

October 30, 2007

**Virginia Coastal Zone Management Program
Performance Report for State Cooperative Agreement Number: NA06NOS4190241
For the Period from April 1, 2007 - October 30, 2007**

Semiannual Section B Report on Core Agency Implementation Activities

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A. STATE AGENCY MONITORING

1) DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ)

a) DEQ – Virginia Coastal 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. The GIS Coordinator position remained vacant during this period however, it was advertised and is expected to be filled during the next reporting period. The Grants Coordinator position was vacated on August 25, 2007. Interviews were conducted in October and the position is expected to be filled during the next reporting period.

b) DEQ – Water Permitting Program

The Virginia Pollution Abatement permit (VPA) is required for facilities that collect and store water. For example, an agricultural facility that temporarily stores wastewater to be applied as part of an irrigation/fertilization program. The Virginia Pollution Discharge Elimination System (VPDES) permit is required for all point sources of water discharge. The Virginia Water Protection Permit (VWPP) 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. The following table describes the activity for each of these permits:

VPDES/VPA/VWP - October 1, 2006 – March 31, 2007										
	Permits Issued / Avg Proc. Days		Permits Reissued / Avg Proc. Days		Permits Modified / Avg Proc. Days		Denied / Avg Proc. Days		Waivers / Avg Proc. Days	
VPDES									NA	NA
VPA	0	NA	0	NA	0	NA	0	NA	NA	NA
VWP IPs	3	156	1	161	1	131	NA	NA	NA	NA
VWP GPs	185	58	NA	NA	NA	NA	NA	NA	NA	NA
Totals										

*Data retrieved from the DEQ CEDS database

c) DEQ – Water Program Enforcement and Compliance

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

Informal measures, such as Warning Letters and Letters of Agreement, are used in those cases where non-compliance is not significant in nature and where compliance can be achieved in a short period of time. For the period April 1, 2007, through September 30, 2007, DEQ issued 100 Warning Letters and one Letter of Agreement for violations of VPDES, VPA and VWPP program requirements.

Formal enforcement actions are used in those cases where non-compliance is more serious or may take a significant amount of time to correct. Formal measures generally involve the issuance of a Notice of Violation followed by a Consent Order, or an Executive Compliance Agreement in the case of a state agency. In some

cases, Unilateral Administrative Orders or court orders may be sought. Between April 1 and September 30, 2007, DEQ issued 60 Notices of Violation for violations of VPDES, VPA and VWPP program requirements. During the same period, the agency concluded enforcement cases with the issuance one Executive Compliance Agreement and 10 Consent Orders, assessing a total of \$102,650 in civil charges. One of the ten Consent Orders includes a Supplemental Environmental Project (SEP) as part of the administrative settlement; the SEP addresses water quality monitoring and non-point source pollution control.

Table 1

Measure	Action Type	Count	Total Civil Charges Assessed
Informal	Warning Letters	100	n/a
Informal	Letters of Agreement	1	n/a
Formal	Notices of Violation	60	n/a
Formal	Consent Order	10	\$102,650
Formal	Executive Compliance Agreement	1	
Total		172	\$102,650

d) DEQ – Air Permitting Program

**PERMITS ISSUED REPORT FOR
VIRGINIA’S COASTAL RESOURCES MANAGEMENT PROGRAM**

Period: **April 1, 2007 – September 30, 2007**

PERMIT TYPE	NUMBER OF PERMITS ISSUED	AVERAGE PROCESSING TIME (Days)
PSD & NA	0	NA
Major	1	86
Minor	57	47
Administrative Amendment	5	103
Exemptions	89	19
State Operating	18	70
Federal Operating (Title V)	0	NA
Acid Rain (Title IV)	0	NA
Total Number Permits Issued	<u>170</u>	

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

Please note that the information provided for this report includes data from the Fredericksburg Satellite Office, Northern Virginia Regional Office, Piedmont Regional Office and 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 combination of regulated pollutants, or who 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 = Application for permit written pursuant to 9 VAC 5-80-800.

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 = Changes made to the permit to clarify or correct an issued permit. For example, equipment references, improved control equipment, reductions of allowed emissions below the exemption levels, etc.

Exemption = Facilities meeting are exempted from permitting requirements by exemption levels defined in 9 VAC 5-80-11.

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 criteria pollutants above major source levels.

Acid Rain (Title IV) = tightens the annual emissions limits for SO₂ and NO_x which are imposed on large higher emitting electric utility plants and sets restrictions on smaller, cleaner plants fired by coal, oil, and gas.

**PERMITS PENDING REPORT FOR
VIRGINIA’S COASTAL RESOURCES MANAGEMENT PROGRAM**

Permits pending as of **September 30, 2007**

PERMIT TYPE	NUMBER OF PERMITS PENDING
PSD & NA	1
Major	2
Minor	32
Administrative Amendment	4
Exemptions	15
State Operating	17
Federal Operating (Title V)	8
Acid Rain (Title IV)	2
Total Permits Pending	<u>81</u>

Note: The information provided for this report includes data from the Fredericksburg Satellite Office, 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 enforcement program. Reference Table 2, below.

Informal measures include Requests for Corrective Action, Informal Correction Letters, Warning Letters, and Letters of Agreement. These actions are used in those cases where non-compliance is not significant in nature and where compliance can be achieved in a short period of time. During the six-month period beginning April 1, 2007, and ending September 30, 2007, DEQ issued 117 Requests for Corrective Action, one Informal Correction Letter, and 57 Warning Letters

Formal enforcement actions are used in those cases where non-compliance is more serious or may take a significant amount of time to correct. Formal measures generally involve the issuance of a Notice of Violation

and negotiation of a Consent Order, or an Executive Compliance Agreement in the case of a state agency. In some cases, Unilateral Orders or court orders may be pursued. Between April 1, 2007, and September 30, 2007, DEQ initiated 18 new formal enforcement actions via issuance of Notices of Violation. In addition, the agency issued 12 consent orders and one Federal Court Amended Consent Decree; these orders assessed a total of \$345,658 in civil charges.

Table 2

Measure	Action Type	Count	Total Civil Charges Assessed
Informal	Request for Corrective Action	117	n/a
Informal	Informal Correction Letter	1	n/a
Informal	Warning Letter	57	n/a
Formal	Notice of Violation	18	n/a
Formal	Consent Order	12	\$95,658
Formal	Federal Consent Decree	1	\$250,000
Total		206	\$345,658

2) VIRGINIA MARINE RESOURCES COMMISSION (VMRC)

a) VMRC – Habitat Management Division

During the period April 1, 2007 through September 30, 2007 the Habitat Management Division received 1435 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. Eleven sworn complaints were issued during the period.

The Habitat Management Staff completed actions on 1084 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 2006. Similarly those applications received near the end of the current reporting period are still under review. Habitat Management Staff also issued 42 general permits for Virginia Department of Transportation projects.

In addition to staff actions, the Full Commission considered 98 projects. During the reporting period the Commission considered 46 protested projects or projects requiring a staff briefing, including one appeal of a local wetlands board decision. The Commission also approved 52 projects over \$50,000.00 in value for which staff had completed the public interest review and for which there was no objection

b) VMRC – Fisheries Management Division

At the April 24, 2007 Commission meeting a public hearing was held on the proposed amendments to Regulation 4 VAC 20-490, “Pertaining to Sharks”, to establish a commercial trip limit of 3,000 pounds for Spiny Dogfish for the May 1 – April 30 fishing season. The Commission moved to adopt a 3,000 pound commercial possession limit.

At the April 24, 2007 Commission meeting a public hearing was held on proposed amendments to Regulation 4 VAC 20-900 “Pertaining to Horseshoe Crab”, to establish buyer permitting and reporting requirements, and to define the male horseshoe crab, according to its morphometrics. The Commission established that buyers have to obtain a Horseshoe Crab Buying Permit from the Commission and submit written reports of purchase each month. The male horseshoe crab was defined as one which possesses at least one modified, hook-like appendage, as its first pair of walking legs.

At the April 24, 2007 Commission meeting a public hearing was held on proposed amendments to Regulation 4 VAC 20-890 “Pertaining to Channeled Whelk”, to repeal limits on the use of horseshoe crabs as bait in conch pots, define a bait bag, establish buyer permits and reporting requirements, and increase the daily vessel trip limit to 120 bushels when two conch pot licensees are on board the same vessel. The Commission moved to maintain the limitation on bait, established a more precise definition of a bait bag and approved a maximum of a 120-bushel conch limit, per vessel, providing 2 conch pot licensees are on board. In addition, reporting and permitting requirements, for buyers, were established by the Commission, as congruent with those of the Horseshoe Crab buyers.

At the April 24, 2007 Commission meeting a public hearing was held on proposed Regulation 4 VAC 20-1110 “Pertaining to Sheepshead”, to establish a 4-fish recreational possession limit and a commercial landing limit of 500 pounds for sheepshead. The Commission moved to adopt both conservation measures.

At the April 24, 2007 Commission meeting a public hearing was held on proposed Regulation 4 VAC 20-1120 “Pertaining to Tilefish and Groupers”, to establish recreational possession limits of seven fish per person per day for tilefish and one fish per person per day for grouper, and a commercial possession limit of 300 pounds per vessel per day for tilefish and 175 pounds per vessel per day for grouper. The Commission moved to adopt these conservation measures.

At the April 24, 2007 Commission meeting there was a staff request for a public hearing on proposed amendments to Regulation 4 VAC 20-380 “Pertaining to Grey Trout (Weakfish)” to reduce the commercial by-catch possession limit from 300 to 150 pounds and lower the recreational possession limit from 7 to 6 fish. The amendments were necessary to maintain compliance with the Atlantic States marine Fisheries Commission (ASMFC). The Commission moved to advertise for public hearing. At the May 22, 2007 Commission meeting a public hearing was held on proposed amendments to Regulation 4 VAC 20-380 “Pertaining to Grey Trout (Weakfish)”, to reduce the commercial by-catch possession limit from 300 to 150 pounds and lower the recreational possession limit from 7 to 6 fish. The Commission moved to adopt these ASMFC requirements.

At the August 28, 2007 Commission meeting there was a request for a public hearing on amendments to Regulation 4 VAC 20-252, “Pertaining to Striped bass” concerning proposed management measures for the 2007 Fall Chesapeake area recreational striped bass fishery. At the September 25, 2007 Commission meeting a public hearing was held on 3 possible options, for management of the 2007 fall recreational fishery. All options contained a continuation of the no-take (between 28 and 34 inches total length) provision of the 2006 and 2005 fisheries. In addition one option called for a 1-fish limit, from December 10 – 31; another option called for a 1-fish limit, for the entire month of December, and the last option called for a December 25-31 closed striped bass recreational fishery in the Chesapeake Area. The Commission moved to adopt the option of 1 fish per person,

from December 10 through December 31, coupled with the no-take slot limit from October 4 through December 31.

At the September 25, 2007 Commission meeting there was a request for a public hearing on proposed amendments to Regulation 4 VAC 20-910, "Pertaining to Scup", to lower the commercial fishery possession limit, from 6500 to 3500 pounds for the Winter II (November-December) period. The Commission moved to advertise for public hearing in October 2007.

c) VMRC – Law Enforcement Division

Virginia Marine Patrol

Report Date:	October 11, 2007
Report Time:	10:47
Period Begin:	10/1/2002
Period End:	9/30/2007

ARRESTS / CONVICTIONS SUMMARY BY CATEGORY

Category	2002/2003		2003/2004		2004/2005		2005/2006		2006/2007	
	Arrests	Con- victions								
Buyers	34	29	35	25	5	3	2	2	0	0
Casting Garbage/Trash	0	0	0	0	1	0	3	2	1	1
Clams	12	10	4	4	2	2	5	4	4	4
Commercial Fishing License	9	7	11	10	4	3	5	4	6	5
Conchs	10	6	4	4	1	1	4	4	0	0
Crabs	174	159	145	133	163	147	88	80	57	51
Fish	286	245	192	170	251	218	304	284	320	273
Fishing without a license/revoked license	107	95	6	5	121	117	59	59	22	20
License Tags	4	2	3	1	9	6	9	4	7	6
Mandatory Reporting	0	0	0	0	0	0	1	1	3	3
Misc	0	0	0	0	0	0	1	1	0	0
Non-residents	0	0	0	0	1	1	0	0	0	0
Other Agencies	509	471	358	339	769	714	727	669	604	575
Oysters	22	19	17	16	100	87	82	80	52	43
Police Powers	188	159	299	251	137	112	68	60	76	68
Removal of Obstructions	0	0	0	0	2	2	6	5	1	0
Resisting officer	2	1	0	0	0	0	1	0	0	0
Shellfish	2	2	5	3	3	3	2	0	0	0
SW Recreational Licenses	691	670	516	481	322	305	414	398	428	415
TOTALS:	2050	1875	1595	1442	1891	1721	1781	1657	1581	1464
PERCENT OF CONVICTIONS:	91.46%		90.41%		91.01%		93.04%		92.60%	

V1.02 99051

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, possession of cocaine, marijuana, etc. We also have an officer assigned to the Drug Enforcement Agency's local Task Force in an effort to interdict drug trafficking on Virginia's tidal waterways.

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

The Department received and reviewed a total of 54 VMRC Permit Applications, and processed as follows:

- Twenty (20) of the Permit Applications needed action in the Marina program.
- Twenty-three (23) applications were approved based on meeting the requirements of providing adequate facilities.
- Eleven (11) applications were denied because of inadequate facilities.

The shellfish program had 1283 acres of shellfish grounds closed to harvesting. There were 3339 acres of shellfish grounds reopened.

4) Department of Conservation and Recreation (DCR)

a) DCR - Division of Soil and Water Conservation

The Department of Conservation and Recreation (DCR), Division of Soil and Water Conservation (DSWC) administers numerous enforceable and non-enforceable programs that help the Commonwealth of Virginia manage its coastal resources. The following is a summary of key program activities conducted by DCR staff during the period of April 1, 2007 through September 31, 2007.

Regulatory Programs:

Stormwater Management Program

The consolidation of the Virginia's stormwater management programs into DCR streamlines program implementation, increases program efficiencies and compliance, builds on successful online initiatives, and improves water quality. During the past six month period, staff assigned to the field within Tidewater localities provided services that include review of erosion and sediment control (ESC) and stormwater management plans, on site inspections, complaint response, enforcement support, and technical/regulatory training via the classroom and Internet.

DCR staff has been working with six large/medium (Phase I) Municipal Separate Storm Sewer Systems (MS4s), during the past six months, to develop and reissue the individual permit for the storm sewer systems. The six localities are Chesapeake, Hampton, Newport News, Norfolk, Portsmouth and Virginia Beach. In addition, staff has been working with the small (Phase II) MS4 localities in the review of their annual reports. Staff also completed a regulatory action to develop Draft Proposed Municipal Separate Storm Sewer System (MS4) General Permit Regulations. The public hearings for the draft proposed regulations are scheduled for December 4, 2007 and December 6, 2007.

DCR staff is responsible for processing registration statements for land-disturbing activities that are covered by the General Permit for Discharges of Stormwater from Construction Activities. For the reporting period, approximately 1,339 land disturbing activities were issued General Permit coverage. During this time period, DCR staff also completed approximately 920 site inspections for compliance with the General Permit.

A major focus of Stormwater Management Program staff during this reporting period has been development of the revised regulations for the Stormwater Management Regulations. A Technical Advisory Committee (TAC) was formed to provide review and recommendations for the Parts II, II and XIII of the regulations. In addition, DCR has established an internal drafting team to develop the regulations per guidance provided by the TAC.

Urban Program staff continued to educate government officials, private contractors, and consultants in the essential elements of Erosion and Sediment Control (ESC) via classroom training and the online “Responsible Land Disturber (RLD) Certificate of Competence” Program. Approximately 688 people completed classroom training and approximately 1,481 people were certified or recertified for the RLD Program. In addition, 202 individuals were certified through the examination process as Inspectors, Plan Reviewers, Program Administrators and Combined Administrators.

Nutrient Management Regulations

No report is available at this time.

Non-Regulatory Programs:

Coastal Nonpoint Source Program

The responsibility of the Coastal NPS Program Manager is to coordinate the Coastal Nonpoint Source Program implementation and administration of grants and grant budgets and provide technical support to Division of Soil and Water, VDCR relating to coastal zone ecology, management, and restoration. The position also serves as a liaison between DCR the Center for Environmental Studies at VCU and the VA Coastal Management Program to promote joint, applied research and outreach projects, coastal nonpoint source pollution, coastal zone ecology, management, and restoration.

For the grant reporting period, the Coastal NPS Program Manager continued to familiarize himself with the VA Coastal NPS Program and partners. Contracts between the DEQ CZM and DCR SWCD were continued to be finalized to meet full program operations. Reprogramming of the remaining funds has continued. The CNP Program Manager was requested to participate in the development of a strategic plan for the DCR DSW. The CNP Program Manager was requested facilitate the DCR DSW strategic planning efforts. In addition, the DCR CNP Program Manager was nominated for the Virginia Natural Resources Leadership Institute (VNRLI) and began the VNRLI Program in September.

The CNP Program Manager continued to undertake the development of the VA Networked Education for Municipal Officials (NEMO) Program through a coordinated effort between the NOAA/EPA/NPS Chesapeake Bay Office (Chesapeake NEMO) and Virginia partners. Through the coordinated process, Mathews County was selected as the pilot site for the VA/ Chesapeake NEMO Program due to their request for assistance, willingness to participate and readiness of their undertaking of the Comprehensive Plan revision. A series of presentations were identified to educate the local constituents prior to the formal beginning of the Comprehensive Plan. A partnership with the Virginia Tech Cooperative Extension was developed to increase the capacity of the Program. The VA NEMO program relies upon the DCR Regional Offices (Regional Managers and Watershed Coordinators), DCR Division of Chesapeake Bay Local Assistance (DCBLA), Planning District Commissions, Soil and Water Conservation Districts, and Watershed groups as the delivery mechanism.

The Virginia Clean Marina Program had planned a second meeting outside of the reporting period to continue the re-invigoration of the Program including the strategic planning efforts to develop a sustainable program and hired a new Clean Marina Coordinator.

The VA DCR entered into a contract with the A-NPDC to develop the TMDL Implementation Plan (IP) for the Occohannock River. The VA DCR Coastal NPS Program Manager, through consultation with the Accomac Northampton Planning District Commission (ANPDC) and the DEQ Total Maximum Daily Load (TMDL) Program, select the Occohannock River as the site for the TMDL Implementation Plan due to its location as a border between the two Eastern Shore Counties of Accomack and Northampton; historic shellfish resources and likelihood for success due to the active local groups in the area.

Due to procurement challenges, the funds for hiring a subcontractor to support the ES TMDL IP were reprogrammed to utilize FY06 funding. The remaining FY04 funds were used to cover support materials for the Chesapeake Club social marketing campaign. The support materials purchased for the Chesapeake Club Program included permanent ownership rights to two photos, printing of posters, t-shirts for restaurant staff and display boards.

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

New Small Whorled Pogonia Found at Marine Corps Base Quantico 6/07:

Four new colonies of the rare woodland orchid, small whorled pogonia (*Isotria medeoloides*), were located this month in Prince William County at Marine Corps Base Quantico (Quantico). This species is listed as threatened under the Federal Endangered Species Act and endangered under the Virginia Endangered Plant and Insect Species Act. Quantico is a stronghold for the species in Virginia, and several other occurrences are known from the installation. A colony consisting of eleven stems was located on a ravine slope dominated by Eastern hemlock. This is believed to be the first Virginia population known from this habitat type. A second colony, consisting of five stems, was found in an older stand of hardwoods dominated by white oak, American beech, mockernut hickory, and tulip-poplar. A third colony of two stems was found on a gentle slope under white oak, tulip- poplar, and northern red oak and a lower canopy of American beech, flowering dogwood and American hornbeam. A significant amount of running ground pine was present in the herbaceous layer here, not typical of other Virginia small whorled pogonia sites. A fourth colony of one stem was found on a lower slope near a creek within a forest of white oak, red maple and tulip-poplar that had recently experienced a low intensity fire.

New Colonies of Small Whorled Pogonia at Prince William Forest Park 7/07:

Three new colonies of the globally rare orchid, small whorled pogonia (*Isotria medeoloides*) (G2 S2) were found during a survey for this species at Prince William Forest Park in Prince William County funded by the National Park Service. This orchid, with a global distribution within the eastern and midwestern US and Ontario, Canada, is federally listed as threatened and state listed as endangered. Other colonies of small whorled pogonia are known from the park. The area targeted for survey is under consideration for a proposed bicycle access route from Rt. 234. The colonies totaled 20 stems and consisted of 13, 3, and 4 stems. Plants were found under a forest of beech, tulip-poplar, oaks, red maple, and hickory on the lower slopes and well-drained floodplain of a tributary creek. The Park will use this information to guide selection of a route for the trail.

Ecological Study of Potomac Gorge Completed 7/07:

Natural Heritage ecologists completed a four-year ecological study of the Virginia side of the Potomac Gorge, a 4200-acre area stretching for 15 miles along the Potomac River west of Washington, D.C. The study area for this project includes the National Park units Great Falls Park, Turkey Run Park, and George Washington Memorial Parkway, as well as two Fairfax County parks and several tracts of private land. The 474-page final report details a classification of 25 natural community types and their environmental dynamics, historical changes in vegetation caused by land-use impacts and biological agents such as the chestnut blight, and the ongoing influence of disturbance by insect and fungal pathogens, invasive exotic plants, and large deer populations. Seven of the classified community types were ranked as globally rare, and two are believed to be endemic to the Potomac Gorge. A comparative analysis of the study area and other significant Mid-Atlantic sites using several diversity measures indicates that the Potomac Gorge has exceptional community and species diversity for a site of its size. The information generated by this study provides a detailed framework for ecological land management, conservation planning, and future research.

New Rare Plants Found at False Cape State Park 8/07:

The number of rare plant species known from False Cape State Park grew from 25 to 28 during August with the addition of *Eupatorium anomalum* (anomalus eupatorium), *Verbena scabra* (sandpaper vervain), and *Paspalum dissectum* (water paspalum). *Eupatorium anomalum* is globally-rare composite known from only one other location in Virginia. Over a thousand individuals of *Verbena scabra* were found in a drawn-down wetland impoundment at the northern end of the Park. *Paspalum dissectum*, previously unknown from the City of Virginia Beach, was found in a wetland swale in the park's interior. In addition, new stations were found for many rare plants previously known from False Cape, including four for *Eleocharis halophila* (salt-marsh spikerush), four for *Ludwigia brevipes* (long beach seedbox), two for *Erigeron vernus* (white-top fleabane), and one each for *Chamaesyce bombensis* (southern beach spurge) and *Ludwigia alata* (winged seedbox).

Rare Skipper found at Chippokes State Park 8/07:

On August 14th and 15th, DCR-DNH zoologists surveyed marsh habitat at Chippokes State Park and counted 11 Rare Skippers (*Problema bulenta*, G2G3/S1). All were observed nectaring on swamp milkweed, which seems to be a favorite nectar source for this species. Wild rice and giant cordgrass, both thought to be a host plant for the caterpillars of this species, were observed throughout the marshes. This is one of only 4 known extant populations in Virginia.

Natural Areas Protection

Chowan Headwaters Forest Legacy Grant Proposal 7/07:

The DCR-Division of Natural Heritage is partnering with The Nature Conservancy, the Department of Game and Inland Fisheries and the Department of Forestry on a FY 2009 Forest Legacy funding proposal entitled "Chowan Headwaters Project." This multi-agency, multi-component land conservation project is located along the lower Blackwater and Nottoway Rivers in Southampton County and the City of Suffolk. This area is recognized for its important forest lands, biological diversity and exceptional waterways. DCR's primary contribution to the effort is its initiative to purchase a conservation easement from International Paper (IP) on 2900 acres of forest land along the Blackwater River at South Quay. The proposal requests \$1,000,000 in Forest Legacy Funds to assist with the funding necessary for DCR to purchase the 2900-acre easement and natural area preserve dedication from IP. DCR has pledged an equal amount of natural area bond funds as a portion of the match required for this grant.

Natural Area Preserves Stewardship

Bethel Beach NAP Vehicle Trespassers Sentenced 5/07:

The trespass vehicle driver and passenger who drove their pickup truck onto Bethel Beach Natural Area Preserve last February (which included beer, false vehicle tags, a previously suspended license, and having their truck stuck on the preserve's beach – i.e. in the Chesapeake Bay during high tide) was found guilty of a Class I Misdemeanor, (max penalty is up to 1 year in jail and up to \$2500 fine) and sentenced to:

- 100 hours of community service to be completed in 90 days
- \$500 fine + court cost
- 90 days in jail, 88 suspended with 3 years of good behavior
- The passenger was also found guilty of a Class I Misdemeanor and sentenced to:
- 90 days in jail, suspended with 3 years of good behavior
- Court costs

In addition to the above repercussions, the trespassers also incurred costs associated with recovering, towing and repairing the vehicle, attorney fees and missed work. DCR Natural Heritage's Eastern Operations Steward worked with Mathews County Sheriff, Virginia Marine Resource Commission officers and the Attorney General's office to bring this case to fruition. Bethel Beach is one of several Natural Area Preserves that have continued to experience repetitive abuse and trespass. It is hopeful that this sentencing in favor of DCR and Mathews County will provide some level of deterrent for further access issues and resource damage on regional Natural Area Preserves.

Eastern Shore Master Gardeners Visit Savage Neck Dunes NAP 6/07:

The Eastern Shore Region Steward led a tour of Savage Neck Dunes NAP for the Eastern Shore Chapter of the Master Gardeners. The primary interest was in the native plants and natural communities. The Eastern Shore Chapter actively promotes the use of native plants in landscaping, and members were delighted to see natural groupings at the preserve. Plants that attract butterflies and migratory songbirds were also pointed out and discussed.

Royal and Sandwich Tern Nests Counted at Wreck Island NAP 6/07:

DNH staff conducted the annual Royal and Sandwich Tern nest count on Wreck Island NAP. A total of 3672 Royal Tern and 102 Sandwich Tern nests were counted on the northern end of the island. This represents the largest concentration of nesting Royal and Sandwich Terns in Virginia. A recent survey revealed an additional 300 (approximate) Royal Terns at a mid-island site. These nests will be counted at a later date.

Increasing Public Use on Eastern Shore's Parker's Marsh Natural Area Preserve 8/07:

The dog days of summer have brought not only dogs, but people (and lots of them) to Parkers Marsh Natural Area Preserve. The hordes of people seem to primarily be accessing the preserve on weekends, landing boats on the beach for "drinking, dog running, and campfire burning". Choice firewood has been found to include the preserve's boundary and informational signs that have been pulled up and burned. The preserve's beaches support habitat for one of the largest and most viable populations of the federally threatened Northeastern beach tiger beetle and the National Audubon Society has also formally recognized the importance of Parkers Marsh NAP for its quality bird habitat for a variety of migrating waterfowl, shorebirds, songbirds and raptors. Natural Heritage staff, with assistance from Youth Conservation Corps volunteers, has reposted the preserve this week. However, the magnitude of visitors and the resulting impacts are indicative of both a lack of much needed DCR staff on the Eastern Shore and a lack of much desired public beach access on the Eastern Shore.

Natural Heritage reaps benefits from Youth Conservation Corps on Eastern Shore 9/07:

An outstanding Youth Conservation Corps crew plus one hardworking Eastern Shore volunteer worked with our own stewardship staff to accomplish an impressive list of much needed projects on four Natural Area Preserves. Kiptopeke State Park hosted the YCC crew and assisted with logistics. The projects completed over the five-day period include the following:

Savage Neck Dunes Natural Area Preserve:

- Built and installed new entrance kiosk at parking lot
- Built and marked beach trail with trail blaze signs (approximately one mile of trail)
- Built and posted both beach access points with entry signs and Tiger Beetle signs (required hauling all materials about 3 miles up the beach)
- Built and installed small bench at trail head
- Installed four wood duck boxes in two interior ponds

Parkers Marsh Natural Area Preserve:

- Built and installed a large entry sign at the southern beach landing and a small entry sign on the north end of island
- Reposted boundary and Tiger Beetle signs on the southern beach, where signs had been removed or burnt
- Reposted the entire marsh boundary

William B. Trower Bayshore Natural Area Preserve:

- Built and installed small entry signs at both beach access points and at the two neighboring Bed & Breakfast trail entry points.
- Installed Tiger Beetle informational signs
- Picked up trash

Magothy Bay Natural Area Preserve:

- Boundary posted entire public/private boundary, relocating 22 of 23 survey pins and marked with boundary signs.
- Cleared interior forest trail (old hunting trail that had not been maintained)
- Replaced two 18" ABS culverts pipes along the dike road to reopen the road from both ends

Wreck Island NAP International Coastal Cleanup 9/07:

Dr. Ed Crawford from VCU Dept of Biology and ten VCU 10 students collected 41 bag of trash, weighing and estimated 800 lbs at the Wreck Island Natural Area Preserve as part of International Coastal Cleanup. All the trash was bagged, loaded on the ATV and then loaded in the boats for a trip to the dump.

Prescribed Burning

Record Breaking Year for the DCR-DNH Fire Program:

For the second year in a row, the DCR Natural Heritage prescribed fire program has set a new record for acres burned on lands of the state natural area preserve system. Prescribed burns are critical for achieving preserve management goals since they restore habitat for rare fire-adapted species and maintain fire-dependant ecological communities. During the winter and spring of 2007, 14 units encompassing 712 acres on state-owned or managed preserves were burned under controlled conditions. This achievement was made possible by the efforts of many individuals, but especially due to the work of Natural Heritage fire leaders. Key outside partners in fire management also contributed toward this accomplishment. An interagency fire crew consisting

of staff from DCR, The Nature Conservancy, and U.S. Fish and Wildlife Service greatly expanded the capacity of all three agencies, collectively burning a total of 2687 acres in 2007. The interagency crew also assisted with prescribed burns at Shenandoah National Park and the DGIF Cavalier Tract/WMA. Staff from DCR's State Parks as well as the Department of Forestry also made important contributions toward meeting 2007 Natural Heritage burning goals.

Invasive Species

DCR-DNH hosts statewide Phragmites Manager's Coordination Meeting 5/07:

DCR-DNH hosted the annual Virginia Phragmites Managers Coordination workshop. More than 10 agencies and organizations fighting to control the non-native, invasive marsh grassland, Phragmites, gathered on the campus of the Virginia Institute of Marine Science. Topics covered included the latest information on methods of control, cost comparisons, mapping and surveying, partnerships, research and funding needs, public education, regional strategies and control priorities. Partners represented include Accomack County Public Works, Northern Neck Soil and Water Conservation District, The Nature Conservancy, US Air Force, US Fish & Wildlife, Game and Inland Fisheries, DCR-SP, and the Virginia Institute of Marine Science.

Natural Heritage's Invasive Species Work to be Published 6/07:

Natural Heritage staff, together with the University of Virginia, has had their recent work with Phragmites accepted for publication in Restoration Ecology (the Journal of the Society for Ecological Restoration International). The professional paper compares the effectiveness of two different herbicides, along with treatment timings and concentrations. The findings and subsequent publication of this paper are part of Natural Heritage's ongoing work with more than a dozen different agencies and organizations working together to control the aggressive non-native Phragmites that continues to degrade and threaten thousand's of acres of Virginia's marshes. The study was initiated by the late Curtis Hutto, with assistance from Kiptopeke State Park. Title and authors follow:

Efficacy Of Imazapyr And Glyphosate In The Control Of Non-Native Phragmites Australis

Thomas J. Mozdzer (1), Curtis J. Hutto (2†), Paul A. Clarke (2), Dorothy P. Field (2)

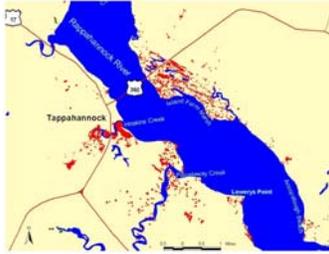
1) University of Virginia, Department of Environmental Sciences, 291 McCormick Rd, Charlottesville, VA, 22904

2) Virginia Department of Conservation and Recreation, Division of Natural Heritage, 217 Governor Street, Richmond, VA 23219

†) The restoration community misses Curtis Hutto, who suffered a heart attack and passed away while working on a Phragmites remediation site on September 26, 2005.

Rappahannock River Phragmites Aerial Mapping Completed 8/07:

Staff from DCR's Natural Heritage Program, with funding support from the U.S. Fish and Wildlife Service, have completed aerial mapping of the invasive wetland grass, Phragmites, along the tidal Rappahannock River and its tributaries. The project used a helicopter, trained observers and a geographic positioning system device to map Phragmites patches as small as 1/16th acre. Mapping was started in 2006 and completed in early August 2007, with all reaches and tributaries of the river surveyed between Fredericksburg and Windmill Point. Now that all of the stands are mapped, a strategic approach to control this problem plant can be developed. A total of 2,295 patches of Phragmites were mapped on the Rappahannock covering 982 acres, for an average patch size of about 0.43 acres. Most Phragmites on the river is located in the vicinity of Tappahannock. With the mapping completed, DCR and USFWS are planning to develop an outreach strategy to make the public more aware of the problem and to share the mapped Phragmites data. DCR's new web-based Phragmites Mapping Application provides landowners a means to assess Phragmites invasions on their own land in order to make plans for its control.



Map showing locations of Phragmites (red areas) along the Rappahannock River in the vicinity of Tappahannock, VA.

Information Management

Element Occurrence Cleanup Underway 6/07:

DNH botanists and zoologists have begun a review of rare plant and animal element occurrences (EO) to determine if they conform to specifications developed by NatureServe, the network of natural heritage programs operating in all 50 U.S. states, Canada, Latin America, and the Caribbean. An EO is a location on the landscape that supports a natural heritage resource such as a rare plant, rare animal and/or exemplary natural community. When such an element occurs in two or more locations in close proximity to one another, it is often difficult to determine how many EOs are present. The new specifications provide species-by-species guidance for making these determinations. The project is important in that it will help ensure that the considerations used to determine what constitutes an EO for a species are applied uniformly in all states where the species occurs. In addition, the specifications will provide a clearer picture of a species' rarity, as global and state rarity ranks are based, to a large extent, on the number of EOs present. Global and state rarity ranks are, in turn, an important tool in establishing land protection and stewardship priorities. To date, 17 globally rare plants (including all G1 species) and 15 globally rare animals have been reviewed for conformance to the specifications. In a few instances, a single EO has been separated into two EOs. In many more cases, two or more EOs have been merged into a single EO. The most dramatic example of the latter so far has been shale-barren rockcress (*Arabis serotina*), where 61 EOs will be reduced to 34.

The Information and Data Management Section submitted an application Friday, June 22, for a Federal Highway Administration Grant entitled "Interagency Transportation and Resource Planning to Develop Ecosystem Based Infrastructure Projects". The partnership for the proposed work consists of the Virginia Department of Conservation and Recreation Division of Natural Heritage (DCR/DNH), the Virginia Department of Transportation (VDOT) and the Virginia Department of Forestry (DOF). If funded, DCR/DNH will work with the Virginia Land Conservation Foundation to develop a statewide Decision Support System (using NatureServe VISTA) to prioritize lands for conservation throughout the state. DOF will build on the Conservation Summaries developed by DCR/DNH by developing a methodology for ranking the importance of various Ecosystem Services in each of six state regions.

Release of the Land Conservation Data Explorer 7/07:

Virginians have a new public portal for tracking our progress in conserving lands throughout the Commonwealth - an interactive mapping website from the DCR Natural Heritage Program. The Land Conservation Data Explorer (LCDE) was released in July as www.vaconservedlands.org. LCDE is a web-based mapping tool that allows users to view all lands conserved in Virginia. As new land assets are added to Virginia's investment in conservation, data that fuel the LCDE are continually updated. In addition to this dynamic summary of Conservation Lands data, the LCDE will also display map layers developed by the Natural Heritage Program for the Virginia Conservation Lands Needs Assessment (VCLNA). These statewide Green Infrastructure models assess lands for their Ecological, Cultural, Forest Economic, Water Quality

Integrity, Agricultural, and Recreational values. The VCLNA also includes a Vulnerability Model that displays predictions for growth in Virginia. Additionally the LCDE contains map layers of roads, jurisdictional boundaries, watershed boundaries, streams and rivers, trails and other reference layers to meet the needs of a variety of end users. Alongside an easy-to-use web tool, these data may be used to glean a wealth of information about Conservation Lands and Green Infrastructure in Virginia, from counties to regions to the entire state, all in one place. All data may be queried, or searched upon, based on users' interests. For example, a user may ask LCDE what lands are conserved in a specific county or watershed, and how they are conserved (e.g., as a park or as a conservation easement). Moreover, the user may also view the estimated threat of conversion of lands near those Conservation Lands. Or, the user may identify recreational opportunities in the area. Such queries will return fast printable maps of the requested data and tabular reports of pertinent data and information requested by the user. The LCDE will provide a comprehensive data resource, and efficient, technologically sophisticated tools for extracting knowledge we need to meet our goals for Land Conservation and Green Infrastructure Planning.

Activity 4/1/07-9/30/07

Total Number in Database 9/30/07:

New Mapped Locations (EO) - 19
 Updated Mapped Locations (EOs) - 477
 New Conservation Sites -7
 Updated Conservation Sites - 52
 New Managed Areas- 67
 New VOF Easements- 365
 New Mapped Tracts (total)- 528

Animal Mapped Locations (EOs) – 1,115
 Plant Mapped Locations (EOs) – 1,171
 Community Mapped Locations - 340
 Conservation Sites - 778
 Managed Area - 2506
 VOF Easements - 2064
 Mapped Tracts (total) - 6979

Miscellaneous

Project Learning Tree Workshop (PLT) 4/07:

The natural heritage Project Review Manager attended a one-day Department of Forestry (DOF) workshop on the new PLT module “Places We Live”. The module’s focus is on environmental, social and economic issues in reference to community growth and change. Various activities include “Personal Places”, Mapping your Community Through Time”, “Green Space” and “A Vision for the Future”. DCR staff presented how different planning tools such as the Virginia Outdoors Plan, the Virginia Conservation Lands Needs Assessment, and the Conservation Lands website may be utilized as resources for the “Places We Live” module as well as other PLT modules. A follow-up meeting is scheduled with the DCR education coordinator as well as planning and recreation staff to further discuss and provide DOF with links and information to post to the Virginia PLT website.

c) DCR – Division of Planning and Recreation Resources

The Department of Conservation and Recreation has acquired two State park sites in the Coastal Zone. Widewater is a 1,089 acre site that fronts on the Potomac River in Stafford County. The property was acquired in February, 2006, but was not reported earlier. At present, the site has no public facilities and master planning began in August, 2007. Middle Peninsula State Park is a 430 acre site on the York River in Gloucester County that was acquired in June 2006. This property has no public facilities and master planning will be initiated in 2008. Since there are no funds available for developments, it will probably be several years before either site is opened for public use.

d) DCR- Division of Chesapeake Bay Local Assistance

No report is available at this time.

5) Department of Game and Inland Fisheries (DGIF)

Recreational fishing

Northern Snakehead Monitoring:

The expansion of the northern snakehead population was again monitored by DGIF biologists during 2007. Biologists assisted Virginia Tech graduate students conducting an intensive study on snakehead biology and behavior. Boat electrofishing catch rate remained high. Reported angler catches during 2007 (65) surpassed the combined total of the three previous years.

Numerous northern snakehead nests were located during fall 2007, primarily as the result of the VA Tech radio telemetry study. Data again suggested snakeheads had a protracted and/or repeat spawning season that lasted from April to September, although that distinction has not been clarified. Additional oocyte counts were made on gravid females, and counts remained high (35,000-45,000 per fish). Collection patterns suggested snakeheads dispersed, relatively slowly, from the Dogue Creek epicenter both north and south primarily along the west bank of the Potomac River. The current known range is from Aquia Creek in Stafford County, Virginia nearly to Great Falls and up the Anacostia River into Maryland. About 20% of each tagged group in the VA Tech study migrated across the mainstem Potomac and were found along the Maryland shoreline or in D.C.

Seventeen food items, including 15 fish species, were identified from snakehead stomach contents, and banded killifish was the most commonly food item. Bluegill, pumpkinseed and white perch were also commonly consumed. The non-fish food items were crayfish and frogs.

Tidal Chickahominy River Largemouth Stocking Project:

VDGIF is currently involved in year-3 of a multi-year project to assess the feasibility of using supplemental stocking to offset the effects of variable recruitment on the tidal Chickahominy largemouth bass fishery. The project entailed three consecutive years of stocking (2005 -2007), the first two-years stocking having been completed prior to this reporting period. Approximately 114,000 fingerling largemouth bass were stocked with each stocking.

While the results to-date indicate that the July 2005 stocking resulted in minimal survival of stocked fish, initial numbers indicate the success of the 2006 stocking was outstanding. Samples taken in October 2006 indicated stocked largemouth accounted for 79% of the year class, with stocked fish being caught by boat electrofishing at a rate of 35 fish/hour. Additional sampling in April 2007 indicated stocked fish exhibited good over winter survival, with stocked fish accounting for 75% of the year class and being caught at a rate of 23 fish/hour during boat electrofishing. Good survival of these fish through age 2+ will provide strong evidence that supplemental stocking can produce strong year-classes from fair-to-average naturally-spawned year-classes in the tidal Chickahominy, with the resulting positive impact on the fishery.

On May 24th, the third and final stocking of the project occurred, with approximately 114,500 fingerlings being distributed throughout the tidal Chickahominy system to areas providing appropriate habitat.

Tidal River Catfish:

In May, VDGIF biologists surveyed the upper reaches (above Route 360) of the Pamunkey River using boat electrofishing techniques. Based on this survey and previous year's surveys, it is apparent that blue catfish continue to expand their range within the river – occurring further upstream with each successive survey.

While introduced flathead catfish numbers have remained relatively low in the tidal reaches of the James River system, the population is apparently expanding, with increased numbers in downstream tributaries such as Powell Creek. Flathead catfish have been collected by VDGIF biologists as far downstream as Wards Creek,

and anglers have reported catching flathead catfish in the tidal Chickahominy River. As part of an effort to develop our knowledge of this tidal river population, in June, VDGIF biologists sampled 5 sites in the upper tidal James River using specialized low frequency electrofishing techniques. Otoliths were collected from 133 individuals to assess age and growth.

In mid-July VDGIF biologists conducted a mark-recapture population estimate for blue catfish in Powell Creek, a tidal tributary of the James River. In conjunction with the study 30 blue catfish were implanted with ultrasonic telemetry transmitters and their movement was monitored over the course of the mark-recapture effort. Analysis of the data is not complete, but draft Schnabel multiple census mark recapture estimated population size of 29,475 fish with a fairly tight 95% confidence interval estimate (28,291 – 3,355). There are approximately 100 acres of blue catfish habitat in Powell Creek.

In September, VDGIF biologists surveyed the tidal Rappahannock, sampling six sites for catfish species using a combination of specialized low frequency and standard high frequency electrofishing techniques. As in the past several years, blue catfish accounted for over 98% of the sample. Otoliths were collected from 205 blue catfish for age and growth analysis.

As part of an on-going effort to monitor the recently established blue catfish population in the Piankatank system, in September, VDGIF biologists conducted an electrofishing survey of lower Dragon Run and the upper Piankatank targeting catfish species. VDGIF biologists first collected blue catfish from the Piankatank and lower reaches of Dragon Run in early 2003. Since that time blue catfish VDGIF biologists have documented the expansion of the species within the system, as well as an increase in the relative abundance of the species in the reaches where it was first documented in the river.

Anadromous Fish Sampling:

Weekly boat electrofishing for adult anadromous fish was conducted in spring 2007 on the James and Rappahannock rivers in the fall zones. Less frequent sampling was also conducted on the Appomattox, Mattaponi and S. Anna rivers. American shad, hickory shad and striped bass were found about 5 miles upstream of the former site of Embrey Dam on the Rappahannock River (herring were also found in recent years since the removal). Upper Rappahannock and Rapidan River sampling was again very limited in 2007 due to low flow conditions. American shad relative abundance was relatively low below Boshers Dam on the James River. Striped bass were again numerous in the tidal James near the head of tide at Richmond.

Juvenile alosine sampling using a bow-mounted push net began in June 2007 on the James and Rappahannock rivers and will continue into the fall. Boat electrofishing was also conducted in the upper James and tidal Rappahannock in September to collect shad and herring juveniles. Electrofishing is more effective for larger alosine juveniles later in the year when the fish are better at avoiding the push net. Sampling resulted in the collection of target species from both rivers. American shad otoliths will be examined to determine origin (hatchery vs. wild).

Review of the 2006 Boshers Dam Fishway passage data (digital video) resulted in 84 American shad, which is up from only 46 in 2005. However, since the peak count in 2002 of 751 there has been a declining trend in American shad passage. The other Atlantic coast states are experiencing the same declining trend in American shad passage since peaks in the early 2000's. In comparison, over 56,000 gizzard shad used the fishway in 2006. At least 22 different species of fish use the fishway including the native anadromous sea lamprey. In 2007 the Boshers fishway was operated from mid-March through early June and the digital video is now being reviewed.

Fish Passage:

Woolen Mills Dam was removed from the Rivanna River in August 2007. Approximately 75' of the 200' dam was left in place as part of the historical mitigation requirements. DGIF partnered with the Rivanna Conservation Society, USFWS, Fish America Foundation, American Rivers-NOAA and several other agencies to accomplish this project.

Quinn Dam on the Tye River, a tributary of the James, near Rt. 29 was also removed in August 2007. DGIF partnered with the Quinn family, American Rivers-NOAA, a dedicated volunteer, the access landowners, and the Virginia Organizing Project to accomplish this project.

Law Enforcement:

Region I Conservation Police Officers (game wardens) conducted approximately 1070 hours of boating and fishing patrols in the tidal waters of Virginia with an emphasis on recreational boating safety and fishing enforcement. Among the routine enforcement actions were two cases of note; unlawful taking of striped bass and unlawful taking of protected turtles for commercial use.

Boat ramps provided for recreational boaters and fishermen are well maintained and generally used as intended. Illegal activity and complaints are minimal due high visibility patrols and covert observation by Conservation Officers.

Wetlands

Mitigation Banking

VDGIF continues to participate on the Wetland Mitigation Banking Review Team 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.

Wetlands Restoration

The Virginia Department of Game and Inland Fisheries are working to restore over 400 acres of wetland habitat at the newly acquired Cavalier Wildlife Management Area in the City of Chesapeake. The restoration has consisted of restoring hydrology to the site by plugging drainage ditches, removing non-wetland vegetation using mechanical and chemical means and planting Atlantic White Cedar seedlings.

A 10 acre emergent marsh restoration project has been completed in Southampton County on private lands and a 15 acre emergent marsh restoration project has been completed on state owned property in Hanover County.

Geographic Information Systems/Data Management

Virginia's Wildlife Action Plan generated a tremendous amount of spatial information on the status and trends of wildlife and their habitats. In order to publish and distribute this information in a dynamic format, VDGIF and the Conservation Management Institute at Virginia Tech have developed "Map Wild!". This Internet-based mapping application allows users to interactively view and get information about spatial data created from the Wildlife Action Plan. Through a connection to DGIF's Habitat Affinity Database, users can also view, create, and download reports about user defined locations or individual species. These reports contain information on distribution of tiered species of greatest conservation need, habitats, conservation actions, and stresses. Currently in the prototype phase, Map Wild! is expected to be added to DGIF's "Be Wild" Virginia website in early 2008.

VDGIF has taken a leadership role in the Northeast Habitat Classification Project. This project is funded by the Doris Duke Charitable Foundation through the National Fish and Wildlife Foundation. The purpose of this project is to develop standard terrestrial and aquatic habitat classifications and promote the detailed mapping of habitat across the Northeast. VDGIF staff are managing the state-agency steering committee directing this effort. The benefits of this project to the region include: creation of a consistent “wildlife basemap”, assisting states with the habitat mapping and assessment requirements of the Wildlife Action Plan, providing a basis for regional conservation priorities, as well as providing a baseline to quantify future change. Virginia will benefit by adopting a new ecological-community based method of describing, mapping, and quantifying habitat.

FWIS/GIS staff participated in a green infrastructure working group coordinated by VA Department of Conservation and Recreation. This effort is attempting to provide information tools to state, regional and local planners to promote sound conservation planning. Through this working group, DGIF is promoting the results and recommendations of the Virginia Wildlife Action Plan.

FWIS/GIS staff completed a major re-design of the way DGIF manages wildlife species observation information. In the past, DGIF had maintained separate databases for various applications. These included *Collections* from scientific collection permits, *Obs* from DGIF staff observations, Breeding Bird Atlas, *RareBird* from birding reports on various electronic bulletin boards, *Mid-winter BAEA* from surveys of non-breeding bald eagles, etc. Primarily funded through a partnership with the Virginia Department of Transportation (VDOT), but also with some SWG support, FWIS/GIS staff have reorganized these databases into a central repository called the Species Observation Database or *SppObs*. Within *SppObs* there are 20 individual databases that make-up the repository and this number is expected to grow. Using MS SQLserver and ESRI’s ArcSDE software, *SppObs* facilitates the querying and data management of all wildlife occurrence records in a single place. This allows DGIF to better utilize these data, especially information on know location and distribution of species of greatest conservation need as identified in the Wildlife Action Plan. Development of *SppObs* will continue, including development of data entry and editing applications as well as other automated maintenance routines.

FWIS/GIS also completed an application to publish derivative data from *SppObs*, as well as other datasets showing critical wildlife resources, for the purpose of environmental review. The Wildlife Environmental Review Map Service (WERMS) is an Internet based map service for publishing DGIF’s environmental review data to GIS clients. Funded primarily by VDOT, some support was provided through SWG. WERMS uses ESRI’s ArcIMS software to distribute GIS data from *SppObs* as well as other sources. This gives VDOT and other partners real time access to the latest information on critical wildlife resources required for making intelligent environmental review decisions. This resource includes information on species of greatest conservation need from the Virginia Wildlife Action Plan and can therefore be used as a tool for conservation planning. In the future, WERMS will provide the data used within VAFWIS.

VDGIF has, through a grant from the Department of Criminal Justice, mapped all of our boating access sites and duck blind locations. The primary purposes of this effort were for assistance with law enforcement and emergency management. However, this dataset may also be used to perform such evaluations as assessing use of recreational resources.

Wildlife Mapping

To date, the WildlifeMapping program has trained over 1,300 volunteers and has generated over 53,000 observations of wildlife and their habitats. The coastal region is the most represented region, both in terms of volunteers and observations, providing approximately 40% of the incoming data. For 2007, all WildlifeMapping workshops are being conducted in conjunction with chapters of the Virginia Master Naturalist Program. The

Virginia Master Naturalist program currently has 21 active chapters. With seven of the 21 chapters in the Coastal Zone, it is anticipated that the ranks of new WildlifeMappers turning in data for this region will swell this year. WildlifeMapping Workshops were delivered to two chapters, the Historic Rivers Chapter in Williamsburg, and the Central Rappahannock Chapter in Fredericksburg this summer. These Master Naturalists can also be expected to provide many hours of volunteer service to the Coastal Zone natural resource community in the coming months and years. To better serve these additional volunteers, the Internet-based data entry program is being revised to allow volunteers to map data. Additional improvements are planned, including the use of palm pilots and GPS units to collect data remotely.

Virginia Birding and Wildlife Trail (VBWT)

The VBWT is designed to support wildlife conservation efforts in Virginia by providing Virginians and visitors with increased access and opportunities to view wildlife throughout the state. The newest edition of the VBWT Guide is now available. This version combines all three regions into a single volume. The guide is available for \$8.50 representing cost recovery for DGIF. DGIF has coordinated with Virginia Tourism Corporation for the fulfillment process. A new toll-free number; 1-866-74VABWT has been implemented while the 1-866-VABIRDS number is phased out. Staff are visiting all trail sites and arranging meetings with site managers and tourism officials. These meetings will allow for full cooperation and coordination for the VBWT. A contractor was hired to install road signage for the Trail in fall of 2006. The contractor has completed all but far southwest Virginia and should complete the final VDOT district in late April 2007. This road signage enhances the ease of use for trail users and has produced an increased interest in the Trail statewide.

VDGIF has contracted with the Conservation Management Institute to design and implement a user survey of the VBWT. This will provide valuable data as to the effectiveness and usage of the trail. Such information will enhance VDGIF's management and development efforts for the VBWT. To date approximately 95% of the site surveys have been completed and questionnaires have been mailed to members of the public who ordered copies of the VBWT guides. In addition surveys of "key informants" have been completed.

Ongoing management of the trail includes regular contact with site managers to increase awareness of the VBWT and deal with any emergent issues (updating site description, direction replacing missing signage). Watchable Wildlife program staff are scheduling visits with each loop of the VBWT.

Site enhancements continue at Willis Wharf Marina. This VBWT trail site on the Eastern Shore Loop is the future site of a wildlife viewing platform. This platform will enhance the ecotourism potential of the Willis Wharf community, providing spectacular views of highly productive mud flats and salt marshes – habitat for a variety of shorebirds. This design phase of this project is complete and will soon move into bidding and construction. Plans and engineering work have been done by the Capital Program staff at VDGIF with guidance from the Watchable Wildlife Section. Input has been solicited from all concerned partners including Virginia CZM, Northampton County and the Willis Wharf Village committee. The designs reflect the desire for an attractive and utilitarian structure that would integrate well into the working waterfront of Willis Wharf. VDGIF Capital Programs have prepared construction drawings and a cooperative agreement that will govern the responsibilities of the project partners. Both of these documents will be voted on by the Northampton County Board of Supervisors on their Oct. 2007 meeting. Following approval by the board, the county will solicit bids for construction of the platform. Completion of construction and preparation of the final report is anticipated by February 2007.

NonGame Species Monitoring and Research

Spotted Turtle Study

In 2005, the Department used State Wildlife Grant funds to assess the Status and Distribution of the Spotted Turtle (*Clemmys guttata*) in Virginia. The objectives of this investigation are to 1) conduct an inventory of 12-15 historic Spotted Turtle populations 2) survey an additional 12-15 sites that may support Spotted Turtles 3) provide a written summary of the status of this species in Virginia 4) provide recommendations for species protection and habitat management 5) provide a presentation to VDGIF staff on study findings 6) coordinate all research and management activities and all field work with VDGIF Project Research Contact (John Kleopfer). A final report was submitted and approved in May 2007.

Gaining a clear, up-to-date understanding of the status of the Spotted Turtle in Virginia in order to make realistic conservation and protection decisions requires an assessment of known sites and their populations, additional information on other undocumented sites, and a review of known information. Specific objectives of this study were (1) conduct a retrospective inventory of known (historic) Spotted Turtle populations in Virginia based on a selected number of known localities to determine how many of these sites still support Spotted Turtles, (2) conduct an inventory of selected new sites that may support Spotted Turtles, and (3) provide a written summary of the status of this species in Virginia. Results are reported as a summary in the Results section and in 28 site accounts containing location, description, species caught, evaluation of threats, recommendations, a map and photographs. We found 4 known sites that are still intact for Spotted Turtles in which we documented their continued occurrence. Five known sites still have suitable habitat for Spotted Turtles but we were unable to document Spotted Turtles there. Five sites known to support Spotted Turtles previously have been destroyed or altered so badly that the habitat is now considered lost or has become unsuitable. Three new sites we searched for Spotted Turtles were documented new locality records. Ten sites we searched for Spotted Turtles provide suitable habitat but no turtles were found. One new site that was discovered in the City of Chesapeake in 2005 was destroyed for a housing development less than a year later.

Conclusions include (1) The Spotted Turtle is generally secure in Virginia except in those places undergoing urbanization and urban sprawl. (2) Urban expansion has caused the loss of at least 6 of the populations we inventoried. Extrapolation of this small sample size to the entire Commonwealth strongly suggests that the Spotted Turtle will become extinct in large areas of the state, that is, those large areas undergoing urban expansion. (3) Areas of the Commonwealth like state parks, federal wildlife refuges, and some rural private lands will continue to support Spotted Turtle populations. (4) Management and protection of natural habitats in these areas is crucial to the long-term survival of this species in Virginia.

Canebrake Rattlesnake Study

Although the Canebrake Rattlesnake (formerly *Crotalus horridus atricaudatus*) is no longer recognized as a subspecies of the Timber Rattlesnake (*Crotalus horridus horridus*), the VDGIF does recognize the Coastal Plain population as distinct and will continue to commonly refer to individuals of this population as Canebrake Rattlesnakes (*Crotalus horridus*-Coastal Plain population).

In the wake of Hurricane Isabel in 2003, the Department has used State Wildlife Grant funds to study Effects of Habitat Disturbance on the Canebrake Rattlesnake (*Crotalus horridus*-Coastal Plain population). The objectives of this study are to 1) investigate if the snakes have changed their areas of occupation as a result of habitat disturbance 2) have the snakes changed their activity ranges, if so, are both sexes affected equally 3) have the snakes altered their daily and annual movements 4) do snakes alter their behavior to reduce exposure in recently opened areas 5) do snakes alter their use of anthropomorphic habitats as a result of habitat disturbance 6) do snakes alter their use of certain habitats 7) have the frequency of feeding, shedding, and other behaviors have been altered? From a previous study, five of the snakes' home-ranges and movement patterns were already documented. Currently, the contractor (Dr. Alan Savitzky) used the funds to purchase equipment and provided a

stipend for a graduate student. The graduate student (Scott Goetz) is tracking 8 snakes via radio-telemetry 4-5 days a week. On numerous occasions VDGIF staff (John Kleopfer) has participated in the tracking efforts. Interim reports were submitted and approved in May 2006 and May 2007. A final report is expected in June 2008.

North American Amphibian Monitoring Program (NAAMP)

Since 1999, the Department has used State Wildlife Grant funds to participate in the North American Amphibian Monitoring Program (NAAMP). Originally, NAAMP assigned 53 randomly chosen routes to Virginia, but VDGIF added another 50 semi-random routes to cover some of the counties and cities not included in the NAAMP route selection process. Over the past year, we have picked-up several new volunteers and expect 40 of the 100 routes will be conducted. We expect the 2007 survey season will be the highest percentage of route occupancy in the 7 year history of Virginia’s participation in NAAMP. Because volunteers have an October 31 deadline to submit data, it’s too early to know the results of the 2007 survey season. The table below is a summary of the 2006 survey season.

Statistic	Tally	Total possible	Percent
Number of volunteers who collected data	13	75	17%
Number of routes surveyed	14	104	13%
Number of surveys conducted	35	416	8%
Number of routes in which all 4 runs conducted	1	104	1%
Number of species detected	20	28	

Chicken Turtle Study

Using State Wildlife Grant funds, the Department began an extensive turtle survey of First Landing State Park. First Landing State Park is only one of two sites known to be habitat to the state endangered Eastern Chicken Turtle (*Dierochelys reticularia*). This survey also included staff participation from Virginia State Parks. Thirty-three turtles of 5 species were captured, marked and released. Some of the turtles captured had been previously marked by Dr. Joseph Mitchell in 1983. Mark-recapture data is critical to understanding population sizes and growth rates. No Chicken Turtles were captured in 2007, but surveys will be expanded and continue in 2008 and 2009. This study will be the foundation of whether or not a Headstart Program is necessary.

Box Turtle Study

Using State Wildlife Grant funds, the VDGIF, along with Virginia Commonwealth University (VCU), started in 2006 an Eastern Box Turtle (*Terrapene carolina carolina*) project in Charles City County. This study is to assess whether or not relocating box turtles from construction sites is a viable conservation method. Many well-meaning individuals will often relocate box turtles in an effort to rescue them from an area scheduled to be developed. The relocation usually involves taking the tortoise many miles from its home range. Unfortunately, the actions of these well-meaning individuals may only be delaying the inevitable demise of the tortoise. Or worst yet, expedite the demise. It is widely believed that repatriation, translocation and relocation (RRT) programs are generally not successful for reptiles, and box turtles are no exception. Almost upon immediate release, relocated box turtles orient themselves in a homeward bound direction. This behavior will often result

in mortality from various causes. However, recent research on gopher tortoises (*Gopherus polyphemus*) has shown a high rate of success if tortoises are held on the relocation site for a period of up to 1 year prior to their release. Penning and penning duration significantly increased site fidelity and resulted in smaller activity areas. As a result of this study, the Virginia Department of Game and Inland Fisheries and Virginia Commonwealth University (VCU) have launched a multi-year research project at VCU's Rice Center that will try to replicate the results using box turtles. This study includes three phases: 1) evaluate the home range and movement patterns of a native population of box turtles, 2) evaluate the home range and movement patterns of a "no pen" relocated group of box turtles and 3) evaluate the home range and movement patterns of a group of relocated box turtles penned for one year. Although pen design is currently an ongoing discussion, we expect the pen will be approximately 1 acre in size and include artificial hibernacula. Suitable hibernaculum has been shown to be a critical factor in successfully relocating box turtles. The source of box turtles for phase 2 and 3 were obtained from a parcel of land scheduled to be cleared for a subdivision. The number of box turtles to be used in phase 2 and 3 is currently unknown and is dependant upon availability and funding. Ultimately, we hope this study will result in a relocation protocol for eastern box turtles in Virginia.

Bald Eagle Study

Summer Concentration Area Surveys:

Boat-based shoreline surveys were conducted during the summer of 2007 throughout Virginia within known and potential Bald Eagle concentration areas. Areas surveyed included the Potomac River (MD and VA shores from Rt. 301 - Pohick Bay), Rappahannock River (Tappahannock – Mount Swamp Creek), James River (I-295 – Burwell Bay), and the confluence of the York River. All rivers were surveyed once in July and once in August. We had planned to conduct surveys in June but bad weather and logistical problems prevented June surveys. Bald Eagle abundance was high in July and moderate in August (Table 3). Additional survey work on the Potomac and Rappahannock will continue monthly to gain a better understanding of migrant eagle use within the concentration areas. This information will be used to refine time-of-year restrictions for specific land management projects within the Potomac and Rappahannock concentration areas as well as gain a better understanding of seasonal shoreline use patters and abundance levels.

Table 1. Total number of Bald Eagles observed along tidal rivers during the summer (2007).

River	Date	Adult	Juvenile	Unknown Age	Total
<i>Potomac</i>	July	214	156	5	375
	August	169	114	8	291
<i>James</i>	July	201	203	0	404
	August	74	98	4	176
<i>Rappahannock</i>	July	85	54	0	139
	August	53	84	3	140
<i>York Confluence</i>	July	not available	not available	not available	not available
	August	not available	not available	not available	not available

Summer concentration area surveys will continue over the next year and will hopefully evolve into an annual effort to monitor use and trends over time.

Bald Eagle Breeding Surveys:

During the 2007 breeding season, our conservation partners and VDGIF documented 560 occupied Bald Eagle territories in Virginia. This number represents a 13% increase over 2006 (485 active territories). The number of active nests increased by 10.3% and 55 new nests were mapped. The majority of known territories continue to be concentrated within the coastal plain with less than 4% of pairs occurring in the piedmont and mountains. A total of 737 chicks were counted during the productivity flight (Table 4). However productivity

was slightly suppressed this year, most likely due to cold, wet weather during the late winter and early spring months, which may have caused chick mortality. The Virginia population continues to have tremendous reproductive momentum and growth.

Table 2. Summary of 2007 Bald Eagle survey results by geographic area. See methods for definitions of “occupied territory” and “active nest”. Chicks/active nests and chicks/productive nests are mean values.

GEOGRAPHIC AREA	OCCUP TERRS	ACTIVE NESTS	CHICKS PROD	CHICKS/ACT NEST ¹	CHICKS/PROD NEST ¹
POTOMAC RIVER	123	117	160	1.33	1.74
RAPPAHAN. RIVER	143	139	188	1.45	1.84
YORK RIVER	63	58	82	1.41	1.74
JAMES RIVER	129	121	184	1.52	1.88
WESTERN SHORE	19	18	31	1.72	1.94
EASTERN SHORE	44	39	42	1.08	1.50
LOWER TIDEWATER	11	10	18	1.80	2.00
INLAND AREAS	28	22	32	1.68	2.00
TOTAL	560	524	737	1.45	1.82

¹Calculated based on nests with known outcome. Success of 15 nests known to be active was not determined.

Peregrine Falcon Study

Coastal Surveys for Nesting Peregrine Falcons:

Currently all known peregrine falcon nest sites in Virginia occur in the eastern 1/3 of the state, with the exception of Stony Man Mountain in Shenandoah National Park. During 2007, a total of 22 known nest sites were checked for breeding pairs of falcons (Table 6). Nesting was attempted at 17 sites. Ninety-four percent (16 pairs) produced young and productivity was relatively high (3 chicks produced/active nest and 3 chicks produced /productive nest). The fledging rate for chicks produced was high (98%) as well.

Table 1. Summary of productivity results for Peregrine Falcon pairs in Virginia during the 2007 breeding season.

Site Code	Location Description	Occ Terr	Active Nest	Eggs	Chicks Hatched	Band Age	Fledg
PEFA-02	Cobb Island Tower	Y	Y	4	4	4	4
PEFA-05	Metomkin Island Tower	Y	Y	3	1	1	1
PEFA-06	Wallops Island Tower	Y	N	0	0	0	0
PEFA-09	Watts Island Tower	Y	Y	4	3	3	3
PEFA-12	Hyslop Marsh Tower	N	N	0	0	0	0
PEFA-16	Elkins Marsh Chimney	N	N	----	----	----	----
PEFA-17	Elkins Marsh Tower	Y	Y	4	4	4	4
PEFA-18	Wachapreague Shack	Y	Y	4	4	4	4
PEFA-22	James River Bridge	Y	Y	4	4	4	4
PEFA-23	Berkley Bridge	Y	Y	4	1	1	1
PEFA-24	Ben Harrison Bridge	Y	Y	4	3	3	3
PEFA-25	Mills Godwin Bridge	Y	Y	4	3	3	3
PEFA-26	West Norfolk Bridge	Y	N	----	----	----	----
PEFA-27	Norris Bridge	Y	Y	?	3	3	3
PEFA-28	Stony Man, SNP	Y	Y	3	0	0	0
PEFA-34	Mockhorn Island tower	Y	Y	3	3	3	3
PEFA-36	Upsher Bay tower	Y	Y	4	4	4	4
PEFA-56	River Front Plaza	Y	Y	4	4	4	3
PEFA-60	Chesapeake Bay Bridge	N	N	0	0	0	0
PEFA-62	Gull Marsh Tower	Y	Y	4	3	3	3

PEFA-63	Godwin Island Box	Y	Y	4	4	4	4
PEFA-64	James River Ghost Fleet	Y	Y	4	3	3	3
Total		19	17	61	51	51	50

Richmond Peregrine Falcon Pair

2007 marked the fifth consecutive year in which a falcon pair bred in downtown Richmond. The pair nested rather late this year, owing to their switching nesting sites earlier in the season. Following indications that they would nest on the same building (Riverfront Plaza) as last year, the pair took up residence at a nearby bridge in mid-March and exhibited behavior consistent with breeding activity. A visit to the bridge site by VDGIF biologists and partners on May 1 yielded no falcon observations and no evidence of a nest, and it was presumed that recent storms had contributed to nest failure. The pair proceeded to nest back at Riverfront Plaza, laying their first egg on May 15, over two months past last year's first egg-laying date. We worked with our partners to assemble the necessary equipment to control the timing of the chicks' fledging (see below), to band the nestlings and to provide live digital feeds of the nesting falcons. We upgraded the camera providing the feeds to a model whose position can be controlled remotely, giving us greater flexibility in displaying images of the falcons to the public. Of four chicks that hatched, two (one male and one female) were transported to a hack site at Breaks Interstate Park on July 24 (see below). The two remaining chicks (both females) were fledged in Richmond on August 8 under controlled and carefully monitored conditions: the chicks were housed in a locked wire pen that was remotely opened on the fledge date. One bird (band 61/Z) flew successfully, while the other kept running into windows and was grounded. This bird was retrieved, examined, and re-released the following day from the rooftop ledge at Riverfront Plaza. Observations in subsequent days confirmed that she was flying well. Bird '61/Z' was grounded during a sudden storm on August 10th. She was recovered, uninjured, from a parking deck the next morning and re-released on the rooftop ledge at Riverfront Plaza, and was seen flying with her parents well above the tallest Richmond skyscrapers.

Peregrine chicks from Virginia bridges were used in fostering and hacking efforts in Virginia and neighboring West Virginia in 2007. Two sets of hacks were conducted at Hawksbill Mountain in Shenandoah National Park: the first involved five birds and the second four birds. In addition, three rehabilitated birds from NJ (two young-of-year and one second year bird) were transported to and released at Shenandoah in mid-July. For the second year in a row, hacks were conducted at New River Gorge National River in WV. Virginia birds were used in two of the hacks (seven and eight birds, respectively), and an additional nine birds from NJ were hacked separately. Six of the hacked birds were subsequently caught and fitted with solar powered satellite transmitters donated by VDGIF and the Center for Conservation Biology at the College of William and Mary. Data on the movement patterns of these individuals will be monitored and analyzed together with data collected on several other individuals between 2001 and 2005 as part of the Virginia FalconTrak Program. VDGIF and its partners expanded the hacking program to a new site this year as part of a strategy to reintroduce peregrines to their historic range in the western part of the state. Breaks Interstate Park, situated in Dickenson County and extending into Kentucky, provides excellent cliff habitat for peregrines, and once harbored a nesting pair. Three sets of chicks from coastal plain nests and from Richmond were hacked successfully there this year. DGIF provided transport of a hack box to the Park and donated materials for a second hack box. DGIF also provided frozen quail for all three hacking efforts at the Park. Shenandoah National Park staff provided training on hacking techniques to Breaks Park staff. Hacking there will continue in future years with the goal of establishing a breeding pair.

Marsh Bird Surveys

Surveys of marsh birds in selected patches of the tidal fresh portion of the Mattaponi River were conducted between April 30 and June 21. Surveys were conducted between 0530 and 0900. A total of 32 points in 17 patches were surveyed, with the majority of points being surveyed three times during the season for a total of 86 point-specific surveys. Vocalizations of 7 target species were broadcasted at each point, including:

Least Bittern, Sora, Virginia Rail, King Rail, American Bittern, Common Moorhen and Pied-billed Grebe. Table 1 summarizes these results.

Table 1. Number of individuals detected of target bird species in surveys of the Mattaponi River.

Scientific Name	Common Name	Round 1 (Apr 30-May 9)	Round 2 (May 22-25)	Round 3 (June 6-21)
<i>Ixobrychus exilis</i>	Least Bittern	0	0	2
<i>Porzana carolina</i>	Sora	1	0	0
<i>Rallus limicola</i>	Virginia Rail	2	1	0
<i>Rallus elegans</i>	King Rail	28	5	15
<i>Botaurus lentiginosus</i>	American Bittern	0	0	0
<i>Gallinula chloropus</i>	Common Moorhen	0	0	0
<i>Podilymbus podiceps</i>	Pied-billed Grebe	0	0	0

Saxis WMA Marshbird Survey Summary

Breeding marsh bird surveys were conducted for the fourth consecutive year at Saxis Wildlife Management Area (WMA) located in Accomack County, VA on the eastern shore of Chesapeake Bay. Least Bitterns (*Ixobrychus exilis*), Black Rails (*Laterallus jamaicensis*), Virginia Rails (*Rallus limicola*), King Rails (*Rallus elegans*) and Clapper Rails (*Rallus longirostris*) were selected as target species for this vocal survey effort. Two boat-based survey routes with 10 fixed sampling points each were established in 2004. Route 1 follows several polyhaline tidal creeks that run through Free School Marsh. Route 1 sampling points are dominated by black needlerush (*Juncus roemerianus*), salt meadow cordgrass (*Spartina patens*), salt grass (*Distichlis spicata*) and marsh elder (*Iva frutescens*). Route 2 is confined to Messongo Creek, a mesohaline to polyhaline tidal creek that runs through Michael Marsh. Similar vegetation types as those described for Route 1 dominate Route 2 sampling points with salinity values greater than 18 ppt., whereas common reed (*Phragmites communis*) is the dominant plant at sampling points with salinity values less than 18 ppt.

Although Black Rails are known to occur at Saxis WMA and are considered a target species, none were seen or heard during previous marsh bird surveys. We questioned whether our inability to detect Black Rails was due to the fact that we began our surveys at sunrise and finished around 0900 hours, well past the time nocturnal callers typically vocalize. In 2005, we conducted a nocturnal marsh bird road survey at Saxis WMA. Virginia Rail calls were the most common vocalizations heard that night followed by Clapper Rails and Seaside Sparrows. We also heard two Black Rails calling at two different locations. Based on this effort, we decided to shift to nocturnal surveys in 2006.

In 2007, our efforts were limited to one nocturnal survey along Routes 1 and 2 in May and one nocturnal survey along Route 2 in June. We were unable to sample route 1 in June because of a dense fog advisory that was issued on the scheduled survey night. We did not sample Route 1 this year because of navigational difficulties associated with this route at night. We were unable to complete three nocturnal surveys along Route 2 due to inclement weather during the first survey window. We did not conduct diurnal surveys immediately following the nocturnal surveys as planned because of time constraints. We used the standardized call-broadcast survey methods outlined in Conway 2004. We only recorded marsh dependent breeding species which are defined as those birds that nest in the brackish marshes.

A total of 14 species were recorded across all surveys (Table 1) with the greatest number of species seen or heard during the May 23 Route 2 nocturnal survey. Three of the five target species were detected during all three surveys; no Black or King Rails were detected this year. Clapper Rails, Seaside Sparrows and Marsh Wrens were the most common species detected along Route 1 while Marsh Wrens, Virginia Rails, Clapper Rails, Redwing Blackbirds, and Common Yellowthroats were the most common species detected along Route 2. We recorded Saltmarsh Sharp-tailed Sparrows at two sampling stations during both surveys of Route 2 (Table 1 – next page).

Table 1. Marsh dependent avian breeding species detected during the 2007 Saxis WMA Marshbird Surveys along Route 1 in Free School Marsh and Route 2 in Michaels Marsh.

Species Common Name	Species Scientific Name	ROUTE 1	ROUTE 2	
		May 22 hrs: 0330-0605	May 23 Hrs: 0402-0630	June 7 Hrs: 0327-0600
Least Bittern	<i>Ixobrychus exilis</i>	X	X	X
Clapper Rail	<i>Rallus longirostris</i>	X	X	X
King Rail	<i>Rallus elegans</i>			
Virginia Rail	<i>Rallus limicola</i>	X	X	X
Black Rail	<i>Laterallus jamaicensis</i>			
Willet	<i>Catoptrophorus semipalmatus</i>	X		
Marsh Wren	<i>Cistothorus palustris</i>	X	X	X
Common yellowthroat	<i>Geothlypis trichas</i>	X	X	X
Field Sparrow	<i>Spizella pusilla</i>		X	
Saltmarsh Sharp-tailed Sparrow	<i>Ammodramus caudacutus</i>		X	X
Seaside Sparrow	<i>Ammodramus maritimus</i>	X	X	X
Song Sparrow	<i>Melospiza melodia</i>		X	X
Swamp Sparrow	<i>Melospiza georgiana</i>		X	
Eastern Meadowlark	<i>Sturnella magna</i>	X	X	X
Redwing Blackbird	<i>Agelaius phoeniceus</i>		X	X
TOTALS		8	12	10

Shorebird Breeding Population and Productivity Estimates on Virginia’s Barrier Islands

Piping Plovers:

The 2007 end-of-season Piping Plover breeding pair total was 199. This represents a 1.5% decrease over the 2006 end-of-season total of 202 pairs. Based on end-of-season totals, Assateague Island experienced the greatest decrease in breeding pairs in 2007. This decrease was attributed to loss of habitat in two nesting areas on the island; Wild Beach and the Overwash (A. Daisey, Chincoteague NWR biologist, pers. comm.). This loss of habitat resulted from tidal flooding events that rendered large portions of these areas unsuitable for plovers. The Piping Plover breeding population on Metompkin Island increased by 6 pairs, while the Cedar Island population decreased by seven pairs. Given the close proximity of the two islands, it is possible there may have been some exchange of birds between the two sites. 2006 and 2007 end-of-season population estimates reflected no annual change for Ship Shoal Island and an increase of pair on Myrtle Island.

In 2007, an estimated 1.16 fledged young per pair were produced in Virginia, which is similar to last year’s statewide productivity estimate of 1.19 fledged young per pair. This represents the second consecutive year statewide productivity estimate fell below 1.50 fledged young per pair, the minimum value necessary to secure an increasing population. This two year drop in productivity followed three years (2003 – 2005) of relatively high (> 1.50 fledged young per pair) reproductive success. For a second year in a row, the northern islands (Assateague Island – Cedar Island) exhibited higher Piping Plover productivity (1.21 fledged young per pair) than the southern islands (Parramore Island – Fisherman Island; 0.91 fledged young per pair). Moreover, the difference in productivity values between the northern and southern islands was greater in 2007 than in the previous year. It is too early to draw any conclusions from these data; however, they seem to indicate that the northern islands may provide more suitable breeding conditions than the lower islands, especially in years when environmental anomalies such as frequent tidal inundation pose additional challenges to breeding pairs. More work is needed to adequately address the differences in Piping Plover reproductive success along the barrier

island chain and increase our understanding of the lower islands' potential for supporting future population gains.

Wilson's Plovers:

Virginia's 2007 end-of-season Wilson's Plover statewide population estimate 27 breeding pairs, which brought it up to the same level reported in five out of the last 11 years. The breeding population on Assawoman Island increased by six pairs over the previous year whereas the populations on Metompkin and Cedar Islands decreased by one and four pairs, respectively. The northernmost section of Cedar Island referred to as Cedar Sandbar, which is currently separated from the main portion of the island by a deep breach, accounted for three of the missing pairs. The reduction in pairs on Cedar Sandbar may have been due in part to human disturbance. The sandbar continues to experience an increase in the number of day visitors because it is easy to get to by boat and offers safe anchorage at all tide stages.

2007 marks the fourth consecutive year VDGIF staff conducted Wilson's plover productivity studies on Metompkin and Cedar Islands. This year, 16 pairs or 59% of the statewide population were monitored. A combined estimate of 1.63 chicks per pair was produced at Metompkin and Cedar Islands, which reflects a decrease over last year's estimate of 1.82 chicks per pair. Despite the decrease, this year's Wilson's Plover productivity estimate exceeded statewide estimates for Piping Plovers and American Oystercatchers for a third year in a row. We surmise that the cryptic behavior exhibited by Wilson's Plover breeding pairs and their tendency to keep chicks well hidden in adjacent marshes offers them greater success in evading of avian and mammalian predators.

American Oystercatchers:

A total of 388 American Oystercatcher pairs were recorded during the 2007 Piping Plover, Wilson's Plover and American Oystercatcher survey. As in previous years, the majority (378) of the breeding pairs occurred on the barrier islands with only 10 pairs documented at sites along the western shore of the Chesapeake Bay (Craney Island – 1 pair, Grand View Beach – 6 pairs, and Plum Tree Island National Wildlife Refuge – 3 pairs). Breeding pairs were documented on every barrier island along the Eastern Shore of Virginia, with the highest numbers documented on Metompkin (n = 79) and Cedar Islands (n = 78).

Population estimates derived from this and previous annual surveys suggest an increasing trend in the barrier island population. Moreover, the end-of-season total for American Oystercatchers was 410 pairs because of additional pairs documented during productivity monitoring on Metompkin Island (11 pairs), Cobb Island (1 pair), Ship Shoal Island (6 pairs) and Fisherman Island (4 pairs). This suggests a 7% increase in the number of pairs compared to the 2006 end-of-season total and a 54% increase compared to 2000 survey results. This is encouraging considering the 57% decline in the number of oystercatcher adults documented between 1984 and 1998 during annual barrier island waterbird adult counts. This decline coincided with a rise in the number and spread of mammalian predators on the barrier islands whereas the more recent increase may be a reflection of expanded predator management efforts that began in 1998.

The distribution of oystercatchers along the barrier chain remained relatively even in 2007 with 53% of the pairs occurring on the northern barrier islands (Assateague Island to Cedar Island) and 47% on the southern islands (Dawsons Shoal to Fisherman Island) despite the high abundance of pairs on Metompkin and Cedar Islands (Table 1). The prevalence of oystercatchers on the southern islands set them apart from Piping Plovers and Wilson's Plovers, which are highly concentrated on the northern barrier islands. All three shorebird species nest in similar island habitats; however, the oystercatchers' less stringent breeding habitat requirements may allow them to utilize islands that are not suitable for plovers, which may help minimize competition between the three species.

We monitored the reproductive success of 341 oystercatcher pairs at nine barrier island sites and two marsh sites along the Eastern Shore of Virginia in 2007. The productivity estimate for the barrier islands and seaside marshes was 0.42 fledged young per pair and 0.24 fledged young per pair, respectively. Breeding success on barrier islands that were monitored in 2006 decreased in 2007, except for Myrtle, Little Cobb, and Smith Islands which experienced no change in productivity. Potential factors contributing to the decline in reproductive success are still being examined and the integration of productivity data with past and current predator removal efforts is still pending. The overall productivity of oystercatchers breeding in the central seaside marshes fell well below the productivity values reported in 2006 (0.59 fledged young per pair). The late May and late June wash out events of this year's breeding season heavily impacted the low-lying marsh territories and resulted in only 16 young produced from 67 breeding pairs.

Breeding Status of Colonial Waterbirds on Virginia's Barrier Islands

Virginia's barrier island/seaside lagoon system supports the greatest diversity and abundance of colonial nesting waterbirds in the Commonwealth's coastal plain. Although a long-term database of numbers of adult colonial nesting waterbirds exists for the barrier islands, limited effort has been made to obtain statistically sound waterbird population estimates. The 2006 breeding season marked the beginning of a three year collaborative study by VDGIF and The Nature Conservancy's Virginia Coast Reserve (TNC) that assesses the population status and reproductive success of colonial nesting seabirds (i.e., terns and skimmers) on Virginia's barrier islands and seaside marshes and examines how mammalian predator management may be influencing these populations. This effort will also establish a framework outlining standardized field protocols for collecting population and productivity estimates for these species that may be implemented during future barrier island and coastal plain survey efforts in the state. For purposes of this study, we have chosen to concentrate our colonial waterbird monitoring efforts on Common Terns (*Sterna hirundo*), Gull-billed Terns (*S. nilotica*), Least Terns (*S. antillarum*), and Black Skimmers (*Rynchops niger*) breeding on the eleven barrier islands (including one inlet shoal) between Assawoman and Fisherman Islands. In addition, we attempt to gather similar data on seaside marsh colonies located within American Oystercatcher monitoring sites to allow us to compare breeding activity and success between the two habitat types. Following the same methodology deployed in 2006, we documented 16 discrete colonial seabird colonies along the barrier island chain from Metompkin to Smith Islands in 2007. In addition, we monitored 12 colonies in the seaside marshes east of Wachapreague, Quinby and Oyster. The number of Common Tern, Gull-billed Tern and Least Tern breeding pairs on the barrier islands increased in 2007 over the previous year while the number of Black Skimmer pairs decreased. The nesting populations of Common Terns, Gull-billed Terns and Black Skimmers in the seaside marshes increased this year. Despite these increases, productivity for most colonies was low (< 0.50 fledged young per pair). The integration of results from this study with past and current predator removal efforts has yet to be begin and will be forthcoming in the final project report.

Predator Impacts on Diamondback Terrapins Nesting on Virginia's Barrier Islands

Casual observations suggest that Diamondback Terrapins (*Malaclemys terrapin*) nesting on the barrier islands are vulnerable to various sources of predation; however, no attempt has been made to measure predator impacts on terrapin reproductive success. By monitoring reproductive success of terrapins and ground nesting birds concurrently, we hope to gain a better understanding of predator impacts across a variety of taxa and help determine what influences, if any, terrapins have on overall predation rates of waterbirds breeding on the barrier islands.

2007 marked the second year of a three year Diamondback Terrapin study on Cedar Island. The field season was still under way at the time of this writing, thus the results presented here are very preliminary. Daily crawl surveys indicated that June was the peak laying month and highest daily crawl total was 93 recorded on June 12. Crawl activity dropped dramatically after July 17 and ceased by July 31. We located a total of 102 terrapin nests this year, 95 of which were found in tact and seven were found depredated. Fifty percent (n = 51)

of the nests were located on the north sandflats that extended from the ocean berm to the backside marsh, 36% (n = 37) on the backside dunes and berm, and 14% (n = 14) on the ocean-facing berm and dunes. Preliminary results from this year contrast sharply with our 2006 findings. Of the 64 nests found in 2006, 94% were lost to depredation. Of the four nests that were not depredated, three hatched successfully and one was washed out. Thus far, the number of nests lost to predators this year is far less largely because most of the nests were left undisturbed during the incubation period. We began observing an increase in predator activity in late July and August when the early laid nests began hatching. Last year, 55% of the depredated nests were destroyed within one week of the lay date and the remaining 45% were destroyed during the hatching period. Red Fox (*Vulpes vulpes*) and Ghost Crabs (*Ocypode quadrata*) was identified as the primary nest predators in 2006. This year Ghost Crabs destroyed 76% (n = 28) of all (n = 37) the depredated nests documented thus far. We were unable to identify the predator(s) responsible for destroying the remaining nine nests. We observed no raccoon tracks on South Cedar this year and encountered a few fox tracks in the beginning of the nesting season and again during the hatching period. So far this year, we have not found any of terrapin nests that appeared to have been depredated by foxes. Wash out was the second leading cause of nest loss recorded thus far; and most of the loss occurred in a low lying sandflat that extends from the ocean berm to the backside marsh.

So far, overall hatch success is well above what we reported in 2006. Because terrapin hatchling are known to overwinter in the nests, we will not be able to calculate final hatch success until next spring when we excavate those nests in which live hatchling were found or did not hatch by October 31 of this year.

Comprehensive Waterbird Monitoring Plan

This project was designed to coordinate and develop a long-term waterbird (i.e., those species that are dependent on the Chesapeake Bay estuary to complete portions of their life cycle such as wading birds, seabirds, shorebirds, marsh birds, raptors and waterfowl) monitoring plan for the tidal reaches of Chesapeake Bay that will: (1) forge a permanent partnership between conservation partners of Maryland and Virginia to ensure coverage of the entire estuary; (2) consider all breeding and non-breeding waterbird species (hereafter referred to as target species) in Chesapeake Bay that have had little or no funding directed towards their research, management or conservation in the past and/or have been identified as a priority species in Maryland's Comprehensive Wildlife Conservation Strategy, Virginia's Comprehensive Wildlife Conservation Strategy, or in one or more regional/national avian conservation initiatives; (3) identify target species' habitat requirements throughout the annual cycle; (4) develop a methodology for assessing breeding and nonbreeding waterbird populations in the Bay; (5) develop a methodology for identifying and monitoring human induced waterbird mortality in the Bay; (6) and ensure that all waterbird monitoring efforts generate statistically valid trends and population estimates that will help in the development of appropriate management and conservation protocols for target species. The project facilitator will be responsible for establishing the bi-state Partnership, compiling and collating all target species information, monitoring recommendations and other Plan components provided by the project partners that will go into the final version of the Plan, and writing the Plan. The facilitator will also serve as the Partnership's primary contact and spokesperson.

In the fall of 2005, VDGIF contracted with the Center of Conservation Biology at the College of William and Mary to complete the aforementioned work. The contract's start date was January 2006 and its initial completion date was November 2008. However, this date will be delayed by at least one year. This summer, the contractor finished Phase I of the project's Scope of Services which entailed the development of a Project Guidance Document to introduce the formulation of the Plan and help recruit Partnership members among government agencies, conservation organizations, academic institutions that are committed to conservation and management of waterbirds in Maryland and Virginia. The Project Guidance Document also provides sound justification and a framework from which some type of working agreement (e.g., Memorandum of Understanding) can be established between Maryland and Virginia that allows environmental agencies from both states to work collaboratively towards long-term monitoring of waterbirds in the Chesapeake Bay.

N-POL Radar Study on the Eastern Shore of Virginia

The Eastern Shore of Virginia has long been renowned for its concentrations of migratory landbirds, shorebirds, waterfowl and sea birds. However, rapid high-density residential development in the area, especially on the southern tip of the Delmarva Peninsula, threatens the unique ecological value of the area to migratory birds. Additionally, both small and large-scale wind energy facilities are proposed for important migratory habitat on both the mainland and off the Atlantic coast. In order to lessen impacts to important stopover habitat by managing development, it is imperative that conservation planning is based on a thorough understanding of the ecological requirements of migrant landbirds at migratory stopover sites. Properly calibrated weather surveillance radar has been identified as a useful tool for assessing habitat use by migratory birds, especially when combined with carefully classified and ground-truthed landcover data.

2007 marked the completion of the N-POL Radar Study which was part of a two-year collaborative project intended to integrate weather surveillance radar data, detailed landcover and habitat data, and ground-based bird surveys to produce products that would improve the efficacy of conservation programs for neotropical migrant landbirds in Northampton County, Virginia. Principal project partners included The Nature Conservancy's Virginia Coast Reserve (VCR), North Carolina State University, College of William and Mary – Center for Conservation Biology and National Aeronautics and Space Administration (NASA). One of the unique components of this project was the use of the new and powerful NASA polarimetric radar (NPOL) to monitor migratory bird exodus events on Virginia's lower Eastern Shore. NPOL is portable, has dual, linear polarization, an operational range of 120 km, a maximum scanning rate of 18 degrees/sec, and a maximum spatial resolution of approximately 1 ha. These features make NPOL much better suited for assigning birds to habitat patches as they take off on migratory flights than the traditional network of weather radars (NEXRAD WSR-88D) known to have limited spatial and temporal resolution. However, as with any study involving new technology there were several unforeseen technical and logistical hurdles that prevented the achievement of all project objectives listed below. Along with each objective is a brief description of its completion status results achieved. All results were presented and submitted to VDGIF in two major reports. The first report is entitled "Baseline Assessment of Neotropical Migrant Landbird Stopover Habitat in the Lower Chesapeake Bay Region for Conservation Planning and Protection" and the second is a draft manuscript entitled "Exploring Patch-level and Landscape-scale Stopover Patterns Using NPOL Radar along the Lower Delmarva Peninsula" (hereafter referred to as the Final Report) which will be submitted to the *Journal of Field Ornithology*.

Evaluation of the Distribution and Status of Black Rails on the Eastern Shore of Virginia and in the Lower Chesapeake Bay

The Black Rail (*Laterallus jamaicensis*) is one of the most threatened bird species in Virginia and the mid-Atlantic region. Population levels of this species are thought to be declining and may have reached dangerously low levels. The Black Rail has never been systematically surveyed in Virginia and its only account exists in the form of a small collection of unpublished historical records. These records generally characterize its patchy occurrence within high elevation areas of tidal marshes but its overall distribution is poorly known. It is generally believed that this species may occur in only 10-20 breeding locations in the state. The lack of information on this species is due to the difficulty in surveying remote marsh areas at night when Black Rails are most active. Targeted surveys are needed to better refine habitat requirements and breeding densities so that adequate population estimates may be generated. Basic abundance and distribution information is central to the development of an effective conservation strategy for this species. In the spring of 2007, VDGIF contracted with the Center for Conservation Biology at the College of William and Mary to assess the status and distribution of Black Rails in Virginia over the course of two breeding seasons. The information gained from this effort will not only assist with statewide conservation of the species, but also increase our understanding of the natural history of Black Rails in the mid-Atlantic region.

During the 2007 breeding season, Black Rails were surveyed at night using standardized point count techniques and recorded playback. In addition, automated recording units (ARUs) were used to determine detectability patterns. ARUs are designed to collect acoustical bird data when no human observer is present. ARUs are comprised of a microphone, amplifier, programmable computer, and software that schedules, records, and stores data on a disk drive. ARUs were deployed in areas where Black Rails were known to occur to determine call rates. Survey site selection included a review of historical data and delineation of patches that contained appropriate vegetation and topography. A network of point counts were established within target marshes to allow for density estimation and distribution mapping.

A total of 242 points were surveyed, of which 97% (n = 234) were surveyed twice from 1 May and 30 June 2007. A total of 19 Black Rail detections representing approximately 11-12 individuals were recorded at 12 sampling points during the 2007 survey season. The most numerous species detected during these surveys were Virginia Rail, Clapper Rail, Laughing Gull, Chuck-wills Widow, Marsh Wren, Yellow Breasted Chat and Seaside Sparrow. ARU units were deployed in two known Black Rail territories. Detectability analyses of the recordings are ongoing and will be presented in next year's report.

Marine Mammals

Minimal resources were devoted to this job during the project year, with our primary emphasis being to assist the Virginia Marine Mammal Stranding Network, which is administered by the Virginia Aquarium & Marine Science Center's Stranding Program (VAQS). During this project year, VDGIF involvement was restricted to reporting all marine mammal strandings encountered on the barrier islands to VAQS who, in turn, deployed their staff to work up the animals as required by their funding sources. In addition, DGIF staff is continuing to work on establishing a Section 6 Cooperative Agreement with National Marine Fisheries Service to obtain federal funding for the conservation and management of threatened and endangered sea turtles and marine mammals in Virginia.

Delmarva Fox Squirrels

One of the recovery objectives for the Delmarva Fox Squirrel (*Sciurus niger cinerus*) is to restore populations throughout its historic range, which includes Virginia's Eastern Shore. However, many of the forests that may serve as suitable translocation sites on the lower portion of the Delmarva Peninsula are privately owned. Several years ago, DGIF staff submitted a landowner incentive proposal (LIP) to seek funding from the USFWS to initiate a private lands translocation program on the Eastern Shore. USFWS approved funding for the project and agreed to assist with the development of a Delmarva Fox Squirrel (DFS) Safe Harbor Program that would encourage private landowners to voluntarily allow introductions of DFS on their lands by offering them legal assurances that they will not be held legally accountable if translocation efforts fail.

VDGIF staff completed a formal Request for Proposals (RFP) which managed to satisfy state procurement requirements and clearly articulate project objectives and needs. The RFP was issued on November 30, 2005 and included the following list of tasks to be completed by the contractor:

- (1) Provide assistance with the identification of at least two private property owners with suitable squirrel habitat who are willing to have DFS translocated onto their property and agree to engage in land management and restoration activities designed to benefit DFS and other at-risk wildlife species and habitats;
- (2) Serve as liaison to inform and advise potential and participating landowners regarding the benefits, responsibilities, and commitments entailed in participating in this DFS Safe Harbor Program; and to inform landowners adjacent to translocation tracts of Program activities and encourage them to enter into a cooperative land management plan;

- (3) Conduct baseline habitat and wildlife surveys on the privately owned release sites and adjacent lands;
- (4) Develop individualized land management plans for participating landowners willing to have squirrels translocated onto their property, and developing area-wide land management plans that would include adjacent lands;
- (5) Provide cooperating landowners with technical guidance on implementing management and restoration activities outlined in land management plans and Safe Harbor agreements.

VDGIF staff and Environmental Defense personnel reviewed the proposals, held meetings with prospective vendors, and engaged in several conference calls with each vendor during 2006 and the early part of 2007 before making the final selection based on criteria established in the RFP. The contract was sent to the selected firm for signature in June 2007. Preliminary work has begun on the development of a project prospectus that will serve as a public reference document for local governments and residents, and that clearly states the purpose, objectives, and intended actions to be pursued. In addition, a draft safe harbor agreement is currently being prepared for internal review by VDGIF staff and the USFWS Chesapeake Bay Field Office.

Sea Turtles

Nesting:

Virginia represents the northern extreme of the Loggerhead Sea Turtle (*Caretta caretta*) nesting range, consequently the monitoring of the state's nesting events has been minimal. Back Bay National Wildlife Refuge (BBNWR or refuge) has the only long term formal sea turtle nest monitoring program in the Commonwealth. The refuge used to conduct regular patrols of Virginia's southern ocean beaches from the North Carolina/Virginia border to Fort Story Military Reservation in Virginia Beach. The number sea turtle nests laid on Virginia's barrier islands, which are located along the seaward margin of the Eastern Shore, is largely unknown because of a lack of consistent coverage at most of these sites. Nesting surveys were conducted regularly on Assateague, Wallops, Assawoman and Fisherman Islands from 1974 - 1982. Since then, varying levels of coverage has been maintained as a result of ongoing avian studies and other monitoring work performed on these islands. Turtle nesting surveys have never been conducted on any of the other barrier islands; as such, records of turtle crawls at these sites represent opportunistic observations reported by the public, researchers or land managers.

In 2002, VDGIF began maintaining a statewide sea turtle nesting database, which includes all reported nesting events on the state's southern mainland beaches (North Carolina/Virginia border to Fort Story) and barrier islands. In the same year, VDGIF began holding annual sea turtle nest monitoring workshops for the biologists and seasonal Piping Plover interns at Chincoteague National Wildlife Refuge who work on barrier islands owned and/or managed by the Refuge (i.e., southern half of Assateague Island, Wallops Island and Assawoman Island).

From 1970 -2007, a total of 104 Loggerhead sea turtle nests have been documented in Virginia. The majority of nesting activity has occurred on the southern mainland beaches near the NC/VA border. However, in 2006 Assateague Island had more nests ($n = 7$) than all southern mainland beaches combined ($n = 1$). Moreover, it was the first year nesting emergences occurred on Assateague in consecutive years (2005 and 2006) rather than every other year. Because female Loggerheads nest every two years, it is possible last year's nests on Assateague were laid by one or two new females. In 2007, only one non-nesting emergence was recorded on Assateague; however, a nest was found on Cedar Island where turtle crawls have never been reported before. A post-hatching nest excavation revealed a clutch size of 104 eggs, 100 of which hatched successfully. The 96% hatch rate is the highest ever reported for a barrier island nest. Only one nest was documented on the southern mainland beaches at BBNWR in 2007. The outcome of this nest is still pending.

Strandings:

In 1979, the Virginia Institute of Marine Science (VIMS) established the Virginia Sea Turtle Stranding and Salvage Network (VSTSSN) in order to assess and monitor sea turtle mortalities and population trends within the Chesapeake Bay and coastal waters of Virginia. VIMS continues to coordinate and manage the VSTSSN and serves as the repository for Virginia's sea turtle stranding data and as such it is federally mandated by NMFS to provide real-time data on sea turtle strandings occurring within state waters. One of VIMS major cooperators is the Virginia Aquarium and Marine Science Center (VAMSC) which responsible for responding to turtle strandings along Virginia's lower Chesapeake Bay, Eastern Shore and ocean coastlines where most of the state's strandings typically occur. As such, VAMSC handles well over 75% of Virginia's strandings annually. VAMSC also engages in the rescue and rehabilitation of live debilitated sea turtles with the goal of releasing them back into the wild upon their recovery.

VDGIF assists the VSTSSN by responding to sea turtle strandings throughout the Eastern Shore and remote barrier islands and conducts necropsies on fresh to moderately decomposed carcasses. In 2007, VDGIF responded to 11 Loggerhead and one Kemp's ridleys (*Lepidochelys kempii*) stranding so far. VDGIF staff is also continuing to work on establishing a Section 6 Cooperative Agreement with National Marine Fisheries Service to obtain federal funding for the conservation and management of threatened and endangered sea turtles and marine mammals in Virginia.

B. FEDERAL CONSISTENCY

During the second half of FY 2007, the Office of Environmental Impact Review/Federal Consistency reviewed 90 development projects and management plans located in Tidewater for consistency with the Virginia Coastal Resources Management Program (VCP). This represents approximately 72 % of the 125 projects reviewed during the last six months. Major state projects accounted for 30 projects and, as shown in Table 1, 73 were federal projects of which 43 were federal actions, and 17 were federally funded projects (predominantly local government projects). The 43 federal projects included 39 direct federal actions and 4 federal approvals (licenses and approvals).

In addition, the OEIR participated in several activities, to include scoping meetings and workshops, pertaining to the development of NEPA documents and federal consistency determinations for actions proposed at Fort Belvoir, Fort Lee and Fort Story mandated by the 2005 Base Realignment and Closure legislation.

The OEIR continues to maintain a webpage for Federal Consistency for the Commonwealth. The can be accessed through DEQ's main website or found at <http://www.deq.virginia.gov/eir> . The webpage includes the Commonwealth's Federal Consistency information package, a project list with project descriptions and public notices of Federal consistency reviews. The webpage is updated weekly.

Table 1 depicting federal projects in Tidewater, Virginia reviewed from April 1, 2007 through September 30, 2007.

TYPE OF FEDERAL PROJECTS REVIEWED*	NUMBER OF PROJECTS COMPLETED	REVIEW PERIOD
Direct Federal Actions	37	30-60 Days
*Indirect Federal Actions (approvals & permits)	4	90 Days
Federally Funded Projects	17	30 Days
Outer Continental Shelf	2	45-60 Days
TOTAL	60	30-90 DAYS

**These projects do not include permits issued pursuant to Section 404 of the Clean Water Act administered by the U.S. Army Corps of Engineers. Such permits are reviewed by the regulatory agencies under a separate interagency coordinated review process (coordinated by the Norfolk District U.S. Army Corps of Engineers).*

Significant Projects reviewed for Consistency with the VCP 10/1/2006 to 3/31/07

- 1. Draft Environmental Impact Statement and Federal Consistency Determination for Implementation of 2005 Base Realignment and Closure (BRAC) Recommendations and Related Army Actions at Fort Belvoir, DEQ-07-032F (comments mailed April 26, 2007).**

Project Description: The Army intends to update the Fort Belvoir land use plan and carry out base realignment actions mandated by the 2005 enactment of the Base Realignment and Closure (BRAC) Commission recommendations. The implementation of these actions would result in a net increase of approximately 22,000 people in Fort Belvoir's work force, along with the redevelopment of approximately 7 million square feet of

office and building space. The EPG area, situated to the west of Interstate Route 95 and away from the rest of the Fort, would be put to greater use. A number of units, agencies, and activities would be moved to Fort Belvoir from other locations, resulting in 20 construction projects and creating approximately 73 acres of impervious surfaces. A “no-action” alternative is presented for comparison with existing conditions.

The Draft EIS indicates the Army’s determination that any of these alternative strategies would be inadequate by itself, and states the Army’s preference for relocation of the Troop Area from North Post to an industrial part of the South Post, with the present Troop Area becoming “Professional/Institutional.” A status-quo alternative, if delayed implementation is necessary, would be to keep the Troop Area and Industrial Areas where they are. The Draft EIS also contains a federal consistency determination pursuant to the Coastal Zone Management Act

Federal Consistency Objection

DEQ published a public notice of this review from March 9, 2007 through March 30, 2007. No comments were received from the public.

Based on the information submitted in the consistency determination (included in Draft EIS) and the comments of agencies administering the enforceable policies of the Virginia Coastal Resources Management Program (VCP), the Commonwealth of Virginia objected to the federal consistency determination for the proposed BRAC projects. Pursuant to the Federal Consistency Regulations, 15 CFR Part 930, section 930.43(b), this objection was based on insufficient information necessary to determine the consistency of the projects with the Air Pollution Control enforceable policy of the VCP. Among other things, DEQ’s Air Quality Division indicated that a general conformity analysis is required for the BRAC projects at Fort Belvoir because the Washington Metropolitan Area, of which Fort Belvoir is a part, is a non-attainment area for two criteria pollutants: the 8-hour ozone standard and the fine particulate standard of the National Ambient Air Quality Standards (NAAQS) (see section 176(c) of the federal Clean Air Act). Analysis by the Air Quality Division indicates that the emission of ozone precursors attributable to the BRAC projects will exceed the general conformity thresholds for the area. For this reason, a determination must be made that the proposed action conforms to the applicable air quality plan and supports the overall goal of air quality standard compliance in the area. To achieve this, the project emission increases must be directly offset by equivalent reductions, or otherwise accounted for in the regional air quality planning process. Also, the construction phase of the BRAC undertaking coincides with a time period in which the Washington area must demonstrate compliance with both the 8-hour ozone and the fine particulate matter NAAQS. However, the Draft EIS offers no proposed mitigation measures to lessen the impact of construction emissions during the critical attainment period. Moreover, the Army’s proposed method of demonstrating conformity for the construction phase of the projects has not yet been accepted by EPA Region III for the purpose of demonstrating conformity for this particular project and situation.

DEQ’s Division of Air Quality believes that the Army should include, and commit to implement, a construction performance contract plan in the Final EIS. That plan should include all reasonable emission control measures to minimize the impacts of construction activities related to the project. The measures to be considered should include, but not be limited to: the exclusive use of new diesel engine standard-compliant or control device-retrofitted heavy construction equipment; strict restriction of equipment idling times; and restriction or prohibition of construction on days when high ozone levels are predicted in the area.

Consistency Objection lifted. On June 7, DEQ received correspondence from Fort Belvoir in response to our earlier finding that the proposed BRAC projects were inconsistent with the Air Pollution Control enforceable policy of the Virginia Coastal Resources Management Program because of a lack of sufficient information. The Air Quality Division worked with the Army to resolve air quality mitigation issues. Based on comments

submitted by the Air Division pertaining to its air quality conformity analysis, we lifted our earlier objection and conditionally concurred that the BRAC projects were consistent with the VCP. The conditions of our concurrence are:

1. The Construction Performance Plan/Air Quality Mitigation Plan, dated June 28, 2007 and approved by DEQ-AQD, be included in the Record of Decision and the General Conformity Determination, and fully implemented;
2. Any substantial changes in the Plan contemplated by the Army must undergo a new analysis and General Conformity Determination; and
3. The Army provides periodic status report on implementation of the Construction Performance Plan/Air Quality Mitigation Plan to DEQ-AQD every six months, starting on September 15, 2007.

DEQ had indicated that the Army must provide two items to enable us to determine consistency:

- A construction contract performance plan, including measures to minimize air pollutant emissions; and
- The Army's part of a compilation of traffic and employment projections for incorporation into a conformity determination under the Clean Air Act.

The Army provided a draft construction contract performance plan and stated that the Army had provided the compilation to the Metropolitan Washington Council of Governments. The Army's letter requested documentation from DEQ showing that emissions from Fort Belvoir BRAC activities construction, in combination with other emissions in the National Capital Air Quality Control Region, would not exceed State Implementation Plan emissions budgets.

2. Environmental assessment and FCD Army Air Force Exchange (AAFES) Shoppette and Operation

DEQ's Office of Environmental Impact Review completed the Commonwealth's review of Fort Belvoir proposal to construct and operate a 5,160 square foot shoppette in the South Post Area. The Shoppette would include a Burger King restaurant, automated car wash, landscaping, and 16-pump multi-product fuel dispenser island. Based on the information provided in the environmental assessment and federal consistency certification, reviewers indicated that the project would not have any significant adverse impacts of natural resources. Accordingly, DEQ concurred that the project, as proposed, is consistent with the enforceable policies of the Virginia Coastal Program.

3. National Geospatial-Intelligence Agency and Community Hospital Projects at Fort Belvoir:

OEIR completed a coordinated review of the proposed construction of the National Geospatial-Intelligence Agency (NGA) at Fort Belvoir in Fairfax County. This project is an element of the Fort Belvoir land use plan developed in response to the base realignment actions mandated by the 2005 enactment of the Base Realignment and Closure (BRAC) Commission recommendations. NGA proposes to consolidate operations from its current locations throughout the National Capital Region (NCR) to the New Campus East (NCE), located at Fort Belvoir. The NGA East Campus will accommodate approximately 2,419,000 gross square feet of development on a site of approximately 130 acres at the Engineer Proving Grounds (EPG) area of the Fort with the capability of expanding the office and technical center by 25%.

4. EA and FCD for Community Hospital Projects at Fort Belvoir

OEIR completed a coordinated review of the proposed construction of the Community Hospital at Fort Belvoir in Fairfax County. The 185-acre site for the proposed hospital is in an area central to the south Post just inside the Pence Gate entrance, bounded by Richmond Highway, Ninth Street, Belvoir Road, and Gunston Road. The hospital building would consist of six occupied level. Parking would total 2,600 spaces, and would be deployed in two five-level structures to the north and south of the hospital building as well as in a lower structure along the entrance drive to the east. The current design indicates total area of buildings, support structures, and structured parking of 2,337,965 square feet. Site coverage (total) by building footprint is 631,885 total for all structures. DEQ provided the Army with site-specific recommendations to avoid, minimize and mitigate the anticipated environmental impacts.

5. DEIS for BRAC Action: Development Westside Marine Corps Base Quantico

On September 25, DEQ mailed the Commonwealth's comments to the Army pertaining to the Marine Corps Base Quantico (MCBQ) proposed development of the Westside of MCBQ, including the 2005 Base Realignment and Closure (BRAC) action at MCBQ. The development would entail construction of new facilities in two undeveloped areas west of I-95. These areas, Russell Road Area and the MCB-1 Area, would accommodate the co-location of the Military Department Investigative Agency Headquarters with the Counterintelligence Field Activity and Defense Security Service at MCBQ as directed by the 2005 BRAC law. They would also provide space for adequate facilities to support Marine Corps units currently at MCBQ, as well as potentially other federal and Marine Corps initiatives that may identify MCBQ as a site for relocation. The Draft Environmental Impact Statement (DEIS) and federal consistency determination submitted for the proposal identify and evaluate the potential environmental effects of the construction and operation of facilities for approximately 3,000 personnel expected from Alternative A (BRAC Action); 5,000 personnel under Alternative B, which would include facilities for 2,000 personnel in addition to the 3,000 under Alternative A; and the No Action Alternative. Reviewers have no objections to the proposal.

6. EA for and FCD for Integrated Pest Management Plan

On September 26, DEQ mailed the Commonwealth's comments on the environmental assessment and federal consistency determination for the implementation of an Integrated Pest Management Plan (IPMP) submitted by the Defense Supply Center, Richmond (DSCR), located 1.5-miles south of the Richmond City limits. This action would serve as an instrument to accomplish the Army's mission of managing installation pest concerns, limiting pest effects on the overall military mission, and complying with various environmental laws and Army regulations. The IPMP identifies and prioritizes pest species and determines procedures for appropriate control measures, with an emphasis on using non-chemical control measures whenever feasible. The IPMP will incorporate continuous monitoring, education, record keeping, and communication to prevent pests and disease vectors from causing unacceptable damage to operations, people, property, material, and the environment. The proposed action represents a proactive approach to existing and future pest control concerns at the DSCR. The DEQ concurred with the Army's determination that the project is consistent with the Virginia Coastal Zone Management Program.

7. SCC Application for Carson-Suffolk-Thrasher 500 kV and 230 kV Transmission Lines

OEIR completed the review of the environmental report concerning the Carson-Suffolk-Thrasher 500 kV and 230 kV Transmission Lines proposed by Dominion Virginia Power. The project was also one of the subjects of an interagency coordination meeting on May 8, 2007 at the DEQ Central Office. State agencies comments are intended to provide technical assistance to the State Corporation Commission in evaluating the proposed projects. Agencies identified numerous plants and animals that would be affected by the new lines

and made recommendations on measures to minimize the impacts. Dominion proposes to build a new electric transmission line from the Carson Switching Sub-station, located Southwest of Petersburg in Dinwiddie County, to the Suffolk Switching Station in Suffolk (“Carson-Suffolk segment”), and a new 230 kV electric transmission line from Suffolk to the Thrasher Sub-station in Chesapeake (“Suffolk-Thrasher segment”). The Carson-Suffolk segment would traverse parts of Prince George, Sussex, Southampton, and Isle of Wight Counties as well as Suffolk. The Suffolk-Thrasher segment would traverse parts of Suffolk and Chesapeake. The Carson-Suffolk line would cover a distance of approximately 59.6 miles; the Suffolk-Thrasher line would cover about 21.5 miles. The right-of-way required for these transmission lines would vary from 130 feet to 180 feet, depending on the location and the proposed configuration of tower structures. The applicant was reminded of the need to submit a federal consistency certification since the line traverses several jurisdictions located in Virginia’s coastal zone.

8. EA for Fort Belvoir Projects Plans

The National Capital Planning Commission, a federal government entity which asserts the federal interest in planning issues in the National Capital area, has asked DEQ to coordinate the review of concept plans for two projects proposed as part of the BRAC endeavors. One of these relates to a National Geospatial-Intelligence Agency facility at the separate Engineer Proving Grounds (EPG); the other relates to a community hospital on the main base. The EPG is a separate Army holding on the west side of Interstate Route 95, northwest of the Fort. NCPC has requested expedited reviews of these projects.

9. SCC Application: Cogentrix Plant in Portsmouth

DEQ was asked by the State Corporation Commission (SCC) to review an application by Cogentrix for a change of legal status at its existing coal-fired electric generating plant in Portsmouth. No change in operation is proposed. In accordance with procedures established with the SCC, the Office of Environmental Impact Review solicited comments on the air quality non-attainment status of the site, the time needed for full review, and the need for wetland information, in order to send a preliminary response. Based on comments submitted by the Tidewater Regional Office, we were able to provide not only the preliminary response but a complete discussion of permit status for the facility within the preliminary response time frame, thereby reducing the review time from 70 days to 10 days.

10. FCC for Norfolk Light Rail Transit

OEIR completed the review of a federal consistency certification for the Norfolk light rail transit (LRT) system in the City of Norfolk. Hampton Roads Transit (HRT) proposes to construct a 7.4-mile light rail transit system comprised of an exclusive double track guideway. The guideway generally follows the Norfolk Southern Railroad Virginia Beach Branch right-of-way with “street-running” operations through Norfolk’s downtown to the west end of the alignment. The proposed project includes 11 LRT stations, a vehicle storage and maintenance facility, and parking at 4 of the proposed station sites to serve an expanded bus feeder system. It is anticipated the proposal would impact 1.57 acres of waters and wetlands, including 1.33 acres of permanent fill impact and 0.24 acres of temporary disturbance impact. A Joint Permit Application is currently being reviewed by DEQ for a Virginia Water Protection Permit (VWPP). OEIR concurs that the proposal is consistent with the enforceable policies of the Virginia Coastal Resources Management Program (VCP), provided HRT complies with the condition of the VWPP and other applicable enforceable policies of the VCP.

11. EA and FCD Shoreline Erosion Control at Wallops Island

OEIR coordinated the review of a Draft EA and federal consistency determination concerning proposed measures by the National Aeronautics and Space Administration (NASA) to retard the retreat of the shoreline at

Wallops Island in Accomack County. According to the Draft EA, shoreline restoration options include beach fill, sand retention devices, emergency actions, geotextile tubes along the shore, and vegetated sand dunes; flood protection options include levees around critical structures, elevation of roads and new structures, pumping sand to raise the island elevation, and making a levee around the island. The Commonwealth's response made recommendations on rare species protection, including the piping plover (listed as endangered by the state) and the loggerhead sea turtle (both species listed as threatened by the federal government), and expressed reservations about geotubes and levees, urging consultation if these are to be chosen. We also provided guidance on existing petroleum tanks, indicating that an active case of release of contaminants is near the project area and mentioning the proximity of existing tanks to the area. We indicated that the project is consistent with the VCP.

12. Final EIS for OCS Oil and Gas Leasing Program

OEIR completed the review of a Final Environmental Impact Statement (EIS) for the Outer Continental Shelf Oil and Gas Leasing Program: 2007-2012. The Commonwealth commented on the Draft EIS in 2006. The Final EIS analyzes the effects of the adoption of a schedule of outer continental shelf (OCS) oil and natural gas lease sales, including one sale in the OCS planning area off the Virginia coast. Four alternatives in the document would affect the Virginia OCS including a new Alternative 9. This alternative would exclude blocks within 50 miles of Virginia and include other possible restrictions such as gas-only and exploration-only leasing. This assumes that the OCS Lands Act is modified by Congress to allow for these options. Alternative 9 was added to the Final EIS in response to the Commonwealth's policy on OCS natural gas resources (adopted in 2006, *Virginia Code* § 67-300, and expressed in the coordinated review of the 2006 Draft EIS). In responding to the Final EIS, several agencies expressed support for Alternative 9. If the federal moratoria on OCS oil and gas exploration and production are lifted, the Commonwealth and its citizens will have future opportunities to review and comment on lease sales and on exploration, development, and production plans under National Environmental Protection Act (NEPA) and Coastal Zone Management Act (CZMA) consistency reviews.

13. Programmatic EIS for program and Rules governing Potential Use of OCS Facilities for Alternative Energy

OEIR coordinated the Commonwealth's response to a Programmatic Environmental Impact Statement issued by the Minerals Management Service of the Department of the Interior (MMS). MMS proposes a program and rules governing the potential use of Outer Continental Shelf (OCS) facilities for alternative energy (including wind energy) or other marine-related purposes not covered by existing law. The OCS is defined as ocean areas ranging from 9 to 200 nautical miles offshore. The Commonwealth's response identified a number of concerns about the protection of shorebirds, marine mammals, sea turtles, other wildlife, and archaeological resources from offshore activities and related on-shore facilities and activities.

14. Federal Consistency Certification for Repair options for Battery Park Trunk sewer Line using FEMA Funds

On April 20, 2007, the OEIR completed its coordinated review of the federal consistency certification submitted by the Federal Emergency Management Agency for the Repair Options for the Battery Park Trunk Sewer (BPTS) Line in the City of Richmond. The proposed action involves the relocation of a portion of the BPTS that was severely damaged in August and September of 2006 when a sinkhole associated with Tropical Depression Ernesto collapsed and crushed the sewer line. Drainage from the Battery Park sewershed was severely compromised, and subsequent rain events continue to cause additional flooding. The preferred alternative is the construction of a 2,800-foot long bypass around the collapsed line which would mostly avoid a closed municipal solid waste (MSW) landfill at the site. FEMA proposes to provide approximately \$32 million in financial assistance to the City through the Public Assistance Program under Presidential Disaster

Declaration (FEMA-1661-DR-VA). OEIR conducted a 30-day review in accordance with federal consistency implementing regulations for the review of federal financial assistance to state and local governments (15 CFR, Subpart F, §930.90 *et seq.*) and the Intergovernmental Review of Federal Programs (E.O. 12372). Reviewing agencies responsible for the administration of enforceable policies of the Virginia Coastal Resources Management Program (VCP) found the proposal consistent with their programs. Public notice of the review was published from March 26, 2007 to April 20, 2007. DEQ received one citizen response in the form of an unsigned letter with attachments. However, the submission did not include any information or analysis of the proposed action with respect to federal consistency and the enforceable policies of the VCP. The citizen response has been forwarded to FEMA under separate cover.

15. FEIS and FCD for BRAC Actions at Fort Lee and Fort A. P. Hill

OEIR sent the Commonwealth's comments on the Army's Final EIS concerning implementation of Base Realignment and Closure (BRAC) actions at Fort Lee and Fort A.P. Hill. The Army proposes to relocate approximately 7,700 military personnel to Fort Lee, building additional facilities for personnel and functions, and conducting training at both Fort Lee (Prince George County) and Fort A.P. Hill (Caroline County). Fort A.P. Hill would get an additional daily personnel load of 880 soldiers and instructors, along with an undetermined number of additional permanent personnel. The Commonwealth's comments on the Final EIS pointed out remaining concerns over potential forest loss, wildlife habitat, endangered or threatened plant and animal species, and, in the case of Fort Lee, the potential impact of new construction on neighboring Petersburg National Battlefield. Reviewing agencies re-stated earlier recommendations on surveys for endangered species and avoidance of known or suspected wildlife habitat. Agencies recommended continued consultation over species and historic impacts. With respect to timber harvest, the Final EIS stated limitations of 75% clearing of riparian areas, whereas the Forestry Best Management Practices guidance limits such clearing to 50%. Based on comments from agencies administering the enforceable policies of the Virginia Coastal Program, DEQ concurred (on behalf of the Commonwealth) with the Army's consistency determination which is included in the Final EIS.

C. PROGRAM CHANGES

Three draft program change reports have been completed by the Environmental Law Institute (ELI) and are ready for state review prior to submission to NOAA. The reports cover the Coastal Primary Sand Dunes and Beaches Act, the Tidal Wetlands Act and the Tidal Wetlands Mitigation Policy. ELI is currently developing reports on fisheries statutes under the Department of Game and Inland Fisheries and the Virginia Marine Resources Commission. ELI is also developing a notice of auto-incorporation for the Virginia Pollutant Discharge Elimination System (VPDES) permit regulation.

At the October 10, 2007 Coastal Policy Team meeting the group discussed additional program updates. Priorities included the Erosion and Sediment Control Program statute and regulations, as well as a notice of auto-incorporation of Air Pollution Control Authorities (statutes) and Provisions of the Air Pollution Control Board (regulations). Impacts to coastal resources from potential off-shore oil and gas exploration and drilling operations were also discussed. It was suggested that Virginia review its core coastal zone management policies to assess whether they provided adequate authority to manage potential impacts from these sources. It was also suggested that Virginia evaluate currently available coastal resources data and its adequacy in evaluating potential off-shore projects. Virginia CZM staff will be evaluating these suggestions and how to best proceed in the near future.