the Claiborne Run nature-like fishway in Stafford County to improve flow into the first nature-like pool. The fish passage facility

on this tidal Rappahannock tributary is part of Stafford County's mitigation plan for the construction of Rocky Pen Run Reservoir. The Fish Passage Crew is working with the consulting firm to monitor the site for all fish species to document colonization of the stream restoration structure and passage of migratory species.

The DGIF recently acquired ownership of Monumental Mills Dam on the Hazel River by deed of gift from the private landowner. The DGIF now owns the entire dam, but only the dam, and by deed also has an implied easement to access the dam to maintain and/or remove the structure. Now that the dam is owned by the state, new environmental permits to remove the dam were obtained. VMRC issued a General permit and VDEQ did not require an individual permit. The USACE determined that the project qualifies for Exclusion #1 under the Nationwide 27 permit rules. A demolition permit was also obtained from the VDGS to allow the destruction of a state owned structure. The scope of the project involves completely removing the first 75 feet of the dam on river left down to the natural stream bottom. The next 30' will be tapered off at an angle from the bottom to the top and the final 35' on river right will be left untouched. This will achieve restoring the bank-full capacity of the stream channel based on a nearby reference cross section. As outlined in an historical MOA (Section 106), pre-removal photo-documentation of the dam and preparation of a site plan was conducted by the USFWS's historical contractor in September. The MOA also now has an addendum, signed by all parties, that clarifies that the dam is now owned by DGIF. The plan is to start demolition work in October.

Chandlers Dam, a DGIF operated fishing lake dam near Montross failed in 2015. A Denil fishway was constructed in 1995 when the dam was reconstructed following a failure. The 2015 failure occurred at the junction of the principal spillway and fishway. After reviewing the PER prepared by a consulting firm, DGIF decided to construct a pool and weir fishway with nature-like features. American Eel reach Chandlers but are impeded by the dam and have now been identified as the primary target species for passage. Downstream beaver activity is likely the limiting factor for herring migration upstream to this dam.

5. American Shad Egg Collection from Pamunkey River

The VDGIF conducted American shad egg taking efforts in the spring of 2016. This marked the twenty-third season for such operations on the Pamunkey River and the twenty-fifth season overall since American shad restoration efforts began in 1992. Eggs collected from this river were used to stock the James River for restoration purposes. For the eighth consecutive year, the egg collection operation on the Pamunkey (river kilometer 91; PRK91) was contracted to a private consulting firm; this firm conducted drift gill netting efforts on 20 nights. Strip-spawned eggs were sent to the Harrison Lake National Fish Hatchery (HLNFH). Hatchery-raised fish were marked with oxytetracycline (OTC). HLNFH stocked a total of 1.01 million OTC tagged shad fry in the upper main stem of the James River at Scottsville (JRK 300).

6. Stream Fish Community and Recreational Fisheries Stream/River Sampling Summary

During this reporting period, using boat electrofishing techniques primarily, VDGIF conducted survey work, on sections of a multitude of streams that drain into the geographic area covered by the CZMP. Extensive sampling of stream fish communities occurred in the James, Rappahannock, Shenandoah, and York drainages. Relative abundance indices were generally obtained for all species surveyed, for recreationally important species additional parameters were examined, including analyses of age structure and growth rates based on examination of otoliths.

A report detailing results of this work, and work conducted throughout 2016, is being prepared under Sportfish Restoration Grant F-111-R.

7. Tidal River Catfish Monitoring and Population Trend Detection

In 2016, VDGIF Fisheries biologists sampled catfish four rivers: 1. James River below Richmond (Henrico County/Chesterfield County) downstream to near Chickahominy River confluence (James City County/Surry County), 2. Rappahannock River from below Fredericksburg, (Caroline County/King George County) downstream to Carters Wharf (Westmoreland County), 3. Pamunkey River within King William County/New Kent County boundaries, and the Mattaponi River from Walkerton downstream to Melrose Landing (King & Queen County/King William County).

These surveys occurred as part of an ongoing effort to monitor the catfish assemblage in Virginia tidal systems – tributaries of Chesapeake Bay – that began in the mid-1990's; a primary focus on the introduced blue catfish populations which occur in these systems. Blue catfish populations all Virginia tidal systems (Rappahannock, York, James) where blue catfish have been established for several decades are experiencing declines in individual growth associated with increasing density (fish per area). These shifts in growth combined with ongoing changes in various other population parameters for blue catfish make it difficult to determine what the eventual impacts of this introduced species will be on other resources and species of concern in these tidal systems.

Reports detailing results of this work are being prepared under Sportfish Restoration Grant F-111-R.

8. Tidal River Blue Catfish Diet and Modeling Research Project

Given the variability observed in blue catfish food habits in Virginia tidal rivers, DGIF has contracted with researchers at Virginia Tech to conduct a multi-year, multi-river, multi-habitat, multi-seasonal assessment of blue catfish food habits. At the conclusion of the multiyear fieldwork component of the study the researchers have been asked to assess blue catfish diet, and model impacts on other species at the population level.

The goal of this project is to develop the data required to inform discussions and assessments of potential impacts of blue catfish on other species in the Chesapeake Bay watershed. Data that are currently lacking – we lack the understanding to make informed statements of impact in most cases.

Reports detailing results of this work are being prepared under Sportfish Restoration Grant F-111-R.

9. Tidal River Blue Catfish Movement Study

Evaluating movement patterns of Blue Catfish specific to tidal rivers will help managers and researchers understand home range size, seasonality of movements, and environmental variables that may cue fish to move. Our objective is to tag and track Blue Catfish in the Pamunkey and Rappahannock rivers in order to evaluate movement patterns. To track acoustic tagged fish we are using a combination of active and passive tracking techniques. We supplemented existing stationary receiver arrays with additional strategically placed VR2W receivers. The receiver arrays provided continuous detection throughout the time period. Active tracking was conducted each month with a VR100 mobile receiver.

Reports detailing results will be prepared under Sportfish Restoration Grant F-111-R.

10. Chickahominy River Largemouth Bass Stocking Project

In June 2016, VDGIF biologists stocked 114,000 fingerling two-inch largemouth bass into mainstem and tributaries of the Chickahominy River. Stockings targeted at locations with ample habitat (woody debris/vegetation). Previous stocking evaluations showed high contribution of stocked fish existing in the

fishery following stocking, and the project likely improved angling. Sampling will occur in fall 2016 to evaluate success of recent stockings.

Reports detailing results of this work are being prepared under Sportfish Restoration Grant F-111-R.

*11. Assessment of Critical Habitats for Recovering the Chesapeake Bay
Atlantic Sturgeon Distinct Population Segment*

In 2016, VDGIF biologists conducted periodic maintenance of the James River Atlantic sturgeon receiver array, conducting receiver maintenance and data download and maintenance for 26–28 receiver stations distributed in the tidal river from Richmond (Henrico County/Chesterfield County) downstream to Newport News (Newport News/Isle of Wight Count). Receiver deployment is intended to be part of an ongoing effort to track Atlantic sturgeon movements within the tidal James River system. VDGIF conducts this maintenance in cooperation with NOAA, U.S. Fish and Wildlife Service, Virginia Commonwealth University, and Virginia Institute of Marine Science.

Reports detailing results of this work are being prepared under Section 6 grant from NOAA.

12. James and Chickahominy River Angler Survey

In August 2015, the Virginia Department of Game & Inland Fisheries began a yearlong angler survey on the James and Chickahominy Rivers. The survey used completed trip, access point interviews to collect angler information on effort, catch, harvest, socio-economic and angler attitudes on both the tidal James and tidal Chickahominy Rivers. Department employees conducted interviews from 10 access points 12 days a month. In addition to the interviews, the Department used counts to estimate boating pressure on the tidal James and Chickahominy plus six tributaries through aerial flights 8 days each month. The survey and aerial counts concluded July 31, 2016. Over 600 interviews on the Chickahominy River and 1,000 interviews on the James River were conducted over the 12-month survey period. Over 80 flights were completed during the survey.

Final results will be reported in the 2017 Sportfish Restoration Grant F-111-R.

Migratory Game Birds:

1. Breeding Waterfowl Survey

Virginia participates in an Atlantic Flyway breeding waterfowl survey in the spring of each year. Breeding data collected in Virginia is combined with traditional breeding survey data from the northern breeding regions to allow the Atlantic Flyway to more effectively manage its waterfowl populations. The survey results are being used to develop Adaptive Harvest Management models specific to the Atlantic flyway.

In Virginia, 165 plots (each 1km x 1km) were surveyed in April/May 2016 to assess the numbers of local-breeding waterfowl. The mallard pair estimated (21,140) increased 12% (18,618). Black duck pair estimates (292) decreased 82% from last year (1,861). Wood duck pair estimates (18,399) decreased 24% from last year's estimate (24,081). The breeding pair estimate for Canada geese (41,871) increased 4% from 2016 (40,199).

2. Pre-Season Waterfowl Banding

VDGIF conducted pre-season waterfowl banding efforts during August and September of 2016, prior to the fall and winter waterfowl hunting seasons. Birds were captured by “night-lighting” from an airboat in four locations in Virginia’s Coastal Zone. In 2016, there were a total of 285 ducks banded or recaptured, including 260 wood ducks, 19 mallards, 2 green-winged teal and 4 blue-winged teal. This banding data provides important information used to manage populations, establish hunting seasons and evaluate other management

programs. Specific objectives of pre-season waterfowl banding is to determine: 1) distribution of harvest from breeding and wintering areas, 2) changes in harvest pressure as measured by recovery and harvest rates, 3) annual and long-term survival rates of specific populations. The focal species in Virginia pre-season banding efforts are wood ducks that breed locally throughout the state.

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.

Nongame Species Monitoring and Research:

1. Nongame Birds

Bald Eagles

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.

The extremely high abundance of non-breeding eagles and the high density of breeding pairs in the coastal plain of VA correlate with an increase in the number of eagles struck by aircraft in the commonwealth over time (4 collisions with aircraft in 2010, 2 in 2011, greater than 6 in 2014, and several in 2015). Due to the large size of Bald Eagles, they are ranked as an extremely high air-strike hazard to civilian and military aircraft (Dolbeer and Wright 2009).

The first goal of this project is to acquire information that will enable wildlife managers the ability to make sound and scientifically based decisions to abate air-strikes with Bald Eagles. The primary way this project will acquire these vital data is to model risk to aircraft from bird strike using highly detailed data on how Bald Eagles fly and use airspace. To date, DGIF biologists have telemetered approximately 60 Bald Eagles of every age class. Out of 105 transmitters purchased (by DGIF and DOD), 60 have been deployed and we plan to deploy the remaining 45 transmitters within the next year. Telemetry data and home range output will be used as the foundation for statistical and probabilistic models that identify risk to birds from aircraft and wind turbines. Key data are landform (habitat and Ecological Land Unit (ELU) datasets), weather data (such as NCEP reanalysis weather datasets) and data on aircraft flight patterns and existing proposed wind turbine locations. This modeling exercise will initiate once we have approximately two years of telemetry data as the foundation for our modeling.

Peregrine Falcons

Peregrine falcons formerly bred throughout the Appalachian Mountains of the eastern US, but were extirpated as breeders throughout this region by the early 1960s. Nationally-coordinated recovery efforts starting in the 1970s were successful in establishing a breeding population in VA's Coastal Plain and less successful in returning the species to its former range in the VA mountains. Current conservation efforts in VA are focused on both populations. Coastal Plain peregrine monitoring and management is executed through a partnership

with the Center for Conservation Biology at the College of William and Mary & VA Commonwealth University (CCB), as well as a number of stakeholders.

The total VA peregrine population consisted of 31 pairs (B. Watts, personal communication), including a coastal population of 28 pairs, a breeding pair in the northern Piedmont and two pairs in the mountains. DGIF monitors and manages a nest site on a hi-rise in downtown where a pair has bred since 2003 (included in the coastal total; see <http://blog.wildlife.virginia.gov/falcon-cam/> for breeding season blog).

Re-establishment of the cliff-nesting peregrine population in the western part of the state includes annual hacking of chicks from the VA Coastal Plain. Chicks are obtained from nest sites where productivity is low because of high mortality during fledging events and are hacked at Shenandoah National Park (SNP). 6 males and 2 females from 3 VA bridge sites (James River Bridge, Downing Bridge and Berkley Bridge) were hacked at SNP in 2016 (R. Gubler, personal communication). An additional grounded female chick that fell from its nest box at Possum Point Substation was hacked at SNP. DGIF provided planning assistance, transport coordination, and frozen quail for the hacking effort in 2016.

Red-cockaded Woodpeckers

The Piney Grove Preserve in Sussex County is owned by TNC and represents the only known red-cockaded woodpecker site in VA and the northernmost population of the species across its range. Management and monitoring of this population is conducted annually by the 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. (2016) report the following. A total of 92 red-cockaded woodpeckers were identified in 2015, including 66 adults and 26 nestlings, of which 21 fledged. During the breeding season, there was an all-time high of 60 birds distributed among 13 breeding clusters. Surveys in the early winter identified a record 68 birds roosting in 14 cluster areas, including 62 adults and 16 of the 21 birds that fledged in 2015.

In 2010, DGIF acquired Big Woods WMA, a property abutting Piney Grove Preserve. The WMA is actively managed to create and maintain open pine savanna to provide supporting habitat for the Piney Grove woodpecker population and/or for expansion of that population, as well as a host of other species including Northern Bobwhite. Habitat management actions on the property during the performance period are described elsewhere in this document.

In FY16, DGIF participated in translocation efforts of red-cockaded woodpeckers in the Great Dismal Swamp NWR along with the USFWS, The Nature Conservancy and CCB. 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 the one current known site, which is vulnerable to potential stochastic events. Four pairs of woodpeckers were translocated from donor populations (Carolina Sandhills NWR, Palmetto Peartree Preserve) in late October 2015. A follow-up survey by CCB in December 2015 confirmed that 6 of 8 translocated birds were still present (2 males, 4 females). One of these birds was from Palmetto Peartree Preserve and the 5 others were from Carolina Sandhills NWR. Five birds were confirmed during the breeding season, including two pairs, which failed to produce eggs.

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 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 302 live birds in eastern North America, about 80% of those in Virginia. This included 13 American crows (11 in VA), 53 bald eagles (51 in VA), 2 barred owls (2 in VA), 10 black vultures (10 in VA), 13 clapper rails (13 in VA), 1 common raven (1 in VA), 59 golden eagles (18 in VA), 5 great horned owls (5 in VA), 92 osprey (92 in VA), 2 peregrine falcons (2 in VA), 3 red-shouldered hawks (2 in VA), 10 red-tailed hawks (8 in VA), and 39 turkey vultures (27 in VA). In Virginia, we were unable to detect lead in 113 birds. Every other bird (132 of them) had evidence of exposure to lead. Of the 132 birds we sampled from Virginia, 2 were above 60ug/dL (toxic level), 1 above 40ug/dL (elevated level), and the remaining 129 were below 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. We have also recently developed multivariate approaches to analysis of lead isotope data that will provide further insight into sources of lead.

3. *Land Birds*

2ND Virginia Breeding Bird Atlas

DGIF partnered with the VA Society of Ornithology (VSO) for a second VA Breeding Bird Atlas (VABBA2), which was officially launched during FY16. 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 in order to a) generate species-specific density maps to guide on-the-ground conservation and management actions; b) generating credible species population estimates; and 3) enabling comparisons to future data so as to assess changes in population numbers, effectiveness of management and conservation actions and progress in achieving conservation goals; 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.

In FY16, an Atlas Coordinator was hired through the Conservation Management Institute at Virginia Tech; Regional Coordinators were identified to aid with recruitment of Atlas volunteers; DGIF partnered with the Cornell Lab of Ornithology to use eBird as the official VABBA2 data entry portal; a steering committee and various technical teams were formed in order to guide, plan for and implement the Atlas; a VABBA2 website was launched (www.vabba2.org) that includes an Atlas Block sign-up tool; an Atlas Facebook page was created; extensive volunteer recruitment and training took place via social media, in-person presentations and workshops coordinated/implemented by the Atlas Coordinator; the Atlas was officially kicked off in April 2016. As of the end of the performance period, ~8,700 eBird checklists have been submitted by volunteer Atlasers. These included data for 1/3 of designated Atlas priority blocks and ~28% of overall blocks. As of the end of FY16, planning is underway for expanded volunteer recruitment for next year's field season; for the creation of a stand-alone priority species database; and for design of the point count component of the VABBA2, to be implemented in years 2-5 of the project.

4. *Waterbirds and Shore Birds*

Piping Plovers and Wilson's Plovers

2016 Virginia Plover Survey: The 31th Annual Virginia Plover Survey (VPS) was conducted from June 1 - June 9, 2016 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.

A total of 218 Piping Plover breeding pairs and 19 unpaired single adults (lone adults that did not appear to be defending a territory, mate, nest or brood) were observed during the 2016 survey. This year's survey pair total was slightly above last year's total of 214 pairs. Breeding distribution did not change in 2016; all pairs were confined to the barrier islands (Assateague Island to Fisherman Island) with the majority of birds occurring on the northern half of the island chain (Assateague Island to Cedar Island). The preliminary 2016 end-of-season Piping Plover breeding pair total which includes additional pairs discovered during productivity studies after the breeding survey was 291, which is 14% above last year's end-of-season total and represents the highest breeding pair estimate recorded in Virginia. The large discrepancy between the survey and end-of-season totals was due in large part to the cool, wet spring that delayed the onset of the piping plover breeding.

A total of 29 Wilson's Plover breeding pairs and zero single adults were recorded during the 2016 VPS. The end-of-season total of 40 pairs (Table 2) reflects an 18% increase over last year's total of 34 pairs. The large discrepancy between the survey and end-of-season totals was also due in large part to the cool, wet spring that delayed the onset of the Wilson's plover breeding. Wilson's Plover breeding activity was confined to four northern barrier islands. Prior to 2006, up to 25% of the state's breeding population was reported on the southern islands (Parramore Island - Fisherman Island; VDGIF unpubl. data). It is not clear why Wilson's Plovers have remained absent from the southern islands since then.

Plover Breeding Productivity: Staff from The Nature Conservancy's Virginia Coast Reserve (VCR), Chincoteague National Wildlife Refuge, Wallops Flight Facility, Fisherman Island NWR and VDGIF monitored the breeding success of 99% of Virginia's Piping Plover breeding population in 2016. This year's statewide productivity estimate was 0.92 fledged young per pair, just 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) and the lowest estimate since 2008. This year's preliminary site specific productivity estimates are presented in Table 3.

VDGIF staff monitored the breeding success of 93% of Virginia's 2016 Wilson's Plover breeding population. A total of 35 young fledged among the 37 pairs monitored which yielded a productivity estimate of 0.95 fledged young per pair. This year's productivity estimate is the lowest since DGIF began monitoring the species reproductive success in 2004 and it is the first time the estimate fell below 1.00 fledged young per pair.

2016 International Winter Piping Plover Census: VDGIF coordinated and participated in the 2016 International winter piping plover census in late January through early February. These censuses are conducted every five years throughout the piping plover wintering range. Virginia is the very northern edge of the range and has only participated in three surveys (2006, 2011 and 2016). Census participants surveyed all the same sites covered during the annual breeding plover surveys. Despite this extensive geographic coverage, we only encountered one piping plover during all three census years.

2016 Annual Atlantic Coast Least Tern Survey

In 2016, VDGIF staff coordinated the 11th annual Atlantic coast least tern (*Sterna antillarum*) breeding survey in Virginia, an effort which began in 2006. 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 2016, we counted 969 least tern breeding pairs at 44 colonies. This represents a 74% increase over last year's total and is the highest pair estimate documented during this eleven year period. The majority (76%) of breeding pairs occurred on Virginia's barrier islands, 12% on a rooftop at Lynnhaven Mall in Virginia Beach, 9% at Craney Island Dredge Material Management Area in Portsmouth and 3% on the western shore of the Chesapeake Bay.

American Oystercatcher Productivity Studies in the Seaside Marshes

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. This year DGIF staff 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. We monitored a total of 29 pairs and 46 nesting attempts, which produced a total of 13 young (0.45 fledge young/pair). We banded 11 of the 13 fledged young as part of an on-going mark-recapture study in Virginia.

American Oystercatcher Multi-state Repeated Breeding Surveys

Since 2010, VDGIF has been working with the American Oystercatcher Working Group to develop a statistically sound oystercatcher breeding survey design in preparation for a future rangewide survey. In 2013, Virginia and North Carolina participated in pilot study that involved conducted a minimum of three repeated surveys at non-randomly selected sampling plots, a portion of which served as validation sites where the

number of breeding pairs was known through intensive productivity monitoring. This effort yielded the following information:

1. The maximum number counted across all surveys was always substantially lower than the estimated abundance derived from N-mixture models, indicating that the detection probability was less than 1.0.
2. Detection probability was highest during late-May to early-June which translated to the middle of the nesting season.
3. Detection probability was highest during high tide, although the differences between tide stages were not always significant.
4. The approximate metrics (territories and pairs) estimated from repeated surveys do reflect the actual number of breeding pairs.

Although the 2013 study was a huge step forward in developing a rangewide design, there were still some sampling issues that needed to be addressed. These included determining which proxy metric or set of proxy metrics serves as the most accurate measure of breeding pairs, developing a methodology to obtain breeding pair estimates that will work across all habitat types within the range, accounting for spatial bias by surveying in areas with low, medium and high probability of detecting oystercatchers and accounting for potential differences detectability rates among all habitat types (marshes, beaches, rooftops, etc.).

It is for these reasons a second pilot study was initiated in 2015 that involved more states and continued into 2016. VDGIF took the lead on convening conference calls with participating states to further refine survey protocols and develop a more comprehensive list of proxy metrics in 2015 and again in 2016. In 2016, Virginia conducted three repeated surveys at five sampling plots that have had little to no prior monitoring effort and supported low densities of breeding pairs. They included two human-made islands that support bridges and tunnels, two sites in the seaside marshes and one site at Newpoint Comfort. Results from the 2015 multi-state study are still in the early stages of analyses and therefore will be presented in the next performance report and results from the 2016 effort are still being proofed and tabulated. In 2015, a total of 32 sampling plots across six states were sampled a minimum of three times. Thirteen of the sampling plots were validation plots with known number of breeding pairs. At only six of these plots, the range of counts derived from the repeated surveys encompassed the known number of pairs (Tables 4). These results highlight the need for establishing detection probabilities and sampling bias across all oystercatcher breeding habitat types before engaging in a range wide breeding survey.

King Rail and Clapper Rail:

The king rail, a priority species in the Virginia Wildlife Action Plan, is primarily associated with freshwater marshes. The lower-ranked clapper rail is associated with coastal saline marshes and is more abundant than the king rail in Virginia. Due to the secretive nature of these species during the breeding season, they are most effectively documented via their responses to call-broadcast surveys. However, the vocal characteristics of the two species overlap broadly, such that it is difficult to distinguish between them with reliability and consistency. In fact, identification to species is most often surmised based on characteristics of the surrounding habitat. This problem is further complicated because the two species can hybridize in areas of co-occurrence, further adding to the potential for misidentification. Within Virginia, the two species are thought to be abundant, sympatric and potentially hybridizing on the Mattaponi and Pamunkey Rivers in an area of intermediate salinity. Addressing conservation efforts toward the higher-priority king rail in this geographic area requires reliable information on its status, distribution, abundance and habitat use. This in turn requires a methodology to

reliably identify the species in the field or through post-field analysis of the data collected. This is being addressed through a three-year contract with West Virginia University (WVU) with participation by DGIF. This project draws on links between acoustic monitoring, genetics, morphology and ecology.

2014 was a pilot year during which various rail trapping techniques were tested. Unfortunately none were successful, with the exception of dip net captures via airboat, which for various reasons were deemed not appropriate for use during the rail breeding season. Work in 2015 focused on marshes along the Pamunkey River, and included lethal collection of rails (as a substitute for live captures), deployment of autonomous recording units (ARUs) in target marshes, playback surveys targeting the two rail species, and vegetation sampling. The third and final year of field data collection took place in 2016 in the marshes along the Mattaponi River and duplicated the protocols used in 2015.

Preliminary analyses of ARU data demonstrate that rail detection probability is relatively consistent throughout the day, regardless of rail density. This suggests that rail surveys need not be limited to the early morning hours as has traditionally been done. Salinity was found to be the strongest predictor of rail occupancy, with greater probability of occupancy at higher salinities in this brackish to freshwater marsh system.

As part of the scope of this project, mitochondrial and nuclear DNA analyses have been conducted on rail samples collected on the Pamunkey River (via airboat captures in late 2013 and lethal collection in 2015), as well as on hunter-harvested clapper rail samples ranging from NJ, RI, VA, NC, SC and GA. Both analyses pointed to a single genetic group along the East Coast, with most individuals sharing the same DNA. Interestingly, the VA sample, although genetically identified as clapper rail, showed a 4% introgression rate of king rail DNA, which is evidence of hybridization between the two species.

5. *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 9th year of production and 10th year of operation at the VA Fisheries and Aquatic Wildlife Center (VFAWC). Propagation started in March and ended in mid-August resulting in the production of nearly 1.1 million juvenile mussels from six species, which was well over our target number of 312,000 juveniles. VFAWC continued propagation with the federal and state endangered James spinymussel (*Pleurobema collina*, JSM) and increased propagation with the state threatened green floater (*Lasmigona subviridis*). We again expanded our propagation coverage from the Nottoway River watershed to include the Dan and Appomattox Rivers for green floater. We continued to release propagated mussels from our 2014 and 2015 stocks, with over 27,000 tagged mussels of five species released in the lower Nottoway River, near Franklin and Meherrin River in Emporia. Additional mussels will be released in October and November 2016 with any remaining mussels released in 2017. Juvenile mussels from our 2016 stock will start to be released in 2017. All mussels were or will be tagged for future monitoring of survival and reproduction.

6. *Eastern Shore Bat Acoustic Survey*

Five acoustic stations have been established on the Eastern Shore to document passage rates and species assemblages during the active season, March through November. Anabat detectors are placed on existing towers or lighthouses at Cedar, Hog, Chincoteague, and Smith Islands and on the South Rappahannock Light Tower off Silver Beach. The objectives of this project are to 1) gather baseline data on bat passage rates in

relation to climatic variables, and 2) determine species assemblages and potential changes through the active season. Data are currently being recorded and no analysis of data has been completed.

7. *Chicken Turtle Surveys and Monitoring*

The Chicken Turtle (*Deirochelys reticularia*) reaches the northern limits of its range in southeastern Virginia. It is listed as State Endangered and historically has only been documented to occur at two locations in the Commonwealth; Virginia Beach (First Landing State Park) and Isle of Wight County (Cat Ponds). After several years of surveys at the Virginia Beach location, only one old female has been captured. This population is now considered to be biologically extinct. In contrast, the Isle of Wight County population appears to be stable. Over a 5 years period we have captured and marked 28 individual turtles, including several subadults and two hatchlings. In 2016, we trapped from August 22 to September 1 in an effort to capture gravid females. Unlike most other turtles, female Chicken Turtles deposit eggs in the fall. The eggs enter a diapause stage during winter and then begin to develop the following spring. Survey efforts during this period resulted in the capture of nine individual Chicken Turtles (four new turtles and five recaptures). None of the females were gravid. The lack of rainfall during this period most likely had some influence on the low capture success.

SECTION B.3 FEDERAL CONSISTENCY

During the period of April 1, 2016 and September 30, 2016, the Office of Environmental Impact Review/Federal Consistency (OEIR) reviewed 77 development projects and management plans for consistency with the Virginia Coastal Zone Management Program (VCP). This represents 46% of the total amount of projects reviewed (169) during this period. Major state projects accounted for 68 projects, five were State Corporation Commission reviews, 19 were National Environmental Policy Act (NEPA) documents without a federal consistency component, 42 were federal actions, and 35 were federally funded projects. The 42 federal actions included 26 federal agency activities, 16 federal licenses and approvals, and zero outer continental shelf projects. The 26 federal agency activities included four 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 and one U. S. Department of Agriculture project. 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 that 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 4-1-16 to 9-30-16.

TYPE OF FEDERAL PROJECTS REVIEWED*	NUMBER OF PROJECTS COMPLETED	REVIEW PERIOD
*Direct Federal Actions	26	30-60 Days
** Federal Activities (approvals & permits)	16	90 Days
***Federally Funded Projects	35	30 Days
Outer Continental Shelf	0	45-60 Days
TOTAL	77	30-90 DAYS

*Includes 4 FCDs reviewed under the residual category of Subpart C of the Regulations. (eg. HUD Mortgage Insurances and USDA assistance projects).

**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. Nationwide and regional general permits are certified every five years or as requested by the Norfolk District 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 4/1/16 to 9/30/16

I. Federal Agency Projects

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

AFETA Camp Peary Porto Bello Boathouse Improvements (Building 4306) –

The Armed Forces Experimental Training Activity (AFETA) Camp Peary is proposing the modification of an existing boathouse along Queen Creek to accommodate a larger boat for security. The project proposes the following:

- removal of two existing 40-foot by 12-inch diameter piles and installation of two new 45-foot by 12-inch diameter piles at 12 feet 8-5/8 inches above the fixed pier in the location of the removed piles;
- removal of one existing 30-foot by 8-inch diameter pile and the installation of one new 40-foot by 12-inch diameter pile at 10 feet above the fixed pier in the location of the removed piles; and
- extension of the existing boathouse shelter to the end of the existing finger pier, to include the outer walls and roof, and door openings in each outer wall to provide for access.

According to the FCD, the proposed construction will match the existing structure.

Installation of the new piles in the location of the exiting piles will have minimal disturbance to the bottom of Queen Creek. Impacts will be kept to the minimum for removal of the three existing piles and installation of the three new piles in the same locations. According to the FCD, the project is consistent with the enforceable policies of the Virginia Coastal Zone

Management (CZM) Program. DEQ concurred that the proposal is consistent with the Virginia CZM Program provided all applicable permits and approvals are obtained.

Atlantic Herring Specifications for 2016-2018 -

The National Marine Fisheries Service (NMFS) intends to implement the Atlantic Herring Specifications for 2016-2018 based on the New England Fishery Management Council's recommended harvest specifications and river herring and shad catch caps for the 2016-2018 Atlantic herring fishery. The herring specifications include the following:

- Overfishing Limit (OFL);
- Acceptable Biological Catch (ABC);
- A Stock-wide Annual Catch Limit (ACL) = U.S. Optimum Yield (OY);
- Domestic Annual Harvest (DAH);
- Domestic Annual Processing (DAP);
- U.S. At-Sea Processing (USAF);
- Border Transfer (BT, U.S.-caught herring transferred to Canadian vessels for export);
- Management Area sub-ACLs;
- Research Set-Asides (RSA); and a
- Fixed Gear Set-Aside (FGSA).

Pursuant to provisions of 15 CFR 930 et seq. and section 307 of the Coastal Zone Management Act of 1972, as amended, the NMFS has determined that the 2016-2018 Atlantic Herring Specifications are consistent, to the maximum extent practicable, with the enforceable policies of the Virginia Coastal Zone Management (CZM) Program. DEQ concurred that the proposal is consistent with the Virginia CZM Program provided all applicable permits and approvals are obtained.

DLA Disposition Services Relocation and Expansion –

The U.S. Defense Logistics Agency (DLA) is proposing to improve the efficiency of DLA Disposition Services operations in the eastern United States. DLA aims to alleviate the stressors experienced at DLA Disposition Services at Norfolk, Bragg, Meade, and Susquehanna; enable DLA Disposition Services at Richmond to become a full-service operation (i.e., receipt, storage, distribution, and sale of excess military equipment; documentation of hazardous materials management; demilitarization; and scrap operations); and facilitate DLA Disposition Services at Richmond to function as an operational test bed for research, development, testing, and evaluation of standardized disposal practices.

Construction activities at the DLA facility in Chesterfield County include the following:

- Flattening soil berms to accommodate a 22.6-acre outdoor storage area;
- Constructing a 60,000-square foot concrete pad with fencing and lights for the containerized scrap yard and demilitarization area west of the existing soil berm;
- Building a 20,000-square foot truck scale facility with lights and radiation detection monitoring at the corner of Road A and East 2nd Street;
- Renovating 180,000-square foot of Warehouse 60; and
- Conducting re-vegetation and vegetative screening as needed.

According to the FCD submitted to DEQ, subaqueous lands and wetlands would not be affected and DLA plans to implement appropriate erosion and sediment controls as well as stormwater management methods. According to the FCD, the project is consistent with the enforceable policies of the Virginia Coastal Zone Management (CZM) Program to the maximum extent practicable. DEQ concurred that the proposal is consistent with the Virginia CZM Program provided all applicable permits and approvals are obtained.

Laser Integration and Diagnostic Facility at the Naval Support Facility Dahlgren -

The U.S. Department of the Navy's Naval Support Activity, South Potomac proposes to construct the Laser Integration and Diagnostic Facility at Naval Support Facility Dahlgren in King George County. The facility would include the construction of a 2,400-square foot addition to Building 213, a 1,300-square foot addition to Building 297, and a 22-foot wide by 1,200-linear foot, paved access roadway from the rear of Building 213 to a new 1,600-square foot reinforced concrete test pad located near Upper Machodoc Creek. The proposed site is currently part of the machine gun range that is a mowed field with a wetland swale.

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. DEQ concurred that the proposal is consistent with the Virginia CZM Program provided all applicable permits and approvals are obtained.

Expansion & Improvements of the Quantico National Cemetery –

The U.S. Army Corps of Engineers (Corps), on behalf of the U.S. Department of Veterans Affairs (VA), submitted a FCD for improvements to the Quantico National Cemetery in Prince William County. The purpose of the proposed project is to construct and expand operations on an additional seven acres to provide for five more years of burial expansion for all burial options (casket, columbarium, and in-ground cremation burial) and all supporting infrastructure including parking areas, sidewalks, grave and section markers, irrigation, landscaping, visitor amenities, signage, masonry, site furnishings, and stormwater management features. The proposed action also includes conducting renovations to the Old Administration Building and expanding an adjacent parking lot. Renovations will include electrical, water, sanitary sewer, and data upgrades. According to the FCD, the project is consistent with the enforceable policies of the Virginia Coastal Zone Management (CZM) Program. DEQ concurred that the proposal is consistent with 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).

The Trail Dwelling Replacement (Bay Aging) –

The U.S. Department of Housing and Urban Development proposes to provide HOME grant funding to Bay Aging via the Virginia Department of Housing and Community Development to support the replacement of a dwelling located at 13821 The Trail in King and Queen County, Virginia. The project includes the demolition of the existing sub-standard structure and replacement with a new 2-bedroom home and installation of an alternative septic system and artesian well. The applicant has submitted a Federal Consistency Determination that finds the proposed action consistent, to the maximum extent practicable, with the enforceable policies of the Virginia Coastal Zone Management (CZM) Program. DEQ concurred that the proposal is consistent with the Virginia CZM Program provided all applicable permits and approvals are obtained.

First and Jackson Property –

The U.S. Department of Housing and Urban Development (HUD) proposes to provide rental assistance under HUD the Rental Assistance Demonstration program to the Community Preservation and Development Corporation (CPDC or applicant) for the proposed adaptive reuse of the former convent located at 105 East Duval Street in the

City of Richmond. The RAD program was created to give public housing authorities a tool to preserve and improve public housing properties and address the national backlog of deferred maintenance. The site currently consists of 15 contiguous parcels totaling approximately 2.479 acres. The site includes a vacant convent building which will be renovated for senior housing and the remainder of the site will be developed with new apartment buildings, retail space, and a parking garage. Land disturbance is estimated to be approximately 2.3 acres. New structures to be built on the majority of the site include 110 multi-family housing units, 72 senior housing units, a 6,100 squarefoot retail space, a 138 space parking garage, and two lobbies/amenities areas. Approximately 26,147 square-feet of open space, including a memorial garden, are also planned for the site. The applicant has submitted a Federal Consistency Determination that finds the proposed action consistent, to the maximum extent practicable, with the enforceable policies of the Virginia Coastal Zone Management (CZM) Program. DEQ concurred that the proposal is consistent with 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)

Military Highway Continuous Flow Intersection Project -

Kerr Environmental Services on behalf of the Corman-EV Williams-A Joint Venture submitted a FCC for the proposed project, which is a Virginia Department of Transportation (VDOT) design-build project. The project involves an approximately 1.58-mile corridor along Military Highway (U.S. Route 13 and State Route 165) and Northampton Boulevard (U.S. Route 13 and State Route 166). The project includes widening of Military Highway from a four-lane roadway to a six- and/or eight-lane divided roadway with curb, gutter and sidewalk; widening of Northampton Boulevard and Princess Anne Road from a four-lane roadway to a six-lane divided roadway with curb, gutter and sidewalk; installing a continuous flow intersection at Military Highway, Northampton Boulevard and Princess Anne Road; and constructing storm water management features. The project corridor crosses Broad Creek, a tidal waterway, where culvert replacement and channel re-alignment is proposed to facilitate the widened roadway. As proposed, the project will permanently impact tidal and non-tidal wetlands. According to the FCC, the project will be consistent with the enforceable policies of the Virginia Coastal Zone Management (CZM) Program. DEQ concurred that the proposal is consistent with the Virginia CZM Program provided all applicable permits and approvals are obtained.

I-64/I-264 Interchange Modification Project

The Norfolk District of the U.S. Army Corps of Engineers (Corps) is reviewing a Joint Permit Application submitted by the Virginia Department of Transportation (VDOT or applicant) for the issuance of an individual permit pursuant to Section 404 of the Clean Water Act (CWA) (Public Law 95-217) for impacts to jurisdictional waters of the United States from the proposed I-64/I-264 Interchange Modification in the City of Norfolk. The purpose of the project is to increase the capacity of the existing I-264/I-64 interchange by widening and realigning ramps and to provide drainage improvements. The project will widen the existing ramp D-7 including the taper and deceleration lane to separate those vehicles continuing westbound on I-64. Widening of the existing I-64 bridge over Curlew Drive will be required. Beyond the Curlew Drive bridge, the ramp will divide into a single lane collector-distributor (CD) road (Ramp D7-CD) and a dual lane flyover ramp (Ramp D7). The project will impact 0.32 acres of nontidal forested wetlands; 0.29 acres of nontidal emergent wetlands; 0.22 acres of tidal scrub-shrub wetlands; and 1.66 acres of tidal emergent wetlands, of which

approximately 1.46 acres is dominated by phragmites. The project will also impact 2,480 linear feet (lf) of tidal channel, of which 580 lf will be placed in box culverts and 1,900 lf will be relocated. Additional impacts include 825 linear feet of non-tidal stream channel: 712 linear feet of non-tidal roadside ditch and 27 linear feet of tidal ditch. Based on a review of the FCC and the comments submitted by agencies administering the applicable enforceable policies of the Virginia CZM Program, DEQ concurred that the proposal is consistent with the Virginia CZM Program provided all applicable permits and approvals are obtained.

Northlake IV -

Burns and McDonnell on behalf of Pole Green Development Company LLC (applicant) submitted a FCC for the construction of an access road and associated development at the Northlake Industrial Park in Hanover County. The proposed project qualifies for an individual permit from the U.S. Army Corps of Engineers. The impacts consist of filling 0.08 acre of palustrine scrub-shrub wetlands to construct a permanent access road to an existing regional stormwater management facility. The permitted impacts to wetlands were reviewed under 15-067F. However, the access road is now proposed to serve a building on a parcel adjacent to the building site that was previously reviewed. Burns and McDonnell states that the project site is located at approximately 11501 North Lakeridge Parkway and is an approximately 3-acre, grassed parcel that was previously cleared and graded in 2002. According to the FCC, the project is consistent with the Virginia Coastal Zone Management (CZM) Program. Based on a review of the FCC and the comments submitted by agencies administering the applicable enforceable policies of the Virginia CZM Program, DEQ concurs that the proposal is consistent with the Virginia CZM Program provided all applicable permits and approvals are obtained.

Virginia International Gateway Phase I Expansion -

The Norfolk District of the U.S. Army Corps of Engineers (Corps) is reviewing a Joint Permit Application submitted by the Virginia Port Authority (VPA or applicant) for the issuance of an individual permit pursuant to Sections 401 and 404 of the Clean Water Act (CWA) (Public Law 95-217) and Title 62.1 of the Code of Virginia for impacts to jurisdictional waters of the United States from the proposed Virginia International Gateway Phase II Expansion in the City of Portsmouth, Virginia. The three main components of the project are: the expansion of the intermodal rail yard, the expansion of the container storage racks, and a 650-foot extension of the existing wharf. The intermodal rail yard expansion will utilize 7.8-acres of paved areas, gravel lots, and vegetated lots and will result in 8,400 square feet of impacts to palustrine emergent (PEM) wetlands. The container yard expansion will occur on 11-acres of previously paved land and additional 46.8-acres of unpaved land located within the terminal, doubling the number of container storage stacks to 30. The container yard expansion will result in impacts to seven PEM wetlands totaling 38,369 square feet and six palustrine scrubshrub wetlands totaling 47,014 square feet. The wharf extension will cover approximately 2.43 acres of subaqueous lands. The VPA has submitted a Federal Consistency Certification that finds the proposed action consistent with the enforceable policies of the Virginia Coastal Zone Management Program. Based on a review of the FCC and the comments submitted by agencies administering the applicable enforceable policies of the Virginia CZM Program, DEQ concurs that the proposal is consistent with 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 35 projects from April 1, 2016 and September 30, 2016 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:

- 1 new home construction
- 3 home rehabilitations/weatherizations
- 10 new multifamily housing construction/rehabilitation
- 3 demolitions of blighted property
- 2 wastewater collection system improvement
- 1 business development center rehabilitation
- 2 school recreation facilities improvements
- 1 VIMS EPA grant for climate change
- 1 ICPRB EPA grant application
- 1 community services facility construction
- 3 recreational trail grant
- 1 road improvements
- 3 recreational facility improvements
- 1 public land acquisition
- 1 high school construction
- 1 poultry house construction

Examples of Federally –funded projects which were reviewed:

Goodman Poultry Farms Poultry Houses –

The U.S. Department of Agriculture, Farm Service Agency (FSA) proposes to provide a federal loan guarantee under the Guaranteed Farm Loan Program to a commercial lender to finance the proposed construction of six poultry houses by Goodman Poultry Farms, LLC/Jarrod and Whitney Goodman (applicant). The poultry houses are proposed for construction on a property located on Rose Cottage Road near the intersection with Fair Oaks Road in Accomack County, Virginia. They will be built on the west side of the property that is being purchased and will be 60 feet by 600 feet in size. DEQ concurred that the proposal is consistent with the Virginia CZM Program provided all applicable permits and approvals are obtained.

388 Smokey Road Home & Septic System Construction -

The U.S. Department of Housing and Urban Development (HUD) proposes to provide HOME Investment Partnership grant funding through the Virginia Department of Housing and Community Development (DHCD) to Bay Aging (applicant) for the construction of a replacement home, well and septic system in King William County. The approximately 2.692-acre project site is located at 388 Smokey Road in Aylett. The existing single-family home on site will be demolished and a new 24-foot x 32-foot single-story replacement home will be constructed with an alternative septic system and artesian well. DEQ concurred that the proposal is consistent with the Virginia CZM Program provided all applicable permits and approvals are obtained.

Bristol at Westwood Apartments –

The U.S. Department of Housing and Urban Development proposes to provide mortgage insurance under HUD Section 221(d)(4) to Walker & Dunlop, which will finance the construction of the proposed Bristol at Westwood apartments. The Section 221(d)(4) program assists private industry in the construction or rehabilitation of multifamily rental and cooperative housing for moderate-income and displaced families. HUD has submitted a

Federal Consistency Determination for the proposed construction of a sixteen building, 301-unit multi-family apartment complex to be owned and operated by Union Presbyterian Seminary (UPS). The proposed UPS-owned site is a 14.74-acre partially-developed parcel at Brook Road between Westwood Avenue and Rennie Avenue in the City of Richmond, Virginia. There are existing apartment buildings and associated amenities (gazebo, playground, tennis/basketball courts) on the site that will be demolished. Utility connections are readily available for the new buildings. 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. DEQ concurred that the proposal is consistent with the Virginia CZM Program provided all applicable permits and approvals are obtained.

SECTION B.4 PROGRAM CHANGES

CZM staff worked with the William & Mary Coastal Policy Center (CPC) to develop a scope of work (FY 14 Task 91) to draft narrative enforceable policies for the Department of Game and Inland Fisheries (DGIF), including state-listed threatened and endangered animals. A contract was signed in July, and CPC staff made a presentation on the project to the Coastal Policy Team at its September meeting. CPC staff have been researching other state CZM program narrative policies, organizing an advisory committee, and drafting narrative policies for consideration by the advisory committee at its first meeting in November, 2016. The advisory committee consists of representatives from NOAA, DGIF, the Department of Environmental Quality, the Department of Conservation and Recreation – Division of Natural Heritage, the Department of Transportation, the Office of the Attorney General, the Department of Defense, and the Hampton Roads Planning District Commission.