April 29, 2016

Virginia Coastal Zone Management Program
Semiannual Section B.2-4 Report
For the Period from October 1, 2015 – March 31, 2016

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 is required for water withdrawals and activities in wetlands and surface waters that may or may not require Clean Water Act section 401 water quality certifications. This narrative highlights any challenges encountered during the reporting period. Please refer to the last reporting cycle for summaries of data for both permit processing data and wetlands impact data that apply to all areas of the Commonwealth. Revised data will be provided in the fall of 2016.

During the period of October 2015 through March 2016, the average amount of time to process an application for VWP general permit coverage was 24 days, and the average processing time for individual permits was 74 days. Four projects that were granted coverage under general permits exceeded the statutory limit for processing due to coordination issues for the issuance of an associated, federal permit (State Program General Permit, or SPGP). One individual permit exceeded the statutory limit due to a change in project design or plans. Of the 99 projects granted general permit coverage during the time period, 16 experienced a suspension of processing during the application review, typically because of inadequate project information or change in project scope or impacts, threatened and endangered species concerns and/or coordination, and/or required coordination under the SPGP process. Of the 15 individual permits issued during the time period, three experienced a suspension of processing for generally the same reasons, and for addressing public comment.

The VWP Permit Program continued the process of revising its regulations during the reporting cycle, which will conclude in late summer 2016. The Program also continued to develop a new in-lieu fee fund program for compensatory mitigation across the Commonwealth, coordinating those efforts with the U.S. Army Corps of Engineers. In addition, the VWP Permit Program continued to work with the Virginia Institute of Marine Science to develop wetland condition assessment tools under grants from the U.S. Environmental Protection Agency's nontidal wetland grants program. The tool was rolled out to VWP Permit Program staff in the summer of 2015.

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 October 1, 2015 and March 31, 2016, DEQ received three permit applications for VPA Individual Permits within the coastal zone area: two applications were for the reissuance of VPA permits, one was for a permit modification. Modifications were completed for three permits, during this period, one for a permit which authorizes the land application of biosolids and two for permits which authorize the operation of municipal wastewater plants. One VPA Individual Permit was issued during this period; the application was submitted during an earlier reporting period.

During the period between October 1, 2015 and March 31, 2016, four applications for coverage under the General Permit for Poultry Waste Management were submitted for farms located in the Coastal Zone Management area. Two applications were received during the previous period but were processed during this period. No applications were received for farms located in the Coastal Zone Management area for 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 252 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 no known reason for increases or decreases in numbers of permits from the last reporting period.

There are also numerous facilities registered under general permits in CZM areas including 38 car wash, 78 concrete products, 8 cooling water, 211 domestic sewage ≤ 1,000 GPD (single family homes), 66 nonmetallic mineral mining, 18 petroleum, 10 potable water treatment, 52 seafood processors, and 545 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	23	313**	3	227	0	N/A	15***	N/A
VPA	1	351	0	0	3	84	0	0	0	0
VPA GP	5	25.2	1	1	0	0	0	0	0	0

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

* Information from CEDS (Comprehensive Environmental Data System) database
**This processing time is unusually high because two MS4 permits were issued during this reporting period and the processing time average includes the time the application was received at DCR in 2005 and 2007. These permits remained expired and unissued at DCR until the MS4 program moved to DEQ in July 2013 and these permits were reissued within 18 months of being transferred to DEQ.
***This represents existing VPDES individual permits expired but pending through March 31, 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 October 1, 2015 through March 31, 2016, DEQ issued 140 Warning Letters and 0 Letter of Agreement for violations of VPDES, VPA, VWPP, and Ground Water program requirements.

Formal enforcement actions are used in those cases where non-compliance is more serious or may take a significant amount of time to correct. Formal measures generally involve the issuance of a Notice of Violation followed by a Consent Order, or an Executive Compliance Agreement in the case of a state agency. In some cases, Unilateral Administrative Orders or court orders may be sought. Between October 1, 2015 and March 31, 2016, DEQ issued 20 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 7 Consent Orders that assessed a total of $333,956 in civil charges.

Table 1

Measure	Action Type	Count	Total Civil Charges Assessed
Informal	Warning Letters	140	N/A
Informal	Letters of Agreement	0	N/A
Formal	Notices of Violation	20	N/A
Formal	Consent Order	7	**$333,956**
Total		**167**	**$333,956**

d) DEQ – Air Permitting Program

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

Period: October 1, 2015 – March 31, 2016

PERMIT TYPE	NUMBER OF PERMITS ISSUED	AVERAGE PROCESSING TIME (Days)
PSD & NA	0	N/A
Major	0	N/A
Minor	37	32
Administrative Amendment	4	12
Exemptions	17	28
State Operating	1	54
Federal Operating (Title V)	1	326
Acid Rain (Title IV)	0	N/A
Total Number Permits Issued	**60**	

* 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 SO_2 and NO_x from electric generating units covered under the Acid Rain regulations.

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

Permits pending as of March 31, 2016

PERMIT TYPE	NUMBER OF PERMITS PENDING
PSD & NA	2
Major	1
Minor	21
Administrative Amendment	6
Exemptions	2
State Operating	2
Federal Operating (Title V)	3
Acid Rain (Title IV)	0
Total Permits Pending	**37**

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: October 1, 2015 – March 31, 2016

PERMIT TYPE	NUMBER OF PERMITS WITHDRAWN	NUMBER OF APPLICATIONS DENIED
PSD	0	0
Major	2	0
Minor	0	0
Administrative Amendment	1	0
Exemptions	0	0
State Operating	0	0
Federal Operating (Title V)	0	0
Acid Rain (Title IV)	0	0
Total Permits Rescinded	**3**	**0**

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

e) DEQ – Air Program Enforcement and Compliance

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

Informal measures include Requests for Corrective Action, Informal Correction Letters, Warning Letters, and Letters of Agreement. These actions are used in those cases where non-compliance is not significant in nature and where compliance can be achieved in a short period of time. During the six-month period beginning October 1, 2015 through March 31, 2016, DEQ issued 19 Requests for Corrective Action, and 10 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 October 1, 2015 and March 31, 2016, DEQ initiated 7 new formal enforcement actions via issuance of Notices of Violation. Additionally, the Agency issued 3 Consent Orders; assessing $26,783 in civil charges.

Table 1

Measure	Action Type	Count	Total Civil Charges Assessed
Informal	Requests for Corrective Action	19	N/A
Informal	Informal Correction Letter	1	N/A
Informal	Warning Letters	10	N/A
Formal	Notices of Violation	7	N/A
Formal	Consent Orders	3	$26,783
Total		**40**	**$26,783**

f) DEQ – Erosion and Sediment Control

Summary of Specific Outputs:

Specific Outputs	Progress / Status
4 CZM Chesapeake Bay Land Disturbing Activities Permitted - Projects greater than 2,500 s.f. but 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.
139 CZM Small Construction Activities Permitted- Land Disturbing Activities greater than 1 acre but 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.
201 CZM Large Construction Activities Permitted- Land Disturbing Activities greater 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.
344 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.

In previous years, DEQ Office of Training Services reported on the number of people who have attended training and the number of classes. For this report and future submissions, DEQ will report on the number of certified individuals. This provides a more accurate assessment of individuals who have demonstrated that they have the skills and knowledge to protect water quality through implementation of the Stormwater and Erosion program.

Between October 1, 2015 and March 31, 2016, Virginia certified or recertified:

- 177 people in both Stormwater and Erosion – called "Dual Certification"
- 279 people in Stormwater Management only
- 501 people in Erosion and Sediment Control only.

As of March 31, 2016 total certified individuals in Virginia are as follows:

- 408 total people certified in both Stormwater and Erosion – called "Dual Certification"
- 558 total people certified in Stormwater Management only
- 2,757 total people certified in Erosion and Sediment Control only.

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.

During the reporting period, October 1, 2015 – March 31, 2016, staff continued to provide assistance and training to the Bay Act localities. Also, 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.

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 LGAP staff also developed a CBPA Administrative and Enforcement Guidance document that sets for specific compliance and enforcement steps to ensure compliance with the Bay Act. This

document will likely be used as a model for Erosion & Sediment Control Local Program reviews. Five compliance reviews remain on-going and three have been completed during the reporting cycle.

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 October 1, 2015 through March 31, 2016, the Habitat Management Division received 916 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. One notice to comply was issued during the period.

The Habitat Management Staff completed actions on 891 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 October 2015. 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 31 projects. During the reporting period the Commission considered 19 protested projects or projects requiring a staff briefing, The Commission also approved 12 projects over $500,000.00 in value.

During the reporting period local wetland boards throughout Tidewater Virginia acted on 198 projects involving tidal wetlands. Of this total, 152 were approved as proposed, 32 were approved as modified, 1 was denied, 2 are pending, 1 was inactivated, 6 no permit was required, and 27 required compensation either on or off site (11), or through payment of an in lieu fee (16) accounting for 29,071 square feet of tidal wetland impacts.

b) VMRC – Fisheries Management Division

At the October 2015 meeting, the agency established amendments to the regulation for summer flounder. The summer flounder amendments establish a consecutive 30-day landing period, beginning November 1, 2015, for any legally licensed Summer Flounder Endorsement Licensee landing summer flounder, harvested outside of Virginia waters. The first 30-day landing period will have a 10,000 pound vessel trip limit, the second 30-day landing period will have a 5,000 pound vessel trip limit.

At its December 2015 meeting, the agency established an amendment to the regulation for black sea bass. The black sea bass commercial quota was established as 542,000 pounds.

At its February 2016 meeting, the agency adopted amendments for summer flounder and sharks. The summer flounder amendment modified the landing dates, landing periods, possession limits and landing limits for summer flounder commercially harvested outside of Virginia waters. Also, it established an allowance for North Carolina possession limits in Virginia waters. The shark amendments reassigned blacknose to the list of commercially prohibited sharks and established a possession limit of 36 sharks for the Aggregated Large Coastal and Hammerhead group on January 1 of any year that may change throughout the year.

At the March 2016 meeting, the agency adopted an amendment to sharks that established the 2016 spiny dogfish commercial quota as 922,030 pounds, dressed weight.

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	7	7	5	6	0	0
Casting Garbage/Trash	1	1	0	0	5	5	1	1	0	0
Clams	6	6	7	9	4	7	2	3	0	0
Commercial Fishing License	8	9	4	6	6	10	6	9	0	0
Conch	0	0	0	0	0	0	0	0	0	0
Conchs	4	4	2	2	1	2	0	0	0	0
Crab	0	0	0	0	0	0	0	0	0	0
Crabs	79	96	43	50	92	120	115	132	5	5
Federal Violation	0	0	0	0	0	0	0	0	0	0
FIP Violations	142	156	63	63	58	60	76	81	7	7
Fish	522	610	219	253	75	81	149	162	42	49
Freshwater Fishing without a license	9	11	14	18	12	16	20	22	9	9
Gill Nets	7	14	9	11	14	18	17	24	2	5
Habitat/Wetlands	0	0	0	0	0	0	0	0	0	0
License Tags	4	10	0	2	3	4	1	1	3	4
Mandatory Reporting	0	0	1	58	0	0	8	11	0	0
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	317	354	220	255	227	279	381	459	52	61
Oysters	147	194	139	226	109	161	168	274	34	45
Piers	0	0	0	0	0	0	0	0	0	0
Police Powers	87	97	95	109	76	88	93	109	24	24
Removal of Obstructions	3	3	3	5	1	1	1	1	1	1
Resisting officer	0	0	0	0	0	0	0	0	0	0
Shellfish	14	15	15	20	14	16	15	26	4	4
SW Recreational Licenses	210	250	204	262	190	241	204	232	18	21
TOTALS:	**1567**	**1837**	**1044**	**1357**	**894**	**1116**	**1262**	**1553**	**201**	**235**
PERCENT OF CONVICTIONS:	**85.30%**		**76.93%**		**80.11%**		**81.26%**		**85.53%**	

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

From October 1, 2015 through March 31, 2016, the VDH Division of Shellfish Sanitation had 1597 acres of shellfish grounds closed to harvesting. There were 632 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 30 VMRC Permit Applications, and processed as follows:

Six (6) Permit Applications needed action in the Marina Program.

Twenty-two (22) applications were approved based on meeting the requirements of providing adequate facilities.

Two (2) 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 13,627 acres during the reporting period. 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:

CZM Basin	Number Of Plans	CZM Crop Acres	CZM Hay Acres	CZM Pasture Acres	CZM Specialty Acres	Total
Albemarle Sound	-	-	-	-	-	**-**
Atlantic Ocean	-	-	-	-	-	**-**
Chesapeake Bay Coastal	4	1,501.99	-	-	-	**1,501.99**
Chowan	1	65.87	-	-	-	**65.87**
James	2	637.17	12.86	56.27	-	**706.30**
Potomac	1	1,038.68	-	-	-	**1,038.68**
Rappahannock	13	8,746.26	89.80	54.40	65.30	**8,955.76**
York	4	1,359.14	-	-	-	**1,359.14**
Total:	**25**	**13,349.11**	**102.66**	**110.67**	**65.30**	**13,627.74**

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

Bat Report Submitted for Fort Belvoir Project – 1/26/16
The Natural Heritage program field zoologist submitted a final project report documenting the findings of mist net and acoustic surveys for bats during 2015 at Fort Belvoir. Four species were documented during mist netting, including Big brown bat (*Eptesicus fuscus*), Eastern red bat (*Lasiurus borealis*), Silver-haired bat (*Lasionycteris noctivagans*), and the soon-to-be State Endangered Tri-colored bat (*Perimyotis subflavus*). Mist net surveys were conducted at 25 sites on the installation. Acoustic recordings were made on 46 occasions between April and September 2015. Out of the more that 13,000 bat passes recorded, all four species documented with mist nets were also documented with acoustics, with two additional species (Hoary bat, *Lasiurus cinereus*; Evening bat, *Nycticeius humeralis*) considered likely, but unconfirmed. No rare species other than the State endangered Tri-colored bat were confirmed during the study.

USF&WS Report on Vegetation Inventory in Great Marsh, Mason Neck NWR – 3/4/16
A report on the 2015 vegetation inventory of Great Marsh in Mason Neck National Wildlife Refuge along the Potomac River in southern Fairfax County was submitted to the Potomac River National Wildlife Refuge Complex. This inventory was conducted in August and September by the Natural Heritage Field Botanist, Botany Intern, and Vegetation Ecologist, with logistical assistance from the Northern Virginia Operations Steward. Field work focused on searching for rare plants species, developing a list of native plant species, identifying invasive plant species, and verifying the vegetation communities. Two state rare species, river bulrush (*Bolboschoenus fluviatilis*, G5 /S2/NL/NL) and marsh pea (*Lathyrus palustris*, G5/ S1/NL/NL) were found. Of the 83 plant species recorded, 73 were native species, including first-time Fairfax County records for 3 species and 1 variety. Five invasive species were confirmed including common reed (*Phragmites australis* var. *australis*), marsh dewflower (*Murdannia keisak*), and three aquatics, hydrilla (*Hydrilla verticillata*), Eurasian water-milfoil (*Myriophyllum spicatum*), and brittle naiad (*Najas minor*). The significant Tidal Freshwater Marsh community type was confirmed and evaluated to be in good to excellent condition; it consists of a mosaic of 4 vegetation communities including Wild Rice-Mixed Forbs, Mixed High Marsh, Common Spatterdock Mudflat, and Tidal Freshwater/Oligohaline Aquatic Bed. The chief management recommendation made to the Refuge managers was the elimination of the small patch of invasive common reed that should not be allowed to spread, degrade the quality of this community, and reduce rare plant habitat. This inventory was funded by the U.S. Fish & Wildlife Service.


Great Marsh, Mason Neck National Wildlife Refuge

VDACS Report on 2015 Survey for Federally Listed Plant Small Whorled Pogonia – 3/4/16
The Natural Heritage Field Botanist submitted to the Virginia Department of Agriculture and Consumer Services (VDACS) a report on surveys conducted by the Field Botanist and Botany Intern in 2015 for small whorled pogonia (*Isotria medeoloides*, G2/S2/LT/LE) a federally listed threatened and state listed endangered orchid of eastern North America. In Virginia, it is found primarily in the Coastal Plain and Piedmont, most typically in deciduous second or third growth successional hardwood forests with fairly sparse ground cover. As many of the occurrences of this species have not been updated recently in DCR's Biotics database, the survey strategy, begun in 2014, was to target sites with known colonies not updated recently and then to continue surveying in adjacent lands. A particular focus was on bringing DNH up-to-date on the colonies at Marine Corps Base Quantico where annual monitoring occurs. Of the 27 visited colonies representing 9 occurrences, about half harbored isotria populations. One newly discovered colony represents a Nelson County record and one of only a few mountain occurrences in Virginia. This survey was funded by the U.S. Fish and Wildlife Service, under Section 6 of the Endangered Species Act, and VDACS.


Small Whorled Pogonia

Division of Natural Heritage Animal List Published – 3/11/16
The Virginia Rare Animal List was recently updated for the first time in three years. The new list is accompanied by the Animal Watchlist (also revised) and Animal Review List (new category). The primary list contains 793 species (189 vertebrates, 604 invertebrates), as compared to 969 species (187 vertebrates, 782 invertebrates) in the 2013 list. The status of many invertebrates was reassessed, resulting in their transfer to either the Watchlist or Review List, which now include 347 (74 vertebrates, 273 invertebrates) and 273 (5 vertebrates, 268 invertebrates) species, respectively. Notable additions to the Rare Animal List include several bat species whose populations have declined dramatically in the past decade as a result of the fungal disease associated with White Nose Syndrome. The Virginia Rare Animal List is available to the public on the DCR-Natural Heritage website, via webpage and download.

Division of Natural Heritage Rare Plant List Revision Published – 3/11/16
The annual update of the Natural Heritage rare plant list was recently published. It contains the revised global and state-level conservation and legal status for over 620 species of rare vascular plants and almost 90 species of rare mosses, liverworts, and lichens found in Virginia. The document helps focus the Division's conservation efforts and encourages data contributions from scientists and plant enthusiasts outside of Natural Heritage. It also provides conservation partners and public with the official, current and comprehensive list of the rare plants in Virginia, via webpage and download.

Prescribed Burning

Longleaf Pine Restoration Prescribed Burn Completed – 12/11/15
DCR Natural Heritage staff, assisted by partners from the Department of Game and Inland Fisheries and U.S. Fish and Wildlife Service, completed a 250-acre site preparation prescribed burn at South Quay Sandhills Natural Area Preserve. Longleaf pine seedlings were then planted into the burned areas as part of DCR's 600-acre planting and restoration effort in Fall 2015, which was made possible with strong support from The Nature Conservancy and Department of Forestry. Prescribed burning prior to planting provides multiple benefits, such as (1) reducing competition with seedlings from established trees and shrubs; (2) releasing nutrients to help seedlings in early growth; and (3) expediting seedling planting by reducing woody debris and clearing away dead grasses from the planting area.



Prescribed burn at South Quay Sandhills NAP prepared sites for planting longleaf pine seedlings by removing vegetation and recycling nutrients.

Interagency Fire Planning Meeting – 2/11/16
The Longleaf Pine Restoration Specialist, Southeast Region Steward and Chesapeake Bay Region Steward met with staff from U.S. Fish & Wildlife Service (FWS), Virginia Dept. of Game and Inland Fisheries (DGIF), and The Nature Conservancy (TNC) to discuss fire management issues. The meeting focused on cooperative workshops and training opportunities (including an upcoming FWS-sponsored grassland burning workshop and annual fire refresher), database sharing, the impact of bat survey work on management options, prescribed fire staffing, funding opportunities and burns planned for the 2016 spring burn season. This group of interagency partners meets several times a year to maintain communication, and ensure positive partnership opportunities and resource sharing. The meeting was held in the conference room of the Petersburg Public Library.

Natural Heritage Staff Assist with Controlled Burns – 2/29/16 – 3/3/16
During the first week of March, Natural Heritage (NH) staff assisted The Nature Conservancy and the Virginia Department of Game and Inland Fisheries with 3 days of controlled burning. On Monday, February 29, the Longleaf Pine Restoration Specialist and the Chesapeake Bay Region Steward participated in burning three small units for a total of 89 acres at Piney Grove Preserve. On Tuesday, March 1, the Prescribed Fire Technician helped burn a 270-acre unit at Big Woods Wildlife Management Area (WMA). On Thursday, March 3, NH staff returned to Big Woods WMA to burn an additional 360-acre unit. All burns were staffed by firefighters from state, federal, and private non-profit partners. These burns are the first of many planned for this season by this interagency partnership.

Prescribed burn for Longleaf pine restoration

Assisting with AmeriCorp Volunteers Fire Training – 3/14/16 to 3/18/16

The DCR Natural Heritage Longleaf Pine Restoration Specialist assisted in teaching "Introduction to Wildland Fire Behavior" (S190) and "Firefighter Training" (S130) to 29 AmeriCorp volunteers. This week-long training introduced basic knowledge needed by all wildland firefighters and prescribed burn crew members. Instruction focused on primary factors that affect fire behavior and its control, and also included a live prescribed burn field exercise. Completing this training plus a standardized Work Capacity Test (3 mile hike carrying 45 pounds completed in less than 45 minutes) qualifies AmeriCorp volunteers to work as fire fighters and serve on DCR prescribed burn projects. Participants were part of the AmeriCorps National Civilian Community Corps whose mission is to strengthen communities and develop leaders through direct, team-based national and community service. Volunteers are being housed at Great Dismal Swamp National Wildlife Refuge and available to assist DCR and partners with prescribed burns. This is the 8th year DCR staff have assisted with this training. Other organizations providing instructors and benefitting from the availability of AmeriCorps fire crew members are U.S. Fish and Wildlife Service, The Nature Conservancy and Virginia Department of Game and Inland Fisheries.

Wildfire / prescribed burn crew training for AmeriCorp volunteers.
In 2016 more than half of trainees were women.

Longleaf Pine Burning Continues on Natural Area Preserves – 3/30/16

On March 30, 2016, Chesapeake Bay, Eastern Shore and Southeast Region stewardship staff completed simultaneous longleaf pine burns on two Natural Area Preserves. The Southeast Region Steward, supported entirely by staff and equipment from U.S. Fish & Wildlife Service and AmeriCorps, burned two units at Chub Sandhill Natural Area Preserve. One 25-acre unit consisted of eight-year-old longleaf pines, and another 39-acre unit was a stand of mature loblolly that has been under planted with grass stage longleaf pines. At the same time, the Natural Heritage Longleaf Pine Restoration Specialist led a 65-acre burn at Cherry Orchard Bog (COB) Natural Area Preserve in three-year-old grass stage longleaf pines. The crew of the COB burn included three DCR staff along with six staff from the Department of Game and Inland Fisheries and The Nature Conservancy. Thanks to the excellent partnership existing among these agencies, longleaf pine restoration burning goals are being met during a critical time window.

March 30, 2016, Chub Sandhill NAP

Recently burned grass stage longleaf pine at COB.

Natural Area Preserve Stewardship

Longleaf Pine Planting Completed at Two State Natural Area Preserves – 12/10/15 – 12/16/15
DCR's Longleaf Pine Restoration Specialist and Southeast Region Steward oversaw operations to plant 326,140 longleaf pine seedlings on 650 acres at South Quay Sandhills and Chub Sandhill state natural area preserves. Over 6 days, DCR's planting contractor supervised a large and efficient crew averaging over 100 acres and about 54,000 seedlings planted per day. Longleaf pine cones collected at South Quay Sandhills preserve in Fall 2014 yielded sufficient numbers of Virginia native longleaf seedlings to make this large-scale restoration project possible. DCR Natural Heritage staff led project planning, developed prescribed fire burn plans, conducted prescribed burns, and set up vendor contracts for services to complete hundreds of acres of site preparation by drum chopping, fireline construction, road work and tree planting – all necessary parts of a project of this scale. This *largest native longleaf pine planting effort to date in the Commonwealth* was a culmination of nearly two years of effort. This project was, in large part, made possible by DCR's effective partnerships with The Nature Conservancy, Virginia Department of Forestry, Virginia Department of Game and Inland Fisheries and the U.S. Fish and Wildlife Service – all assisting in various critical phases of the process.

Contracted crew plants 1/3-million Virginia native longleaf pine seedlings in six days at South Quay Sandhills and Chub Sandhill state natural area preserve during December 2015.

Wilderness First Aid and CPR training – 1/12/16 to 1/14/16
Six DCR Natural Heritage staff joined with partners from The Nature Conservancy and Department of Game and Inland Fisheries to participate in a comprehensive Wilderness First Aid and CPR course at Pocahontas State Park. The training combined classroom and hands-on training for saving life and limb during the critical minutes or hours after an accident, before an ambulance arrives at a remote field location. More than 50% of student time was spent rotating as mock rescuer and mock patient in realistic care-giving scenarios, making the most of "learning-by-doing" and forming muscle memory. Most participants were qualified wildland firefighters. The class was taught by an instructor from MEDIC SOLO Disaster + Wilderness Medical School, based in Charlottesville. Participants earned a 2-year certification in Wilderness First Aid and CPR. Students

and the instructor agreed that Pocahontas SP was a perfect setting for this training. Natural Heritage organizers are grateful to DCR State Park staff for providing use of park facilities for this training experience.

DCR Natural Heritage along with Nature Conservancy and DGIF staff participated in Wilderness First Aid and CPR training at Pocahontas State Park in January 2016.

Crow's Nest Heron Nest Count – 2/11/16

The DCR Natural Heritage Northern Region Steward and Operations Steward, along with staff from Stafford County, completed the annual great blue heron nest count within the Potomac Creek Heronry. The heronry is largely located within the Crow's Nest Natural Area Preserve and an adjacent parcel owned by the Northern Virginia Conservation Trust. The nest count this year was 254, a decrease from 285 in 2015. With the exception of the nest count in 2013, which was affected by the derecho that occurred the previous summer, nest counts have been between 245 and 300 since 2011.

Great blue heron nests located at Crow's Nest

Stafford County staff assisting with the nest count.

Public Hearing for No Wake Zone within Crow's Nest – 2/16/16

On February 16, the DCR Natural Heritage Northern Region Steward attended a public hearing before the Stafford County Board of Supervisors (BOS). The BOS was considering an ordinance which would revise a section of Stafford County Code pertaining to no wake zones along Accokeek Creek within Crow's Nest Natural Area Preserve. The ordinance allows for the creation of a new no wake zone along Accokeek Creek extending approximately one mile upstream from where the preserve boundary crosses the creek to the end of navigable waters. This new no wake zone would improve public safety along this section of Accokeek Creek. The increase in paddlers on Accokeek Creek since the opening of the canoe/kayak launch has increased the potential for unsafe encounters between motorized boaters and paddlers. DCR staff answered questions from the BOS regarding the need for the new no wake zone and the potential for impacts to local property owners. The BOS unanimously approved the ordinance. Signage will be installed by April 2016.

Accokeek Creek within the new no wake zone.

Clean Up at Dameron Marsh Natural Area Preservation (NAP) – 2/16/16

The Chesapeake Bay Region Steward and the Eastern Operations Steward completed the removal and associated clean-up of two large metal storage boxes and old construction materials at Dameron Marsh NAP. The storage boxes were associated with an old home site and pre-date the dedication of the property as a Natural Area Preserve. Several local volunteers assisted with the effort. Removal of the storages containers improves the aesthetic value of the area and increases available habitat for native shrubs and the birds in this publicly accessible preserve.

BEFORE

AFTER

VDOT Meeting at Crow's Nest – 3/1/16

VDOT staff began replacing culverts along the access road at Crow's Nest Natural Area Preserve. Weather permitting; VDOT expects to complete the culvert replacements by the end of March and the road surface by the end of April. Once VDOT has completed their work, 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 2016.

VDOT staff working at Crow's Nest.

A completed culvert replacement.

Cumberland Marsh NAP Public Access Improvements – 3/1/16 to 3/11/16

In early March 2016, the DCR Natural Heritage Eastern Operations Steward assisted staff from The Nature Conservancy (TNC) with access improvements at Cumberland Marsh Natural Area Preserve, located in New Kent County. Cumberland Marsh is owned by TNC and cooperatively managed with DCR. The preserve has a long history of both organizations working closely to manage natural resources as well as public access facilities that include a trail system, boardwalk and marsh overlook. Previously, a small, poorly-defined grass parking area near the trail head kiosk has experienced problems with visitor vehicles being parked inappropriately. Recent work has defined the parking area by installing a low-profile guardrail and applying a gravel surface. A graveled path was also added from the parking area to the boardwalk. TNC provided the gravel and guardrail materials while DCR Natural Heritage provided staff time and equipment to complete the work.


Cumberland Marsh Natural Area Preserve parking area before and after recent public access improvements.

Longleaf Pine Restoration Burning Commences – 3/8/16

March 8, 2016, marked the beginning of seasonal burns to promote longleaf pine restoration. Longleaf pines are fire dependent, and these prescribed fires reduce competition from other vegetation, kill fungal diseases and other pathogens, prune lower limbs, and promote longleaf pine seedling regeneration. Staff from DCR Natural Heritage, U.S. Fish & Wildlife Service, The Nature Conservancy, AmeriCorps, and the Virginia Department of Game and Inland Fisheries conducted burns at Antioch Pines Natural Area Preserve on March 8 and March 22 in young longleaf stands established in 2010 – 2012. On March 22, DCR Director Clyde Cristman visited and showed his support by interacting with crew members, helping direct traffic and helping maintain the fire line.


DCR Director Clyde Cristman with……. Natural Heritage burn crew staff igniting
AmeriCorps burn crew members. young longleaf pine stand.

Invasive Species

Support to HB 734 on Noxious Weed Designation – 1/14/16

DCR Stewardship Biologist represented DCR on the newly formed Noxious Weed Advisory Committee. Led by VDACS, other participants included representatives from The Virginia Nursery and Landscape Association, The Nature Conservancy, Virginia Native Plant Society, Blue Ridge Partnership for Regional Invasive Species Management, Virginia Tech, Department of Game and Inland Fisheries, and Department of Transportation. The committee began work to develop a risk assessment process for reviewing species proposed for listing as a noxious weed. Recommendations of the committee for listing--or delisting--a species will go to the Commissioner of Agriculture, who presents the committee's findings to the VDACS board of directors. The board then votes on whether or not to list a species. Proposed amendments in the General Assembly to the Noxious Weed Law will somewhat alter the work of the committee, but generally, weed assessments will include analysis of impacts to agriculture, the environment, and the economy.

Wavyleaf Grass Task Force Meeting – 2/8/16
On February 8, members of a Wavyleaf Grass Task Force coordinated by DCR's Natural Heritage Stewardship Biologist, met at the Smithsonian Conservation Biology Institute (SCBI) in Front Royal, Virginia. Updates on recent wavyleaf grass research, surveys and control projects were presented by stakeholders from Maryland (Department of Natural Resources; Towson University) and Virginia (Department of Forestry; Cooperative Extension; Native Plant Society; The Nature Conservancy; Potomac Appalachian Trail Club; National Park Service; SCBI; and private landowners).

Wavyleaf grass is a non-native and highly invasive shade tolerant plant that has crossed into Virginia from Maryland during the last decade. Indications are that, unchecked, this plant will eventually infest most of Virginia's forests. Due to its ability to completely dominate the forest floor, it eliminates native plants and disrupts forest regeneration (i.e. new tree growth), leading to what are likely to be drastic changes to Virginia's future forests. This fast-spreading invasive plant has clear potential to eliminate much of the Commonwealth's forest plant diversity, eliminating native wildflower displays, reducing wildlife habitat quality and shading out native tree seedlings, halting natural forest regeneration processes.

Dr. Vanessa Beauchamp from Towson University reported results of her study comparing effectiveness of various herbicide treatments to hand pulling of wavyleaf grass. Maryland DNR staff indicated that eradication does not appear possible in Maryland at this point, but that control efforts would continue, particularly at new infestations. National Park Service staff reported on status, scope and success of various control projects underway in both Virginia and Maryland. Shenandoah National Park staff voiced concern that the species was infesting too large an area to control with their limited resources and that the outlook was not good for containing it within the Park. Private landowners with the Blue Ridge Partnership for Regional Invasive Species Management (PRISM) reported that a budget amendment to provide cost-share funds for wavyleaf grass control is working through the General Assembly. DCR is working with DOF to secure USDA Forest Service funds to continue survey, outreach, treatment, and Wavyleaf Grass Task Force coordination.


Carpet of wavyleaf grass in Fairfax, VA.

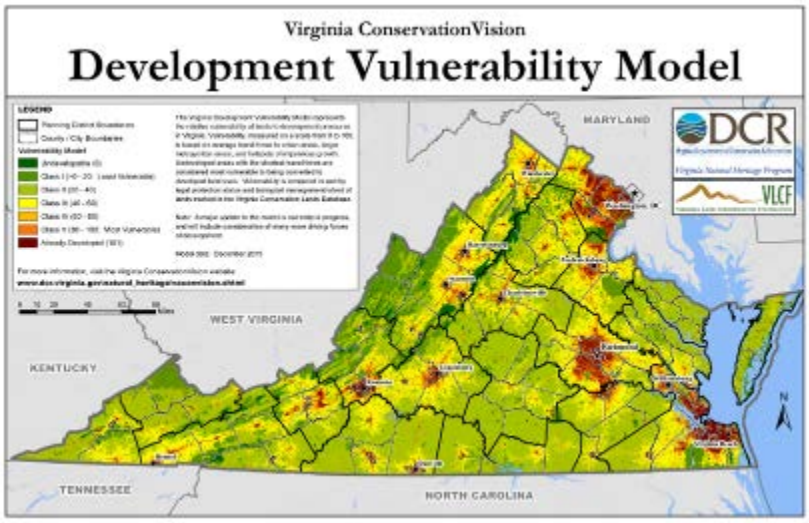

A native forest understory of spring wildflowers in Russell County, VA.

Information Management

Virginia Development Vulnerability Model – 12/30/15
The latest version of the Virginia Development Vulnerability Model was completed on December 30, 2015, and is now available for download from the Natural Heritage website at http://www.dcr.virginia.gov/natural-heritage/vaconvisvulnerable. The Virginia Development Vulnerability Model quantifies the predicted relative

risk of conversion from "natural", rural, or other open space lands to urbanized or other built-up land uses. It is presented as a raster data set for use in GIS analysis and associated maps, in which the relative vulnerability of lands ranges from 0 (not developable) to 100 (most vulnerable).

The current version of the model is based on travel times to several development "attractors": urban areas, metropolitan areas (a subset of urban areas), and imperviousness growth hotspots. It also incorporates the legal protection status and biological management intent of conservation lands in the state. The model will be updated periodically as new data representing more recent conditions become available. A future, more complex version of the model is currently under development. It will incorporate a wider array of predictor variables representing various driving forces of development, and will employ a rigorous statistical analysis to derive the relative probability of development.



OpenNSPECT Training Course – 2/11/16

The Natural Heritage Landscape Ecologist and student intern took part in an online training course for OpenNSPECT, the open-source version of the Nonpoint Source Pollution and Erosion Comparison Tool developed by the National Oceanic and Atmospheric Administration (NOAA). OpenNSPECT is a GIS tool (https://coast.noaa.gov/digitalcoast/tools/opennspect) that simulates erosion, pollution, and their accumulation from overland flow. Natural Heritage is evaluating this tool for use in the process of updating the Watershed Integrity Model (http://www.dcr.virginia.gov/natural-heritage/vaconviswater).

Outreach and Education

Eastern Shore Field Trips – 10/1/15 – 10/15/15
If it's autumn, it must be field trip time on the Eastern Shore. Eastern Shore stewardship staff and volunteers have led 11 field trips to Natural Area Preserves in the past 3 weeks. The Virginia Master Naturalist Eastern Shore Chapter training class held a field session at Savage Neck NAP on October 1. The class explored coastal communities and processes, migratory songbird habitat, and thanks to Natural Areas Zoologist Chris Hobson, insects, turtles and frogs. During the Eastern Shore Birding and Wildlife Festival, held October 8-11, field trip venues included 2 trips to Magothy Bay NAP, 2 trips to Mutton Hunk Fen NAP and Cape Charles NAP and 1 trip to Savage Neck Dunes NAP. On October 15, the Master Naturalist training class utilized Mutton Hunk Fen NAP to learn about coastal geology. In all, 170 people were reached. Three additional field trips are planned for the month.


Virginia Master Naturalists at Savage Neck Dunes NAP

Changing Landscapes Initiative Advisory Workshop – 10/7/15 & 10/8/15
The Natural Heritage Landscape Ecologist participated in a science advisory workshop for the "Changing Landscapes Initiative" research and modeling project. The project is spearheaded by a partnership between the Smithsonian Conservation Biology Institute (SCBI) and Harvard Forest. It falls under the umbrella of Virginia Working Landscapes, a knowledge-sharing network for landowners and conservation professionals. The workshop was held at SCBI in Front Royal, and brought together nearly 30 scientists from a variety of institutions, including state and federal agencies, universities, research centers, non-profit conservation organizations, and several institutes of the Smithsonian. Focused on the region immediately surrounding the Shenandoah National Park, the Changing Landscapes Initiative is geared to "enable informed regional and local decision making that conserves and enhances… healthy ecosystems which sustain biodiversity and resource use in the long-term". Natural Heritage data, including Element Occurrences, the Conservation Lands Database and several of the ConservationVision models, will be important inputs for the project.

Changing Landscapes Initiative Advisory Workshop Participants

Native Plants Talk – 10/13/15
The DCR Eastern Shore Region Steward presented a talk on native plants as part of the Chesapeake Bay Foundation's, Chesapeake Bay Stewards Program. The emphasis was on the benefits of utilizing native plants in home landscapes, as an easy BMP (Best Management Practice) to help conserve fresh water on the Eastern Shore and reduce nutrient runoff into the Chesapeake Bay.

Senior Kayak Trips at Crow's Nest – 10/13/15
The DCR Natural Heritage Northern Region Steward and Operations Steward recently led three kayak trips for Stafford County Parks and Recreation at Crow's Nest Natural Area Preserve. With the assistance of county staff, the nine to ten participants per trip were led on a 5 to 6 mile round trip paddle along Accokeek Creek. 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 the early fall color and had many excellent views of bald eagles and many other birds.



Senior kayak trip at Crow's Nest on October 13, 2015

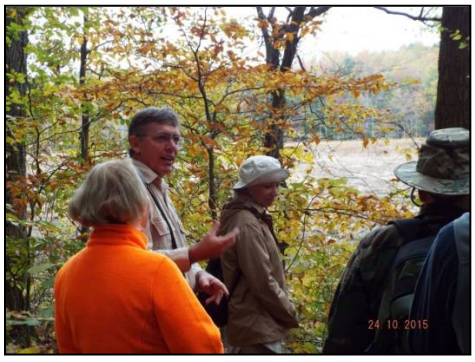
Virginia Association of Wetland Professionals Research Symposium – 10/14/15
The DCR Natural Heritage Conservation Biologist delivered a presentation on the Virginia Wetlands Catalog (VWC) at the Fall Meeting and Research Symposium of the Virginia Association of Wetland Professionals, in Fredericksburg, Virginia. The audience consisted of administrators from the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency, professors and graduate students from several universities, and wetland professionals from local, state, and federal governments, Ducks Unlimited, The Natural Conservancy, industry, and consulting firms. This invited presentation on the VWC, a statewide prioritization tool for wetland restoration and conservation developed by DCR for the USDA Natural Resources Conservation Service, was well received and was followed by conversations with attendees interested in funding possible expansions of the catalog as well as general discussions about the methodology and downloading of the data.

Savage Neck Dunes NAP Field Trip – 10/24/15
The Eastern Shore Region Steward and the Coastal Operations Steward led a field trip to Savage Neck Dunes NAP on Saturday, October 24, 2015. The group consisted of 19 teachers from the Portsmouth City School System, who were engaged in STEM (Science, Technology, Engineering, Math) initiatives at their schools. The primary focus of the trip was to learn about coastal vegetation and landscapes, and apply that knowledge to modules on remote sensing.


NH Steward Richard Ayers and Participants


Savage Neck Dune NAP Participants

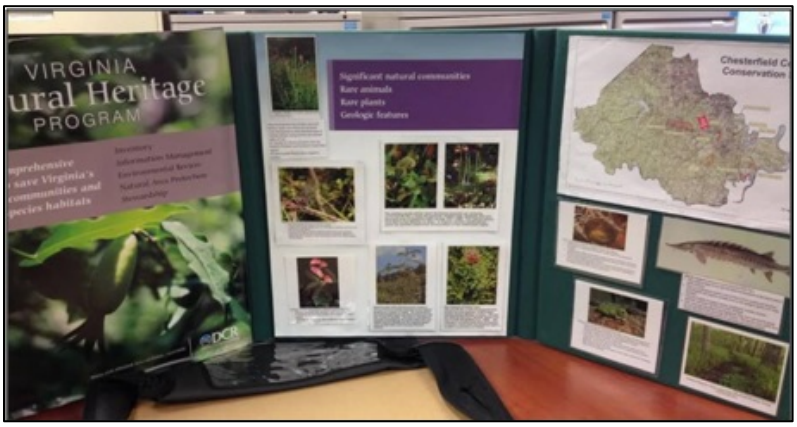
Hiking Club Visit to Crow's Nest – 10/24/15
The DCR Natural Heritage Northern Region Steward led a hike for the Celebrate Hiking Club from Celebrate by Del Webb at Crow's Nest Natural Area Preserve. Members of the club live in the Celebrate by Del Webb community in Stafford County. After a brief introduction to the Natural Heritage Program and Crow's Nest, participants enjoyed a hike on the Accokeek Creek Loop Trail. Along the trail, participants were introduced to a number of topics, including invasive species management and the importance of the intact soils at Crow's Nest to the health and productivity of the forest. Several club members expressed admiration for the new sections of hiking trail that were constructed in 2012 and 2013. A highlight was the several hundred ducks seen on the pond along Accokeek Creek. Sixteen club members participated in the hike.



Celebrate Hiking Club at Crow's Nest

Career Day at Salem Church Middle School – 10/28/15
DCR Natural Heritage Data Management/GIS Specialist presented at the 'Rainbow of Careers' event at Salem Church Middle School on Wednesday, October 28. Seven 20-minute sessions were held; around 220 students learned about conservation professions and the Natural Heritage Program. Several positions within DNH were outlined, including Field Biologists, Geographic Information Systems specialists, and Natural Area Preserve Stewards. The pros and cons of each position were discussed, as well as the value of finding a career that is enjoyed, no matter what it is. A strong background in the sciences was emphasized, as well as the importance of internships, and areas for study in higher education such as conservation biology and environmental sciences. A display board showing rare Natural Heritage elements and Conservation Sites in Chesterfield County was a focal point. Rare species fact sheets and fortune tellers were distributed, as well as guides to publically

accessible Natural Area Preserves. It was mentioned that Chub Sandhill NAP and Cumberland Marsh NAP are both within an hour's drive of the school. The students were enthusiastic and asked intelligent, meaningful questions.

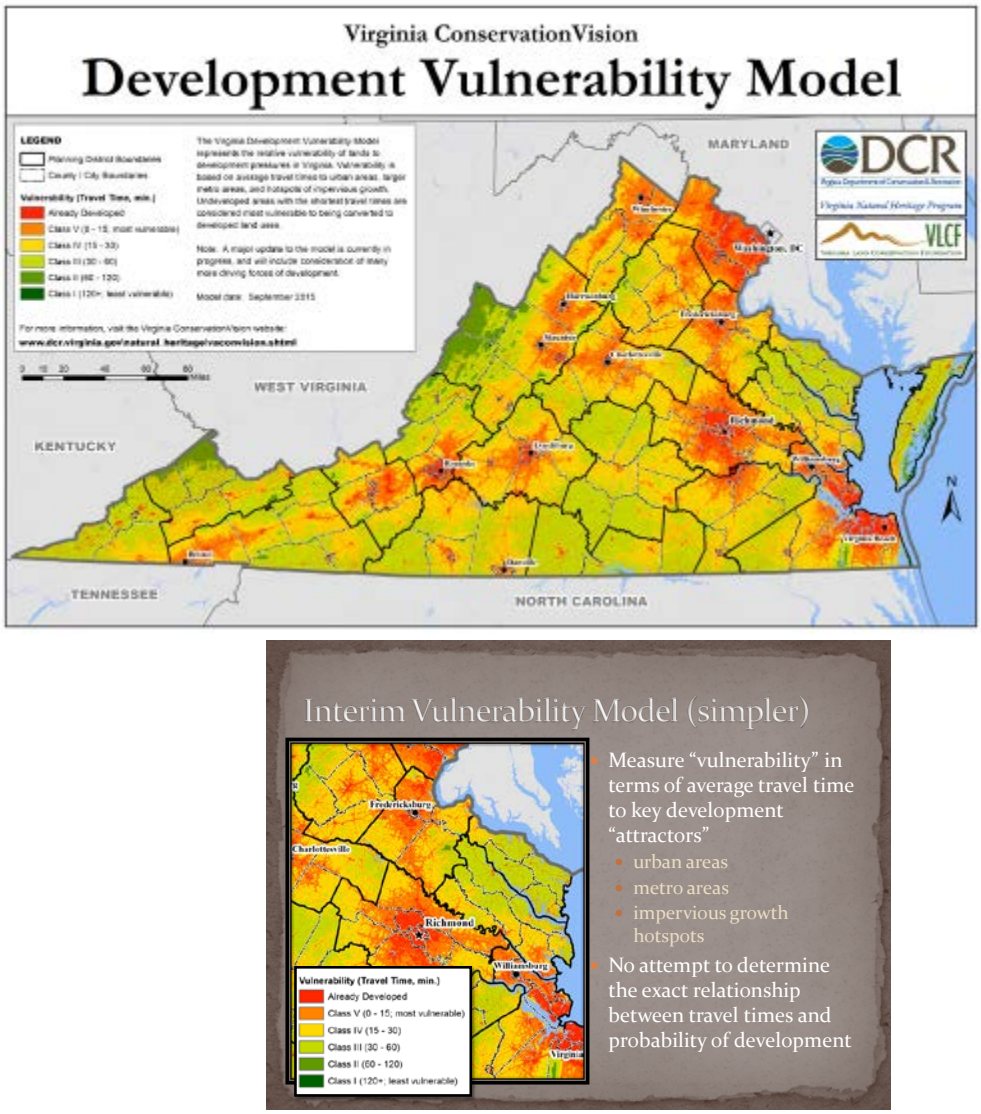


DCR Natural Heritage Display Board

Eastern Shore Chapter of Virginia Master Naturalists Workshop – 10/29/15
DCR Natural Heritage Stewardship Biologist led an invasive species early detection and reporting workshop for new Master Naturalists-in-training for the Eastern Shore Chapter of Virginia Master Naturalists. The workshop took place at Onancock School. Over twenty participants were given an overview of invasive species issues in Virginia. Particular emphasis was given to identifying wavyleaf grass (*Oplismenus hirtellus* ssp. *undulatifolius*). Four other species were also reviewed: cogon grass (*Imperata cylindrica*) and giant hogweed (*Heracleum mantegazzianum*), beach vitex (*Vitex rotundifolia*), and giant salvinia (*Salvinia molesta*). They also learned about smartphone apps and web-based mapping and reporting tools, EDDMapS.org and iMapInvasives.org.

Natural Heritage Ecologist Addresses John Clayton Chapter of Virginia Native Plant Society – 11/17/15
A DCR Natural Heritage Ecologist gave a presentation entitled "The Ecological Regions and Natural Communities of Virginia" to the John Clayton Chapter of the Virginia Native Plant Society on November 17, 2015 in Williamsburg. The presentation emphasizes the great diversity of landforms and biological habitats across Virginia, while highlighting the natural communities and special natural areas that need protection.

Presentation on Development Vulnerability Model – 11/19/15
The DCR Natural Heritage Landscape Ecologist gave a guest lecture for Dr. Todd Lookingbill's Landscape Ecology class at the University of Richmond. A brief overview of the Virginia Natural Heritage Program was given, followed by a presentation about the Virginia ConservationVision suite of GIS models and maps. The definition of Green Infrastructure was introduced, and conceptually tied to the intended use of ConservationVision models for landscape planning and conservation prioritization. The presentation included more detail about the Agricultural Model, which was updated over the summer, and the Development Vulnerability Model, which is currently in the process of being updated. A University of Richmond Student Intern assisted with the presentation, demonstrating some of the crucial data layers that have been produced over the course of the semester to feed into the Vulnerability Model.



Virginia ConservationVision (Interim) Development Vulnerability Model

Crow's Nest Birding Walk – 11/21/15

The DCR Natural Heritage Northern Region staff led a birding walk at the Crow's Nest Natural Area Preserve and the nearby Aquia Landing Park. It was a beautiful, late fall day and the ten participants were able to see a variety of species, including a large number of overwintering waterfowl. Highlights included good looks at green-winged teal, redhead, brown creeper and red-headed woodpeckers. In all, 53 species were observed during the outing, including 41 species at Crow's Nest.


Participants enjoying a morning of birding at Crow's Nest

Species Modeling Presentation to North Carolina State University – 11/30/15

The DCR Natural Heritage Species Modeling Project Manager presented a webinar to graduate students at North Carolina State University entitled "Species Distribution Modeling: Applications for Conservation". After a brief introduction to the Natural Heritage Program and review of our modeling methods, applications of the modeling products were discussed by highlighting three current projects and their deliverables. DCR Natural Heritage is in the process of producing models for 100 state and federally listed species in Virginia (funded by the Tobacco Region and Revitalization Commission), working with New York Natural Heritage to model 7 federally listed species from Maine to VA (US Fish and Wildlife funded), and working with Florida Natural Areas Inventory to model from, VA to FL, 5-10 rare species for use in the South Atlantic Landscape Conservation Cooperative's Conservation Blueprint (SALCC funded).

James River Cleanup Effort –12/3/15

Eight DCR Natural Heritage staff members participated in a trash cleanup along the James River in downtown Richmond. This activity was part of the James River Association's self-directed trash cleanup. In just a few hours staff members picked up three bags of trash and one bag of recycling on Brown's Island and along the James River up to the Bell Isle footbridge. Their efforts helped clean up a popular recreation area along the James River.

Natural Heritage Volunteer Clean Up Staff

Presentation of Virginia ConservationVision Models – 12/9/15
DCR Natural Heritage Landscape Ecologist gave a presentation at a meeting of the State GIS Users Group in Richmond. After a brief introduction to ConservationVision in general, she gave a status update on two of the specific component models. The *Agricultural Model* quantifies the relative suitability of lands for agricultural activity, and was completed in Summer 2015. This model is based primarily on soil quality, but also incorporates information on current land cover as well as travel time to potential markets for agricultural goods. The *Development Vulnerability Model* quantifies the predicted relative risk of conversion from natural lands or open space to developed uses. A simpler interim model is slated for completion by the end of the month, and will be based on average travel time to key development attractors: urban and metro areas, as well as impervious growth hotspots. A more complex model will map the relative probability of development based on a "resource selection function" that incorporates a more comprehensive suite of predictor variables. The completion of the latter model is anticipated by the end of 2016. Several meeting attendees expressed interest in helping review the Vulnerability Model and/or had suggestions for additional data sources that might be useful.

Workshop on Promoting Synergy in the Innovative Use of Environmental Data –12/11/15
DCR Natural Heritage Conservation Biologist and Information Manager attended, by invitation, a National Science Foundation-funded workshop last week in Washington, D.C.; *Promoting Synergy in the Innovative Use of Environmental Data*. Approximately 150 scientists and information managers from state government, federal agencies, non-profits and universities all over the United States and Canada attended. Presenters shared recent innovations in data collection, management and analysis, all of which leverage mobile technology and/or the internet. The workshop sought to discover opportunities for the conservation arena to more synergistically manage and share data, in order to make the best data and information available to partners and the public, for conservation decisions and action. Virginia DCR Natural Heritage was asked to present on Species Distribution Modeling work underway now, as well as to participate in break-out groups to discuss improvements to inventory and monitoring, and data analysis towards a better understanding of ecosystem services values. The workshop drew some of the most prominent individuals and organizations in the conservation community today, including USFWS Director Dan Ashe, who delivered a speech both inspiring and appreciative of the work we do at DCR.

Natural Heritage Participation in Climate Change Workshop – 1/27/16.
The DCR-Natural Heritage Chesapeake Bay Region Steward, Southeast Region Steward and Longleaf Pine Restoration Specialist participated in a half-day climate change workshop at the Virginia Institute of Marine Science in Gloucester, VA. The workshop focused on observations of climate change trends and patterns and how best to communicate those observations to a diverse audience. Speakers included staff from Old Dominion University and the Chesapeake Bay National Estuarine Research Reserve. Other participants included staff from State, Federal, local city and county government as well as educators and Virginia Master Naturalists.

Meeting with Chesapeake Bay Landscape Professional Group – 1/29/16
On January 29, Natural Heritage Eastern Shore Region Steward, attended a meeting of the Chesapeake Bay Landscape Professional (CBLP) certification development working group. The CBLP working group is in the process of developing a training course aimed at enhancing the skills of landscaping professionals involved in designing and installing Best Management Practice (BMP) green infrastructure, including rain gardens, green roofs, retention ponds, constructed wetlands, living shorelines and other stormwater filtering/retention practices. The Eastern Shore Region Steward serves as a technical advisor to the group.

Virginia Master Naturalist Training – 2/2/16
On February 2, the Natural Heritage Southeast Region Steward gave a presentation to the Historic Southside Chapter of the Virginia Master Naturalists. The presentation covered the botany requirement for new Master Naturalists. Topics included plant taxonomy, plant morphology and Virginia's flora.

Native Plants at Executive Mansion for Historic Garden Week – 2/4/16
DCR Natural Heritage staff met with the Executive Mansion Director on February 4 to discuss a native plant display in the front drive of the Mansion on April 29 as part of the Historic Garden Week of Virginia tour stop at the Mansion. The First Lady of Virginia asked for DCR staff to take the lead and support a display that highlights the benefits and availability of native plants. DCR staff are now working with partner groups from the Department of Environmental Quality, Virginia Native Plant Society, and Flora of Virginia Project.

Training Workshop on the Eastern Shore – 2/11/16
The Natural Heritage Eastern Shore Region Steward attended a training workshop for the Virginia Eastern Shore Coastal Resilience Mapping & Decision Support Tool. This digital tool, developed by The Nature Conservancy and the Accomack-Northampton County Planning District Commission (ANPDC) Eastern Shore Climate Adaptation Working Group along with other federal and state partners, assesses the risks of sea-level rise, storm surge and changing habitats on the eastern shore. It also enables the identification of nature-based solutions to mitigate risk and enhance resilience. The hands-on training was held at the Eastern Shore of Virginia Community College.

Natural Heritage Outreach at the Science Museum of Virginia (SMV) – 2/19/16
The environmental review section staff represented DCR-Natural Heritage at the Science Museum of Virginia's "Science after Dark" program. This event was jointly hosted by SMV and the Richmond Ballet and featured a dance performance by the Richmond Ballet's afterschool program, Minds in Motion. DCR-Natural Heritage was one of approximately 12 community partners invited to discuss our organization's mission and connection to promoting conservation of natural ecological communities. 159 people (children and adults) visited the Natural Heritage booth during the event. The rare species/community fortune tellers, NatureServe bookmarks, Native Plant Brochures, and the Natural Heritage moth display donated to the Science Museum were all very well-received.

Elaine Yoch, Project Review Assistant – Natural Heritage

Envirothon 2016 – 2/27/16
The DCR Natural Heritage Northern Region Steward participated in the Area III Envirothron training at the University of Mary Washington, Stafford Campus. The Virginia Envirothon is a team based natural resources competition for high school students that is organized by the Virginia Association of Soil and Water Conservation Districts. This year's current issue is "Invasive Species: A challenge to the Environment,

Economy, and Society." The Northern Region Steward gave a 45-minute presentation focused on the learning objectives for this year's current issue as well as invasive species management activities at Crow's Nest Natural Area Preserve. The Area III Envirothon finishes up with a team competition on April 5. Approximately 60 students and coaches attended the training.

Phragmites Theme Keep Norfolk Beautiful Workshop – 02/27/16
The Eastern Shore Region Steward and Coastal Operations Steward, in conjunction with Keep Norfolk Beautiful, led a workshop on *Phragmites* control for private landowners. *Phragmites* is a highly invasive grass species that invades marshes and other wetlands. *Phragmites* is especially problematic and difficult to control in urban settings, where small lot sizes, combined with multiple ownership, makes effective control more difficult. Other urban concerns resulting from *Phragmites* invasion include property value declines due to obstructed viewsheds, fire hazards from standing senesced stalks, mosquito infestation from enhanced breeding habitat, and other human safety concerns. Keep Norfolk Beautiful is a branch of the City of Norfolk Public Works Department and an affiliate of the national Keep America Beautiful organization. The mission of Keep Norfolk Beautiful is to promote individual responsibility for preventing pollution, reducing waste, and creating a more resilient and sustainable environment through educating and changing attitudes. The workshop was held at the Ernie Morgan Environmental Action Center in Norfolk. Forty-two persons attended.

Wetland Delineation of Mineral Soil Flatwoods of the Mid-Atlantic Coastal Plain Workshop – 3/4/16
The Chesapeake Bay Region Steward joined DEQ staff and private consultants for the Wetland Delineation of Mineral Soil Flatwoods of the Mid-Atlantic Coastal Plain Workshop in Wakefield, Virginia. Nearly half of the Mid-Atlantic Coastal Plain is comprised of flat plains with poorly defined drainage patterns. The water table is often seasonally high in these areas, with surface water present during the winter but nearly dry in the summer, making identification of wetlands challenging. The workshop was led on behalf of the Virginia Association of Wetland Professionals by Environmental Scientist Robin Bedenbaugh and consisted of several site visits in southeastern Virginia. Workshop participants will return to these sites in August to observe the seasonal hydrology changes associated with mineral soil flatwoods.

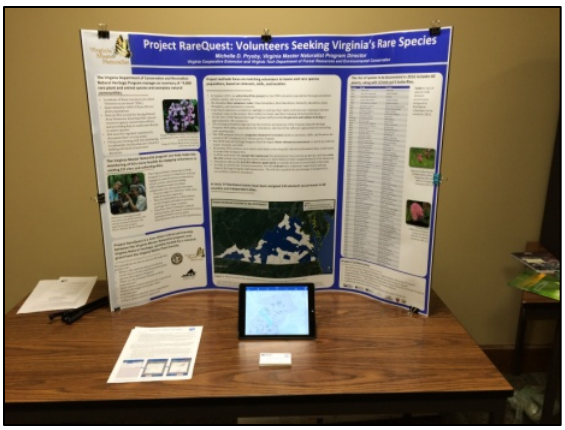
Natural Heritage Ecologist Addresses Riverine Chapter of Virginia Master Naturalists – 3/9/16
Natural Heritage Ecologist gave a presentation entitled "The Ecological Regions and Natural Communities of Virginia" to the Riverine Chapter of the Virginia Master Naturalists on March 9 in Glen Allen. The presentation emphasizes the great diversity of landforms and biological habitats across Virginia, while highlighting the natural communities and special natural areas that need protection.

Multi-agency Grassland Burning Workshop at Rappahannock River Valley NWR – 3/9/16 – 3/10/16
On March 9-10, DCR fire management staff had an opportunity to participate in a two-day workshop on grassland burning at Rappahannock River Valley National Wildlife Refuge near Tappahannock. Natural Heritage staff (Longleaf Pine Restoration Specialist, Chesapeake Bay, Southeast and Shenandoah Valley region stewards) assisted with conducting the workshop, with the objective of providing participants an opportunity to observe fire behavior, learn firing techniques and discuss the safe application of prescribed fire in open settings dominated by fine fuels. A primary management focus at RRVNWR is to restore and maintain a variety of upland grassland habitats, and prescribed fire has been a critical tool for achieving management goals at this refuge for over 15 years. The workshop included classroom discussions, field site visits and conducting burns in two grassland units. Discussion topics included vegetation components of grasslands, ignition techniques, burn unit preparation, fire effects monitoring and benefits to wildlife. A total of 28 personnel took part in the workshop, with participants including staff from the U.S. Fish & Wildlife Service, The Nature Conservancy, DCR's State Parks and Natural Heritage divisions, Virginia Department of Game and Inland Fisheries and National Park Service. Formal cooperative agreements and long-running working relationships between these organizations demonstrate the outstanding fire management partnership that exists in Virginia.

Participants at the March 2016 grassland burning workshop at Rappahannock River Valley National Wildlife Refuge.

Eastern Shore Master Gardeners 2016 – 3/10/16
The Eastern Shore Region Steward presented a module on landscaping with native plants to the Eastern Shore Master Gardeners 2016 trainee class. The module highlighted plants that are native to the Eastern Shore and are appropriate for home landscape settings. Landscaping parameters that were discussed included soil, water and sunlight requirements, salt tolerance, growth form, and value to butterflies, birds, and native pollinators. Trainees were provided with copies of the DCR "Native Plants for Conservation, Restoration & Landscaping" pamphlet, the Virginia Coastal Zone Management Plant ES Natives Campaign publication, "Native Plants of Accomack and Northampton", information about the Virginia Native Plant Society, and a list of informational websites. Eleven people took part in the class.

Project RareQuest Table at the Annual Virginia Native Plant Society Workshop – 3/12/16
The Natural Heritage Data and GIS Specialist presented a table display of Project RareQuest at the 2016 Virginia Native Plant Society Workshop, *Plants and Their Friends: Exploring Partnerships Above and Below Ground*, at the University of Richmond. Project RareQuest is a new citizen science partnership between DCR's Natural Heritage Program and the Virginia Master Naturalist Program; it is partially funded by a research grant from the Virginia Native Plant Society. RareQuest is designed to train volunteers on species identification and data collection techniques using the Collector App, a mobile mapping application, to visit rare plant and animal sites not seen in over 25 years. This partnership provides valuable field experience for Master Naturalist volunteers, as well as assistance to the Natural Heritage Program in assessing current species and site status, since regularly surveying an ever-growing number of site records is a challenge for DNH field staff. An informative poster was displayed on the table, and an iPad was used to demonstrate the Collector App. Many attendees stopped by the table during workshop breaks and lunch and asked great questions. Several Master Naturalists expressed interest in volunteering if the project extends beyond the 2016 pilot project, which is already underway.



Project RareQuest Display Board

Atlantic Slope Mollusk Conservation Meeting – 3/14/16 – 3/15/16
The Staff Zoologist attended the joint 10th annual meeting of the Virginia Atlantic Slope Mollusk Recovery Group and the 5th biennial meeting of the Southeast Atlantic Slope Mollusk Group on March 14-15, at the Institute for Advanced Learning and Research in Danville. The meeting was attended by about 50 biologists representing state and federal agencies, academia, non-profit conservation organizations, and private consulting firms from states ranging from Virginia to Florida, with others from as far away as New Hampshire participating via conference call. The Staff Zoologist gave two presentations, one summarizing the status of the Division of Natural Heritage's 2015 field work on the federally endangered James Spinymussel (*Pleurobema collina*) which involved a mark-recapture study of a population in Buckingham County conducted in collaboration with staff of the Virginia Department of Game and Inland Fisheries. His second presentation summarized recent and current projects by other Division of Natural Heritage staff to develop species distribution models for numerous federal and state-listed species, including dozens of freshwater mussels and several snails. The purpose of the meeting was to share new or updated information on research, management, and conservation issues concerning the freshwater mussel fauna of the Atlantic Coast states, especially Virginia and the Carolinas. Freshwater mussels are perhaps the most imperiled group of animals in North America, primarily due to impacts to riverine habitats from factors such as sedimentation, pollution, and impoundments.

Eastern Shore Envirothon – 03/17/16
The Eastern Shore Region Steward and Coastal Operations Steward served as judges for the Eastern Shore Envirothon student presentations. The Envirothon is a national competition for high school students. The students are given an environmental issue (Special Topic) to address through a specific problem scenario. They are tested on various aspects of the topic and are required to develop a presentation addressing the problem scenario. The Special Topic for 2016 is invasive species. The scenario is to develop a management plan to control 7 invasive plant species located on a family farm in Rockingham County, VA. Students are required to consider the environmental, economic, social, regulatory and political aspects of their proposed management plan. The Eastern Shore Region Steward also presented the Special Topic introductory lecture on February 18. Regional winners advance to the state competition. State winners then advance to the national finals. Five teams from Eastern Shore high schools participated.

Belle Isle Volunteer Clean up of Invasive Species – 3/17/16
Nine individuals from the Division of Natural Heritage assisted the Richmond Tree Stewards and the James River Park System with their ongoing efforts to remove invasive species from Belle Isle. For three hours, Natural Heritage volunteers removed Privet, Tree-of-Heaven, and Japanese honeysuckle, and created slope stabilization features.

Belle Isle volunteers removing invasives

Landscaping with Native Plants Workshop – 3/26/16
The Eastern Shore Region Steward gave a presentation on landscaping with native plants for a workshop sponsored by the Chesapeake Bay Foundation. The workshop, titled *Trees, Bees & Clean Water*, was held at the Barrier Islands Center, a cultural history museum on the Eastern Shore. The talk focused on how the use of locally native plants for home landscaping contributes to an ecologically healthy Chesapeake Bay watershed. Participants were also given information on appropriate, readily available plants for various site conditions. Approximately 30 people attended.

Fire Ecology Class from Virginia Tech Visits Natural Area Preserve – 4/3/16
The Natural Heritage Southeast Region Steward and Longleaf Pine Restoration Specialist led a field trip at Blackwater Ecological Preserve for 20 Virginia Tech forestry students. The students visited the preserve as part of a two-day Fire Ecology class field trip. Natural Heritage staff led them through a mature planted longleaf pine stand, pointing out rare plants, four different pine species, an ancient longleaf pine stump that displays scars from "boxing" for pine pitch and resins, and a pitcher plant bog. Students were able to witness the effects of two decades of low intensity, frequent fire in these systems and compare the structure and composition of a burned unit and an unburned unit. Students spent the rest of their trip at a preserve managed by The Nature Conservancy, Piney Grove Preserve. There they visited a mature loblolly pine stand that is home to an endangered animal species and discussed fire operations, ignition techniques, and the effects fire has on endangered species.

Virginia Tech forestry students visit Blackwater Ecological Preserve

Envirothon 2016 – 4/5/16

Natural Heritage Northern Region Steward participated in the Area III Envirothon competition at Germanna Community College in Fredericksburg. The Virginia Envirothon is a team-based natural resources competition for high school students that is organized by the Virginia Association of Soil and Water Conservation Districts. This year's current issue is "Invasive Species: A challenge to the Environment, Economy, and Society." The Northern Region Steward developed and graded an exam given relating to invasive species management to each of the six competing teams. The top three teams from Area III will compete in the state competition May 15th and 16th at Eastern Mennonite University in Harrisonburg.

One of the teams after finishing their group exam.

Land Conservation

Huntley Meadows Park in Fairfax County – 12/04/15

The Fairfax County Park Authority has authorized the staff of Huntley Meadows Park to seek natural area preserve status for approximately half of the 1,400-acre park. This local park, located just outside the beltway of Washington, DC, is a suburban oasis for a surprisingly diverse array of native wildlife and flora. The Natural Heritage Program documents six species of state rare nesting birds, a state threatened turtle, two state rare plants, and a globally vulnerable natural community within the park. Natural Heritage Program and park authority staff will work closely in the coming months to devise a management plan and a deed of easement and natural area dedication that will meet the approval of Fairfax County government and DCR.

South Quay Sandhills Natural Area Preserve – 2/19/16

The Natural Heritage Program's Natural Area Protection Manager and Natural Area Protection Specialist joined staff from The Nature Conservancy to inspect the Goodwood tract of South Quay Sandhills Natural Area Preserve. This property, which is subject to a conservation easement and natural area preserve deed of dedication co-held by The Nature Conservancy and DCR, is under contract to be sold to a new owner. This will be the first time an easement tract of the Natural Area Preserve System (of which there are approximately three dozen) will have changed ownership. The site visit was to confirm there are no easement violations, which could complicate the sale of the property. Indeed the tract was in good shape.

Blackwater River and South Quay Sandhills Natural Area Preserves viewed from the Goodwood tract.

Huntley Meadows Park

Natural Heritage Data Management Totals for FY2016:

Activity 10/01/15 – 03/31/16

New Mapped Locations (EOs) 9 _
Updated Mapped Locations (EOs) -93
New Conservation Sites – 2
Updated Conservation Sites - 58

Total Number in Database 03/31/16:

Animal Mapped Locations (EOs) – 633
Plant Mapped Locations (EOs) – 1193
Community Mapped Locations – 535
Conservation Sites – 552

Managed Areas: (Acres added 10/01/15 – 03/31/16) -4, 358.14Acres
Mapped Tracts: (total in coastal zone) - 26Tracts
Mapped Managed Areas: (total in coastal zone) - 26 Managed Areas

DCR – Healthy Waters

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

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

Programmatically, 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 Element 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. 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. The focus of the upcoming season will be on the Chickahominy River and Shenandoah Valley.

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.

During the reporting period, 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. The Chesapeake Bay Program identified three management measure outcomes for the Healthy Waters Goal Implementation Team Four (GIT4) that included: Healthy Waters, Land Use Metrics and Land Use Options Evaluation. The Bay Program requested the development of State two-year work plan strategies to begin during the reporting period and the VHWP Manager coordinated the VDEQ and VDOF to participate in the process. The Goal Implementation Team for Healthy Watersheds released a limited Request for Proposals for projects, in mid 2015 and the VDCR partnered with the VDOF to serve as an advisor to ensure that their modeled approach would be refined based on Healthy Waters Program data, ground-truthed where feasible and include a definition of ecologically healthy conservation areas.

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

c) DCR – Division of Outdoor Recreation

No Activities were reported this period.

5) Department of Game and Inland Fisheries (DGIF)

Recreational Fishing:

1. Stream Monitoring, Adult Anadromous Fishes
Weekly boat electrofishing for adult anadromous fish was begun in early March on the James and Rappahannock rivers in tidal and fall zone reaches, and upstream and downstream of the Harvell Dam removal project on the Appomattox River. Similar to 2014 and 2015, prolonged cold weather has slowed the migratory run so far this year. Hickory Shad were present in small numbers at the end of March on the James and Rappahannock rivers. Very few American Shad have been found on the James in tidal and fall zone reaches and only one so far in the tidal Rappahannock at Fredericksburg. Alewife numbers have been extremely low on the James and increasing, as expected, in the Rappahannock tidal reaches. Hickory Shad and Alewife were documented upstream of the Harvell Dam removal site in late March.

We are also sampling (backpack electrofishing) for river herring on two tidal tributaries of the Rappahannock in Fredericksburg. Herring have not yet shown up in Claiborne Run or White Oak Run. This is most likely due to low flow and continued cold weather. In 2015 Alewife were found downstream and upstream of a pool and weir fishway at Rt. 601 on White Oak Run. Blueback Herring were found just below the fish passage. Alewives were found just downstream of the new nature-like fishway on Claiborne Run and Gizzard Shad were found upstream indicating passability by Clupeids. Adult sampling will continue through early June. Adult monitoring is conducted to determine the extent of migration into restored habitat and to analyze inter-annual trends of abundance of the herring and shad populations.

In 2015 otoliths were taken from over 100 American Shad on the James from Richmond up to Boshers Dam. Approximately 71% were of hatchery origin, which is similar to many recent years. Striped bass run strength in the fall zone areas is also monitored and length/weight data is collected.

2. Boshers Dam Fishway (James River)
The estimate for American Shad passage in 2011 was 696 and the hourly passage rate of just over one per hour was the highest on record for the fishway's 16-year history. The estimates for 2012, 2013 and 2014 were 184, 196 and 24 respectively. 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 just below 200 American shad passed annually. This is not surprising considering other measures of abundance of American Shad in the James River indicate weak runs (fall zone boat electrofishing by DGIF; netting index by VIMS in tidal James).

3. Stream Monitoring, Juvenile Alosines
In 2015 from June to November juvenile American Shad were collected by boat electrofishing and/or push netting from the pool just upstream of Boshers Dam, at a few other upstream sites and from the tidal James near Richmond. A total of 74 juvenile American Shad were collected upstream of Boshers Dam in 2015 (only 1 in 2014 and zero in 2013). All 74 were of hatchery origin indicated by an oxytetracycline mark on their otoliths. The highest percent wild from upstream of Boshers Dam on record is 5%, and there are usually at least a few wild juveniles that show up in annual samples. Of the 149 juveniles examined from the tidal James, 53 were wild and 96 were of hatchery origin (36% wild and 64% hatchery). Recent upper tidal James River results: 2013 - 46.2% wild and 53.8% hatchery; 2014 48.2% wild and 51.8% hatchery. Some of the wild juveniles could have down-migrated from upstream of Boshers Dam and been collected in the tidal River (all of the hatchery fish down-migrated from upstream of Boshers where they were stocked) but it would have been a very low percentage based on the upstream results.

The Rappahannock was not stocked with juvenile American Shad fry in 2015 so no juveniles were collected for origin determination.

4. Fish Passage Projects
The DGIF continues to pursue the removal of Monumental Mills Dam on the Hazel River. Results of a detailed tile research project do not support any king's grant ownership of the river bottom. The owner of the dam is still cooperating and several key issues remain to be resolved before this project can proceed.

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. Major renovations are being planned for the dam including building a pool and weir fishway to provide passage for American Eel, resident fish species and possibly herring if they reach the dam during any future springs. Downstream beaver activity is likely the limiting factor for herring migration upstream to this dam. The design phase for the new spillway, emergency spillway and fish passage was recently initiated.

5. 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 which 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.

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

6. 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 habitats. 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 – VDGIF lacks the understanding to make informed statements of impact in most cases.

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

7. 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.

8. *Assessment of Critical Habitats for Recovering the Chesapeake Bay Atlantic Sturgeon Distinct Population Segment*
In 2015–2016, 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.

Geographic Information Systems/Data Management:

VDGIF continued to maintain spatial datasets of wildlife locations and resources in the coastal zone. VDGIF continues to focus on improving both the range and quality of our species occurrence data as well as information on VDGIF properties.

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.

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

NonGame Species Monitoring and Research:

1. American Oystercatcher Winter Surveys
DGIF, The Nature Conservancy's – Virginia Coast Reserve (VCR) and USFWS continued to conduct an annual winter American Oystercatcher survey in late fall/winter. Since 1999, the winter population estimates ranged between 1600 – 3,610 oystercatchers, which represent approximately 15% - 26% of the estimated Atlantic/Gulf coast population. Our December 2015 winter survey yielded a record total of 3,610 individuals, which represents a 24% increase from the previous highest total of 2,903 reported in January 2015. The majority of birds were concentrated in the middle marshes of the seaside lagoon system that extend from the backside of Hog Island south to the backside of Wreck Island.

2. Piping Plover Migration Surveys
In the spring and fall of 2015, DGIF conducted weekly piping plover migration surveys on six sampling plots along the Virginia barrier island chain. The purpose of this effort was to quantify the number of plovers utilizing the barrier islands during both migratory periods, look for banded individuals to assist with survival studies and to establish length of stay in Virginia, and assess human impacts at critical stopover locations. Spring surveys began March 1, 2015 and continued through April 2015. A total of 39 surveys were completed which yielded 200 observations of piping plovers. Seventy-seven fall surveys were conducted from August 15 – October 31, 2015 which yielded 171 plover observations. The larger numbers observed in the spring were likely due to the onset of the breeding season as many of our spring observations were comprised of territorial birds. We encountered only eight uniquely marked individuals, including one female that was banded in the Bahamas in February 2015 and arrived in Virginia in March to breed with an unmarked male. The pair successfully fledged one young on Cedar Island. The other banded birds were migratory and stayed for varying lengths of time before moving onto their breeding or wintering grounds. This project was funded by a Disney Conservation Grant awarded to Conserve Wildlife Foundation of New Jersey Inc. The grant provided one temporary technician to assist with spring and fall surveys.

3. Piping Plover Winter International Census
The VDGIF coordinated and participated in the 2016 International Piping Plover Winter Census, which was held from January 18 – February 1, 2016. The international census occurs every five years and this year's count was the third time Virginia participated in this broad scale effort. As in the previous two censuses, only one piping plover was detected on the barrier island chain and no plovers were encountered at any of the sites surveyed across the Chesapeake Bay.

4. Virginia/Maryland Sea Turtle Conservation Plan
In 2011, DGIF contracted with the VA Aquarium and Marine Science Center to oversee and complete a complete a three-year project entitled *Virginia/Maryland Sea Turtle Conservation Initiative.* One component of this multi-faceted endeavor that is being funded by the National Marine Fisheries Service is to update and combine Virginia's and Maryland's sea turtle management plans. The end product will be a sea turtle conservation plan that is tailored to Virginia's and Maryland's in-water habitats and adjacent shorelines. The

plan will focus on local threats to sea turtles and describe conservation actions considered necessary to reduce impacts from these threats. During this reporting period, the final draft of the conservation plan was completed and is awaiting internal agency review.

5. *Atlantic Slope Freshwater Mussel Propagation*

The VA Department of Game & Inland Fisheries continues its cooperative Atlantic Slope freshwater mussel propagation facility with the U.S. Fish & Wildlife Services' Harrison Lake National Fish Hatchery in Charles City, marking the 9th year of production and 10th year of operation at the VA Fisheries and Aquatic Wildlife Center (VFAWC). Propagation for the 2016 season started in early March with the collection of broodstock from the Nottoway River in Southampton County and later in the month from the Meherrin River in Emporia and the Appomattox River near Appomattox. A total of 67 individuals of 6 species were collected from the 3 sites. We plan to collect additional mussels in April from the Tye River, Nelson County and endangered James spinymussel from Bath County and Buckingham County in June. Infestations will not begin until April since two species that we usually work with in February and March we are not working with in 2016 so we can focus efforts on other species. Target propagation goal for 2016 is approximately 312,00 juvenile mussels of 8 species with grow out and release of approximately 30K mussels. Most of the species targeted for propagation in 2016 are not listed as threatened or endangered, but all are either listed as a species of greatest conservation need in Virginia's Wildlife Action Plan or as a species of concern by the USFWS. However, work with the federally endangered James spinymussel (*Pleurobema collina*) is being continued for a 2nd year and we are again focusing efforts on the state-threatened and federally petitioned green floater (*Lasmigona subviridis*). In addition to propagation during 2016, numerous subadult mussels propagated in 2014 and 2015 are being held for release in 2016. Numerous propagated and released individuals were recaptured in March during collection of females from the Nottoway and Meherrin Rivers, with many reproducing in the wild. Facility wise, VFAWC remains relatively unchanged from our expansion in 2012. New systems that other facilities have used successfully have been constructed to try for improved grow out.

6. Bald Eagles

Bald Eagle populations have increased dramatically over the past 30 years across North America. The Chesapeake Bay Region (CBR), which houses one of the densest populations of Bald Eagles in North America, has experienced nearly a 20-fold increase of breeding pairs of Bald Eagles, since the 1970s. During the early 1970s, VA had only ~30 breeding pairs of Bald Eagles; there are now more than 730 breeding pairs in the coastal plain during 2011, and more than 850 pairs state-wide. Moreover, the CBR houses thousands of migrant Bald Eagles from northern and southern states during mid-winter and mid-summer, respectively. In addition, there are large numbers of resident non-breeding individuals, of multiple age classes, that exploit the CBR's rich prey resources and high quality habitat. As populations of Bald Eagles have increased so have conflicts with human activities. Two of the most pressing management issues wildlife agencies face in the Mid-Atlantic region are: 1) eagle collisions with military and civilian aircraft and 2) the potential negative impacts that commercial wind facilities may have on eagles due to strikes with turbines. Both of these issues are important to human safety and economic development, as well as conservation of VA's natural resources. In addition, although bald eagle populations have recovered, human activity still impacts them and it is important to understand the scope and consequences of these impacts to eagles.

Air-strike: 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 stuck 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). Currently, DGIF, USDA-WS, and Norfolk International Airport (NIA) are dealing with ongoing efforts to reduce the risk of air-strikes with a nesting pair of eagles near NIA. Although, none of these bird strikes has led to human fatalities, the risk is always present and the economic damage is significant. The DGIF and USDA-WS are faced with novel management challenges, not only at NIA but throughout the Commonwealth, related to issues concerning reduction of strike hazard with eagles. Due to a lack of scientific

information concerning ranging behavior and flight characteristics of Bald Eagles, scientifically sound management recommendation are at present, challenging to make or implement. 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. These models will include elements of circadian rhythms, interactions with weather, and the influence that landscape has on eagle behavior. We proposed to telemeter 30 adult individuals from nesting pairs, 30 nestlings, and 30 non-breeding eagles with high resolution GPS-GSM telemetry systems. These units provide data on the birds GPS location, including location and flight altitude, at 15-minute intervals. We will also program units so that one day out of every two weeks they will collect data at 30 second intervals, so we can sample intimate details of eagle flight. With these data in hand, we can then evaluate the risk that Bald Eagles pose to aircraft at different times of year. Risk assessment will provide managers and pilots with quantitative information on relative probabilities of encountering Bald Eagles at certain times of day, year, and altitude. Further, flight data and ranging behavior of eagles can be used for the following: 1) Identify time periods (daily and seasonally) when strike potential is high for military training exercises, 2) evaluate flight paths at military and civilian air stations in the context of space used by the local eagle population, 3) determine the effectiveness of and need for nest removal near airports, 4) identify weather conditions and landscape features that increase strike potential. The information we provide can then be incorporated into comprehensive BASH programs at the numerous military and civilian air stations across VA and will serve as a model for nationwide programs. To date, DGIF biologists have telemetered approximately 30 Bald Eagles of every age class. Delays in the purchasing of telemetry equipment have severely impacted our ability to deploy telemetry. In spite of these delays, we believe we have been moderately successful in moving towards completion of objectives. Fortunately, DGIF funded a two-year extension of the project to deploy the remaining 60 transmitters. A sample of maps and movement analyses we have provided is attached (Figures 1, Table 1 & Figures a through f). 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.

Assessing human impacts to eagles: Human impacts to wildlife are an important part of conservation biology. Construction over the past decade of a county boat ramp at Wilcox Wharf on the James River has been an issue of great concern due to the proximity of nesting Bald Eagles and communal eagle roosts and the high eagle use along the shoreline by summer migrant eagles. The section of shoreline up-stream and down-stream form Wilcox Wharf is considered one of the most significant segments of the James River Bald Eagle Concentration Area. Historically, boat traffic and near-shore boating are known to be negatively associated with eagle shoreline use. Installation of the boat ramp will result in increased boating activity and may impact eagle use along this section of the river. We plan to evaluate these impacts through a variety of methods, including a Before-After-Control-Impact (BACI) survey design. We conducted boat-based surveys at Wilcox Wharf 4 times per month during the summer of 2013. These surveys encompassed the area of 5 miles up-stream and 5-miles down-stream from the existing ramp. During surveys, we recorded all observations of both eagle and human activity. Survey data will enable us to evaluate impacts (if any) of human activity on eagle abundance and distribution with a traditional BACI study. Finally, we are also in the process of assessing historic survey data over the past decade to evaluate distributional and abundance changes along this segment of the James River. Expected results from this research will include: 1) detection of changes (if any) in distribution and abundance of Bald Eagle use along the 10 mile shoreline segment at Wilcox Wharf, 2) documentation of changes in boat traffic and near-shore boat use along this shoreline segment, 3) evaluation of changes in eagle distribution and abundance from historic levels (1990's), and 4) a final statistical model that evaluates the influence that increased boating may have on eagle shoreline use. A final report for this project should be available in the December of 2016.

7. 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. National 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 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 26 pairs (B. Watts, personal communication), including a coastal population of 23 pairs. Evidence of breeding (2 grounded juvenile birds) was also documented in the Reston area within the northern Virginia Piedmont. DGIF also monitors and manages a pair which has bred in downtown Richmond 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). Six males and five females from three VA bridge sites (James River Bridge, Norris Bridge and Chesapeake Bay Bridge Tunnel) and from the Reston area were hacked at SNP in 2015 (L. Mojica, personal communication). Surveys and monitoring at several sites in western VA continued in 2015 through a partner network that includes DGIF, the Conservation Management Institute at Virginia Tech and West Virginia University (via contract), National Park personnel/Student Conservation Association interns and the US Forest Service. For the first time in several years, a breeding pair was not documented at SNP (one individual only was seen there early in the season). Two sites had breeding pairs (Breaks Interstate Park and White Rocks at Cumberland Gap National Historical Park). The eyrie at Breaks was actively monitored by CMI and DGIF and was documented to fledge two juveniles. The location of the White Rocks eyrie remained unknown despite survey efforts, and no evidence of breeding was documented.

8. 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. Wilson et al. (2015) report the following. A total of 83 red-cockaded woodpeckers were identified in 2014, including 60 adults and 23 fledglings produced in 2014. During the breeding season, there were 56 birds distributed into 13 breeding clusters and one cluster comprised only of males. Surveys in the early winter identified 66 birds roosting in 14 cluster areas, including 52 birds that were produced on site before 2014 and 15 of the 23 birds that fledged in 2014. 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 FY15 DGIF also took part in planning activities with the USFWS, The Nature Conservancy and the Center for Conservation Biology at the College of William and Mary/Virginia Commonwealth University for the reintroduction of red-cockaded woodpeckers in the Great Dismal Swamp in FY16. 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.

9. King Rail and Clapper Rail:

The king rail, a priority species in the VA 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 VA. 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 VA, 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 will draw on links between acoustic monitoring, genetics, morphology and ecology. This study will also lay the ground work for a more complete geographic assessment of the distribution, abundance and status of king, clapper and hybrid populations, to allow for more effective monitoring and conservation planning. In its pilot year on the Pamunkey River, rails were captured at night using a dip net from an airboat in October 2013, and field personnel experimented with other trapping techniques in June 2014. Additional trapping via airboat was conducted in August 2014. In 2015, autonomous recording units were deployed in target marshes on the Pamunkey River, and playback surveys targeting the two rail species in these same marshes. The recorded data will be used in acoustic analyses and, with the results of the surveys, will be used to create occupancy models for the two species. Also during the performance period, preliminary genetic (mitochondrial DNA) analyses were conducted on the samples obtained via airboat captures in 2013, and environmental DNA samples were collected in the target marshes on the Pamunkey River. Data collection in 2016 will shift to marshes along the Mattaponi River.

SECTION B.3 FEDERAL CONSISTENCY

During the period of October 1, 2015 and March 31, 2016, the Office of Environmental Impact Review/Federal Consistency (OEIR) reviewed 70 development projects and management plans for consistency with the Virginia Coastal Zone Management Program (VCP). This represents 58% of the total amount of projects reviewed (118) during this period. Major state projects accounted for 42 projects, 6 were National Environmental Policy Act (NEPA) documents without a federal consistency component, 52 were federal actions, and 18 were federally funded projects. The 52 federal actions included 29 federal agency activities, 23 federal licenses and approvals, and 0 outer continental shelf projects. The 29 federal agency activities included 16 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 an done U. S. Department of Agriculture project. All federal consistency determinations and federal consistency certifications were completed within the established legal deadlines.

On January 28, 2016, DEQ hosted training for representatives of the agencies and programs that administer the enforceable policies of Virginia's Coastal Zone Management Program. Kerry Kehoe of the NOAA Office for Coastal Management conducted the training focusing on the Coastal Zone Management Act.

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 10-1-14 to 3-31-15.

TYPE OF FEDERAL PROJECTS REVIEWED*	NUMBER OF PROJECTS COMPLETED	REVIEW PERIOD
*Direct Federal Actions	29	30-60 Days
** Federal Activities (approvals & permits)	23	90 Days
***Federally Funded Projects	18	30 Days
Outer Continental Shelf	0	45-60 Days
TOTAL	**70**	**30-90 DAYS**

*Includes 16 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 10/1/15 to 3/31/16

I. Federal Agency Projects

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

15-136F - Tidal Gage and Access Pier Installation-USCG - The U.S. Geological Survey and the National Aeronautics and Space Administration have entered into an agreement to install and operate a tide monitoring station at the NASA Langley Research Center (LaRC) on Brick Kiln Creek in the City of Hampton. The data from this monitoring station will be used to provide enhanced flood warnings for the immediate area as well as long-term sea-level rise and land subsidence information. In order to properly monitor the water level at this location, the USGS will need to have a pier structure constructed off the back edge of NASA's property and extending into Brick Kiln Creek. The pier is necessary to mount the water-level sensor out in the channel at a location where it will be over water during the lowest low tide scenarios and also for future maintenance of the monitoring station. The pier will be 5' x 24' in size. The pier will start 4-feet inshore from the bank and extend 20-feet out into the Creek. This site already houses a tidal gauge that this project will replace and improve upon. According to the FCD, the project will be consistent with the enforceable policies of the Virginia Coastal Zone Management (CZM) Program to the maximum extent practicable. The reviewing agencies that are responsible for the administration of the enforceable policies generally agree with the FCD.

15-146F -Chincoteague & Wallops Island National Wildlife Refuge Comprehensive Conservation Plan (CCP) & Environmental Impact Statement (EIS) - The U.S. Fish and Wildlife Service (FWS) submitted a federal consistency determination (FCD) for the CCP and EIS on the 15-year management of the Chincoteague and Wallops Island National Wildlife Refuges. DEQ reviewed the draft CCP and EIS under DEQ 14-084F.

Alternative B is the FWS' preferred alternative and would continue established habitat and wildlife management strategies but would pursue additional management activities for resources and public use. The refuge would protect and maintain all lands it administers, primarily focusing on the needs of threatened and endangered species, with additional emphasis on the needs of migratory birds and resident wildlife. The FCD identifies future projects under the CCP, including the following:

- Construction of a new water control structures to improve tidal flow to Swan Cove Pool (F Pool);
- Improvement or replacement of all water control structures to maximize flow capabilities;
- Relocation of the recreational beach and parking (and necessary road widening and infrastructure);
- Construction of a vehicle-turnaround area with parking, crabbing dock and launch point for non-motorized boats in the Beach Road/South Pony Corral area; and
- Improvement of the existing septic system.

The refuge also plans to restore a light keeper's house and continue to manage other cultural resources. While some strategies may be implemented immediately after a final decision is made, other actions like those listed above would require additional analysis and documentation prior to implementation. According to the FCD, the CCP will be consistent, to the maximum extent practicable, with the enforceable policies of the Virginia Coastal Zone Management (CZM) Program. The reviewing agencies that are responsible for the administration of the enforceable policies generally agree with the FCD. Based on the review of the FCD and the comments submitted by agencies administering the enforceable policies of the Virginia CZM Program, DEQ concurs that the CCP, including those activities that do not require future environmental review, is consistent, to the maximum extent practicable, with the enforceable policies of the Virginia CZM Program. However, DEQ anticipates that the FWS will submit a FCD pursuant to the Coastal Zone Management Act (CZMA) of 1972, as amended (16 USCA, CZMA § 307, § 1456(c)(3)(A)) and its implementing federal consistency regulations (15 CFR Part 930, subpart C) for the proposed relocation of the beach and parking, and construction of water control structures, the crabbing dock and boat launch as well as any applicable activities for which additional site-specific environmental analysis is required.

15-164F - Implementation of the Integrated Natural Resources Management Plan and Integrated Cultural Resources Management Plan - Fort A. P. Hill prepared an EA and FCD to analyze the potential for environmental impacts associated with the implementation of the fort's Integrated Natural Resources Management Plan (INRMP) and Integrated Cultural Resources Management Plan (ICRMP). The primary objective of these plans is to provide a proactive natural and cultural resources management tool that allows Fort A.P. Hill to achieve resource management goals, mission requirements, and compliance with environmental regulations and policies. Each plan has elements specific to the management of the resources it is designed to support. Pesticide application would result in minor, temporary impacts to air quality. Prescribed burns would be expected to contribute the greatest amount of air pollutants; however, those impacts would be temporary and compliance with best management practices within the Integrated Wildland Fire Management Plan would minimize impacts. Impacts to surface waters and biological resources are not expected to be significant. According to the FCD, the project will be consistent with the enforceable policies of the Virginia Coastal Zone Management (CZM) Program to the maximum extent practicable. The reviewing agencies that are responsible for the administration of the enforceable policies generally agree with the FCD.

16-014F - West End Transitway - The Federal Transit Administration (FTA) and the City of Alexandria (project sponsor) has submitted a FCD for the proposed West End Transitway project located in the City of Alexandria and Arlington County. The proposed project involves transit improvements along Van Dorn and Beauregard Streets in Alexandria's West End, along an 8-mile corridor. The purpose of the project is to provide high-capacity transit services between the Van Dorn Metrorail station and the Pentagon in Arlington County. The transitway would connect high ridership bus transfer stations at the Landmark Mall, the Mark Center, and Shirlington. The project will improve transportation services by providing a one-seat ride connecting the

Landmark/Van Dorn, Alexandria West, Seminary Hills, and Beauregard neighborhoods using a combination of dedicated and shared transit lanes. The transitway would be constructed primarily within or adjacent to existing rights-of-way. According to the FCD, the project will be consistent with the enforceable policies of the Virginia Coastal Zone Management (CZM) Program to the maximum extent practicable. The reviewing agencies that are responsible for the administration of the enforceable policies generally agree with the FCD.

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).

15-143F - Bay Aging Single Family Replacement House Construction - Bay Aging submitted a FCD pursuant to the Coastal Zone Management Act for a proposed project in Northumberland County. The project will include the demolition of an existing house without indoor plumbing and construction of a two-bedroom home with an alternative septic system and well within the same footprint. Bay Aging is receiving funding from the U.S. Department of Housing and Urban Development (HUD). According to the FCD, the project is consistent with the enforceable policies of the Virginia Coastal Zone Management (CZM) Program. The reviewing agencies that are responsible for the administration of the enforceable policies generally agree with the FCD.

16-012F – Cypress Landing - Second Act Communities plans to construct a veteran's support center named Cypress Landing on approximately 6.4 acres along Knells Ridge Boulevard in Chesapeake. Approximately 1.75 acre will be developed. The project is seeking funding from the U.S. Department of Housing and Urban Development via the City of Chesapeake. The proposed facility will contain 50 units of permanent housing for disabled and/or homeless veterans, community space, bike storage areas, community room and exercise space. According to the federal consistency determination, the project is consistent with the enforceable policies of the Virginia Coastal Zone Management (CZM) Program to the maximum extent practicable. The reviewing agencies that are responsible for the administration of the enforceable policies generally agree with the FCD.

16-018F – Belleville Meadows Apartments - The USDA proposes to provide Section 515 financing to Belleville Meadows, LLC (the applicant) for the renovation and redevelopment of the Belleville Meadows Apartments located at 5609 Plummer Boulevard in Suffolk, Virginia. The purpose of the project is to repair and renovate an existing affordable multifamily housing facility. The property consists of 128 units (64 one-bedroom and 64 two-bedroom) situated on approximately 8.17 acres. Exterior property work will include improvements to landscaping and asphalt paved areas, replacement siding, HVAC, windows, doors, and insulation. The interior rehabilitation scope of work involves carpet and tile replacement, along with new hot water heaters and appliances. According to the federal consistency determination, the project is consistent with the enforceable policies of the Virginia Coastal Zone Management (CZM) Program to the maximum extent practicable. The reviewing agencies that are responsible for the administration of the enforceable policies generally agree with the FCD.

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

15-122F - Creighton Road Improvements and Bridge Replacement - The Norfolk District of the U.S. Army Corps of Engineers (Corps) is reviewed a Joint Permit Application submitted by the County of Henrico (applicant) for the issuance of an individual permit pursuant to Section 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 Creighton Road Improvements and Bridge Replacement Project. The proposed project would replace the existing bridge that carries Creighton Road over an unnamed perennial tributary (Tributary 1)

of Stony Run and to make associated road and drainage improvements along Creighton Road. The existing bridge is severely deteriorated and beyond its service life. The project site is located in eastern Henrico County, approximately 0.5 mile east of Interstate 64 and adjacent to the Glenwood Golf Club. The project incorporates an approximately 2,800-foot roadway segment that extends from the intersection of Creighton Road and Caddie Lane to approximately 500 feet east of the intersection of Creighton Road and Stone Dale Drive. The surrounding land use includes the golf club, residential neighborhoods, and forested areas to the south. The proposed project would disturb approximately 7.5 acres and would create 1.3 acres of new impervious surface. The federal consistency certification was submitted for a federal agency activity pursuant to the federal consistency regulation 15 CFR 930.51 (Subpart D) for projects requiring a federal license or permit. DEQ determined that the project is consistent with the enforceable policies of the Virginia Coastal Zone Management Program.

15-127F - Columbia Gas MS 840548 POD Sideline Installation - The Columbia Pipeline Group (Columbia or applicant) proposes to construct the MS-840548 VM107 and VM-108 Point of Delivery (POD) Sideline Installation Project in Prince George County. The project site is located approximately one-half (0.50) of a mile northwest of the intersection of Virginia State Route 629 (West Quaker Road) and Wells Station Road and is accessible via an existing gravel access road adjacent to an existing gas utility easement. The project will entail the installation of a new 4-inch tap and 50 feet of 4-inch sideline pipe to the edge of both natural gas lines VM-107 & VM-108 (12-inch pipelines) to aid in the adjacent development of the Rolls Royce Point of Delivery POD station. Columbia Gas of Virginia (a separate party) will be responsible for the installation of the associated POD station and associated infrastructure adjacent to the Columbia Pipeline Group VM-107 & VM-108 right-of-ways (ROWs). Construction of the POD station is not included in this review. DEQ determined that the project is consistent with the enforceable policies of the Virginia Coastal Zone Management Program.

15-147F - Charter Colony Tracts 6 and 7 - Reynolds Real Estate Ventures, LLC and Charter (E&A) LLC have submitted a Federal Consistency Certification for the proposed construction of Charter Colony Tracts 6 & 7. The proposed project involves the continued commercial and retail development on an approximately 48.29-acre project site located along the south side of Route 60 and the east and west side of Charter Colony Parkway in Chesterfield County, Virginia. The project involves the construction of access roads, parking facilities, stormwater management, and other supporting infrastructure for the development on two tracts of land. Tract 6 is located along the east side of Charter Colony Parkway and Tract 7 is located on the west. The project site was entirely forested and contains 10.70 acres of non-tidal palustrine forested wetlands (PFO) and 802 linear feet of ditch (0.07-acre). A Joint Permit Application for a modification to an existing permit (NAO-2007-02569) for impacts to wetlands and perennial streams has been submitted to the Norfolk District of the U.S. Army Corps of Engineers. The existing permit is for permanent impacts to 5.91 acres of non-tidal PFO and 802 linear feet of ditch. The modification request is for an additional 0.137-acre of upland buffer encroachment for Tract 7 for the purpose of constructing a sidewalk along LeGordon Drive and an additional impact to 0.18-acre of non-tidal PFO and 0.02-acre of encroachment into the upland buffer preservation as a result of site access changes along Charter Colony Parkway for Tract 6. Construction on Tract 7 has commenced and includes the construction of a commercial and retail stores, a gas station, parking and stormwater management facilities. Construction activities on Tract 6 have not commenced. DEQ determined that the project is consistent with the enforceable policies of the Virginia Coastal Zone Management Program.

15-153F - WeatherFlow Marine Weather Instruments on Fixed Aids to Navigation - WeatherFlow, Inc. (applicant) is seeking approval from the United States Coast Guard to place weather instruments on key Fixed Aids to Navigation to provide the USCG and the National Weather Service with highly accurate marine weather data. The navigational aids included in this project are: Occaquan River Light 6, Tangier Sound, and Poquoson River Light 10. The data produced from the instruments will be used to improve the accuracy of marine forecasts and warnings by the National Weather Service and will aid with faster response times for USCG Search and Rescue operations. DEQ determined that the project is consistent with the enforceable policies of the Virginia Coastal Zone Management Program.

15-193F - Waller Property - The Norfolk District of the U.S. Army Corps of Engineers is reviewing a Joint Permit Application submitted by FarmBrown, LLC (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 (WOUS) from the proposed Waller Property development in Henrico County. The 10.256-acre Waller Property is the location of a proposed residential development in western Henrico County at N. Gayton Road and Kain Road. The proposed project will impact 0.412 acres of wetlands, 1.445 acres of open water and 13 linear feet of stream. All WOUS remaining within the Stream Protection Area will be placed within a deed restricted covenant to ensure no further impacts. All impacted WOUS will be mitigated through an approved compensatory mitigation bank. DEQ determined that the project is consistent with the enforceable policies of the Virginia Coastal Zone Management Program.

15-194 - Hanover County Airport East Side Terminal Development - Hanover County (applicant) is seeking approval from the Federal Aviation Administration (FAA) to make improvements at the Hanover County Airport (OFP) located in Hanover, Virginia. The proposed project includes improvements and development at the east side terminal area including: a transient and based aircraft parking apron, a terminal building, maintenance and storage hangars, T-hangar facilities, fuel storage facilities, an automobile parking lot, an airport access road, utility connections, and a security fence. This consistency certification is submitted pursuant to the federal consistency regulation 15 CFR 930 Subpart D- Consistency for Activities Requiring a Federal License or Permit. The applicant certifies that the project is consistent with the enforceable policies of the Virginia Coastal Zone Management (CZM) Program.

The project was previously reviewed under DEQ #08-026F. The 2008 review included an Environmental Assessment that encompassed multiple projects on the site and a FCC submittal. The East Side Terminal Development project has been resubmitted for federal consistency evaluation due to the length of time since the previous review. DEQ determined that the project is consistent with the enforceable policies of the Virginia Coastal Zone Management Program.

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 18 projects from October 1, 2015 to March 31, 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
1 home rehabilitations/weatherizations
3 new multifamily housing constructions
2 demolitions of blighted property
1 wastewater collection system improvement
1 fire station improvement
2 sidewalk construction
1 financial assistance for home purchase and rehabilitation
1 breakwater construction
1 municipal raw water intake and water line construction
1 business development center rehabilitation
1 mix-use development construction
1 school recreation facilities improvements
1 VIMS EPA grant for SAV monitoring

Examples of Federally –funded projects which were reviewed:

1806 – Sewer System Improvements - The Town of Exmore is seeking financial assistance from the U.S. Department of Agriculture Rural Utilities Service (USDA-RUS) for the extension of sewer service to homes and businesses currently served by septic systems. The extension project has been grouped into seven Priority Projects. Projects 1 through 4 are recommended and projects five though seven can be completed in the future is needed. The projects include:

- Priority Project 1: Downtown to Virginia Street Pump Station
- Priority Project 2: North Main Street to Wells
- Priority Project 3: North Exmore Laterals
- Priority Project 4: West Exmore Laterals
- Priority Project 5: South Main Street Force Main Replacement
- Priority Project 6: US 13 Force Main Extension
- Priority Project 7; New Roads Community Extension

Project activities include the replacement and installation of force main pipe and lateral pipe in sizes from 2 to 8 inches. New pipelines may require permanent and/or temporary construction easements. The pipeline will be routed in the public right-of- way or an existing utility easement whenever possible to avoid impacts to natural and historic resources. DEQ determined that the project is consistent with the enforceable policies of the Virginia Coastal Zone Management Program.

1807 - Buckner Boulevard Sidewalk Project - The City of Virginia Beach plans to close a 3,100 linear foot gap in the existing pedestrian sidewalk between Rica Drive and Rosemont Road. The sidewalk will be an eight-foot wide concrete sidewalk located along the south side of Buckner Boulevard. It will be designed to comply with the American Disabilities Act (ADA). Handicap ramps and crosswalks are proposed at La Salle Drive, Student Avenue and Rosemont Road. The sidewalk located on the southwest corner of the Rosemont Road and Buckner Boulevard will be widened to improve accessibility to the existing pedestrian signal controls. Two pole mounted pedestrian signals, and its associated junction boxes, conduits and signage will be installed to accommodate the proposed pedestrian crossing on Rosemont Road. Minor improvements to the stormwater sewer system will be required to accommodate the sidewalk. These improvements include erosion/sediment control, relocating existing drainage structures and the storm pipes. All improvements will lie entirely within the existing right-of-way. DEQ determined that the project is consistent with the enforceable policies of the Virginia Coastal Zone Management Program.

181 – Demolition of Eight Houses – Norfolk- The City of Norfolk intends to demolish eight residential properties found to be blighted. The eight properties are located at the following addresses:

- 419 W 30th Street
- 1024 Tunstall Avenue
- 5713 Chesapeake Boulevard
- 5709 Chesapeake Boulevard
- 1048 Rugby Street
- 1018 Avenue H
- 113 W 39th Street
- 1317 Hibie Street

This U. S. Department of Housing and Urban Development assisted project will utilize Community Development Block Grant (CDBG) funding for the demolition of the residential property in the City. DEQ determined that the project is consistent with the enforceable policies of the Virginia Coastal Zone Management Program.

SECTION B.4 PROGRAM CHANGES

CZM staff met with DEQ leadership staff in December to inform them of the outcome of the Coastal Policy Team's (CPT) September meeting. The CPT had agreed that: 1) the CZM Program should move forward with developing narrative enforceable policies, starting with the Department of Game and Inland Fisheries, 2) that FY 14 and FY15 funds ($60K total) earmarked for program changes should be used to start work on this process, and 3) that the William and Mary Coastal Policy Center (CPC) should be contacted to discuss opportunities to help with this process. The CPT had also discussed using a topic-based approach (like Maryland's) versus an agency-based system, which is how Virginia's policies are currently organized. It recommended moving ahead with the agency approach for now, since program change packages have already been developed for the Department of Game and Inland fisheries that could provide structure for further analysis. This was also supported by the CPT because of the importance of moving ahead with inclusion of state-listed threatened and endangered species. It was suggested that ways to ultimately organize the policies could be discussed further at the Coastal Partners' Workshop in November, 2016. DEQ staff were generally supportive of the direction recommended by the CPT.

Virginia CZM staff met with CPC staff about the initiative in January, 2016. CPC staff and law students have already conducted some initial background research and worked to draft scopes of work for the pilot project. Once scopes of work are finalized an advisory group will be formed (including DGIF, EIR, CZM, NOAA, the AG's office and others) to review draft policies developed by the CPC in order to facilitate discussion. Federal consistency training was also provided in January by NOAA staff at DEQ. The training provided helpful insights into the potential benefits of new narrative policies to improve understanding of Virginia's policies by both project proponents and state reviewers.