

October 30, 2009

**Virginia Coastal Zone Management Program
Semiannual Section B Report on Core Agency Implementation Activities
For the Period from April 1, 2009 – September 30, 2009**

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A. STATE AGENCY MONITORING

1) DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ)

a) DEQ – Virginia Coastal Zone Management Program

Virginia CZM Program staff continued to work with our partner agencies to implement the Program over the last 6 months. For a full description of staff activities, please refer to the Section A report for Task 1. During this period both the Coastal Planner and Grants Coordinator/Outreach Specialist positions were successfully filled.

b) DEQ – Water Permitting Programs

DEQ- Virginia Water Protection Permit (VWPP) Program

The Virginia Water Protection Permit (VWPP) Program is required for water withdrawals and activities in wetlands and surface waters that may or may not require Clean Water Act section 401 water quality certifications. The following table describes the activity for each of these permits. For the VWPP Program, the column “Permits Reissue Pending / Average Processing Days” represents water supply permit permits whose applications are currently being processed for reissuance. The processing days for pending reissuances cannot be calculated until the permits are actually reissued.

Compared to the to April to September 2009 reporting period, approximately fewer general permit authorizations were issued during the current reporting period, and the average processing time increased. This is largely due to several general permit authorizations issued during the reporting period that required an unusual amount of time to process. Delays were mainly due to untimely applicant response, suspension of the permit process due to inadequate project information, threatened and endangered species concerns and/or coordination, coordination under the State Program General Permit process, and inadequate mitigation proposals. The number of individual permits issued during the current reporting period was about the same as those issued in the previous reporting period, and the average processing time was also about the same. This is largely due to threatened and endangered species concerns and/or coordination, incomplete applications, suspension of the permit process due to inadequate project information, and hearings/State Water Control Board meetings required.

About the same number of permits or permit authorizations were modified during this reporting period, and the average time to process these requests continued to be in line with program guidelines for issuance (no regulatory deadlines for processing changes to general permit authorizations or individual permits).

Two individual permits were reissued during the current reporting period. General permit authorizations are not reissued in the VWPP program.

No individual applications were denied a permit during the current reporting period; however, one general permit application was denied a permit.

The VWPP program staff conduct inspections on a variety of sites and for a variety of reasons. Inspection data is available from the DEQ Quarterly and Annual reporting made to the Administration division, and is also provided to the Virginia Department of Accounts on a fiscal year basis. This data can be provided if necessary for the purposes of this report.

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

There are a total of 264 individual municipal and industrial CZM area VPDES permits. This number and the numbers in the table above represent typical activity in the program (i.e. there is no particular reason for increases or decreases in numbers from the last reporting period). There are also numerous facilities registered under general permits in CZM areas including 15 car wash facilities, 69 concrete products facilities, 5 cooling water discharges, 78 single family homes, 21 nonmetallic mineral mining facilities, 6 petroleum and hydrostatic testing discharges, 58 seafood processors, 231 industrial storm water discharges and 1 coin operated laundry. Industrial storm water permits are currently under reissuance; therefore the numbers do not reflect the expired industrial storm water general permits. Others represent typical numbers for general permit registrants in CZM areas in Virginia.

DEQ – VPA Water Permitting Program

The Virginia Pollution Abatement permit (VPA) is required for facilities that handle wastewater, animal waste or biosolids, and do not have a discharge from the site. For example, an agricultural facility that temporarily stores wastewater to be land applied as part of an irrigation/fertilization program. On January 1, 2008, the Biosolids Use Regulation was transferred to DEQ and incorporated into the VPA Regulation. During the period between April 1, 2009 and September 30, 2009, seven VPA Individual permits were issued in the Coastal Zone Management area authorizing the land application of biosolids. In addition, 19 VPA permit applications have been received. Two VPA Individual permits were reissued during this period for operations other than biosolids land application. There were no modifications of VPA Individual permits. During this reporting period, three poultry operations obtained coverage under the VPA General Permit for Poultry Waste Management and two applications were received.

| VPDES/VPA/VWP - April 1 – September 30, 2009* | | | | | | | | | | |
|---|--|-----|--|-----|-----------------------------------|-----|-------------------------|-----|--|-----|
| | Permits Issued / Avg Proc. Days ¹ | | Permits Reissued / Avg Proc. Days ² | | Permits Modified / Avg Proc. Days | | Denied / Avg Proc. Days | | Permits Reissue Pending / Avg Proc. Days | |
| VPDES | 0 | NA | 21 | 187 | 5 | 282 | 0 | NA | 17** | NA |
| VPA | 7 | NA | 2 | NA | 0 | NA | 0 | NA | NA | NA |
| VWP IPs | 19 | 333 | 2 | 894 | 8 | 107 | 0 | N/A | 4 | N/A |
| VWP GPs | 112 | 90 | 0 | N/A | 20 | 45 | 1 | 150 | 0 | N/A |

1. Processing days does not include any periods where processing was suspended.

2. One permit required 1,649 days, which can be attributed to negotiations with the applicant over in-stream flow and/or withdrawal limits. The other permit required 139 days.

* Information from CEDS database

** This represents existing VPDES individual permits expired but pending through September 30, 2009

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, 2009, through September 30, 2009, DEQ issued 161 Warning Letters for violations of VPDES, VPA, VWPP, and Ground Water program requirements.

Formal enforcement actions are used in those cases where non-compliance is more serious or may take a significant amount of time to correct. Formal measures generally involve the issuance of a Notice of Violation followed by a Consent Order, or an Executive Compliance Agreement in the case of a state agency. In some cases, Unilateral Administrative Orders or court orders may be sought. Between April 2009 and September 2009, DEQ issued 65 Notices of Violation for violations of VPDES, VPA, VWPP, and Ground Water program requirements. During the same period, the agency concluded enforcement cases with the issuance of nine (9) Consent Orders, assessing a total of \$130,695 in civil charges. One Ground Water order involving a \$42,000 civil charge included a Supplemental Environmental Project (SEP) that directed the responsible party to satisfy \$31,500 of the civil charge by satisfactorily completing the engineering design and construction of improvements to storm water management systems.

Table 1

| Measure | Action Type | Count | Total Civil Charges Assessed |
|--------------|----------------------|------------|------------------------------|
| Informal | Warning Letters | 161 | n/a |
| Informal | Letters of Agreement | 0 | n/a |
| Formal | Notices of Violation | 65 | n/a |
| Formal | Consent Order | 9 | \$130,695 |
| Total | | 235 | \$130,695 |

d) DEQ – Air Permitting Program

**OFFICE OF AIR PERMIT PROGRAMS
PERMITS ISSUED REPORT**

Period: **April 1, 2009 – September 30, 2009**

| PERMIT TYPE | NUMBER OF PERMITS ISSUED | AVERAGE PROCESSING TIME (Days) |
|--------------------------|--------------------------|--------------------------------|
| PSD & NA | 0 | NA |
| Major | 0 | NA |
| Minor | 44 | 34 |
| Administrative Amendment | 3 | 73 |
| Exemptions | 73 | 22 |
| State Operating | 5 | 72 |

| | | |
|-----------------------------|-------------------|----|
| Federal Operating (Title V) | 0 | NA |
| Acid Rain (Title IV) | 0 | NA |
| Total Number Permits Issued | <u>125</u> | |

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

Note: The information provided for this report includes data from the 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

Permits pending as of September **30, 2009**

| PERMIT TYPE | NUMBER OF PERMITS PENDING |
|-----------------------------|------------------------------------|
| PSD & NA | 2 |
| Major | 0 |
| Minor | 59 |
| Administrative Amendment | 6 |
| Exemptions | 23 |
| State Operating | 9 |
| Federal Operating (Title V) | 6 |
| Acid Rain (Title IV) | 1 |
| Total Permits Pending | <u>106</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.

PERMITS WITHDRAWN AND APPLICATIONS DENIED REPORT

Period: **April 1, 2009– September 30, 2009**

| PERMIT TYPE | NUMBER OF PERMITS WITHDRAWN | NUMBER OF APPLICATIONS DENIED |
|-----------------------------|-----------------------------|-------------------------------|
| PSD | 0 | 0 |
| Major | 0 | 0 |
| Minor | 8 | 0 |
| Administrative Amendment | 0 | 0 |
| Exemptions | 2 | 0 |
| State Operating | 0 | 0 |
| Federal Operating (Title V) | 1 | 0 |
| Acid Rain (Title IV) | 0 | 0 |
| Total Permits Rescinded | <u>11</u> | <u>0</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, 2009, and ending September 30, 2009, DEQ issued one (1) Informal Correction Letter, 67 Requests for Corrective Action and 20 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, 2009, and September 30, 2009, DEQ initiated seven (7) new formal enforcement actions via issuance of Notices of Violation. In addition, the agency issued 12 Consent Orders; these orders assessed a total of \$205,260.70 in civil charges.

Table 2

| Measure | Action Type | Count | Total Civil Charges Assessed |
|-----------------|--------------------------------------|-----------|------------------------------|
| Informal | Informal Correction Letter | 1 | n/a |
| Informal | Request for Corrective Action | 67 | n/a |
| Informal | Warning Letter | 20 | n/a |
| Formal | Notice of Violation | 7 | n/a |
| Formal | Consent Order | 12 | \$205,260.70 |
| Total | | | \$205,260.70 |

2) VIRGINIA MARINE RESOURCES COMMISSION (VMRC)

a) VMRC – Habitat Management Division

During the period April 1, 2009 through September 30, 2009 the Habitat Management Division received 1001 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. Five sworn complaints were issued during the period.

The Habitat Management Staff completed actions on 953 applications received during the period. Action on most applications was completed within 90 days after they were received. As such, a number of the actions taken during the period were for applications received prior to April 2009. Similarly, those applications received near the end of the current reporting period are still under review. Habitat Management Staff also issued general permits for Virginia Department of Transportation projects.

In addition to staff actions, the Full Commission considered 96 projects. During the reporting period the Commission considered 29 protested projects or projects requiring a staff briefing, including three appeals of a local wetlands board decision. The Commission also approved 57 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 its May 2009 meeting, the Virginia Marine Resources Commission (VMRC) adjusted the 2009 commercial bluefish quota in response to the National Marine Fisheries Service adjusting Virginia's 2009 quota allocation. The quota for the 2009 Virginia commercial bluefish fishery was set at 1,155,945 pounds.

Also at the May 2009 meeting, the VMRC changed the requirements for eligibility to recreationally land grouper and tilefish in the state of Virginia. Specifically, the VMRC created a free recreational landing permit which allows the permit holder to possess grouper and tilefish into the state of Virginia. In addition, the reporting of grouper and tilefish landed in Virginia is required.

At its August 2009 meeting, the VMRC adjusted the possession limit for the striped bass Chesapeake Bay fall recreational season. The possession limit for striped bass, harvested from the Chesapeake Bay during the fall recreational season, was set to two fish per person for the entire season, which runs from October 4 through December 31.

Also at its August 2009 meeting, the VMRC adjusted the fees for saltwater recreational fishing licenses and restricted the sale of blanket private boat saltwater recreational fishing licenses for out-of-state residents. The recreational saltwater fishing license fee for people who do not have Virginia residence was raised to \$25. In addition, the sale of the blanket private boat recreational license to any out-of-state residents whose vessel is not registered in Virginia is prohibited. The blanket private boat saltwater recreational fishing license exempts anyone on the vessel from possessing a Virginia saltwater recreational fishing license.

At its September 2009 meeting, the VMRC changed the rules on possession of summer flounder which were tagged by the Virginia Institute of Marine Science (VIMS). Any flounder which have special VIMS tags will not count against an individual's possession limits, are exempt from state size limits, and may be possessed out-of-season. These fish must be returned to VIMS whole to receive a monetary reward.

c) VMRC – Law Enforcement Division

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

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

**VIRGINIA MARINE POLICE
ARRESTS/CONVICTIONS SUMMARY BY CATEGORY**

REPORT FORMAT: FEDERAL FISCAL YEAR AREA: ALL AREAS
START PERIOD: 10/01/2004
END PERIOD: 09/30/2009



| Category | 2004/2005 | | 2005/2006 | | 2006/2007 | | 2007/2008 | | 2008/2009 | |
|--------------------------------------|---------------|-------------|---------------|-------------|---------------|-------------|---------------|-------------|---------------|------------|
| | Convictions | Arrests | Convictions | Arrests | Convictions | Arrests | Convictions | Arrests | Convictions | Arrests |
| Buyers | 3 | 5 | 2 | 2 | 4 | 5 | 10 | 11 | 1 | 1 |
| Casting Garbage/Trash | 0 | 1 | 1 | 2 | 1 | 1 | 0 | 0 | 0 | 0 |
| Clams | 2 | 2 | 4 | 5 | 4 | 4 | 0 | 1 | 1 | 1 |
| Commercial Fishing License | 7 | 9 | 13 | 14 | 16 | 21 | 16 | 25 | 6 | 9 |
| Conchs | 2 | 2 | 4 | 6 | 0 | 0 | 9 | 9 | 7 | 7 |
| Crabs | 147 | 163 | 81 | 89 | 69 | 81 | 138 | 172 | 56 | 68 |
| Federal Violation | 0 | 0 | 0 | 0 | 94 | 97 | 0 | 6 | 0 | 18 |
| Fish | 219 | 252 | 284 | 304 | 297 | 364 | 271 | 319 | 116 | 144 |
| Freshwater Fishing without a license | 12 | 12 | 28 | 28 | 12 | 13 | 1 | 1 | 7 | 7 |
| Habitat/Wetlands | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 |
| License Tags | 6 | 9 | 4 | 9 | 7 | 8 | 3 | 3 | 1 | 2 |
| Mandatory Reporting | 0 | 0 | 1 | 1 | 4 | 8 | 0 | 0 | 0 | 0 |
| Misc | 0 | 0 | 1 | 1 | 2 | 2 | 1 | 1 | 0 | 0 |
| Non-residents | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| NSSP | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 |
| Other Agencies | 714 | 769 | 670 | 729 | 592 | 624 | 435 | 481 | 189 | 217 |
| Oysters | 87 | 100 | 80 | 82 | 56 | 68 | 54 | 72 | 29 | 36 |
| Piers | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Police Powers | 112 | 137 | 61 | 69 | 90 | 107 | 61 | 68 | 30 | 37 |
| Removal of Obstructions | 2 | 2 | 5 | 6 | 6 | 7 | 4 | 4 | 1 | 1 |
| Resisting officer | 0 | 0 | 0 | 1 | 1 | 4 | 2 | 3 | 0 | 0 |
| Shellfish | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW Recreational Licenses | 405 | 425 | 419 | 435 | 481 | 496 | 309 | 331 | 117 | 125 |
| TOTALS: | 1721 | 1891 | 1658 | 1783 | 1738 | 1912 | 1317 | 1511 | 561 | 673 |
| PERCENT OF CONVICTIONS: | 91.01% | | 92.99% | | 90.90% | | 87.16% | | 83.36% | |

Print Date: Wednesday October 7, 2009

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

From April 1, 2009 through September 30, 2009, the VDH shellfish program had 592 acres of shellfish grounds closed to harvesting. There were 2314 acres of shellfish grounds reopened.

The Department received and reviewed a total of 61 VMRC Permit Applications, and processed as follows:

Five (5) of the Permit Applications needed action in the Marina program.

Fifty-four (54) applications were approved based on meeting the requirements of providing adequate facilities.

Two (2) applications were denied because of inadequate facilities.

4) Department of Conservation and Recreation (DCR)

a) DCR - Division of Soil and Water Conservation

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, 2009 through September 31, 2009.

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 eleven 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 eleven localities are the cities of Chesapeake, Hampton, Newport News, Norfolk, Portsmouth and Virginia Beach and the counties of Arlington, Chesterfield, Fairfax, Henrico, and Prince William. In addition, DCR staff has been receiving and reviewing 1st year annual reports (July 1, 2008- July 1, 2009) that were due by October 1, 2009 from the 89 MS4 General Permit coverages, which represent 114 small (Phase II) MS4s..

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. Since the previous General Permit for Stormwater Discharges from Construction Activities expired on June 30, 2009, a major focus of Stormwater Management Program staff during this reporting period has been the reissuance of the General Permit for Stormwater Discharges from Construction Activities. For the reporting period, approximately 3,742 land disturbing activities were issued General Permit coverage of which 2,933 were reissuance of General Permit coverage and 809 were new issuance . During this time period, DCR staff also completed approximately 300 site inspections for compliance with the General Permit.

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 397 people completed classroom training and approximately 1,124 people were certified or recertified for the RLD Program. In addition, approximately 781 individuals were certified/recertified through the examination process as Inspectors, Plan Reviewers, Program Administrators and Combined Administrators.

Nutrient Management Regulations

No report at this time

Non-Regulatory Programs

Coastal Nonpoint Source Program

For the grant reporting period, the Environmental Analyst at the Virginia Commonwealth University continued to serve as the Coastal NPS Program Manager and implement the Coastal NPS Program at the Virginia Department of Conservation and Recreation. 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 continues to serve as a liaison between the VCU Center for Environmental Studies at VCU, the Department of Conservation and Recreation and the VA Coastal Management Program to promote joint, applied research and outreach projects, coastal nonpoint source pollution, coastal zone ecology, management, and restoration.

The focus of the Coastal NPS Program is the continued expansion of the role and services of the Virginia Network for Education of Municipal Officials (VNEMO) in the Coastal Zone.

Currently, the demand for VNEMO assistance is growing at an ever increasing rate. To meet this increased demand the VNEMO Program has been actively recruiting and marketing to possible new partners including the Resource Conservation and Development Program, Virginia Tech Cooperative Extension Agricultural Extension Agents, various State agencies, Local Government Advisory Committee of the Chesapeake Bay Program and directly to the Crater Planning District Commission Regional Locality Planning Director Quarterly meeting. Through these efforts the VNEMO Program has been able to expand to include the services of the Center for Watershed Protection through the Circuit Rider project, of the Local Government Advisory Committee of the Chesapeake Bay Program, funded by EPA. The VNEMO Program conducted two web based trainings to expand the program: 1. *An Introduction to VNEMO* and 2. *Delivering a VNEMO Presentation*.

The current level of request is exceeding the available resources. Fortunately, the VNEMO Program is a networked program with significant resources beyond the limited coastal zone funding and can access various partners to meet the requests. The project locations in the coastal zone include:

Charles City County—Buildout analysis to support the policy development process in the County Comprehensive Planning revision (services: GIS planning assistance, process assistance and outreach strategy development)

Mathews County/Middle Peninsula Planning District Commission—Aquaculture Policy Development and Presentation Development (services: group and process facilitation, educational material development)

N. Potomac Shoreline/Northern Virginia Regional Commission—Climate Change Adaptation Strategy for Local Officials (services: outreach and communication strategy development, provision of speakers, and process assistance)

Richmond County—Comprehensive Planning assistance and Integration of Bay Model Data; (Services: outreach strategy development, public process facilitation, internal process facilitation)

Currently, the VNEMO Program resources include a number of “canned” presentations that may be modified to suit specific needs of a locality as well as a subcontracted service provider pool that is supported by the National Fish and Wildlife Foundation. The presentations currently available include:

- 1) Linking Land, Water and Growth
- 2) Planning the Direction of your Community
- 3) Forest Resources
- 4) Economics of LID
- 5) Climate Change Adaptation

The CNP Program Manager participated in various meetings including the Coastal Policy Team, Coastal PDC meetings, Virginia Stream Alliance, NPSAC, and Healthy Waters. The CNP Program Manager participated, planned or attended various meetings including the Coastal Policy Team, Coastal PDC meetings, Virginia Stream Alliance, NPSAC, and Healthy Waters Initiative. In addition, the Program Manager represented the Commonwealth in the development of a Pre-Forum workshop on Climate Change Adaptation Planning to be held prior to the Chesapeake Watershed Forum in Shepardstown, WVA. The CNP Program Manager continued to serve as the Chair to the Virginia Stream Alliance.

Additional Technical Assistance—The CNP Program Manager was requested by the National Fish and Wildlife Foundation to participate in the review of the Chesapeake Bay Small Watershed Grant process.

The CNP Program Manager was a successful applicant to the National Fish and Wildlife Foundation for \$700,000 to develop a low impact development research, testing, certification and training facility at the Virginia Science Museum. The project will include a significant climate change adaptation component evaluating the cost benefit of utilizing LID as a strategy to address CSOs. This piece will evaluate the potential changes in hydrology that may affect the Richmond region and demonstrate how a proactive approach can reduce the costs to the City in their CSO program. The Program Manager partnered with the Science Museum and Foundation to develop the proposal and included such partners as: Virginia Commonwealth University, Virginia Tech, University of New Hampshire, VA Dept of Conservation, Alliance for the Chesapeake Bay, and the City of Richmond. The total budget will exceed \$1.6M.

The CNP Program Manager also managed \$3,018,023 in State of Virginia Water Quality Improvement Fund Grants throughout the Chesapeake Bay Watershed.

Suggested changes to the CNP—due to the uncertain funding outlook, DCR has determined the highest and best utilization and focus of the program is on local land use technical assistance with the remaining funding. In addition, the future prospects of the Coastal funding from FY10 are zeroed for the Coastal NPS Program, funding diversity is being sought to support the activities to support the VNEMO Program.

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:

04/24/2009 - State-Historic Plant Species last seen in 1941, Rediscovered – *Rhynchospora harveyi* (Harvey's Beaksedge, G4/S1) has been rediscovered in Virginia, over 65 years after it was last seen in the state. This rare sedge was last collected by Harvard botanist M.L. Fernald in Sussex County in 1941. The species was rediscovered at Difficult Creek Natural Area Preserve in Halifax County, a Piedmont property known for its concentration of globally and regionally rare species of plants. Harvey's Beaksedge is known from fire-maintained savannas of the coastal plain in the southeastern United States but is also known to inhabit glade-like habitats of the interior. Prescribed burns carried out at Difficult Creek have no doubt benefited this species of open habitats.

08/21/09 Harperella Populations Persists - A small population of harperella (*Ptilimnium nodosum* - G2 / S1 FE SE) first located on Aquia Creek in 2002, was revisited this month. This occurrence, located in Stafford County, is Virginia's only known station for the rare herb, which is listed as Endangered under both the federal Endangered Species Act and the Virginia Endangered Plant and Insect Species Act. About 50 flowering or

fruiting stems were observed in three small population areas totaling no more than a square meter. The plants grow within the bed of the creek in bedrock fissures that are exposed as water levels draw down during the drier summer months. The number of stems seen this year is comparable to what was observed in 2005 – the last time the population was visited by DNH. The major threat to the occurrence is siltation from development within the watershed.

09/25/09 Surveys for the federally and state endangered dwarf wedgemussel (*Alasmidonta heterodon*, G1G2 S1) was conducted at Marine Corps Base Quantico in early September. This population was originally discovered by Natural Heritage zoologists in 1990 and was last observed in 1998. As in 2003, zoologists were unable to find live individuals of this species in 2009. The sediment load in the creek appears quite high, possibly from upstream, off-base construction activities. Sedimentation is one known threat to dwarf wedgemussel populations. Management recommendations include additional surveys further downstream, removal of beaver dams to restore faster flows, and to maintain adequate riparian buffers.

Natural Areas Protection

9/14/09 - DCR and Stafford County hosted a celebration event at Crow's Nest Natural Area Preserve with some 75 citizens and supporters for the acquisition of Phase II at Crow's Nest Natural Area Preserve. The Phase II 1,100 acre acquisition brought the Natural Area Preserve to 2,872 acres. Celebratory remarks were made by Anthony Romanello-County Administrator, John Mitchell – Trust for Crow's Nest, George Schwartz – Chairman Co. Board of Supervisors, Paul Milde Board of Supervisors, Senator Stuart, and keynote speaker Joe Maroon – DCR Director.

Natural Areas Stewardship

04/03/2009 University of Rochester students, participating in an “Alternative Spring Break” and members of the Eastern Shore Master Naturalist Chapter, worked diligently through heat, rain and snow on two restoration projects on the Eastern Shore. 75 acres of fallow agricultural fields at Magothy Bay NAP and 35 acres at Mutton Hunk Fen NAP were planted in wax myrtle (*Morella cerifera*) shrubs. The goal is to return the fields to migratory neo-tropical songbird habitat. Neo-tropical songbirds fly down the Eastern Shore to breeding grounds in South America during the fall migration season, stopping to build up energy stores and rest before crossing the Chesapeake Bay. The fragmentation of forest cover for residential development and agriculture has reduced the protective cover and natural food sources required by neo-tropical migrants. Wax myrtle was planted because it grows rapidly and will provide quick cover and abundant berries. It will also serve as a perch for resting songbirds, resulting in the dispersal of desirable volunteer plant species.



04/24/09 - Globally rare wetland restoration project - **With** assistance from the Division of State Parks and The Nature Conservancy, DCR Natural Heritage Stewardship Staff completed a high priority 15-acre prescribed burn at Big Spring Bog Natural Area Preserve in Grayson County. Mechanical thinning, prescribed fire, and

invasive species control are being used to restore a critically imperiled (G1) Blue Ridge seepage wetland which supports 16 rare plant species.

05/01/09 - Two successful prescribed burns - thanks to Partners - DCR Natural Heritage staff conducted two successful prescribed burns. First at the Blackwater Ecological Preserve Monday evening (April 25th) thanks to The Nature Conservancy, US Fish and Wildlife Service and an Americorp Crew; and one DCR staff person. Second, on Wednesday April 29th staff conducted a great burn at Cherry Orchard Bog Natural Area Preserve - our hottest fire at that site to date, with good fire pushing into the wet areas of the bog which should mean some exciting plant responses in the future. Got some good heat pushed off the power line and into the wet areas, again this burn happened because our partners turned out to assist DCR staff.

05/08/09 - Natural Heritage Director, Stewardship Manager, and Eastern District Stewardship Manager posted boundary signs along the public road boundaries at Crow's Nest Natural Area Preserve. Staff also investigated the option of using the ridge road along the Phase II boundary as a primary entrance to the Preserve, instead of the existing primary road along Accokeek Creek. The existing primary road along Accokeek Creek appears to be the best alternative as it is in an existing wide corridor with considerable disturbance and significant invasive species present. The very narrow dirt road along the ridge has few invasive species, would require significant additional disturbance to widen and construct the road through an intact forest habitat.

06/20/09 - On Saturday, June 20, approximately 50 members of the Dameron-Damron Family Association visited Dameron Marsh Natural Area Preserve as part of their annual association reunion. Historical and natural interpretive walks were provided by DCR Natural Heritage staff and members of the Dameron Marsh /Hughlett Point Volunteer Stewardship committee.

Invasive Species:

05/08/09 - The Chesapeake Bay Region Natural Area Steward conducted an invasive species workday at Hickory Hollow Natural Area Preserve. Leading a group of volunteers they cut and sprayed 500+ stems of Russian Olive.

9/15/09- Natural Areas Stewardship Manager Rick Myers attended and presented at the Annual Natural Areas Association Conference held from Sept. 15-18 in Vancouver, Washington. The conference theme was "Living on the Edge: Why Natural Areas Matter", and was attended by 260 natural areas managers from throughout the U.S. and Canada. Rick gave a 30-minute talk on the results of DCR's recently completed re-census of Phragmites on the Virginia Eastern Shore, which indicated that intensive efforts to control Phragmites have succeeded in keeping this aquatic invasive species from increasing over the last four years. All costs for attending the conference were covered by a grant from the U.S. Fish and Wildlife Service Mid-Atlantic Panel on Aquatic Nuisance Species.

Information Management:

05/29/09 - The U.S. Fish and Wildlife Service (USFWS) is required to address impacts of development and habitat alteration on, and to plan recovery efforts for, species listed under the Endangered Species Act. To support this work, Virginia DCR-Natural Heritage is developing GIS-based predictive models of rare species occurrence. These models are based on the rich, growing database of known occurrences (mapped locations) of rare species and communities in Virginia that provides the foundation of the Natural Heritage Plan. This database is based on ongoing fieldwork by inventory and stewardship biologists to identify and monitor populations of rare species and communities. This data allow an understanding of species habitat needs that can be analyzed with a variety of reference data and information (e.g., soils/geology, habitat mapping, elevation,

precipitation, satellite and aerial photography). These analyses can be used to develop maps of areas that are scored to reflect their potential for harboring certain rare species and communities. Such tools are providing the USFWS with the best tools available for its facilitation of project review and its efforts to survey and identify potential sites for protection, restoration, and reintroduction of threatened and endangered plant and animal species. DCR-Natural Heritage will be developing these tools for several species in Virginia. Thus far models have been finalized for two of our rarest plant species: Virginia sneezeweed (*Helenium virginicum*) and Shale barren rockcress (*Arabis serotina*).

Natural Heritage Data Management Totals:

Total Number in Database (for CZM Counties) as of 09/30/09:

New Mapped Locations (EO) - 38
Updated Mapped Locations (EOs) - 99
New Conservation Sites - 11
Updated Conservation Sites - 26

Number in Database (for CZM Counties) as of 09/30/09:

Animal Mapped Locations (EOs) -1,096
Plant Mapped Locations (EOs) – 1,158
Community Mapped Locations - 350
Conservation Sites - 774

Fire:

06/12/09 - 27 DCR staff members attended the 2009 Virginia Interagency Wildland Fire Academy at Longwood University. These members attended a broad range of training classes from basic firefighter to classes on urban interface, chain saws, air operations, and fire behavior. Claiborne Woodall and Rebecca Wilson served as instructors for S-290 Intermediate Wildland Fire Behavior and S-131 Advanced Firefighter, respectively. Nearly 300 people attended this year's Academy from local fire departments, federal agencies, and state agencies throughout the mid-Atlantic.

Miscellaneous:

04/17/2009 - Capital Region Land Conservancy Conservation Planning - the Capital Region Land Conservancy (CRLC) will reach its five year threshold in 2010 for holding easements without a co-holder. Recognizing the significance of having a well developed conservation plan, the CRLC held a three day planning session the week of April 13. Central to their planning effort are the Natural Heritage Plan land conservation maps and plans developed by DCR's Natural Heritage Program as part of the effort to support the VA Land Conservation Foundation.

c) DCR – Division of Planning and Recreation Resources

DCR Public Access Projects

DCR is updating the agency website to include additional information on water trails and public access. This information will better integrate and serve the localities and planning district commissions in the coastal zone area of the Commonwealth.

A conceptual plan for the James River Heritage Trail is under development. This braided trail system will encompass the river and its banks from the headwaters in the Allegheny Mountains to its confluence with the Chesapeake Bay. The heritage trail is unique because of the emphasis on interpretation and potential for outreach to school groups. The trail is already in use by paddlers as well as by bicyclists and hikers in urbanized areas. Both banks of the river as well as the riverbed could contribute to a managed corridor that will enhance the natural resource and provide a host of outdoor activities. Improvements associated with the trail will afford access to the river and encourage outdoor exercise and adventure as well as provide opportunities to interpret the historical context and encourage visitors to nurture this natural resource.

Scenic River designation field studies have been completed on 56 miles of the Blackwater River from Proctors Bridge to the North Carolina line. The local governing boards passed resolutions endorsing designation of the qualifying river segment. The localities are contacting legislative sponsors submit the bill to the 2010 General Assembly. After acceptance by the General Assembly, the governor signs the bill designating the river as a Virginia Scenic River. The Scenic River program raises the awareness of scenic rivers and helps protect their intrinsic qualities of scenic, recreational and historic attributes, and natural beauty. It is anticipated that the Blackwater will be one of 4 river segments designated in 2010 to celebrate the 40th anniversary of the Scenic River Program.

Planning District Projects

- 1) The City of Hopewell obtained 25 acres adjacent to the Appomattox River Regional Park in Prince George to enhance public access at the park.
- 2) Two piers were constructed at the Patrick Copeland and Weston Manor sites in Hopewell.
- 3) Isle of Wight County recently acquired the Stoup property on the west side of the James River Bridge. This site provides public access to the river. The county's parks and recreation department is preparing a master plan for the property.
- 4) A new public access site in King and Queen County called the Thurston Haworth Recreational Area is approximately 150 acres located on the Dragon Run.
- 5) The City of Franklin recently completed the Blackwater Boat Landing in partnership with the Virginia Game and Inland Fisheries.

d) DCR- Division of Chesapeake Bay Local Assistance

During the reporting period, the DCR Division of Chesapeake Bay Local Assistance continued to make progress in overseeing local government compliance with the land use and water quality provisions contained in the regulations pertaining to the Chesapeake Bay Preservation Act. The Division also initiated a formal process of Advisory Reviews of the local codes and ordinances within the Tidewater area of the State to identify the extent to which these ordinances address the protection of the quality of state waters. The following is a summary of activities for this period.

Program Description

The Bay Act requirements fall into three implementation phases. Phase I consists of local governments designating and mapping Chesapeake Bay Preservation Areas (CBPAs) and adopting land use and development performance criteria to protect those features. CBPAs include Resource Protections Areas (RPAs) and Resource Management Areas (RMAs). RPAs are made up of tidal wetlands, tidal shores, nontidal wetlands connected and contiguous to tidal wetlands or perennial streams and a 100-foot fully vegetated buffer. RMAs include lands adjacent to RPAs that are made up of land features such as highly erodible soils, steep slopes and floodplains.

Roughly half of all the Tidewater localities have identified their entire jurisdiction as an RMA. Phase II consists of the incorporation of water quality protection measures into local comprehensive plans. Phase III involves the review and revision of local land use codes to include specific standards that implement water quality performance criteria.

Elements of Local Chesapeake Bay program

1. Phase I – Map of Chesapeake Bay Preservation Areas and adoption of management program in local ordinances
2. Phase II – Adoption of water quality measures in Comprehensive Plans
3. Phase III – Review and revision of local codes for inclusion of specific standards that implement water quality performance criteria

Comprehensive Plan Elements (partial list)

1. Location of Chesapeake Bay Preservation Areas
2. Physical constraints to development
3. Commercial and recreational fisheries and other aquatic resources
4. Shoreline and stream bank erosion problems
5. Existing & proposed land uses
6. Public and private waterfront access
7. Protection of potable water supply
8. Local policy on land use issues relative to water quality protection

In its review of local Bay Act programs, the Chesapeake Bay Local Assistance Board (CBLAB) adopts two kinds of determinations. When a locality is deemed consistent, it means the local ordinances are in place to designate CBPAs and to require that the performance criteria be met. When the Board deems a local program compliant, it means that the locality is properly implementing the required code or comprehensive plan provisions.

Consistency Reviews

For the period covering April through September 30, 2009 all 84 local Bay Act programs remain consistent with Phase I of the current Regulations. As indicated in previous reports, all 84 local comprehensive plans are also consistent with the Regulations.

Compliance Evaluations

For the period of April through September 30, 2009, 10 localities were deemed by CBLAB to be fully compliant with Phase I of the Bay Act, bringing the total number of compliant localities to 72. As of September 15, 2009, 10 localities are not fully compliant but are addressing conditions to achieve full compliance. Therefore, a total of 82 of the 84 Bay Act localities are now either fully compliant or addressing conditions for compliance. Only one locality remains non-compliant, but Department staff is working with the locality to assist them in addressing identified compliance issues. Finally, a compliance evaluation is currently in progress for 1 locality. As a reflection of the progress made by localities on compliance with the Bay Act regulations, 71 of 84 (85%) of the Tidewater localities with on-site septic systems are meeting the septic pump-out provisions of the Regulations. Also, 78 of 84 (93%) of the Bay Act localities are adequately ensuring that water quality best management practices that are in place to reduce pollutants generated from land development are maintained.

Site Plan Review

For the reporting period 144 federal and/or state Environmental Impact Reports, Environmental Assessments, and Environmental Impact Statements were reviewed and commented upon. Staff routinely responds to technical inquiries from local government staff and from consulting firms in conjunction with these reviews.

Several inquiries are typically fielded in any given week, which generally involve questions regarding water quality BMPs, buffers or interpretation of the technical aspects of the regulations and guidelines. In addition to the review of state and federal projects, staff reviewed 27 site plans at the request of local governments. The Chesapeake Bay Preservation Act contains a requirement that the Department provide site plan review assistance when requested by a locality.

Technical Assistance and Outreach

DCBLA continues to actively provide technical assistance to local staff as well as education and outreach to local staff, elected and appointed officials, consultants and advocacy groups. During the reporting period, Department staff conducted 24 technical assistance site visits, 15 education & outreach events and 1 training workshop in order to promote a greater understanding and implementation of the Chesapeake Bay Preservation Act. Further, DCBLA staff liaisons regularly attend meetings of and maintain productive working relationships with the 8 Planning District Commissions within Tidewater Virginia. The staff liaisons also work closely with those PDCs to enhance local assistance efforts.

Initiatives

Phase III/Advisory Code and Ordinance Reviews

As stated above, Phase III of the Bay Act Regulations requires that the 84 localities in Tidewater Virginia review their local land development ordinances such as zoning and subdivision codes, and if necessary, revise them to ensure that they adequately address the protection of the quality of state waters. An important element of Phase III is the requirement for local ordinances to have specific standards to ensure that development in Chesapeake Bay Preservation Areas minimizes land disturbance, preserves indigenous vegetation, and minimizes impervious cover. These three requirements are known as the three general performance criteria. Phase III also contains specific requirements for approved plats and development plans as well as the identification and resolution of obstacles and conflicts to achieving the water quality goals of the Chesapeake Bay Preservation Act within local programs and ordinances.

On June 15, 2009, the Chesapeake Bay Local Assistance Board (CBLAB) approved a Phase III approach that includes an advisory review of local ordinances conducted by Department staff in conjunction with local staff, followed by the incorporation of the Phase III requirements in the next round of compliance evaluations. The first component of Phase III, the advisory reviews, began in mid September of 2009. These reviews have been designed to assist local governments in determining the current level of water quality protection provided by their ordinances and adopted documents as well as identifying any ordinance revisions necessary to address the Phase III requirements. At its June 2009 meeting, CBLAB also approved two checklists to be used as tools for the advisory review process. The Plan and Plat Consistency Review Checklist will determine if a locality has addressed the six plan and plat provisions that must be contained in local ordinances, as they are specifically required by the Regulations. The Checklist for Advisory Review of Local Ordinances will determine if there are adequate provisions to address the three performance criteria and contains numerous examples of requirements that may be contained within a locality's land development ordinances. The advisory reviews will continue over the next 18 to 21 month period. The next round of compliance evaluations is expected to begin in 2010.

Next round of Compliance Evaluations

Since the compliance process was developed and initiated in 2003, staff has identified areas where the process can be improved. During the reporting period, DCR Chesapeake Bay Local Assistance staff finalized proposed revisions to the compliance evaluation tools and will be presenting these to CBLAB at its December 2009 meeting for discussion and for the Board's final approval in the spring of 2010. Compliance reviews will be initiated soon after Board adoption of the review tools.

5) Department of Game and Inland Fisheries (DGIF)

Recreational Fishing:

1. Fisheries Stream Sampling Summary

During this reporting period, VDGIF conducted survey work, using primarily boat electrofishing techniques, on sections of a multitude of streams which drain into the geographic area covered by the CZMP. Extensive sampling of stream fish communities was performed in the Meherrin, Nottoway and Blackwater (Chowan) drainages and Northwest and North Landing (Currituck) drainages. In addition to relative abundance indices, additional parameters were examined for recreationally important species, including analyses of age structure and growth rates based on examination of otoliths. This work has been completed, and a report detailing results is being prepared under Sportfish Restoration Grant F-111-R.

2. Stream Monitoring, Adult Anadromous Fishes

Weekly boat electrofishing for adult anadromous fish was begun in March 2009 on the Nottoway and Blackwater Rivers. Less frequent sampling was also conducted on other streams such as the Meherrin River. Population indices, relative abundance and other biologically important parameters were measured. Data collected was provided to the Atlantic State Marine Fisheries Commission (ASMFC).

3. American Shad Restoration Program

This is a cooperative project involving the Virginia Department of Game & Inland Fisheries (VDGIF), the U. S. Fish and Wildlife Service (USFWS), the Virginia Marine Resources Commission (VMRC), the Interstate Commission on the Potomac River Basin and the Potomac River Fisheries Commission. The funding source used to hire the nine watermen who catch brood fish from the Pamunkey River to provide the eggs used for stocking the James River was cut. Using a much smaller pool of available funds, a contractor was hired to attempt to collect enough brood fish from the Pamunkey River to produce a lower than normal stocking of 4 million fry in the James River. The contractor collected adequate numbers of brood fish and the goal of 4 million fry stocked was almost met (3.8 million). Catches on the Potomac River, which has been one of the few rivers to show increasing shad abundance over the last five years, were somewhat lower than expected. Egg taking crews on the Pamunkey and Potomac rivers collected a total of over 15 million fertilized American shad eggs. The eggs were shipped to the USFWS's Harrison Lake National Fish Hatchery where they were incubated, hatched, reared to up to three days of age, marked with a tetracycline dye, and stocked. The overall survival rate from egg to stocked fry was approximately 40%; this is considered fair. Unfortunately, due to a 1-week heat wave during the last week of April which impaired egg viability, the reduced level of fishing effort, and lower catches of broodstock, none of the stocking quotas were met. A total of 3.8 million fry were stocked in the James River main stem during spring, 2009. The Rappahannock River was stocked with 2.7 million fry, and the Potomac River main stem was stocked with 528,200 fry. The total number of shad fry released in 2009 was 7,044,837. This brings the grand total of fry stocked since the inception of the program in 1992 to 166,461,950.

Approximately one-hundred otoliths were extracted from adult American shad collected during spring, 2009. Sectioning of these otoliths for aging and hatchery mark detection is in progress, and results will be included in the next report.

4. Stream Monitoring, Adult Anadromous Fishes

Weekly boat electrofishing for adult anadromous fish began in February 2009 on the James and Rappahannock rivers in the fall zones. Less frequent sampling was also conducted on other streams such as the Mattaponi River. American shad were scarce in tidal Rappahannock samples. On the James below Boshers Dam, American shad catch rates were much higher than in the last several years and were similar to the relatively high catch rate in 2003. One other highlight in 2009 was finding an adult blueback herring 28 river miles upstream of the former Embrey Dam site on the Rappahannock River at Kelly's Ford. Several American shad

were found at this location in 2008. There has been no herring stocking (fry or pre-spawning adults) upstream of Embrey Dam so it is believed that herring are naturally beginning to utilize the reopened habitat.

Weekly boat electrofishing for adult anadromous fish was begun in March 2009 on the Nottoway and Blackwater Rivers. Less frequent sampling was also conducted on other streams such as the Meherrin River. Population indices, relative abundance and other biologically important parameters were measured. Data collected was provided to the Atlantic State Marine Fisheries Commission (ASMFC).

5. Boshers Dam Fishway

In 2008, 62 American shad were counted using the fishway. Gizzard shad were again numerically dominant (totals for all species have not yet been compiled). Since 1999, at least 23 species of fish have used the fishway including a few striped bass and sea lamprey, a native anadromous fish, commonly seen using the fishway. The fishway was operated again during the 2009 migration season and the video that was collected will soon be reviewed.

6. Stream Monitoring, Juvenile Alosines

Juvenile alosine sampling using a bow-mounted push net was conducted from June into August of 2009 on the James (Boshers pool) and Rappahannock (tidal) rivers. Boat electrofishing began in August and will continue into early November. 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. Otoliths will be extracted from the American shad juveniles and examined under a black light microscope to determine origin. Oxytetracycline treatment of fry in the hatchery results in a visible ring in the otoliths under black light.

The results of the 2008 juvenile American shad monitoring are as follows. Out of the 170 juvenile American shad otoliths examined from the Boshers pool 100% were of hatchery origin (5% wild in 2007 is the highest wild % on record). Out of 19 otoliths examined from the tidal James 3 (15.8%) were wild and 16 (84.2%) were hatchery. For the tidal Rappahannock, 70 otoliths were examined. Wild fish made up 45.7% (32) and hatchery fish made up 54.3% (38) of the sample. Back in 2006 70.8% were wild and in 2007, 62.7% were wild.

7. Fish Passage Projects

For the removal of Harvell Dam, the first dam encountered by migratory fish on the Appomattox River, we are currently completing the final design and starting the permit process. We are also pursuing implementation funding on several fronts (e.g. NOAA; USFWS).

Riverton Dam on the North Fork Shenandoah is slated for removal and Fletcher Mill Dam on the Thornton River (upper Rappahannock drainage) will also be removed. Another current activity is the design of a replacement fishway at Walkers Dam on the Chickahominy River. A new Denil fishway will be built by Newport News when the dam is refurbished to repair damages that occurred a few years ago.

8. Tidal Chickahominy River Largemouth Stocking Project

VDGIF is in its final year of a multi-year project to assess supplemental stocking as a means to offset the effects of variable recruitment on the tidal Chickahominy largemouth bass fishery. The project entailed three consecutive years of stocking (2005 - 2007), with stocked fish obtained from a private vendor located in Alabama. Approximately 114,000 fingerling largemouth bass were stocked with each stocking, with each stocking event followed by at least two years of assessment.

While the results indicate that the 2005 stocking resulted in minimal survival of stocked fish, the success of the 2006 and 2007 stockings were outstanding. With good survival of stocked fish two years post-stocking, along with extremely high catch rates of stocked fish. With stocked fish contributing over 65% to each year class, the

results indicate 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.

In 2009, VDGIF collected largemouth brood stock from the tidal Chickahominy, then spawned them out and reared fingerlings at the VDGIF King & Queen hatchery. In late May, 114,000 of these fingerlings were stocked in the tidal Chickahominy. The impetus for this stocking was the poor natural spawn in 2008 which resulted in a weak year class, and this effort provided an opportunity to begin working out protocols for use of VDGIF reared fingerlings for future stocking efforts.

9. Tidal River Catfish

On Wednesday July 22nd, VDGIF fisheries biologists conducted a survey of catfish species occurring in the lower tidal James River - from Jamestown Island downstream to Deepwater Shoals, off the mouth of Skiffs Creek. During the survey, specialized low frequency electrofishing techniques were employed to capture a representative sample of catfish species, primarily white catfish and blue catfish, from several sites distributed along the salinity gradient which characterizes this reach of river. This is suboptimal habitat for blue catfish, and electrofishing catch rates dramatically lower than up river. Catch-per-effort during the survey declined as salinity increased, with no catfish observed at the furthest downstream site, where salinity measured 8.7 ppt. The size structure of the catch was dominated by smaller individuals, fish smaller than 254 mm (10 in.). Few fish over 508 mm (20 in.), and no fish over 32 inches, were collected during the survey.

In August, VDGIF Fisheries biologists sampled the tidal Rappahannock River, from Skinkers Neck (Caroline County) downstream to the mouth and lower reaches of Piscataway Creek (Essex County) below Tappahannock. A total of nine locations were sampled, resulting in the capture of more than 6,300 catfish, over 99.9% of which were blue catfish. The fish were counted, measured, and weighed before most of them were returned to the river (a sub-sample of fish was retained for age and growth analyses), individual blue catfish measuring over a meter in total length and approaching 20 kg occurred in the sample. This is part of an ongoing effort to monitor the catfish assemblage in the tidal Rappahannock River that began in 2000, with a primary focus on the introduced blue catfish population which occurs there.

10. Back Bay Largemouth Bass Fingerling Stocking

In the summer of 2009, VDGIF initiated an experimental largemouth bass stocking/survival project in Back Bay. Recent resurgence of submerged aquatic vegetation, combined with an availability of surplus largemouth bass fingerlings (~1-2 inches), lead to this experimental stocking. Approximately 78,000 fingerlings were stocked on two days in June. All bass were chemically marked by the hatcheries as an identification of being stocked fish. As a result of moderate salinity levels in Back Bay (~1-3 ppt), bass eggs are not able to survive to fry stage. Therefore, stocking fingerling bass that can tolerate these low salinities may be a way to improve the bass population in this former baas mecca. Sampling of these juvenile bass will continue over the next three years.

Wetlands:

1. Mitigation Banking

VDGIF continues to participate on the Inter-Agency Review Team that oversees stream and wetland mitigation banking and provide input on new banks all over Virginia, including the coastal zone. Numerous proposals have been made for new banks and/or additions to existing banks within the coastal region of Virginia.

2. Wetland Restoration

VDGIF continues to have an active voluntary wetland restoration program. The program assists private, state, local, and federal government landowners to restore wetlands on their property. Landowners receive assistance with site selection, cost-share programs, restoration design, and permit issues. The Department works with many partners to achieve this goal. The Department has also implemented the Virginia Migratory Waterfowl Stamp Grant Program. This program provides grants to non-profit organizations for wetland enhancement,

restoration and creation. Five new grants were approved during this round of applications, and three previous grant projects were completed restoring 16 acres of wetland habitat within the Chesapeake Bay watershed..

The Virginia Department of Game and Inland Fisheries is actively restoring wetland habitats in Virginia. Partnerships with organizations such as The U.S. Fish and Wildlife Service's Partners for Fish and Wildlife Program, The U.S. Department of Agriculture's farm bill programs, Ducks Unlimited, The Chesapeake Bay Foundation, and many others have resulted in additional wetland acres restored. During the past year, restorations totaling 7 acres have been restored on private lands in Northumberland County and public lands Pittsylvania County, and 150 acres of *Phragmites* were chemically treated in Surry County. The department is also currently working on wetland restorations statewide, including Atlantic white cedar restoration on the Cavalier Wildlife Management Area in the City of Chesapeake and additional private lands projects on the Eastern Shore of Virginia.

Geographic Information Systems/Data Management:

DGIF continued to maintain spatial datasets of wildlife locations and resources in the coastal zone. DGIF continues to focus on improving the quality of data received from permittees through automating quality checks and controls.

A major effort during this period was the creation a map showing Priority Wildlife Diversity Conservation Areas. The effort to create this dataset, as well as coordinating the synthesizing of a Priority Conservation Areas dataset with project cooperators, was supported through a Coastal Zone grant and reported in detail elsewhere. DGIF completed the review and update of imperiled species distributions. The result of this effort is detailed distribution information for over 450 species of greatest conservation need, using fine scale watersheds. This information has been integrated into our VA Fish and Wildlife Information Service.

DGIF completed its regular update to Find Game, which provides maps and information about public hunting opportunities. DGIF has nearly completed a comprehensive boating access database.

Wildlife Mapping:

To date, the WildlifeMapping program has trained over 1,500 volunteers and has generated over 60,000 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. Since 2008, most WildlifeMapping workshops are being conducted in conjunction with chapters of the Virginia Master Naturalist Program. Currently, the Virginia Master Naturalist program has 25 active chapters, with two of the newest chapters in the Coastal Zone, the Arlington Regional chapter and the Peninsula chapter based in Newport News. With nine of the 25 chapters in the Coastal Zone, it is anticipated this region will continue to dominate in the quantity of WildlifeMapping data received from Master Naturalists. These Master Naturalists can also be expected to provide many hours of volunteer service to the Coastal Zone natural resource community. Master Naturalist volunteers from the Historic Rivers chapter, based in Williamsburg, now serve as WildlifeMapping facilitators and will be offering their next workshop to their new Master Naturalist class on November 14.

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. Staff is continuing to visit trail sites and arrange meetings with site managers and tourism officials across Virginia. These meetings allow for full cooperation and coordination for the VBWT. In addition, two Master Naturalist volunteers completed calling over 450 VBWT site owners/managers to update contact information and inquire about site signage needs. Web site updating will begin this fall. A contractor completed all road signage in April 2007. This road signage enhances the ease of use for trail users and has produced an increased interest in the Trail statewide. DGIF has signed a contract to ensure that all VBWT road signage is properly maintained/replaced as necessary.

The Conservation Management Institute at Virginia Tech completed their contract with DGIF to design and implement a user survey of the VBWT. The data show that conservatively, the Trail brings about \$8.5 Million into the state economy each year. Visitors are usually couples with a mean age of about 50 years old. They have median annual income exceeding \$75,000. Most visitors on the Trail are less than intermediate birders. The portion of the survey sent to local planning and tourism officials show that DGIF needs to do more to educate localities about the Trail. While Tourism staffs are familiar with the Trail effort, most other local officials are not as familiar with it. A copy of the full survey results is available on the Department's Web site at www.dgif.virginia.gov/vbwt.

DGIF Watchable Wildlife program staff performed avian surveys at 6 VBWT sites from May-July 2008. These surveys occurred at sites that had existing data regarding avian populations pre-dating the development of the VBWT. The purpose of these surveys was to determine if the VBWT has had any effect on avian populations. The report has been completed and analysis does not indicate any detectable negative impact. The results from this survey should be viewed conservatively as they are:

- based on a small dataset with no controls on other potential variables
- are utilizing disparate historical datasets that preclude rigorous statistical analysis

The year 2009 marks the fifth anniversary of the completion of the VBWT. DGIF personnel are planning to celebrate this landmark throughout the state. A series of "Getting to Know You" tours are being implemented by partner groups throughout the Commonwealth, including Nelson County, Abdingdon, Sperryville and Virginia Beach. These tours will highlight the VBWT in various communities, promoting ecotourism for participating localities. Each tour has been planned by local groups such as bird clubs, Master Naturalist Chapters and convention and visitor bureaus. DGIF Watchable Wildlife staff is providing logistical support to these efforts.

Watchable Wildlife staff has coordinated with DGIF Information Technology and GIS personnel to update the VBWT website to reflect the addition of new sites to the trail. A downloadable Google earth dataset of all VBWT sets is in development and will allow users to create personalized itineraries and explore the VBWT via the web. DGIF has also worked with the Cornell eBird program to integrate the VBWT into their product. eBird provides an online portal whereby visitors can record detailed site lists of avian species. This information is used by birders to track their own observations as well as see what birds are being seen at other locations. The information also provides an important tool for researchers in tracking avian population trends.

By ensuring that all VBWT sites are listed as such in the eBird portal the profile of both programs is raised. Birders will be able to view site specific checklists to aid in trip planning and will more easily be able to record their data – enhancing the overall picture of avian populations within Virginia. Each VBWT site on the DGIF webpage now has a link to the eBird checklist for that site.

Watchable Wildlife staff has coordinated with DGIF GIS staff to create a downloadable Google Earth dataset containing all VBWT sites. This dataset will allow VBWT trail users to create customized trip itineraries, increasing the utility of the VBWT as a trip planning tool. The Google Earth dataset contains key information for each VBWT site such as site contact and web address. This product is in its final testing phase and was presented at the National Watchable Wildlife Conference in Cape May in October 2009.

NonGame Species Monitoring and Research:

1. Delmarva fox squirrels

One of the recovery objectives for the federally endangered Delmarva fox squirrel (*Sciurus niger cinerus*; DFS) is to restore populations throughout its historic range, which includes Virginia's Eastern Shore. At present, Chincoteague National Wildlife Refuge harbors the only known self-sustaining DFS population in the state of Virginia. The translocation of DFSs on lands that currently do not support squirrels have proven to be a successful means of expanding and increasing DFS populations within the species' historic range. Many of the

forests that may serve as suitable translocation sites Virginia's Eastern Shore are privately owned. Several years ago, VDGIF was awarded federal funding under the Private Landowner Incentive Program to develop and implement a Safe Harbor Program that would provide private landowners with legal assurances that they will not be held accountable if translocation efforts fail, and funding to conduct habitat management activities on their lands that would benefit future introductions of DFS. In 2007, VDGIF entered into a contractual agreement with a locally owned environmental consulting firm (hereafter referred to as contractor) to assist 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. Below is a summary of recent actions taken towards the establishment of a DFS safe harbor program on Virginia's Eastern Shore.

An intensive GIS based landscape analysis was used to identify potential areas on the Eastern Shore that are privately owned, likely contain suitable DFS habitat, and have predicted land uses conducive to supporting DFS populations. This analysis resulted in the discovery of two potential sites near the Maryland/Virginia state line that encompass an area of approximately 4,200 acres of largely forested habitat. Both sites are actively managed for silviculture and are within five miles of viable DFS populations located in Maryland.

During the last reporting period, the contractor conducted an on-the-ground habitat suitability analysis at the two sites after gaining permission from both landowners to survey their lands. Results from the habitat surveys indicate that neither property is entirely suitable for DFS; however, both sites contain parcels with suitable DFS habitat that are large enough to sustain a viable population over the long term. Furthermore, there is also potential connectivity among suitable tracts within each property and between the two properties. Collectively, these areas represent several potential DFS translocation sites that can serve as the "core" area for the DFS reintroduction in northern Accomack County and pave the way for the implementation of long-term DFS management strategies.

During this reporting period, the contractor continued to work closely both landowners to encourage their participation in the DFS safe harbor program. One of the landowners expressed significant interest in allowing DFS to be released on his land and requested that a draft DFS management plan be developed for his property. The contractor completed a first draft of the plan, which has been reviewed and approved by VDGIF. Coincidentally, this landowner recently placed a conservation easement on his land and the Eastern Shore Land Trust, which holds the easement, agreed to use the DFS management plan to help maintain the conservation value of the land and allow the landowner to continue harvesting timber on his property.

The Contractor also continued her discussions with representatives from Sustainable Conservation Inc. (SCI), a subsidiary of The Conservation Fund, who owns the second parcel of land. SCI has worked with Maryland Department of Natural Resources to develop a DFS management plan for state-owned lands in Maryland. Despite this, SCI representatives in Virginia thus far have shown a reluctance to participate in the Safe Harbor Program; however, in a recent meeting with SCI representatives, VDGIF staff and the contractor, SCI expressed a desire to seriously consider participating in the project.

Several years ago, The Nature Conservancy's Virginia Coast Reserve (VCR), a major private landowner on Virginia's Eastern Shore, verbally agreed to allow for the release of supplementary squirrels on Brownsville Farm in forested habitats that have matured and become far more suitable since the original translocation efforts in the early 1980's. However, VCR recently informed VDGIF that they are no longer interested in participating in the project due to shortages in staff and resources.

Lastly, VDGIF staff has completed a draft Safe Harbor Agreement application to be submitted to the US Fish and Wildlife Service following review by the Commonwealth's Attorney General.

2. Piping Plover, Wilson's Plover and American Oystercatcher Breeding Summary

Piping Plovers

The 2009 end-of-season Piping Plover breeding pair total was 193, which represents a 7% decrease from the 2008 end-of-season total of 208 pairs; the highest total reported in Virginia since the species was listed in 1986. All Piping Plover breeding activity in 2009 was confined to the barrier islands located on the seaward margin of Virginia’s Eastern Shore. As in previous years, the majority of pairs occurred on four northern islands: Assateague (n = 38), Assawoman (n =26), Metompkin (n = 46) and Cedar islands (n = 44).

Staff from VCR, Chincoteague NWR, Eastern Shore of Virginia NWR and VDGIF monitored 94% (n = 182 pairs) of the statewide Piping Plover population (n = 193 pairs) in 2009. Virginia’s 2009 statewide Piping Plover productivity estimate ranged between 1.15-1.16 fledged young per pair due to uncertainty surrounding the number of young fledged on Wreck Island. This represents the first increase in Virginia’s breeding success since 2004. This year’s site specific productivity data are presented below in Table 1.

Table 1. Piping Plover productivity estimates on Virginia’s barrier islands. The number of pairs monitored for productivity (n = 182) represents 94% of Virginia’s end-of-season Piping Plover breeding population (n = 193 pairs).

| SITE | # OF PAIRS MONITORED | # OF CHICKS FLEDGED | 2009 PROD. EST. (2008 EST.) |
|--------------------------------------|----------------------|---------------------|-----------------------------|
| NORTHERN ISLANDS | | | |
| Assateague Island¹ | 33 | 26 | 0.79 (0.59) |
| Wallops ² | 4 | 10 | 2.50 (0.00) |
| Assawoman Island ¹ | 26 | 31 | 1.19 (1.15) |
| Metompkin Island | 46 | 51 | 1.11 (0.98) |
| Cedar Island ^{1,3} | 39 | 60 | 1.54 (0.82) |
| N. ISLAND TOTALS | 148 | 178 | 1.20 (0.86) |
| SOUTHERN ISLANDS | | | |
| Wreck Island ³ | 3 | Unk ⁴ | 0.00-0.33 (0.33) |
| Cobb Island ³ | 1 | 0 | 0.00 (nd) ⁵ |
| Ship Shoal Island ³ | 9 | 12 | 1.33 (0.89) |
| Myrtle Island ³ | 5 | 7 | 1.40 (1.00) |
| Smith Island ³ | 14 | 11 | 0.79 (1.20) |
| Fisherman Island ⁵ | 2 | 2 | 1.00 (0.25) |
| S. ISLAND TOTALS | 34 | 32/33 | 0.94/ 0.97 (0.88) |
| STATEWIDE EST. | 182 | 210/211 | 1.15/ 1.16 (0.87) |

¹ Data provided by Chincoteague National Wildlife Refuge.

² Data provided by USDA- APHIS Wildlife Services.

³Data provided by The Nature Conservancy’s Virginia Coast Reserve.

⁴ One chick was seen at 16 days old at last site visit.

⁵nd= no data

⁶ Data provided by Eastern Shore of Virginia National Wildlife Refuge

Wilson's Plovers

The 2008 end-of-season Wilson's Plover breeding pair total was 40, which represents the highest number reported since 2003 and the largest population gain since 2000. All Wilson's Plover breeding activity was confined to the northern barrier islands (Assateague Island – Cedar Island). Annual Wilson's Plover productivity studies have been conducted on Metompkin and Cedar islands from 2004-2008.

Wilson's Plover productivity studies were confined to Assawoman and Metompkin islands in 2009. A total of 22 Wilson's Plover pairs were monitored at both sites, which represented 55% of the statewide population. An estimated 1.09 fledged young per pair were produced at the two sites. The 14 pairs that were monitored on Assawoman collectively fledged 16 young. Among the eight pairs studied on Metompkin Island, four were found with broods. Of the four nests that were monitored, all hatched at least one egg and two produced fledged chicks. The four broods found later in the season yielded at least one fledged young each. This resulted in a productivity estimate of 1.00 fledged chicks per pair for Metompkin Island.

American Oystercatchers

A total of 375 American Oystercatcher breeding pairs were recorded during the 2009 Piping Plover, Wilson's Plover and American Oystercatcher survey, which covered all 14 barrier islands, southern mainland beaches from Sandbridge to the North Carolina/Virginia border and Grandview Beach Nature preserve. The number of pairs recorded on the barrier islands increased by 5% in 2009 compared to 2008 results and represents the second highest barrier total recorded since 2000. The pairs remained fairly evenly distributed along the island chain this year with 53% occurring on the northern barrier islands (Assateague Island to Cedar Island) and 47% on the southern islands (Dawsons Shoal to Fisherman Island).

In 2009, VDGIF staff began monitoring oystercatcher productivity on islands located in Accomack County along the eastern shore of the Chesapeake Bay. The decision to shift the majority of VDGIF's oystercatcher monitoring efforts from the barrier islands to the eastern shore of the Chesapeake Bay was based on the fact that this area of the Bay supports approximately 15% of the Commonwealth's oystercatcher breeding population and harbors nearly 90% of the breeding pairs in the Chesapeake Bay. Thus, we considered this an important breeding area that warranted further examination. No prior attempts have been made to measure oystercatcher breeding success in the Chesapeake Bay, therefore by filling this data gap, we will be able to compare reproductive success among the three most important oystercatcher breeding areas in Virginia (i.e., the barrier island chain, the seaside lagoon system, and the eastern shore of the Chesapeake Bay). Our initiation of this work was further motivated by the fact that many of the Bay islands are experiencing severe erosion, which added a level of urgency to begin collecting avian productivity data before the sites become unsuitable for nesting birds or disappear.

We monitored the reproductive success of 86 oystercatcher pairs on ten Chesapeake Bay islands in 2009; Table 1). At two of the ten sites we report Year estimates well above 1 fledged chick per pair, while estimates for the remaining eight sites fell below 1 fledged chick per pair. A population viability analysis performed by Davis (1999) using demographic parameters from the closely related European Oystercatcher (*Haematopus ostralegus*), predicted that productivity values as low as 0.14 fledged young per pair per year are sufficient to maintain a stable oystercatcher population. Only three of the ten bayside sites exhibited productivity values below 0.14 fledged young per pair (Table 1). Overall estimate for Chesapeake Bay's eastern shore was 0.57 fledged young per pair which is well within the range reported for the barrier island chain in recent years, and on the high end of the range reported for the seaside lagoon system (Table 2). Although these data are preliminary, they suggest that by and large the level of breeding success in the eastern portion of the lower Chesapeake Bay may be very similar to the level of reproductive success documented in the barrier island/seaside lagoon system.

We were unable to determine the cause of most failed nesting attempts and egg loss due to the long intervals between visits to individual nesting territories. However, we did identify three causes of nest/egg loss for 13% of the 103 documented nesting attempts and they included tidal flooding, egg abandonment due to infertility or embryonic mortality and avian depredation. We were unable to ascertain the cause of chick loss for any of the study pairs because of the sporadic nature of our monitoring efforts.

We observed no evidence of mammalian predators on any of the sites covered this year except for Pamlico Creek Island where we regularly saw raccoon (*Procyon lotor*) tracks throughout the breeding season. However, all sites, including Pamlico Creek Island, harbored breeding Herring Gulls (*Larus argentatus*) and Great Black-backed Gulls (*L. marinus*). These gulls are known nest predators (Schulte *et al.* 2007) and have been observed attempting to take oystercatcher chicks (A. Wilke, TNC, pers. comm.) and adults (P. Denmon, USFWS, pers. comm.). Besides potential depredation by gulls, the only other significant threat we were able to identify on the bayside islands was the frequent flooding of nesting territories. During a major portion of the 2009 breeding season, the mid-Atlantic coast (New Jersey to North Carolina) experienced significantly higher than normal sea levels due to a northeast shift in the prevailing winds coupled with a decrease in transport of the Florida Current / Gulf Stream (Sweet *et al.* 2009). We believe tidal flooding accounted for the low breeding success on Watts and Webb islands where a number of nesting attempts were washed out.

We observed very little human activity on the bayside islands. The sites most frequented by the public were Watts, Clump and Halfmoon islands with most of the visits occurring on the weekends. Despite the fact that Tangier is an inhabited island, we never saw people in the oystercatcher nesting area. We plan to continue monitoring these bayside islands for at least another two years to account for annual variation in productivity rates and environmental conditions and document shifts in local distribution.

Table 1. American Oystercatcher productivity estimates on ten Chesapeake Bay islands in Accomack County, Virginia, 2009.

| Site | No. pairs Monitored | No. known nesting attempts | No. yng Fledged | Productivity estimate ¹ |
|-------------------|---------------------|----------------------------|-----------------|------------------------------------|
| Clump Island | 11 | 13 | 16 | 1.45 |
| Lower Bernard Is. | 2 | 2 | 0 | 0.00 |
| Goose Island | 9 | 9 | 14 | 1.56 |
| Tangier Island | 11 | 14 | 7 | 0.64 |
| Watts Island | 13 | 17 | 2 | 0.15 |
| Halfmoon Island | 8 | 9 | 5 | 0.63 |
| Webb Island | 13 | 14 | 2 | 0.15 |
| Pamlico Crk. Is. | 1 | 2 | 0 | 0.00 |
| Parker's Island | 11 | 15 | 1 | 0.09 |
| Scarsborough Is. | 7 | 8 | 2 | 0.29 |
| TOTALS | 86 | 103 | 49 | 0.57 |

¹ No. young fledged/no. pairs. Calculations based on pairs with known nests.

Table 2. American Oystercatcher productivity along Virginia’s barrier island chain and within the seaside lagoon system, 2006 – 2008. Productivity estimates were based on the total number of pairs monitored within each geographic area and reflect number of chicks fledged per pair. Only those pairs with known nests were included in the calculations.

| Area | 2006 | 2007 | 2008 |
|------------------------------|-------------|-------------|-------------|
| Barrier islands | 0.61 | 0.43 | 0.43 |
| Seaside lagoon system | 0.59 | 0.24 | 0.41 |

VDGIF continued to monitor the reproductive success of oystercatcher pairs breeding in the portion of the seaside lagoon system adjacent to the village of Wachapreague (hereafter referred to as the Wachapreague marshes). The Nature Conservancy’s Virginia Coast Reserve (VCR) began monitoring the Wachapreague marshes in 2004 and the in following year transferred the responsibility over to VDGIF. Productivity remained at the same level in 2009 as in the previous year (Figure 1). Previous performance reports have noted the potential advantages for birds breeding within the seaside lagoon system versus on the barrier islands, such as fewer mammalian predators and an abundant and nearby food supply. Data continue to suggest that tidal flooding is the most significant limiting factor for birds breeding in this system. Productivity in 2004 and 2006 was relatively high in the Wachapreague marshes largely because flooding events, in general, were less frequent and less severe. In 2007, productivity declined substantially due to several flooding events. In 2008, there were flooding events in the early spring which resulted in significant nest loss in the marshes; however, the timing of oystercatcher renesting attempts, yielded a greater number of fledged young than the previous year. While tidal flooding was even more persistent and frequent in 2009 than in the previous year, 9 out of the 32 pairs monitored fledged young, including one pair that fledged three young and two pairs that fledged two young. Once again, these results demonstrate how the timing of flooding events in relation to oystercatcher nesting phenology plays an important role in overall productivity within the seaside lagoon system.

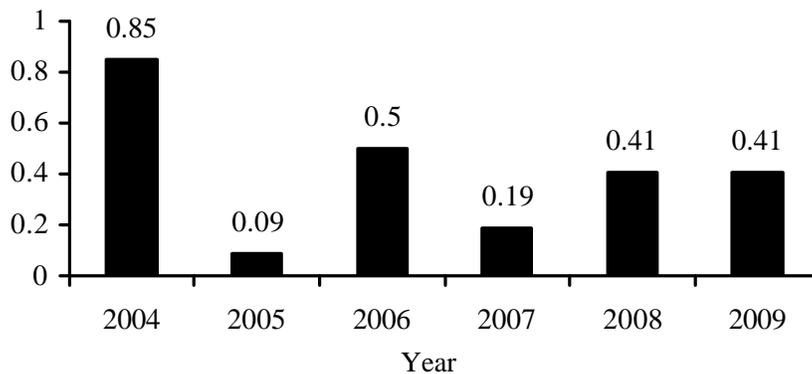


Figure 1. American Oystercatcher productivity rates in the Wachapreague marshes within the seaside lagoon system of Virginia’s Eastern Shore, 2004 – 2009. Estimates reflect number of chicks fledged per pair. Only those pairs with known nests were included in the calculations. 2004 data were provided by the Nature Conservancy’s Virginia Coast Reserve.

3. Colonial Waterbirds

In 2008, the third coastwide colonial waterbird breeding survey was conducted in Virginia. The first two were completed in 1993 and 2003. Following the 2003 survey, participating biologists decided to increase the frequency of these surveys to every five years in order to better assess waterbird breeding population trends in the Commonwealth. VDGIF provided partial funding for this year’s effort and Department staff provided considerable assistance with data collection efforts. Because results from this effort were still being compiled during the writing of last year’s fall report, we provide a summary of the survey below.

Target species included all colonial waterbirds nesting in the state except for Great Blue Herons (*Ardea herodias*), which are increasing exponentially in Virginia. An extensive aerial survey was conducted using a fixed-wing aircraft during the early stages of the breeding season. Once detected, the colony was circled long enough to allow observers to map the colony location and estimate its size. All colonies were given a unique numerical code and mapped on 7.5 min topographic quadrangles. Mainland areas that supported early nesting waders were flown from early April to mid-May. Coastal marshes and islands supporting gulls, terns, and allies were flown between mid-May and mid-June. Ground counts of urban areas, including rooftops, were conducted during April, May, and June. Ground counts of barrier island, Bay island, and marshland colonies were conducted during June and July.

Nearly 550 surveys were conducted of 250 colonies during the breeding season of 2008. Colonies supported an estimated 60,758 breeding pairs of 24 species. Gulls were the most abundant group with more than 40,000 breeding pairs. Terns and waders accounted for 9,455 and 4,763 pairs respectively. Laughing gulls (*Larus atricilla*) were several times more abundant than any other species and represented 61% of the total waterbird community. The barrier island/lagoon system of the Eastern Shore was the most important region for the majority of colonial species encountered. This region supported 20 of the 23 species evaluated during the survey and accounted for greater than 74% and 70% of all breeding pairs and colonies, respectively. For 15 of the 23 species, the region supported more than 50% of the known coastal population. The colonial waterbird community in coastal Virginia that was assessed during this survey (all species except Great Blue Heron and Great Egret (*Ardea alba*) declined by 28.9% during the 15 years between 1993 and 2004. Population estimates for 14 of 22 species assessed declined since 1993 and 11 of these have declined since the 2003 survey. Declines varied considerably between species with 10 species declining more than 40% and 4 species declining more than 70%. Cattle Egrets (*Bubulcus ibis*) showed the highest loss rate, declining from an estimated 1,459 to only 120 pairs. Eight species increased between 1993 and 2008. Dramatic expansions were documented for White Ibis (*Eudocimus albus*), Great Black-backed Gull, Double-crested Cormorant (*Phalacrocorax auritus*), and Brown Pelican (*Pelecanus occidentalis*).

The seaside of the Delmarva Peninsula is the most important region for colonial waterbirds in Virginia. Despite heroic efforts to manage several species, declines have not been abated. Collectively, the waterbird community has declined 33% between 1993 and 2008. Only species that have colonized the area since 1970 including White Ibis, Great Black-backed Gull, Double-crested Cormorant, and Brown Pelican have exhibited consistent increases. The ecological differences between species showing declines suggest a system-wide problem that is greater than the mammalian predators that have been the focus of recent management actions.

4. Sea Turtles and Marine Mammals

During this reporting period, minimal resources were devoted to marine mammals, with the Department's primary role 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. Department staff also assisted with this year's annual dolphin survey that was conducted in July and helped coordinate the removal of a dead stranded humpback whale (*Megaptera novaeangliae*) from a privately owned shoreline at the mouth of the York River to the state owned Goodwin Marshes.

During this reporting period, VDGIF continued to maintain the state's loggerhead sea turtle (*Caretta caretta*) nesting database. From 1970 – 2009, a total of 117 loggerhead nests have been documented in Virginia, the majority of which have occurred on the southern mainland beaches near the NC/VA border. In 2009, five confirmed loggerhead nests were reported; all occurred on the southern mainland beaches between Sandbridge and False Cape State Park. According to Back Bay NWR (BBNWR) staff, four of the five hatched successfully while the fifth nest, laid late in the season, still had not hatched at the time of this writing. BBNWR also staff documented two non-nesting emergences on the southern mainland beaches this year.

VDGIF staff also continued to respond to sea turtle strandings throughout the Eastern Shore and remote barrier islands and conducted necropsies on fresh to moderately decomposed carcasses. In 2008, 267 strandings were documented in Virginia and they were comprised of 204 loggerheads, 49 Kemp's ridleys, 10 green turtles, 1 leatherback and 3 unidentified turtles. So far in 2009, 229 sea turtle strandings have been reported in the Commonwealth (172 loggerheads, 44 Kemp's ridleys (*Lepidochelys kempii*), 7 green turtles (*Chelonia mydas*), 4 leatherbacks (*Dermochelys coriacea*) and 2 unidentified). VDGIF staff responded to eight loggerhead strandings during this reporting period; all but one were found on the seaside of Virginia's Eastern Shore. The eighth turtle was discovered at New Point Comfort on the western shore of Chesapeake Bay.

VDGIF staff completed and submitted the application for a Section 6 Cooperative Agreement with National Marine Fisheries Service (NMFS) which will allow the Department to apply for federal funding for projects involving the conservation and management of threatened and endangered sea turtles and marine mammals in Virginia.

5. Endangered or Threatened Birds

The department continues to maintain, improve, and expand activities related to endangered and threatened birds. Program activities are accomplished through education, research, monitoring, species management, and coordination with the private sector, NGOs, and other governmental agencies.

Several educational presentations concerning endangered and threatened birds were made to public schools, conservation agencies and the private sector. Topics ranged from Bald Eagle management, Peregrine Falcon restoration, and the avifauna of the coastal marshes. Further, this is the fourth year that we, in partnership with the Norflok Botanical Gardens, have maintained a webcam/website at an active Bald Eagle nest. This webcam, offers real time video to a web-site, which has generated tremendous interest in Bald Eagles by the public. Moreover, we maintained a webcam for a breeding pair of Peregrine Falcons in Richmond for the fourth consecutive year as well. The nest-cam also offers real time video to a web-site, which has also spurred significant interest in falcon restoration.

We continued our efforts related to Bald Eagle protection and management. Over the past year we provided significant guidance and comments to the USFWS concerning population monitoring, habitat management, and take permits under the Bald and Golden Eagle Protection Act. VDGIF, in partnership with the USFWS Virginia Field Office, revised Bald Eagle Protection guidelines for Virginia, which will be published this fall. These guidelines are similar to the federal guidelines but are tailored specifically for management issues unique to the Chesapeake Bay Region (CBR) (e.g., intensive shoreline development, protection of concentration areas, etc.).

6. Bald Eagle Summer Concentration Area Surveys

We conducted summer surveys during June and July 2009 on the Potomac, Rappahannock, and James River concentration areas. Abundance on the Potomac River and James River was very high (Figure 1). The July count of 598 Bald Eagles represents the largest number of eagles ever documented within a concentration area along the Atlantic Coast. The James River survey, during June, was the second largest count of Bald Eagles along the James River. The Rappahannock concentration area, over the past four summers, has had variable and low to moderate abundances of eagles during mid-summer (Figure 1).

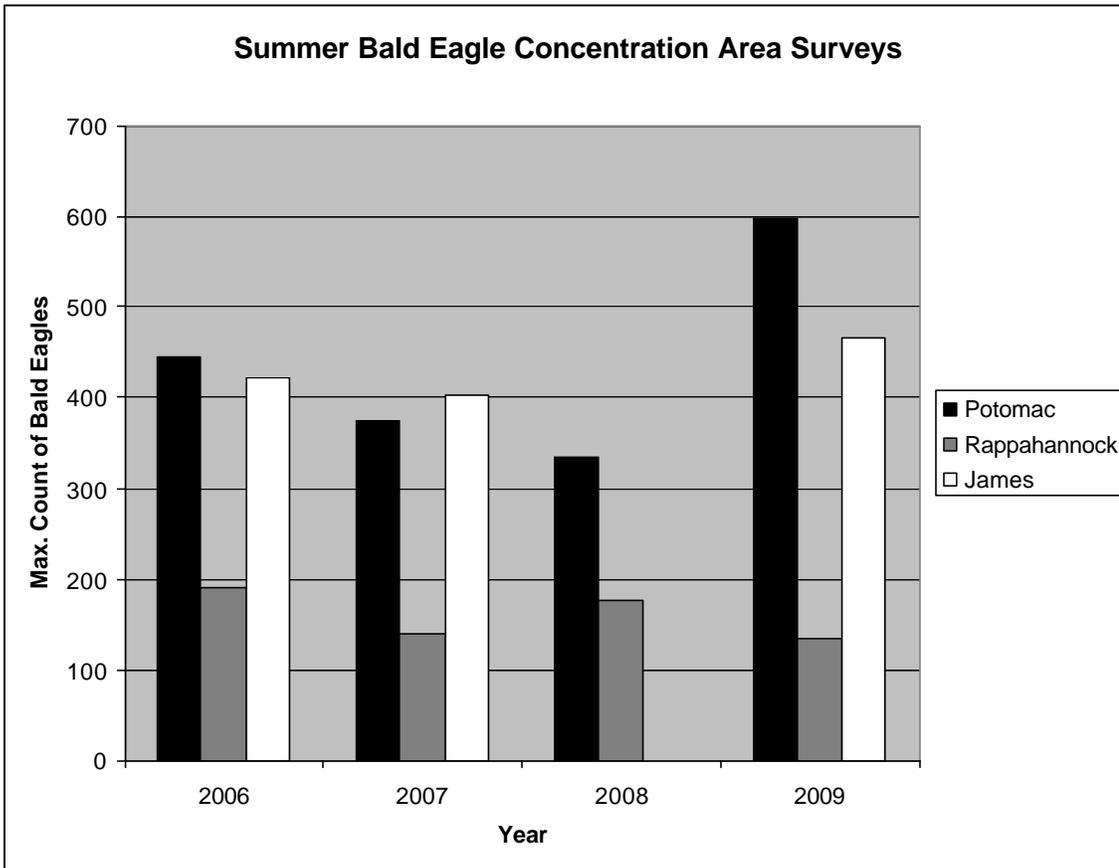


Figure 1. Maximum count of Bald Eagles on the Potomac, Rappahannock, and James rivers during mid-summer.

7. Bald Eagle Winter Concentration Area Surveys

The Virginia Department of Game and Inland Fisheries conducted aerial surveys of Bald Eagle concentration areas during the winter of 2009. The Potomac, Rappahannock, James, and York river concentration areas were flown by fixed-wing aircraft one time in 2009. High numbers of eagles were documented during 2009 along the Potomac (402 eagles observed) and along the Rappahannock (365 eagles observed). The James River and York River had low abundances of Bald Eagles (220 and 120, respectively).

8. Bald Eagle Trapping

We conducted Bald Eagle Trapping at two locations during the winter of 2009. These locations included Caledon Natural Area and Rappahannock Valley National Wildlife Refuge. This year was a pilot year to locate optimal trapping locations and perfect methods for a color-marking and tracking project, which will be initiated during the 2009-2010 winter. We captured and banded 12 bald eagles with USGS and alpha-numeric color bands. During 2010 we will outfit 8 Bald or Golden Eagles with cellular/GPS transmitters. Moreover, we will attach numerical wing markers to all eagles captured to increase re-sight probability.

9. Monitoring Bald Eagle Use on Cat Point Creek

The Chesapeake Bay Region (CBR) is an area of convergence for migrant Bald Eagles from the northeastern and southeastern United States (Watts 1998) and houses the second largest breeding population along the Atlantic Coast. Post breeding adults and immature Bald Eagles from northern and southern populations converge on the CBR to forage, roost, and molt. During the late fall (typically in November or December), northern Bald Eagles migrate from New England and southern Canada to spend the winter months on tidal tributaries of the Bay. Juvenile and sub-adult eagles typically move into the CBR first, followed by adult birds. Migrant eagle abundance reaches a peak in January or February. Northern birds leave the CBR from late February through March (Virginia Department of Game and Inland Fisheries (VDGIF) Unpublished data). Bald Eagles from the southern United States (Florida and other southeastern states) begin to move into the CBR in late April through May (Broley 1947, Watts 1998). Immature Bald Eagles typically arrive first, followed by

post breeding adults. During the summer months, migrant Bald Eagle numbers reach peak abundance from mid June through mid July. Southern birds make their exodus from the CBR between August and September.

During the winter and summer months, when migrant Bald Eagles converge on the CBR, eagles congregate in predictable locations on a seasonal basis. These areas are referred to as Bald Eagle “concentration areas” and can be defined as locations where eagles congregate in abundances much higher than what can be accounted for by local breeding pairs and their offspring. These areas also typically support one or more communal roosts. The CBR supports seven known concentration areas (4 in Virginia and 3 in Maryland). These include the Rappahannock River (Portlock 1994, Watts 1998), James River (Scott 1971, Clark 1992, Watts and Factor 1994), Potomac River (Witt Unpublished data, Cooper Unpublished data), and the confluence of the York River in Virginia, and the Nanticoke River, Pocomoke River (VDGIF Unpublished data, Watts pers. com.) and Aberdeen Proving Grounds (Millsap et al. 1985) in Maryland. Due to the flux in Bald Eagle movements and shoreline use by different geographically distinct populations and multiple age classes of eagles, it is not possible to reliably estimate how many different individuals may be using the CBR.

The tidal fresh portion of the Rappahannock River supports high numbers of migrant and breeding Bald Eagles and is one of the most significant tidal rivers for Bald Eagle conservation in the mid-Atlantic region (VDGIF Unpublished data, Watts pers. com.). Cat Point Creek (CPC), which is part of the Rappahannock River Bald Eagle concentration area, is one of the most pristine tributaries within the tidal fresh portion of the Rappahannock River. It appears to function as the most significant tributary of a tidal river for winter concentrations of Bald Eagles in Virginia and possibly the Mid-Atlantic Region (VDGIF Unpublished. data). A recent summary of mid-winter survey data (1997 – 2006) indicated that greater than 20% of all Bald Eagle occurrences on the Rappahannock Bald Eagle Concentration Area (Tappahannock to Mount Swamp) were observed on CPC (VDGIF Unpublished data). Summer surveys conducted by VDGIF on CPC during 2006 documented elevated abundances of Bald Eagles above baseline numbers of breeding eagles, which also qualifies CPC as a summer concentration area. Moreover, CPC has two large communal roosts along its shores (one above Rt. 624 and one below Rt. 624). Further, eight active Bald Eagle nest sites were documented on or near CPC during 2006. Winter and Summer concentrations of Bald Eagles, as well as the presence of two communal roosts and several active breeding territories indicates that CPC is of extremely important conservation value for Bald Eagles.

Recently the Virginia Department of Transportation (VDOT) proposed to replace the two lane bridge that crosses CPC on route 624 (Newland Rd.) in Richmond County, VA. Currently, the existing bridge does not allow passage of large watercraft and minimizes boat traffic upstream due to the low height of the bridge above the waterline. The proposed replacement bridge would be characterized by a greater height above the waterline. During the environmental review and permit process, the VDGIF and the U.S. Fish and Wildlife Service (USFWS) expressed concern about the increased height of the new bridge on the grounds that it could allow passage of larger vessels and lead to increases in boat traffic both upstream and downstream. Research conducted on Virginia’s tidal rivers, by the Center for Conservation Biology at the College of William and Mary, indicated a negative relationship between Bald Eagle shoreline use and boat use (Watts 1998). Increases in boat traffic during the summer and winter Bald Eagle concentration periods (May – August and November – March) could possibly result in changes in the distribution and use by Bald Eagles on CPC. Because of this potential adverse impact, the USFWS and VDGIF recommended that a sub-structure be added to the new bridge to abate increased boat traffic and prevent passage of larger vessels upstream of the bridge. However, VDOT was reluctant to comply with the recommendation due to concerns they expressed about bridge maintenance and safety issues. As a result the USFWS required that five years of Bald Eagle monitoring be conducted on CPC within 750 feet of the Rt. 624 Bridge in order to evaluate any potential negative impacts that the increased bridge height may have on eagle shoreline use and distribution.

VDOT provided VDGIF with funding to conduct the required monitoring within a 750 foot radius of the Rt. 624 Bridge. However, the VDGIF thought the scope of monitoring was too narrow and felt the entire creek

(from the mouth of CPC to Menokin Bay) should be monitored, since the boat traffic on CPC originates from launch sites at both of these locations. As a result VDGIF has and will conduct required monitoring within the 750 foot radius from the bridge site using VDOT funding, but is also conducting an expanded survey of the entire creek using other project funds and volunteer efforts. This report will include results from the required monitoring area as well as the expanded survey.

Study Objectives

The objectives of this project are three-fold. They include: 1) document the seasonal distribution and abundance patterns of Bald Eagles along CPC within 750 feet of the Rt. 624 Bridge (required monitoring area) and the navigable extent of the CPC (the mouth of the creek to Menokin Bay) before, during, and after bridge construction; 2) determine the level of human recreational and commercial use on CPC from the mouth of the creek to Menokin Bay and within 750 feet of the Rt. 624 Bridge before, during and after construction; 3) evaluate changes, if any, in the distribution and abundance of Bald Eagles, people and boats along CPC and near the Rt. 624 Bridge as result of increased bridge height.

Methods

The study area includes the section of CPC within 750 feet of the Rt. 624 Bridge (both upstream and downstream) (Figure 1) and the expanded survey area that includes the entire creek from the mouth of CPC to Menokin Bay (Figure 2). Shoreline surveys are conducted by operating a Jon Boat parallel to the shoreline. One observer operates the boat and helps to spot eagles, while the other observer spots and maps eagles, boats, and people. All Bald Eagles observed are plotted on 7.5 minute USGS quad sheets. Eagles are aged by year class (young of year, second year, third year, fourth year, and adult). Eagles that are unable to be aged are classified as unknown juveniles or Bald Eagles of undetermined age. The distance between the observer and all perched Bald Eagles is recorded. In addition, the distance from the survey boat at which birds flush is recorded. For birds that do not flush, their minimum distance from the survey boat is also recorded. This information will be used to calculate flush probabilities along CPC and near the Rt. 624 Bridge.

Human use of CPC and near the Rt. 624 Bridge is documented by mapping all people observed along the shoreline and categorizing their activities. Activities are classified as 1) recreating, 2) working, or 3) fishing. Further, all boats in operation during the survey are mapped. Boats are classified as follows: 1) sport boat, 2) jet ski, 3) Jon Boat, and 4) pontoon boat. Size classes of boats (<20ft. and 20-50ft.) and their activity status (a. fishing, b. recreating, and c. working) are recorded. All spatial data is currently being entered into a Geographical Information System for spatial analysis. Statistical analysis is not included in this report. A complete statistical assessment of the data will be presented in the final report.

Bald Eagle surveys began in November 2006 and will continue on a monthly basis over the next three years. Further, weekend surveys, which are paired with weekday surveys on a monthly basis, began in March 2007 and will continue throughout the remainder of the study. Data collected will be used to evaluate the changes in Bald Eagle and human shoreline use along CPC and near the Rt. 624 bridge prior to and following bridge construction, as well as seasonal changes in the distribution of Bald Eagles, people and boats.

Results and Discussion

Bald Eagle Abundance

Twenty-nine surveys have been conducted on CPC during weekdays on a monthly basis from November 2006 through April 2009 and 26 surveys have also been conducted on weekends on a monthly basis from March 2007 through April 2009 (55 total surveys). A total of 1,687 (48.5% adults, 48.5% immature, and 3% unknown age birds) Bald Eagle observations were documented during the 55 surveys conducted. The lowest numbers of Bald Eagles occurred in July 2008 during weekday surveys (12) and in August 2007 during the weekend surveys (8). The highest number of eagles was documented in February 2007 (143). This is the greatest number of Bald Eagles ever documented on CPC and represents an extremely high abundance for an area that is relatively small (Figure 4.).

The proportion of known-age birds that were adults varied from a high of 100% in July 2007 to a low of 24% in January 2008 (Table 1). Overall, the age ratio was dominated by immature eagles during high use months, which demonstrates the importance of CPC to juvenile and sub-adult birds. The seasonal abundance pattern observed on CPC during 2007 was fairly typical of CBR concentration areas during the fall and winter months, with slightly elevated abundances in late fall, numbers reaching a maximum in mid-winter, and a decline in numbers during late winter (VDGIF Unpublished data). Peak abundance was somewhat delayed during the winter of 2007, when compared to historic CBR winter concentration area data. This was possibly due to warm weather in January 2007 in northern states, which may have stalled movement of birds southward. There was an unexpected spike in abundance during early spring of 2007 (89 Bald Eagles documented during the April 2007 weekday survey). The high number of eagles observed in April 2007 is most likely attributed to an abundance of dead catfish on the creek, which were heavily exploited by Bald Eagles during the April survey. Conversely, abundance was quite low during the April 2007 weekend survey (13 individuals documented), which occurred only 3 days later. The reasons for this drastic shift in abundance are not known, but most likely are due to a shift in food availability (i.e., availability of dead catfish). Abundances declined on CPC between May and June, during weekday and weekend surveys and remained fairly stable throughout the summer of 2007. Fall 2007 abundances of Bald eagles were low and fairly stable. Eagle observations increased during the winter of 2008 to relatively high numbers of Bald Eagles (Table 1, Figure 4). Summer 2008 abundance levels were low with a steady decline in Bald Eagle numbers between May 2008 – August 2008 (Figure 4). Bald Eagle abundance remained low during the fall of 2008 through January 2009 during weekday and weekend surveys. Increased Bald Eagle abundance was documented during the weekend survey of February 2009 to moderately high levels. The February 2009 weekday survey was not conducted due ice cover on the majority of CPC. Eagle numbers declined in March and April 2009 during weekday and weekend surveys (Figure 4).

Table 1. Monthly shoreline survey results (weekend surveys results are italicized and percentages are expressed as percent of known age birds).

| Date | Adults | Immature Bald Eagles | Unknown Age | Total Bald Eagles Observed | No. Eagles within 750 ft. Radius of Rt. 624 |
|------------------|-----------------|----------------------|-------------|----------------------------|---|
| 1/29/2006 | 10 (59%) | 7 (41%) | 3 | 20 | 0 |
| 2/19/2006 | 17 (40%) | 26 (60%) | 5 | 48 | 6 |
| 1/10/2007 | 13 (42%) | 18 (58%) | 5 | 36 | 4 |
| 2/22/2007 | 50 (35%) | 91 (65%) | 4 | 145 | 5 |
| 3/22/2007 | 21 (41%) | 30 (59%) | 0 | 51 | 1 |
| <i>3/24/2007</i> | <i>15 (34%)</i> | <i>29 (66%)</i> | <i>0</i> | <i>44</i> | <i>3</i> |
| 4/11/2007 | 31 (35%) | 57 (65%) | 1 | 89 | 1 |
| <i>4/14/2007</i> | <i>10 (77%)</i> | <i>3 (23%)</i> | <i>0</i> | <i>13</i> | <i>0</i> |
| 5/16/2007 | 20 (49%) | 21 (51%) | 4 | 45 | 2 |
| <i>5/12/2007</i> | <i>22 (61%)</i> | <i>14 (39%)</i> | <i>0</i> | <i>36</i> | <i>0</i> |
| 5/18/2007 | 12 (80%) | 3 (20%) | 1 | 16 | 0 |
| <i>5/22/2007</i> | <i>5 (56%)</i> | <i>4 (44%)</i> | <i>1</i> | <i>10</i> | <i>0</i> |
| 7/18/2007 | 16 (100%) | 0 (0%) | 0 | 16 | 0 |
| <i>7/14/2007</i> | <i>9 (100%)</i> | <i>0 (0%)</i> | <i>0</i> | <i>9</i> | <i>0</i> |
| 3/30/2007 | 17 (68%) | 8 (32%) | 1 | 26 | 1 |
| <i>8/11/2007</i> | <i>7 (88%)</i> | <i>1 (12%)</i> | <i>0</i> | <i>8</i> | <i>1</i> |
| 3/26/2007 | 15 (71%) | 6 (29%) | 2 | 23 | 3 |
| <i>9/23/2007</i> | <i>7 (78%)</i> | <i>2 (22%)</i> | <i>0</i> | <i>9</i> | <i>0</i> |
| 0/16/2007 | 11 (52%) | 10 (48%) | 0 | 21 | 0 |
| <i>0/20/2007</i> | <i>5 (50%)</i> | <i>5 (50%)</i> | <i>0</i> | <i>10</i> | <i>0</i> |
| 1/18/2007 | 12 (67%) | 6 (33%) | 0 | 18 | 0 |
| <i>1/18/2007</i> | <i>9 (60%)</i> | <i>6 (40%)</i> | <i>0</i> | <i>15</i> | <i>2</i> |
| 2/11/2007 | 14 (42%) | 19 (58%) | 0 | 33 | 0 |
| <i>2/15/2007</i> | <i>8 (24%)</i> | <i>26 (76%)</i> | <i>0</i> | <i>34</i> | <i>1</i> |

| | | | | | |
|-------------------|-----------------|-----------------|----------|-----------|----------|
| 1/16/2008 | 19 (24%) | 60 (76%) | 3 | 81 | 1 |
| 1/6/2008 | 22 (48%) | 24 (52%) | 0 | 46 | 3 |
| 2/21/2008 | 17 (35%) | 32 (65%) | 1 | 50 | 0 |
| 2/6/2008 | 10 (31%) | 27 (69%) | 1 | 33 | 0 |
| 3/21/2008 | 16 (35%) | 30 (65%) | 0 | 46 | 0 |
| 3/22/2008 | 10 (28%) | 26 (72%) | 0 | 36 | 1 |
| 4/24/2008 | 12 (50%) | 12 (50%) | 0 | 24 | 0 |
| 4/19/2008 | 16 (44%) | 20 (56%) | 0 | 36 | 0 |
| 5/27/2008 | 14 (47%) | 16 (53%) | 0 | 30 | 0 |
| 5/17/2008 | 10 (26%) | 28 (74%) | 0 | 38 | 0 |
| 5/18/2008 | 9 (64%) | 5 (36%) | 0 | 14 | 0 |
| 5/14/2008 | 12 (42%) | 13 (52%) | 0 | 25 | 2 |
| 7/25/2008 | 11 (92%) | 1 (8%) | 0 | 12 | 0 |
| 7/13/2008 | 11 (73%) | 4 (27%) | 3 | 18 | 0 |
| 8/15/2008 | 13 (87%) | 2 (13%) | 2 | 17 | 0 |
| 8/16/2008 | 7 (54%) | 6 (46%) | 0 | 13 | 0 |
| 9/23/2008 | 13 (59%) | 9 (41%) | 0 | 22 | 0 |
| 9/13/2008 | 4 (50%) | 4 (50%) | 0 | 8 | 1 |
| 10/27/2008 | 17 (89%) | 2 (11%) | 0 | 19 | 0 |
| 10/25/2008 | 12 (86%) | 2 (14%) | 0 | 14 | 0 |
| 11/24/2008 | 15 (100%) | 0 | 0 | 17 | 0 |
| 11/22/2008 | 17 (89%) | 2 (11%) | 0 | 19 | 1 |
| 12/29/2008 | 11 (79%) | 3 (21%) | 2 | 16 | 0 |
| 12/6/2008 | 14 (78%) | 4 (22%) | 0 | 18 | 1 |
| 1/2009 | NS ¹ | NS | NS | NS | NS |
| 1/18/2009 | 26 (46%) | 30 (54%) | 0 | 56 | 2 |
| 2/25/2009 | 18 (51%) | 17 (49%) | 5 | 40 | 0 |
| 2/8/2009 | 26 (48%) | 28 (52%) | 1 | 55 | 1 |
| 3/12/2009 | 17 (40%) | 26 (60%) | 0 | 43 | 1 |
| 3/22/2009 | 18 (78%) | 5 (22%) | 0 | 23 | 1 |
| 4/17/2009 | 21 (84%) | 4 (16%) | 0 | 25 | 1 |
| 4/19/2009 | 16 (84%) | 3 (16%) | 0 | 19 | 1 |

¹NS = not surveyed due to ice

A total of 25 Bald Eagle sightings were recorded within the required monitoring area (RMA) (750 ft. radius from the Rt. 624 bridge) during weekday surveys and 24 during weekend surveys. Abundance in the RMA was quite variable between November 2006 – April 2009 during weekday surveys (mean = 0.86, SD = 1.62, min. = 0 max = 6) (Table 1, Figure 5). However, relatively high numbers of Bald Eagles were observed within the RMA during the winter months (December 2006 – February 2007, mean = 5, SD = 1, min. = 5 – max. = 6) (Figure 5). Only 2 Bald eagle observations were documented within the RMA between February 2008 through April 2009 during weekday surveys. During weekend surveys we documented low and variable abundances of Bald Eagles within the RMA (24 Bald Eagles observed, mean = 0.92, SD = 0.93, min. = 0 max. = 3). Bald Eagle abundance was consistently greater during weekend surveys during the October 2007 through the April 2009 time period (Figure 5). This was likely due to greater levels of bridge construction activity during weekdays, which probably minimized Bald Eagle activity within 750 ft. of the bridge.

Distribution

Throughout the survey period Bald Eagles were distributed across the entire expanded survey area. We used a 0.5 kilometer resolution to calculate eagle shoreline occupancy rates (72 total segments, Figure 3). The number of CPC shoreline segments occupied varied by month with increased occupancy coinciding with increased abundance (Pearson Product Moment Correlation = 0.85, P<.00001). Average shoreline occupancy for weekday surveys was 21.1% (SD = 8.0%, min. = 8% , max. = 42%, n=29). Occupancy rates for weekend surveys appear similar to weekday surveys (Average =18.8, SD = 8.9%, min. = 7% - max = 36%, n=26) (Figure 6.).

Boat Traffic and Human Use

Boat use of CPC and shoreline use by people was quite low and variable since the outset of the study (Figure 7). A total of only 18 boats (mean = 0.62, SD = 0.67, min = 0 – max = 2) and only 11 people (all outside of the construction site) was observed over 26 weekday surveys. Greater boat use and human shoreline use was documented during weekend surveys. A total of 39 boats was documented during 26 weekend surveys, with considerable variation among surveys (mean = 1.50, SD = 1.70, min. = 0 – max. 7). The majority of boat observations occurred between May 2007 - October 2007. A total of 22 people were observed during weekend surveys (mean = 10.85, SD = 2.22, min. = 0 – max. = 11) (Figure 8).

Bald Eagle and Human Interaction

Boat traffic appears to have the greatest impact on eagle distribution and abundance along CPC. Average flush distance of eagles from the survey boat was 236 m (SD = 154 m, n = 586). Sixty-eight percent of Bald Eagles observed perching along the shoreline were flushed by the survey boat. Due to the narrowness of the creek and deep water near the shoreline, a large portion of Bald Eagles along CPC seem to be susceptible to disturbance from light boat traffic. Average flush distance is similar to results documented by Buehler (1990) in the northern CBR. However, flush probabilities do not follow results from Watts (1998). Watts documented low flush probabilities at distances >200m (<20% flush rate) along the Rappahannock River. In contrast, eagles along CPC flushed > 50% of the time at >200 m, except for one distance class (Figure 9). The reasons for this difference are unknown but are likely related to the narrowness of the creek and deep water near shore, both of which allow the survey boat to approach the shoreline more closely. Further, due to the high abundance of eagles along CPC, Bald Eagles flushed by a boat will often fly along the shoreline causing other birds to flush. This “ripple” effect can cause nearly every Bald Eagle to flush along high-use segments. In future data analysis we will explore seasonal variation in flush distances.

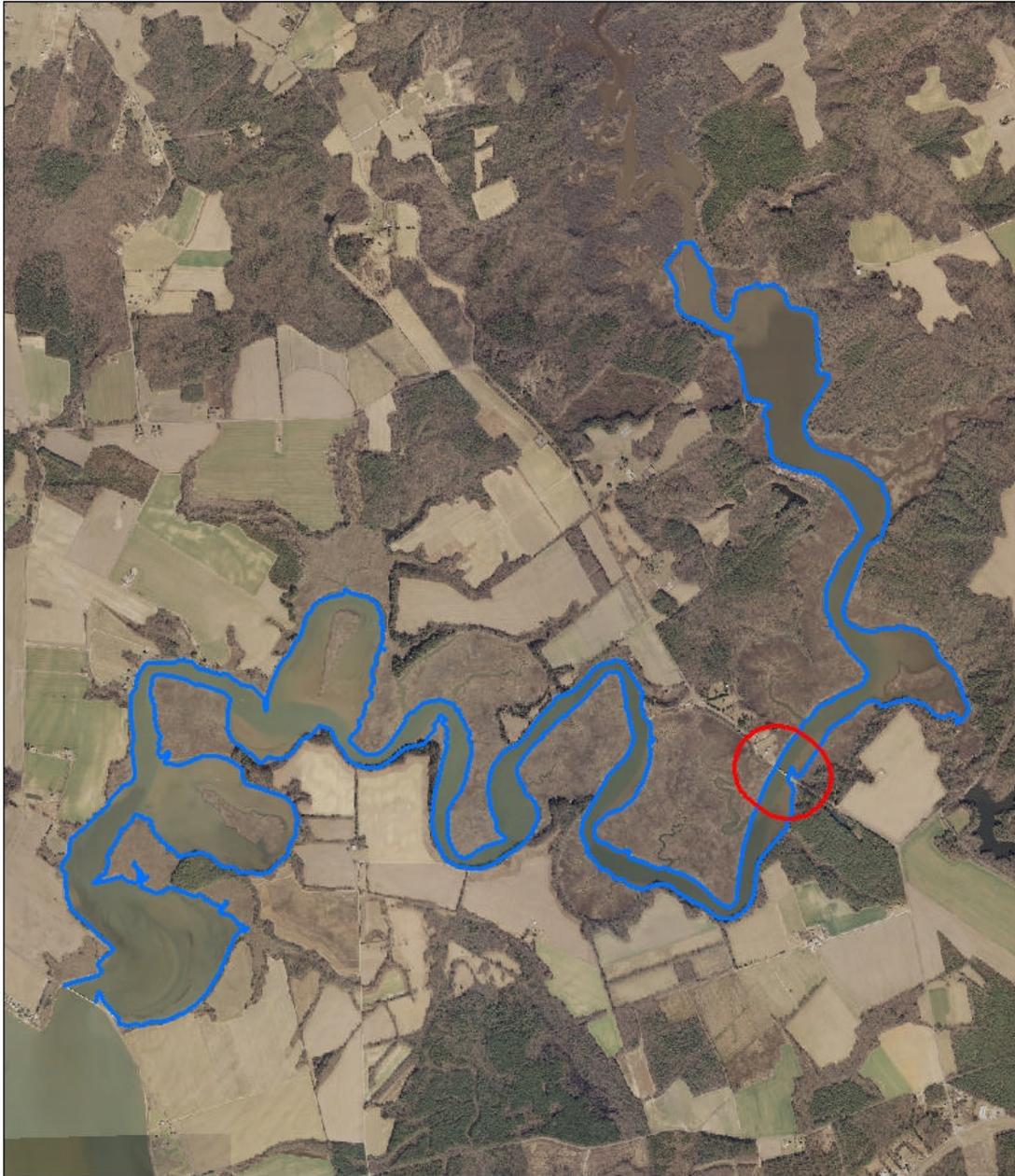
Literature Cited

- Broley, C.L. 1947. Migration and nesting of Florida Bald Eagles. *Wilson Bulletin* 59:1-68.
- Buehler, D.A. 1990. Bald Eagle Distribution, Abundance, Roost Use and Response to Human Activity on the Northern Chesapeake Bay, Maryland. Ph.D. Dissertation. Virginia Polytechnic Institute and State University 131 pp.
- Clark, K.H. 1992. Shoreline habitat selection by Bald Eagles (*Haliaeetus leucocephalus*) in a non-breeding eagle concentration area on the James River, Virginia. M.A. Thesis, College of William and Mary, Williamsburg, VA 111pp.
- Millsap, B.A., K.W. Cline, and M.J. Gilroy. 1983. Distribution and movements of bald eagles on Aberdeen Proving Grounds, Maryland. Report prepared for U.S. Dept. of the Army, Aberdeen Proving Ground, Aberdeen, MD.
- Portlock, W.S. 1994. Rappahannock River bald eagles. *The Raven*. 65:38-43.
- Scott, F.R. 1971. News and Notes: Unusual eagle concentration. *The Raven*. 42:54.
- Watts, B.D. and S. Factor. 1994. Bald Eagle investigations within the James River concentration area. Center for Conservation Biology Technical Report CCBTR-94-01. College of William and Mary, Williamsburg, VA 13pp.
- Watts, B.D. 1998. Investigation of Bald Eagles within the Rappahannock River Concentration Area. Center for Conservation Biology Technical Report, CCBTR-98-02. College of William and Mary, Williamsburg, VA. 65pp.

FIGURES



Figure 1. Required monitoring area (750 foot radius from the Rt. 624 bridge).



0 1,500 3,000
Feet



Figure 2. Expanded survey area delineated in blue and required survey area delineated in red.

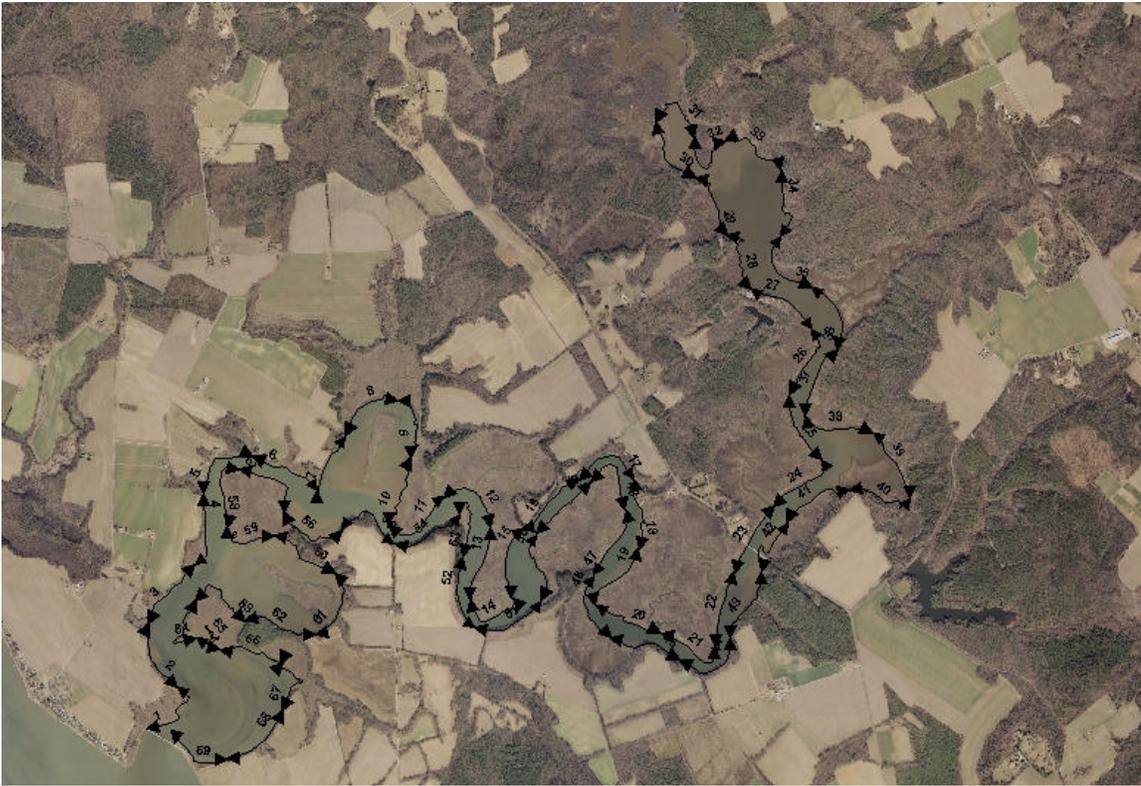


Figure 3. Shoreline segments used to calculate occupancy rates and abundance.

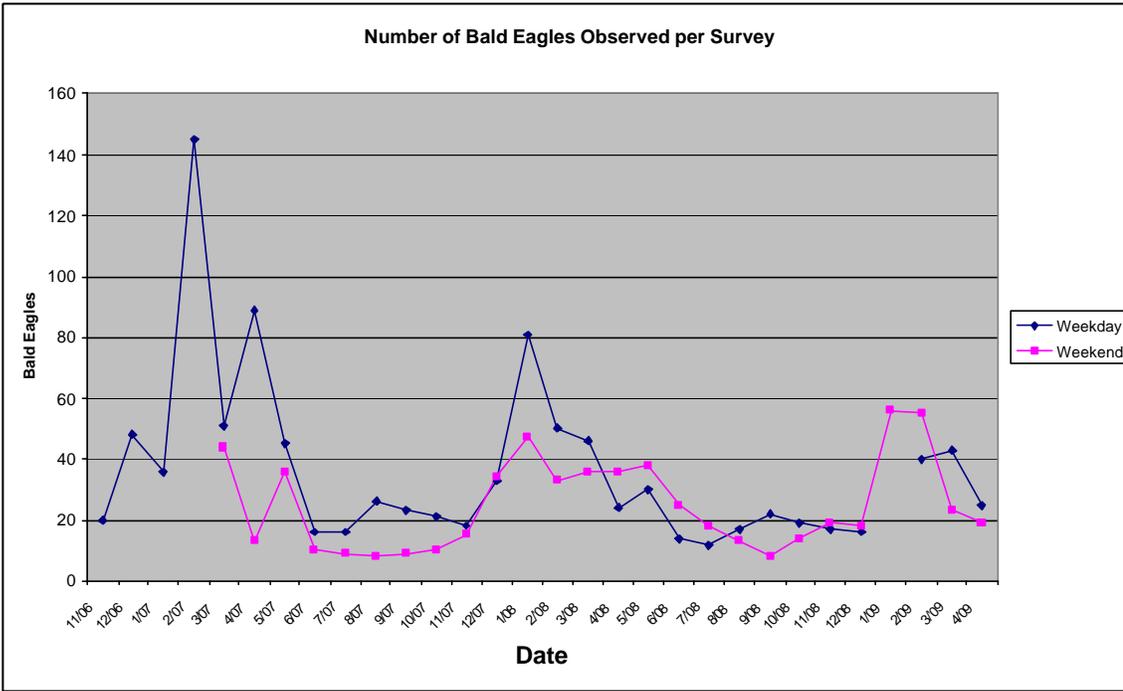


Figure 4. Monthly Bald Eagle observations along the expanded survey route during weekend and weekday surveys.

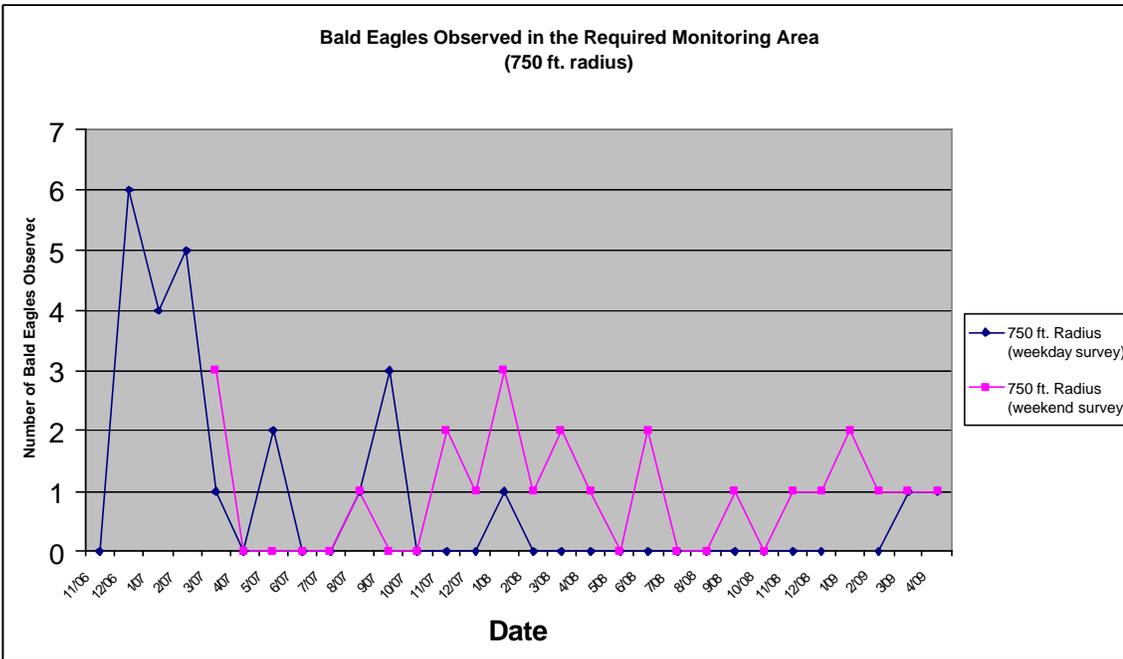


Figure 5. Bald Eagles observed within required monitoring area (750 ft. radius from the Rt. 624 Bridge).

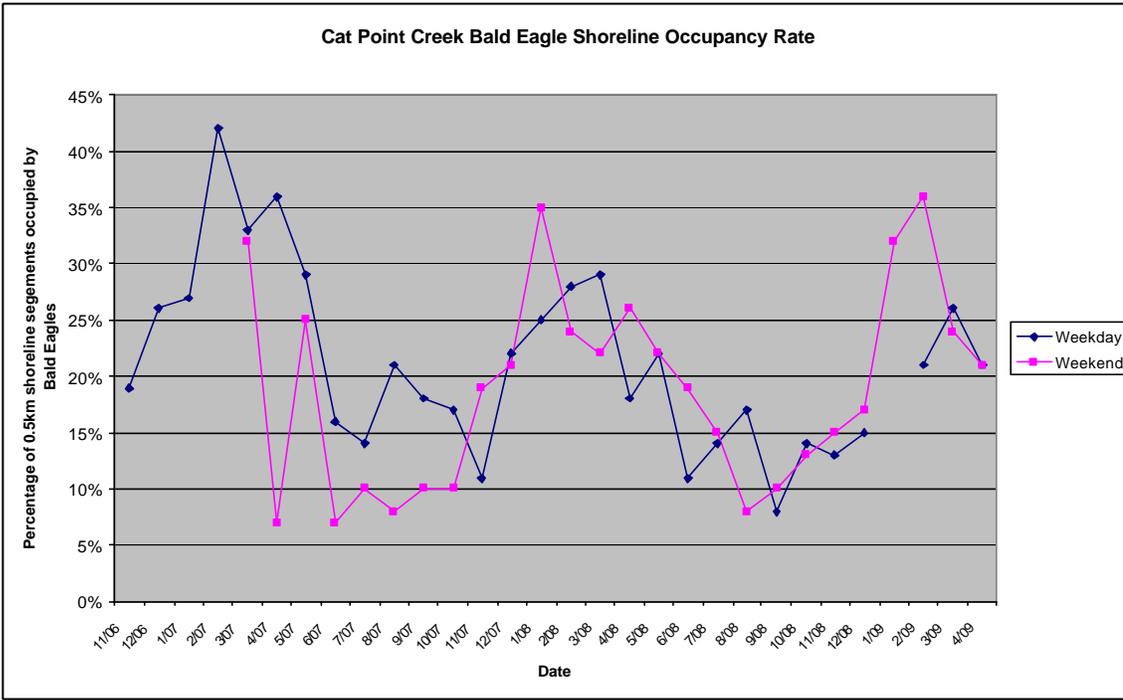


Figure 6. Monthly Bald Eagle shoreline occupancy rates along the expanded survey route during weekend and weekday surveys (72 total segments).

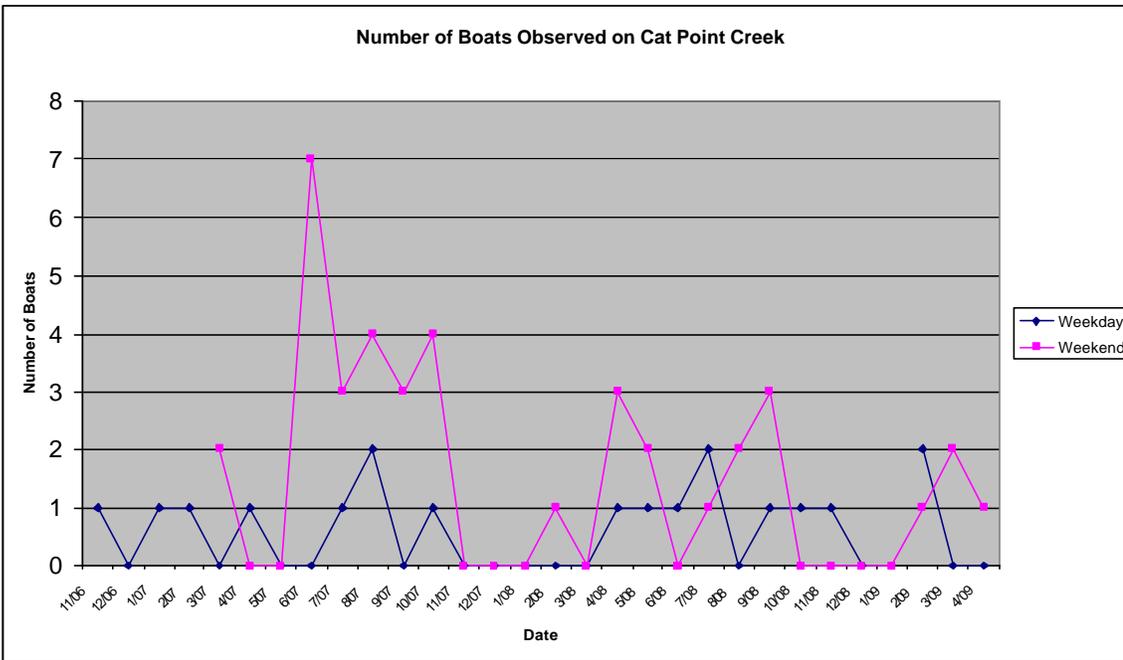


Figure 7. Monthly boat observations along the expanded survey route during weekend and weekday surveys.

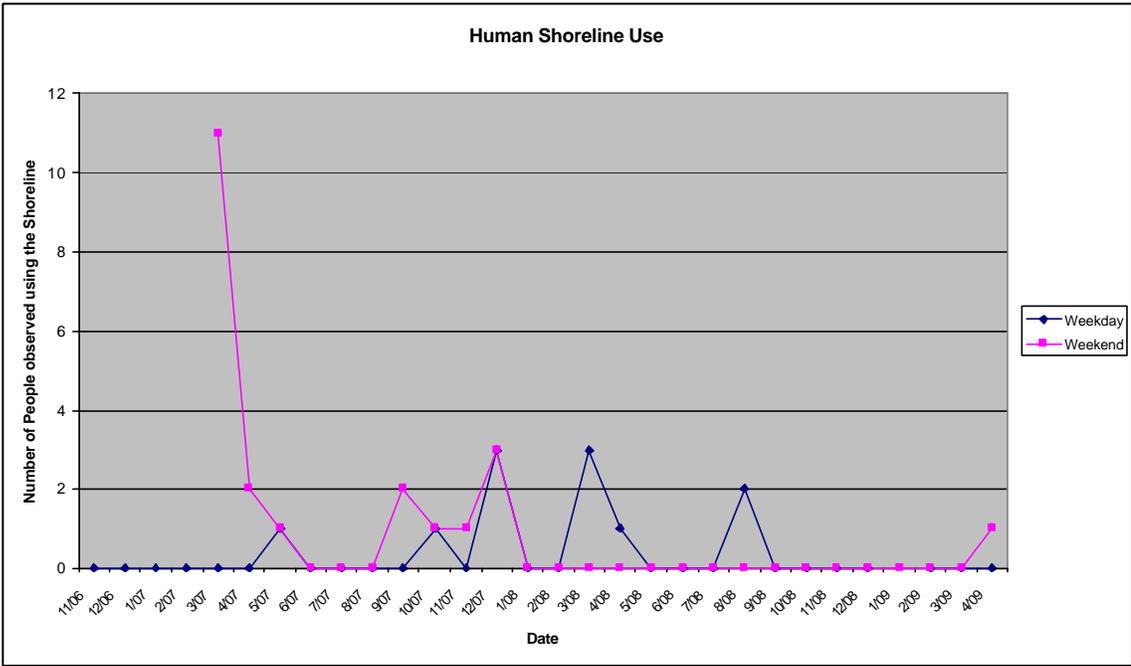


Figure 8. Monthly observations of people along the expanded survey route during weekend and weekday surveys.

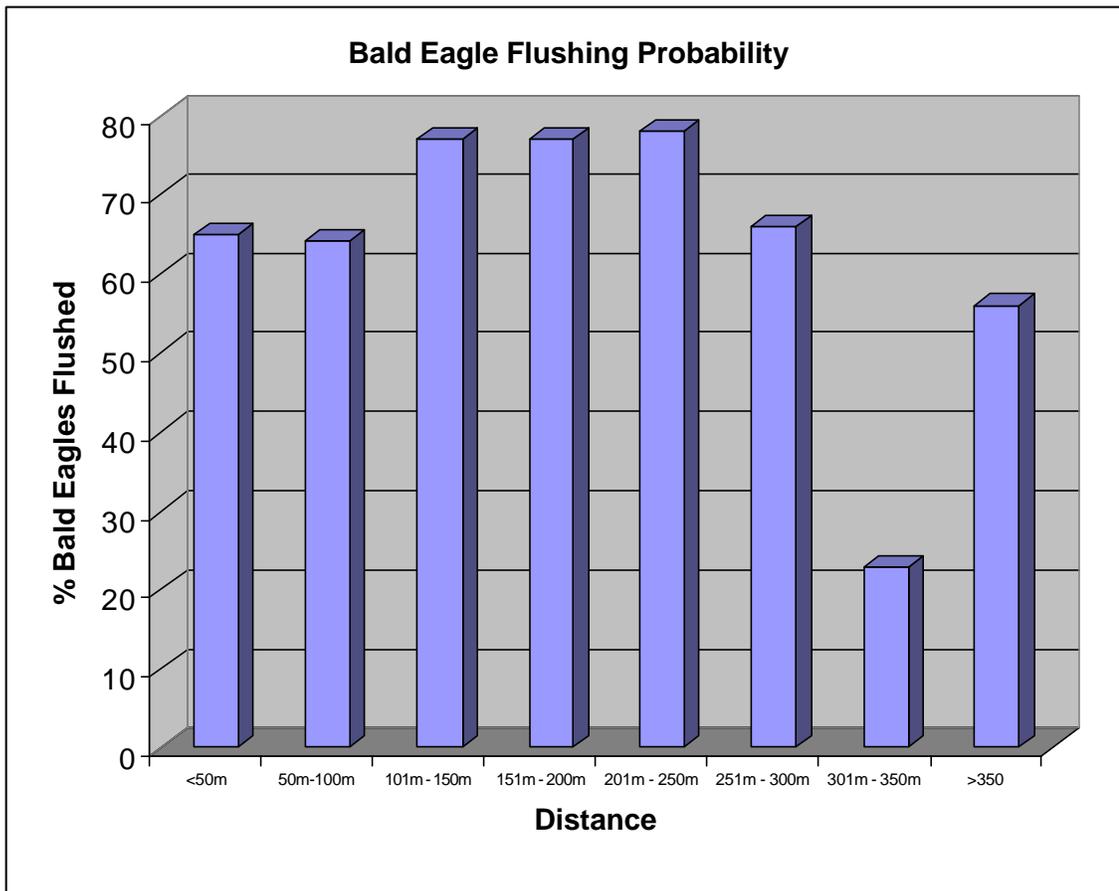


Figure 9. The relationship between distance of the survey boat from an eagle observed along the shoreline and the probability of flushing an eagle from a perch. Values presented indicate (the number of eagles that actually flushed within a given distance)/(the total number of eagles approached to a given distance).

10. Bald Eagle Management

Bald Eagle management was greatly hampered this year because the Center for Conservation Biology (CCB) at the College of William and Mary claimed total ownership of 2009 Bald Eagle data. We were and currently are greatly hampered in our ability adequately consult with conservation agencies, NGOs, and the general public due to lack of access to 2009 breeding season data. However, we did conduct numerous Bald Eagle nest site management plans and landowner management consultations were completed this year for corporate, military, state, federal, and private lands. At least 20 consultations resulted in onsite evaluations of proposed projects near eagle nests and/or eagle concentration areas. The majority of on-site nest management planning this year involved timber harvest and development of properties. Consultations were completed or are ongoing with the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, Virginia Department of Transportation, U.S. Department of Defense, and the Virginia Department of Forestry concerning permit review and management recommendations for Bald Eagle nesting, roosting, and foraging areas.

11. Coastal Surveys for Nesting Peregrine Falcons

Data is currently being processed and will be available during October 2009.

Falcon Hacking

2009 marked the seventh consecutive year in which a falcon pair bred in downtown Richmond. The pair experienced two failed nesting attempts early in the year as they sought to nest on buildings that they had not used in prior years. An intact addled egg and eggshell fragments from these attempts were recovered and sent for toxicology testing. Both came back positive for high concentrations of lead. The pair laid a clutch of 4 eggs at the James River Tower West, where they have nested for the past 3 years, by June 1. Three of the eggs hatched. The site was provisioned with a remotely controlled camera providing live digital feeds of the nesting falcons via the DGIF and partner websites. We worked with our partners to assemble the necessary equipment to control the timing of the chicks' fledging (see below) and to band and

bleed the nestlings. Blood samples were collected and sent for testing in light of the test results associated with the earlier nesting attempts. Two samples came back negative, while one showed trace amounts of lead that was well within expected parameters. The eggshell from the addled egg was also recovered and tested for pesticides (negative) and heavy metals (lead concentrations within normal limits). The three chicks were fledged successfully from the building on August 18 under controlled and carefully monitored conditions: the chicks were housed in a locked wire pen that was remotely opened on the fledge date. Agency personnel and volunteers monitored the fledglings over the course of two days.

Nineteen peregrine chicks from Virginia bridges and a ship in the James River Reserve Fleet were used in hacking efforts in Virginia and neighboring West Virginia in 2009. These are part of the VA peregrine falcon monitoring and management program implemented through a partnership with the Center for Conservation Biology at the College of William and Mary & Virginia Commonwealth University. The hacking is part of a strategy to re-establish breeding falcons to their former Appalachian range using chicks from nest sites where productivity is low because of high mortality during fledging events. The program showed great signs of success in 2009. A pair of falcons established itself at Breaks Interstate Park, where hacking efforts took place in 2007 and 2008. The Park is situated in Dickenson County in southwest Virginia and extends into Kentucky. Another pair was established at New River Gorge National River in WV, where hacking activities continued for the fourth consecutive year. Hacks included 12 chicks from Virginia sites and 5 from New Jersey. Sightings of territorial adults and of hatch year birds at Shenandoah National Park are evidence of a likely territorial pair which may have fledged 2-3 chicks at the Park. Hacking in Shenandoah continued in 2009 involving 7 Virginia chicks at the Big Meadows/Black Rock site. Also in 2009, DGIF biologists conducted a peregrine falcon survey at Cumberland Gap National Historical Park in Lee County, which extends into Kentucky. The focus was the White Rocks area, where Park staff had reported peregrine activity in 2008 and where a DGIF survey had confirmed the presence of at least one bird. No peregrine falcons were documented in 2009.

12. Red-cockaded Woodpecker

Management and monitoring of the red-cockaded woodpecker population at Piney Grove continued this year through a contract with the Center for Conservation Biology at the College of William and Mary & Virginia Commonwealth University. The site is a Nature Conservancy-owned and managed property in Sussex County and the only known site in Virginia with a resident population of the species. All information presented is reproduced from 'Wilson, M. D., B. D. Watts, C. Lotts, B. J. Paxton, and F. M. Smith 2009. Investigation of Red-cockaded Woodpeckers in Virginia: Year 2008 report. Center for Conservation Biology Technical Report Series, CCBTR-09-002. College of William and Mary and Virginia Commonwealth University, Williamsburg, VA. 33 pp.'

Post-breeding surveys conducted in the early winter of 2008 identified 30 birds, including 19 birds that were produced on site before 2008, 7 birds that were banded as nestlings in 2008, 3 translocated birds that were moved to Piney Grove over the years and one unbanded bird. These birds were roosting in 9 different cluster areas including C-1 (7 birds), C-3 (6 birds), C-4 (1 bird, part of the C-3 group), C-5 (5 birds), C-6 (1 bird), C-7 (6 birds, including 1 bird also roosting in C-3 and 1 bird also roosting in C-8), C-8 (3 birds), C-10 (3 birds) and C-15 (1 bird). The unbanded bird was captured and banded, and may have been a hatch year bird produced in C10 that escaped detection during the breeding season.

There were 7 birds detected in 2007 that were not detected in 2008. This includes 2 birds hatched at Piney Grove in 2001, 1 bird hatched at Piney Grove in 2006, 2 birds hatched at Piney Grove in 2007, and 2 birds translocated to Piney Grove from the Carolina Sandhills NWR in 2003. The population has been augmented since 2000, mostly through fall translocations of young-of-the-year birds from Carolina Sandhills NWR Refuge. No translocations took place in 2008.

Spring survey data for 2009 relating to cluster occupancy are not available at the time of this writing. During the 2009 breeding season, 16 chicks were produced of which 15 fledged. This is a 67% increase over the previous high of 9 fledges in 2007. More detailed breeding data are not currently available.

13. Land Bird Inventory and Assessment

DGIF continued to address research and monitoring priorities through contracts and through surveys by its own staff. The Center for Conservation Biology at the College of William and Mary & Virginia Commonwealth University completed the second year of a three-year contract to assemble historical and contemporary accounts of the Virginia Wildlife Action Plan's avian Species of Greatest Conservation Need into a geographically referenced database. To date, 4,536 individual

records of 39 landbird, marsh bird, waterbird and shorebird species have been extracted from the Virginia Society of Ornithology's journal 'The Raven'. These and additional records will be synthesized in the third year into an historical account of avifaunal change in Virginia that will have broad applicability for conservation purposes.

DGIF biologists completed surveys of the tidal oligohaline marshes of the Chickahominy River, a tributary of the James River situated in Charles City County and James City County. These surveys complement similar surveys conducted along the Mattaponi and Pamunkey River in 2007. We employed the USGS Standardized North American Marsh Bird Monitoring Protocols, using playback to increase detection probability of the following target species: Least Bittern, Sora, Virginia Rail, King Rail and American Bittern. In addition to the target species, we recorded all birds detected during the surveys. We selected marsh patches for survey based on a combination of size and vegetative composition as part of a stratified design. Patches were categorized into size classes that included 5-10 ha, 10-50 ha and > 50 ha. Points were allocated in the field based on patch size category, with patches receiving 1, 2 and 3-4 points respectively. The major vegetative communities surveyed included *Spartina cynosuroides*, *Typha* sp., *Phragmites australis* and broadleaved plant-dominated communities including *Peltandra virginica* and *Pontederia cordata*. These were characterized based on percent vegetative cover, dominant vegetation and qualitative vegetative description. We surveyed a total of 32 points in 13 patches. Surveys were replicated once during the season between 5/19 and 6/23. Surveys were conducted between 0530 and 0800. A total of 7 Least Bitterns and 2 Soras were detected.

14. Virginia Bird Conservation Initiative (VABCI)

DGIF interagency coordination continues to be implemented through VABCI in order to address several challenges presently facing bird conservation in the state. VABCI is a state-level, partner-driven initiative that strives to a) tie past, current and future avian conservation actions into a meaningful whole that is geared toward the accomplishment of mutually-agreed upon, clearly defined goals and objectives; b) link local avian conservation actions being implemented in Virginia to statewide, regional, national and international conservation actions and objectives; and c) create permanent partnerships that will facilitate information exchange and that will enable a synergistic approach to tackling the conservation problems faced by Virginia's avifauna. Coordinated by DGIF's Nongame Bird Interagency Coordinator, VABCI is organized around three working groups representing Virginia's physiographic provinces: the Coastal Plain, the Piedmont and the Ridge and Valley.

This funding cycle saw the March 2009 launch of the VABCI website at www.vabci.org. The site raised the profile of the Initiative among state and regional partners by featuring information on VABCI organization, projects and partners, and an events calendar with links to meetings and workshops of interest. The centerpiece of the site is the Resources section, which features a database of population estimates and trends for Virginia's priority bird species. This section also houses the Virginia Bird Survey Database, the first effort to comprehensively catalog the Commonwealth's bird survey and monitoring projects past and present. As the database grows, it is hoped that it will be linked to larger metadata repositories such as Cornell's Avian Knowledge Network. In addition to the website, dissemination of information to partners is accomplished via electronic communications. The Coordinator regularly initiates e-mail communications to partners regarding new and available resources and upcoming regional meetings, and coordinates information requests from regional partners. The Coordinator continues to work toward integration of state-level goals and actions with the broader regional context through coordination with established regional bird conservation initiatives (see previous section). The Coordinator also organizes periodic meetings that have grown from more general annual meetings of the working groups to issue-specific meetings. VABCI meetings this year were focused on habitat-specific issues relevant to the Coastal Plain (see Tidal Marsh Bird meeting below) and on landowner outreach in the Piedmont. The meetings resulted in coordination between regional bird conservation initiatives overlapping in Virginia, and laid the groundwork for a future landowner outreach workshop in the Virginia Piedmont. Below is a summary of these meetings:

Coastal Plain Working Group Marsh Bird Monitoring Meeting Charles City, Virginia, April 2, 2009

Highlighted Outcome - the meeting was attended by DGIF Wildlife Division and Nongame staff, staff from the Center for Conservation Biology at the College of William and Mary & Virginia Commonwealth University (CCB), and by USFWS staff from Back Bay and Rappahannock National Wildlife Refuge. Also represented was North Carolina State University (NCSU) and a researcher from the University of Delaware participated via conference call. The meeting was focused on marsh bird surveys and monitoring in Virginia and in the broader mid-Atlantic Region. The group reviewed marsh bird projects that have been conducted to date in Virginia, as well as current and future projects by NCSU and CCB. The group also discussed the compatibility of two broader monitoring initiatives currently in the planning stages: the Chesapeake Bay Waterbird Monitoring Plan being

developed by CCB in conjunction with DGIF, and the Mid-Atlantic Bird Conservation Region Tidal Marsh Birdwatch. The meeting served as a forum for bringing partners up to date on marsh bird survey work past and present, for informing partners of future directions in marsh bird monitoring, and for coordinating on near-term projects.

A number of other VABCI projects and activities took place during FY09. There was considerable follow-up to the publication of the 2nd edition of the landowner outreach collaborative publication (Guide) referenced above. In addition to the plan of the VABCI Piedmont Working Group to host a landowner workshop for distribution of the Guide, the VABCI coordinator unveiled the Guide at the Piedmont Environmental Council (PEC) Staff Meeting on August 8 and presented and distributed the guide at the PEC's Annual Meeting on September 13 and PEC's Rappahannock County Wildlife Habitat Open House on February 7. The Atlantic Coast Joint Venture (ACJV) has taken an interest in the publication and is looking toward expanding its content to cover the entire mid-Atlantic Piedmont region. Because the Piedmont Bird Conservation Region (BCR) is not formally organized and currently lacks a coordinator, the ACJV is also looking to the activities of the VA Piedmont Working Group to help serve as a template for conservation activities in the broader Piedmont region.

VABCI partners initiated the creation of a spruce-fir spatial layer for Virginia in conjunction with similar efforts by the Appalachian Mountain Joint Venture. The first phase in this project was

15. Barn Owl

Barn Owl monitoring was not conducted during the 2009 breeding season due to staff shortages. However, we did coordinate with raptor banders in the Shenandoah Valley who are conducting Barn Owl monitoring. During 2010, with the help of volunteers we will gather data on nest productivity and distribution throughout the northern Piedmont and northern Shenandoah Valley.

16. Vultures

Virginia Game and Inland Fisheries and USDA Wildlife Services have continued to monitor the number of Black Vultures using Dutch Gap and nearby areas on a weekly basis. For our purposes, Dutch Gap includes the Dominion power plant, Chesterfield County Henricus Park and boat access, and areas of the James River immediately adjacent to the power plant. The purpose of the monitoring program is to determine the response of Black Vultures to hazing that was initiated to eliminate damage caused by vultures at Dutch Gap. Through discussions with the Center for Conservation Biology, monitoring efforts were expanded in December 2008 to include portions of the Rivers Bend Development because vultures began to congregate in that area after hazing was initiated at Dutch Gap. Monitoring efforts included counting the number of Black Vultures that were present at Dutch Gap and the Rivers Bend Development. In November 2007, project partners captured and tagged 100 Black Vultures with uniquely numbered wing tags. When we monitor numbers of vultures at each site, we also search for tagged vultures to document movements of individual vultures over time.

Black Vultures appeared to rapidly respond to hazing by shifting their use of roost and loaf sites. Vultures stopped using all areas of Dutch Gap when the intensive hazing began in November 2007. Subsequently, complaints of vultures perching in trees and on houses at the Rivers Bend Development increased, and counts of vultures indicated that many Black Vultures shifted from Dutch Gap to the Rivers Bend area. This shift was also confirmed through movements of vultures that we tagged at Dutch Gap before hazing and then later observed at Rivers Bend (vulture numbers 118, 133, 138, 164, 165, 168, 173, and 196). Once hazing began at Rivers Bend on 7 Jan 2008, the number of Black vultures using Rivers Bend decreased and the number at Dutch Gap once again increased.

The presence of vultures at Dutch Gap appears to attract other Black Vultures to this location. The number of vultures that returned to Dutch Gap after hazing at Rivers Bend began was nearly double that of any counts at Rivers Bend. As Black Vultures returned to Dutch Gap, it appears that other vultures that were not counted during surveys at Rivers Bend also moved to Dutch Gap. In addition, six tagged vultures that were never observed at Rivers Bend returned to Dutch Gap in January (vulture numbers 125, 132, 144, 192, CAV, and CEA). Also, 3 vultures, which moved away from Dutch Gap after hazing there, were never detected at Rivers Bend, but returned to Dutch Gap after vulture numbers increased (vulture numbers 128, 195, 200).

These patterns of vulture movements suggest that vultures responded to hazing at Dutch Gap by both shifting to the Rivers Bend area and by shifting to other, as yet, unknown locations. It is important to understand that unknown locations

could include other roosts that project partners or the general public have identified (e.g. Highland Springs, VA). It may also be possible that vultures moved predominantly to the Rivers Bend area but were not detected through the monitoring program; however, this seems unlikely given that the pattern emerges from 2 lines of evidence (count data and observations of tagged vultures observed outside of Rivers Bend).

Another objective of the monitoring program is to define the seasonal pattern of vulture use of Dutch Gap. Typically, damage associated with vultures begins in late summer and decreases by spring. Vulture numbers at Dutch Gap peaked at the end of October 2007 prior to tagging vultures and hazing at Dutch Gap. From November 2007 to mid-March 2008, vulture numbers at Dutch Gap appear to be fairly consistent except for the period of hazing and an increase in numbers in mid-February. Based upon observations by project partners and the pattern of damage complaints, vulture numbers at Dutch Gap are expected to decrease during spring and early summer. Continued monitoring will provide a better understanding of seasonal use patterns.

Based upon monitoring data, hazing appears to be an effective tool for shifting vultures away from specific areas to alleviate damage. The hazing programs at Dutch Gap and Rivers Bend rapidly shifted vultures away from each location. However, in each case, vultures moved to areas where they pose a damage risk. Vultures returning to Dutch Gap after Rivers Bend hazing predominantly used trees and transmission towers on the North Shore of the James River. Black Vultures have not been recorded in substantial numbers at the Dominion Power Plant but minor increases were recorded at the Boat Ramp and adjacent Rivers Edge. Incursions at the Boat Ramp and Rivers Edge were short lived, as vultures responded to presence of monitors by flying across the James River to the North Shore.

17. Herpetofauna

2009 miscellaneous Field Notes published in *Catesbeiana*:

Farancia abacura abacura (Eastern Mudsnake). VA: Charles City Co., Rt. 155 (Courthouse Rd.) (37°25'41.37"N; 77° 2'19.04"W). 10 May, 2009.

On 10 May 2009, Chuck Starkey found an Eastern Mudsnake DOR (dead-on-road) where Rt. 155 crosses the Chickahominy River in Charles City County. This observation is a new county record and is the first documented occurrence of this species north of the James River (Mitchell, J.C. 1994. *The Reptiles of Virginia*. Smithsonian Institution Press, Washington DC. 352 pp.; Mitchell and Reay. 1999. *Atlas of Amphibians and Reptiles in Virginia*. Special Publication No. 1, Virginia Department of Game and Inland Fisheries, Richmond, VA. 122 pp.).

Since Two-toed Amphiuma (*Amphiuma means*) has been well-documented in Charles City County (FWIS Database), it is not too surprising to also find the Eastern Mudsnake. The Eastern Mudsnake is sympatric throughout much of its range with the Two-toed Amphiuma, one of its primary food items (Petranka, J.W. 1998. *Salamanders of the United States and Canada*. Smithsonian Institution Press, Washington DC. 587 pp; Gibbons, J.W. and M. E. Dorcas. 2005. *Snakes of the Southeast*. University of Georgia Press, Athens Georgia). Digital images have been deposited in the VHS archives (digital voucher #116-117).

Lampropeltis getula getula (Eastern Kingsnake). VA: Prince George Co., Intersection of Rt. 10 and Rt. 639 (Flower Dew Hundred) (37°14'53.51"N; 77° 9'3.79"W). 26 May 2009.

On 26 May 2009, an Eastern Kingsnake (*Lampropeltis getula*) was found DOR (dead-on-road) near the intersection of Rt. 10 and Rt. 639 in Prince George County. This observation is a new county record and fills-in a hiatus in the distribution of this species in Virginia (*Atlas of Amphibians and Reptiles in Virginia*. Special Publication No. 1, Virginia Department of Game and Inland Fisheries, Richmond, VA. 122 pp.). A digital image has been deposited in the VHS archives (Digital voucher #124).

Lampropeltis calligaster rhombomaculata (Mole Kingsnake). VA: Surry Co., Route 611 (Salisbury Road). (37° 9'56.13"N, 77° 1'37.94"W). 1 June 2009.

On 1 June 2009, a Mole Kingsnake (*Lampropeltis getula*) was found crossing Route 611 (Salisbury Road) in Surry County. After taking several photographs, the snake was moved to the side of the road and released unharmed. This observation is a new county record and fills-in a hiatus in the distribution of this species in Virginia (Mitchell and Reay. 1999. Atlas of Amphibians and Reptiles in Virginia. Special Publication No. 1, Virginia Department of Game and Inland Fisheries, Richmond, VA. 122 pp.). A digital image has been deposited in the VHS archives (Digital voucher #122).

Pseudemys concinna floridana (Florida Cooter). VA: Isle of Wight Co., Route 258 (Courthouse Highway). (36°54'46.26"N, 76°42'39.93"W). 31 May 2009.

Size Record: The largest Florida Cooter (*Pseudemys concinna floridana*) recorded in Virginia had a maximum straight-line carapace length of 270 mm and a maximum plastron length of 247 mm (Mitchell, J.C. 1994. The Reptiles of Virginia. Smithsonian Institution Press, Washington DC. 352 pp.) On 31 May 2009, a female Florida Cooter was captured in Great Swamp behind the Isle of Wight Courthouse. This individual had a maximum straight-line carapace length of 290 mm and a plastron length of 266 mm. Measurements were taken with a 40 cm Haglof tree caliper. A digital image has been deposited in the VHS archives (Digital voucher #123).

Trachemys scripta scripta (Yellow-bellied Slider). VA: Hanover County. Richmond National Battlefield Park (Turkey Hill). Route 156 (Grapevine Bridge) [37°33'9.22"N 77°16'15.84"W]. 26 June 2009. John D. Kleopfer and Ryan Niccoli.

The Yellow-bellied Slider reaches the northernmost extent of its range in southeastern Virginia (Mitchell, J.C. 1994. The Reptiles of Virginia. Smithsonian Institution Press, Washington, DC. 352 pp.). In Virginia, the northernmost documented occurrence of this species was in New Kent County (Field Notes: *Trachemys scripta scripta. Catesbeiana* 74, 26(2); Kleopfer, J.D. 2006)

On 26 June 2009, an adult male Yellow-bellied Slider was captured in Hanover County (Chickahominy River) at a location known as Turkey Hill. The Turkey Hill site is a recent 97 ha (240 ac) land-acquisition by the Richmond National Battlefield Park. This is the second documented observation of this species in the Chickahominy River watershed (Kleopfer, op. cit.). This observation represents a new county record and a northwestern range extension of approximately 28 km. Since only one Yellow-bellied Slider was captured during this 5-day survey, which resulted in the capture of numerous individuals of other sympatric species of turtle (i.e. eastern snapping turtle, eastern painted turtle and stinkpot), this record may finally define the northernmost extent of this species range (Kleopfer pers. comm. 2009). However, the distribution of this species north of the James River appears to be intermittent in contrast to its more continuous distribution south of the James River (Mitchell, op. cit.). Additional surveys upstream of the Turkey Hill site would confirm the author's personal comment. It should be noted, that no nonnative Red-eared Sliders (*T. s. elegans*) were captured during this survey. A digital photograph was submitted to the VHS archives (voucher #130).

18. Summer 2009 Rafinesque's Big-eared Bat Surveys

The Rafinesque's Big-eared bat (*Corynorhinus rafinesquii*) is classified as state endangered in the Commonwealth of Virginia. The Virginia Department of Game and Inland Fisheries Comprehensive Wildlife Conservation Strategy ranks *C. rafinesquii* as Tier I, a species of greatest conservation need. The Virginia Endangered Species Recovery Plan for the Eastern Big-Eared bat (Schwab et al. 1990) outlines many recovery needs and strategies for this species. The first goal of the Recovery Plan is to determine the distribution of *C. rafinesquii* in Virginia by searching man-made (abandoned structures) and natural roost sites (hollows in trees) for day-roosting adults. Within the search areas, the objective is to identify essential habitat such as maternity colonies, hibernacula, and roosts of solitary bats. Once these sites have been identified, it is possible to visit maternity colonies and to census roosts to monitor population trends.

A 1997 survey by the VDGIF reported eighty-one *C. rafinesquii* roost sites in the City of Chesapeake and counties of Sussex, Southampton, Suffolk, Greenville, New Kent, and Hanover. Of the eighty-one sites, twelve were nursery colonies. The maximum number of bats observed in 1998 was 471. Surveys in 2001 showed that half of previously documented nursery colony sites had been abandoned or destroyed. Since 2001, many *C. rafinesquii* roost structures have been destroyed and new sites were documented in the City of Virginia Beach and Isle of Wight County, so it was necessary to undertake this survey project to determine and document the continued presence of this species and its viability in southeastern Virginia.

Surveys to search potential man-made roost sites were conducted during this reporting period by revisiting previously documented sites and road cruising for new structures. Buildings were surveyed during the day by acquiring landowner permission, entering the site and searching rooms, closets and attics for live bats or guano. To maintain a management profile for each site where bats were found, a count, the behavior of animals, the GPS location and address were recorded as well as building characteristics such as number of stories and type of roof. Previously occupied structures were assessed as 'good,' 'vulnerable,' 'destroyed,' or 'unknown' status if permission from the landowner was not granted or the structure could not be located. Following the protocol from previous survey, if new sites did not have bats, a null site record was created. Additional records of *C. rafinesquii* were also entered into the VAFWIS database.

We observed a total of 15 structures which had Rafinesque's Big-eared bats present, 9 solitary roosts and 4 maternal colonies (Table 1). The maximum number of bats seen during this survey was 165. We confirmed the destruction of 14 structures previously known to be used by bats. Landowners report natural decomposition, hurricanes and storms, the development of property, and property upkeep as reasons for collapsing structures. Approximately 15 null sites were documented.

To monitor population trends at maternity colonies, four previously known maternal roost sites were revisited. These are located in Southampton and Sussex counties and the City of Virginia Beach. Count data was collected for these maternal colonies. This year, colonies consisted of groups of 30-50 bats (Table 2). Survey information shows stable population trends at these four maternal roost sites. One site was documented as being used as a maternity colony 3 times in over 10 years. No new maternity colonies were discovered during this reporting period.

Because of the trend in destruction of known roosts, an emphasis was placed on surveying new areas. Charles City, Surry and Prince George counties were road-cruised, because these areas are considered likely within the range of *C. rafinesquii*, but have no records. Road cruising in these counties and the City of Suffolk has yielded approximately 80 structures with potential as bat roosts. Property owner contacts are underway.

The second goal of the Recovery Plan is to protect roost sites and other habitat from adverse modifications by enlisting the assistance of landowners in habitat protection. During this reporting period, a new solitary roost was secured with a padlock and maternal colony sites were monitored for structural integrity. To develop and maintain landowner and public support for species protection, approximately 100 information letters were sent to landowners. Landowner contacts were documented and updated by phone interviews and written correspondence. I discussed the status of structures and *C. rafinesquii* protection with landowners. To disseminate public information, three newspaper articles were published during this reporting period in the Virginia-Pilot, Progress-Index, and Hopewell News. An educational pamphlet was created and is currently in publishing approval process. Also, a kids coloring sheet produced by the Defenders of Wildlife was sent to interested parties.

Surveys of historic maternity roosts and solitary bat roosts during this reporting period yielded new solitary bat roosts and an updated VDGIF site management profiles. By adding to the information on distribution, abundance, and status of *C. rafinesquii*, current information will assist in the revision of the Recovery Plan for

the Rafinesque's Big-eared Bat. Survey information shows stable population trends at four maternal roost sites. Surveys also indicated a high maternity roost fidelity over many years.

In 2008, permission was granted to VDGIF to survey sixteen sites throughout central and southeastern Virginia. Thirteen were investigated during the summer of 2008. The final three sites were investigated in July 2009. The three sites investigated in 2009 yielded more than forty-three *C. rafinesquii*. Additional results in 2009 included bats (*C. rafinesquii*) still occupying three historic sites. Two new sites were discovered in Sussex and Southampton counties. Eight to ten *C. rafinesquii* were found at the Sussex County site and two at the Southampton site. One historic roost showed a dramatic decline in the number of *C. rafinesquii* seen in 2008. Forty-eight potential sites were discovered during 2009 road surveys.

| 1.0 The Status of Rafinesque's Big-eared Bat Structures or Sites in Southeastern Virginia | | | | | | | |
|---|--|--|--|--|-------------------------------------|---|---|
| County or City | Total Structures or Sites Reported 1993-2008 | Confirmed Structure or Site in Good Status | Structure or Site in Good Status with Bats Present 2006-2008 | Structure or Site in Vulnerable Status | Structure or Site in Unknown Status | Structure or Site Confirmed Destroyed 2002-2008 | Structure or Site Known Destroyed Before 2002 |
| Southampton | 51 | 14 | 7 | 3 | 13 | 8 | 13 |
| Stafford | 15 | 4 | 3 | 2 | 1 | 1 | 7 |
| Sussex | 11 | 2 | 2 | 0 | 2 | 2 | 5 |
| Stafford Beach | 2 | 2 | 2 | 0 | 0 | 0 | 0 |
| Staffordville | 7 | 0 | 0 | 2 | 2 | 1 | 2 |
| Staffordpeake | 3 | 0 | 0 | 0 | 1 | 0 | 2 |
| Stafford Wight | 2 | 1 | 1 | 0 | 0 | 1 | 0 |
| Stafford Kent | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| Stafford Her | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Stafford Stan | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| | 94 | 23 | 15 | 7 | 21 | 14 | 29 |

| 2.0 The Status of Rafinesque's Big-eared Bat Maternity Colonies in Southeastern Virginia | | | | | | | |
|--|-------------|------------------------------|--------------------------------|-------------------|--|--|--|
| County or City | Site number | Number of bats observed 2008 | number of bats seen previously | Oldest year known | | | |
| Southampton | SO48 | 30-40 | 30-70 | 2005 | | | |
| Southampton | SO42 | 40-50 | 35-60 | 1997 | | | |
| Sussex | SU10 | 30-45 | 30-40 | 2002 | | | |
| Stafford Beach | VB221 | 30 | 20-50 | 2004 | | | |

19. The Impact of Change in Forest Canopy on the Ecology and Behavior of the Canebrake Rattlesnake at Naval Support Activity Norfolk, Northwest Annex, Chesapeake, Virginia

Hurricane Isabel

Hurricane Isabel, a Category 2 hurricane, made landfall in North Carolina in September 2003 and continued up the eastern seaboard through southeastern and central Virginia. The wind from this storm caused extensive forest blowdowns throughout the affected Mid-Atlantic States. Larger trees with greater canopy cover were found to be more susceptible to blowdown and damage, thus creating large forest gaps. Geographic Information System (GIS) software, in conjunction with satellite imagery, revealed a 16.6% opening of the canopy cover at NSANW, with much of the damage attributed to uprooting.

Forest Gaps

Despite a lack of consistency in many life history traits across the distributional range of *Crotalus horridus*, one constant factor in the majority of populations may be the need for forest openings. *C. horridus* uses openings in the forest canopy for activities that require elevated body temperature, such as digestion, ecdysis, courtship, and gestation. Canopy openings allow greater penetration of sunlight to the forest floor, which results in warmer surface and soil temperatures. It has been recognized that *C. horridus* requires open areas for thermoregulatory activities, as they identify forest canopy closure as a factor in the dramatic population decline on the University of Kansas Natural History Reservation. In northeastern and midwestern populations of *C. horridus* use rock outcrops for basking activities by gravid females, as well as other members of the population during egress and ingress periods. In particular, gravid females display increased use of warmer, more open sections throughout the habitat.

Landscape Disturbance

Hurricane Isabel coupled with extensive previous data on the population at NSANW provided a unique opportunity to examine the effects of forest gap formation on the ecology and movement patterns of the southeastern population of *Crotalus horridus*. Prior to the hurricane, fire suppression and the loss of the longleaf pine ecosystem resulted in closed canopy forests choked with understory vegetation. The removal of suitable basking areas can reduce snake abundance. Previous studies have demonstrated that experimentally opening the forest canopy can be beneficial to snakes. It has been suggested using canopy thinning near *C. horridus* den entrances as a management technique to ensure that these areas continue to receive adequate sunlight. Currently no studies have directly examined the effect of natural or experimental gap formation on the ecology of timber rattlesnakes. By examining differences in the movement patterns, size of activity areas, and behaviors of *C. horridus* in this long studied population prior to and following Hurricane Isabel, we aim to understand how these animals interact with the surrounding forest structure. Furthermore, examining behavioral responses to natural changes in forest canopy may inform our understanding of how this population responds to anthropogenic forest clearing, as occurs when rattlesnake habitat is cleared for suburban development. The home range size, movement patterns, choice of foraging microhabitats, reproductive activities, and other behaviors of this population will be used to determine the effect of reduced canopy closure. Knowledge of how these rattlesnakes utilize forest gaps and respond to changes in forest structure may provide valuable insights concerning the development of effective management plans to ensure the perseverance of this species within its remaining range.

Radiotelemetry

Post-Hurricane Isabel methods remained consistent from those used for data collection and analysis during pre-Isabel research, so the two databases could be easily compared. Post-Hurricane Isabel research on Canebrakes at NSANW was initiated in August 2005, with regular monitoring concluding in September 2007. During this period only snakes located within the boundaries of the Naval base were implanted with radio transmitters. Selection of snakes for implantation included consideration of previous tracking history, sex, age, location within the base and date of capture. Implanted males that subsequently traveled off NSANW property following their release were only tracked during the periods that they resided on the base, due to logistical and time constraints. Selected animals were implanted with temperature-sensitive radiotransmitters, with an approximate mass of 13g. Transmitter surgeries were conducted in the herpetology lab at Old Dominion University. Transmitters were implanted intraperitoneally under isoflourane anesthesia. Each snake was also implanted with

a passive integrated transponder (PIT tag; AVID), as were all additional snakes captured and processed but not implanted with transmitters. Animals were implanted within 24 hours of capture and most were released within 24 hours of surgery; all snakes were released within 48 hours post-surgery. Transmitters were replaced as the internal battery neared its expiration date, after approximately two years. Following surgery snakes were returned to their capture site and subsequently relocated by means of a handheld receiver and Yagi directional antenna. A numbered flag was planted at each new snake location, and the coordinates of these flags were recorded later using a GPS receiver (Trimble), with resolution of approximately 2 meters. GPS locations were generally obtained during the winter, when forest canopy was less obstructive. Each time an animal was located, the observer recorded environmental temperatures (soil, surface and air within 10 cm of ground level); transmitter pulse interval (from which body temperature could be calculated); cloud cover; precipitation; time of day; body position, degree of exposure, and movement; and any specific behaviors, such as courtship, shedding, recent feeding, and presence of a conspecific.

Results

Post-Hurricane Isabel

Movements and Spatial Analysis

Our analysis of the movements and activity ranges of Canebrakes following Hurricane Isabel is based on over 1,300 observations of 15 individuals (Table 1). Annual movements averaged 5.77 km/yr for males (maximum = 6.62 km/yr), and 3.91 km/yr for nongravid females (maximum = 5.36 km/yr). The single gravid female observed moved 1.15 km/yr. The distance moved per day averaged 34.2 m/day for males (maximum = 42.4 m/day), 26.3 m/day for nongravid females (maximum = 46.2 m/day), and 7.7 m/day for the lone gravid female. Distance per movement averaged 127.1 m in males (maximum = 153.9 m), 84.9 m for nongravid females (maximum = 127.7 m), and 39.8 m for the gravid female. Range length, the maximum distance from one end of an individual's activity range to the other, was 0.86 km for males (maximum = 0.90 km), 0.74 km for nongravid females (maximum = 1.55 km), and 0.52 km for the gravid female. Maximum distance traveled from the hibernaculum was 0.67 km in males (maximum = 0.77 Km), 0.60 km for nongravid females (maximum = 1.55 Km), and 0.51 km for the gravid female.

Linear movements vary greatly during a given season, as revealed by examining biweekly movements. Movements just prior to ingress and shortly following egress are characterized by short distances near the hibernaculum. Long movement distances can be seen in late May/early June and in September, when snakes engage in longer movements while leaving and returning to hibernacula. The longest movements occur during July and August, the warmest summer period of the year. This is especially pronounced for males, when these movements are interpreted as mate-searching behavior. Individual female snakes exhibited especially large interannual variation in movements.

Canebrake rattlesnakes often remain in the same location on successive days and the number of extremely long daily movements is small. Two sets of daily movement data were examined. Known daily movements represent cases where the same snake was located on two successive days, whereas calculated daily movements include all observations, including data for snakes located on nonsuccessive days. The number of movements during the active season was divided by the number of days during the active season to obtain mean distance per movement. The results of both analyses are similar and reinforce field observations. Snakes had not changed locations in approximately 55% of known and slightly greater than 70% of calculated observations. Snakes moved 50 m or less in 25% of known and 15% of calculated movements. Movements greater than 100 m occurred infrequently, with the longest movements typically performed by males. These movement data are consistent by the high proportion of snakes observed in the coiled position. Observations of movement peaked in the month of June. However, our sample is highly biased toward females; if more males were included in the sample we suspected that movement observations would also be numerous during July and August, when mate-searching occurs among males. Snakes were more frequently found under cover early and late in the activity period. We speculate that this is a behavior that reduces predation during cooler periods, when these ectotherms

would have a slower locomotor response. Snakes also were observed in full sun more frequently during the spring and fall.

The average sizes of activity ranges differed greatly between males, nongravid females and the lone gravid female. Minimum convex polygon (MCP) activity ranges averaged 35.8 ha in males (maximum = 41.2 ha), 19.8 ha in nongravid females (maximum = 49.3 ha), and 6.4 ha for the gravid female. The much larger MCP activity ranges of males reflect the effect of mate-searching movements, enclosing a substantial area. Kernel analysis of activity range returns several values for each individual, representing differing probabilities of finding an individual within subsets of the area. We analyzed the 95%, 75%, 50%, and 25% kernel activity ranges; see Table 5 for detailed results. Due to the short duration of mate-searching movements they are generally excluded from the kernel ranges, a major limitation of kernel analysis. With respect to the 95% kernel ranges, the mean range for males is approximately 30% larger than that of nongravid females, and those of nongravid females are over three times as large as that of the gravid female. However males and nongravid females have very similar 75%, 50%, and 25% kernel home ranges. Although this may reflect a bias due to the small sample size of males, it is possible that the sexes do in fact resemble each other in the area within which they concentrate their activity, differing primarily in the movements between those areas. This in turn may reflect the reduced influence matesearching movements on the smaller kernel activity ranges and thus suggest similar physiological and foraging requirements for both sexes.

Habitat Use

Analysis of habitat use reveals that rattlesnakes were located most frequently in deciduous forest (80% of observations); only 14% of observations occurred in pine forests, and another 4% occurred in clearcuts. While the analysis does not specifically address habitat selectivity by individual snakes, the use of pine, clearcut and particularly agricultural habitats occurs far less frequently than expected based on habitat availability. Note that deciduous forest, as a habitat category, included treefall sites, so this analysis does not specifically address the use of open habitats.

Post-Isabel Comparison

Based on the results of this study, a number of trends can be observed and several important conclusions can be drawn. The impact of the hurricane on the forest canopy was substantial. Pine forest lost 11.28% of its canopy coverage, and deciduous forest lost 20.96% of its canopy coverage.

As with many aspects of Canebrake natural history, individual variation in the response to storm damage is great. Two general types of data are available with which to monitor this response. The first involves comparisons between general classes of individuals (*e.g.*, males, females, gravid females) studied before and after the storm. The other involves direct comparisons between the ecology of individual snakes that were studied during both time periods. The first set of data is somewhat limited by the strongly female-biased sample studied after the hurricane. However, females generally move less than males and might therefore be expected to show a greater response to habitat change, so the bias is not expected to be serious. As for studies of individual snakes, only two of the pre-hurricane telemetry subjects could be located and followed during the post-hurricane period. This situation reflects the two-year hiatus in funding and fieldwork, a period long enough to have resulted in battery failure in most implanted transmitters. A concerted effort was made to relocate previously implanted individuals for the later study, but few could be found.

As noted, as with the behaviors of individual snakes, the impact of the hurricane on the forest canopy varied greatly among telemetry subjects, depending upon the location of their activity ranges. Individuals experienced canopy loss ranging from approximately 5-25% of the pre-hurricane canopy across the forested area of their activity ranges. A comparison of MCP activity ranges before and after the hurricane reveals that post-hurricane ranges are relatively small, but not unprecedented in comparison with pre-hurricane ranges. The smaller post-hurricane activity ranges are evident both for MCP and kernel data.

Comparison of the data for the two individuals that were tracked both before and after the hurricane are especially informative, especially when viewed qualitatively. On subject, female CS-1, occupied an activity range adjacent to the western end of the ROTH antenna clearcut, and during pre-hurricane years she frequently entered the clearcut itself to engage in behaviors that presumably require a high thermal environment, such as digestion, shedding, and courtship. Comparison of her activity ranges from a pre-hurricane year and a post-hurricane year reveal the absence of movements into the clearcut after the storm. This is mirrored in the kernel activity ranges, which show extensive time spent in the clearing before the storm, but not after it. Indeed, this snake concentrated its activity in areas where storm damage to the forest was extensive. A summary of behaviors in which this snake engaged in different habitat types shows a dramatic shift in the location of shedding and courtship behaviors, which frequently were observed in the clearing before the storm but which instead occurred within the forest after the hurricane. The second snake followed before and after the hurricane, female CS-29, occupied a prehurricane activity range that did not encompass any anthropogenic clearings, and little change in the general topology of the activity range is seen following the hurricane.

A substantial difference in behavior is reflected in the frequency of exposure of one of the snakes before and after Hurricane Isabel. Each snake observation was scored according to whether the subject was fully exposed, partially exposed, or fully under cover. The use of cover by CS-1 increased substantially after the hurricane, especially earlier and later in the active season. We interpret this behavioral shift as reflecting the higher temperatures that characterize forest habitat after the extensive loss of canopy. Under these circumstances a snake presumably can attain a high body temperatures while remaining under cover of the woody debris that accumulated as a result of the hurricane. Conversely, however, CS-29 exhibited a higher frequency of full exposure during most of the activity season, except during April, when the snake was found under cover much more frequently after the hurricane.

Discussion

This study adds materially to our understanding of the ecology of *Crotalus horridus* in southeastern Virginia and has important implications for management of this state-endangered population. The propensity of Canebrake Rattlesnakes to enter open areas, both natural treefalls and anthropogenic clearings such as clearcuts and agricultural fields, is well documented. However, the response of Canebrakes to a rapid and dramatic change in forest cover, either on a population or individual level, has not been addressed previously. We found that, despite extensive individual variation, a common response to loss of canopy was a decrease in the size of the activity range. In addition, some snakes showed a marked shift in the frequency with which anthropogenic clearings were used for behaviors requiring elevated body temperature, such as shedding and courtship.

Following the hurricane, some snakes shifted the site where those behaviors were performed, from anthropogenic clearings to locations within the forest itself, where the open canopy presumably affords the same thermal advantages. Furthermore, some snakes shifted their behavior, apparently taking advantage of the open habitat to attain higher body temperatures without risking exposure to predators, as reflected in the increased frequency with which they were located under cover.

One assumption at the beginning of this study was that the loss of forest cover following Hurricane Isabel could serve as a model for the loss of forest that results from anthropogenic clearing, as for suburban development, which is a major cause of habitat loss for *Crotalus horridus* in southeastern Virginia. However, substantial differences exist between natural and anthropogenic loss of forest canopy. Natural canopy loss as a result of storm damage results in increased coarse woody debris at ground level and may generate additional forage for prey species of the rattlesnakes. Importantly, the debris provides increased cover, which the snakes apparently can take advantage of without sacrificing thermoregulatory advantage. Anthropogenic openings, in contrast, generally are cleared of woody debris, and snakes therefore are exposed to various hazards, especially human predation. Despite these differences, the sudden formation of natural clearings does inform our understanding of the ecological and behavioral responses of Canebrake Rattlesnakes to anthropogenic clearing of forests, at least

by demonstrating the rapid, flexible, and characteristically individual response of the snakes to sudden environmental change.

Table 1. Summary of radiotelemetry subjects.

| Subject | Sex | Tracking Period | Number of Days Tracked | Number of Observations |
|----------------|------------|---|-------------------------------|-------------------------------|
| CS-1 | F | 16 Aug. 05 - 15 Aug 07 | 732 | 216 |
| CS-12 | M | 26 Aug. 05 - 14 Sept. 05 | 19 | 7 |
| CS-28 | F | 16 Aug. 05 – 03 July 06 | 320 | 87 |
| CS-29 | F | 24 Apr. 06 - 12 Sept. 07 | 505 | 196 |
| CS-36 | M | 16 Aug. 05 - 25 Aug. 05, 3 Aug. 06 – 8 Aug. 24, 11 Aug. 07 – 5 Sept. 07 | 55 | 24 |
| CS-37 | F | 02 Sept. 05 - 11 Sept. 07 | 740 | 263 |
| CS-38 | F | 05 Oct. 05 - 11 Sept. 07 | 705 | 141 |
| CS-40 | M | 19 Apr. 06 - 04 June 06 | 46 | 29 |
| CS-41 | M | 04 June 06 - 05 Sept. 07 | 459 | 168 |
| CS-42 | F | 06 Aug. 06 - 12 Sept. 07 | 399 | 135 |
| CS-43 | M | 15 Aug. 06 - 24 Aug. 06 | 10 | 9 |
| CS-44 | F | 23 July 07 - 12 Sept. 07 | 51 | 23 |
| CS-45 | F | 27 July 07 - 08 Sept. 07 | 43 | 11 |
| CS-46 | F | 17 Aug. 07 - 31 Aug. 07 | 14 | 6 |
| CS-47 | F | 25 Aug. 07 - 08 Sept. 07 | 14 | 6 |
| Total | | | | 1321 |

Great Swamp Survey and Inventory

Periodically during the summer of 2009, we conducted various wildlife surveys at the Great Swamp in Isle of Wight County. This effort was to support an initiative by County officials to place a conservation easement on the property. As a result of our efforts, we identified 63 species of bird, 13 of odonates, 23 species of herpetofauna, and 14 species of native fish. Based on our findings, the Virginia Outdoor Foundation supported the conservation easement proposal, which included 40 acres of upland habitat surrounding 90 acres of cypress swamp.

B. FEDERAL CONSISTENCY

During the second half of FY 2008, the Office of Environmental Impact Review/Federal Consistency (OEIR) reviewed 146 development projects and management plans for consistency with the VCP. This represents 78% of the total amount of projects (187) reviewed during this period. Major state projects accounted for 33 projects, 65 were federal actions, and 48 were federally funded projects (predominantly local government projects). The 65 federal projects included 38 direct federal actions, 10 HUD mortgages and 17 federal activities (licenses and approvals).

The OEIR continues to maintain a webpage for Federal Consistency for the Commonwealth. This 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, 2009 through September 30, 2009.

| TYPE OF FEDERAL PROJECTS REVIEWED* | NUMBER OF PROJECTS COMPLETED | REVIEW PERIOD |
|---|------------------------------|--------------------------------------|
| *Direct Federal Actions | 47 | 30-60 Days |
| ** Federal Activities (approvals & permits) | 17 | 90 Days |
| Federally Funded Projects | 48 | 30 Days |
| Outer Continental Shelf | 1 (EIS scoping) | 240 Days (180 days extension by MMS) |
| TOTAL | 113 | 30-90 DAYS |

*Includes HUD Mortgage Insurances reviewed as a residual category of Subpart C of the Regulations.

**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).

EXAMPLES OF FEDERAL PROJECTS REVIEWED FOR CONSISTENCY WITH THE VCP from 4/1/2009 to 9/30/09

I. Federal Agency Projects

The following projects are examples of federal agency projects subject to Subpart C of 15 CFR 930.33(a)
Streamlining the Processing of Experimental Permit Applications- DEQ completed a coordinated review of a final Programmatic Environmental Impact Statement (PEIS) submitted by the Federal Aviation Administration (FAA). This final PEIS will change the process of issuing experimental permits for the launch and reentry of reusable suborbital rockets. One of the locations evaluated in the PEIS is the Mid-Atlantic

Regional Spaceport (MARS) on Wallops Island in Accomack County. The intent of this PEIS is to facilitate the preparation of environmental documents for the issuance of these permits to individual launch operators. This PEIS provides information and analyses common to all reusable suborbital rockets and evaluates the environmental impacts of normal launch and reentry conditions, and accidents. DEQ coordinated the review of the final PEIS with several state agencies. Reviewers either had no comment or stated that the FAA had considered their comments and recommendations. According to the FAA, the federal consistency for the proposed actions in the PEIS were included in NASA's federal consistency determination (FCD) for the Expansion of Wallops Flight Facility Launch Range reviewed under DEQ #09-083F. Provided that the suborbital launches will utilize these same facilities reviewed under this FCD, DEQ concurs that no further action is required to satisfy the requirements of the Coastal Zone Management Act (CZMA) and the federal consistency regulations implementing the CZMA. However, if the final PEIS for Streamlining the Processing of Experimental Permit Applications includes actions beyond those covered in the April 2009 EA and FCD (referenced above), then additional review under the CZMA would be necessary. DEQ has no objection to the final PEIS as long as it adheres to the appropriate laws and regulations.

Rappahannock River Valley National Wildlife Refuge - DEQ conducted a coordinated review on a draft environmental assessment (EA) and an update to the U.S. Fish and Wildlife Service (FWS) Rappahannock River Valley National Wildlife Refuge (RRVNR) Comprehensive Conservation Plan (CCP) for management of more than 7,700 acres. Three alternatives are proposed, including Alternative B which is the FWS-preferred plan. Alternative B represents an extension of refuge programs for habitat management, land protection, inventories and monitoring, visitor services and refuge administration. The document states that FWS intends for this draft EA to satisfy the requirements under the National Environmental Policy Act (NEPA) for habitat restoration projects and some construction projects. Reviewers support the implementation of the preferred alternative (Alternative B) discussed in the CCP. However, some reviewers indicated that the EA did not adequately address potential impacts associated with the proposed construction projects, specifically the headquarters and visitor center building. DEQ encourages the FWS to include site-specific topographic maps and site plans and clearly identify the status of each project in future NEPA documents. Prior to implementing construction projects, the FWS must submit a Federal Consistency Determination in accordance with the Coastal Zone Management Act and federal consistency regulations implementing the Act.

Navy Unmanned Aerial Vehicle Runways – DEQ completed the coordinated review of a Federal Consistency Determination (FCD) submitted by the Navy for the proposed installation of two unmanned aerial vehicle (UAV) runways at Naval Support Facility Dahlgren in the King George County. The UAV runways would be located at the Churchill Range and Terminal Range areas at Dahlgren. Both sites primarily support low-growing vegetation with the exception of a forested area at the southwest end of the Churchill Range site. Construction would include grading, clearing trees and the installation of a woven, permeable, monofilament geo-textile runway surface. The Department of Conservation and Recreation indicated that the proposed Churchill Range runway may encroach upon lands analogous to Chesapeake Bay Resource Protection Areas (RPA). Therefore, for project consistency with the coastal lands management enforceable policy of the Virginia Coastal Resources Management, the Navy must demonstrate that activities at the site will not impact lands analogous to RPAs.

Integrated Support Command Portsmouth – DEQ completed the coordinated review of a Federal Consistency Determination (FCD) submitted by the U.S. Coast Guard (USCG) for the maintenance dredging of the boat launch area and small boat basin area at the Integrated Support Command Portsmouth. The facility is located on Coast Guard Drive southwest of the confluence of Craney Island Creek and the Elizabeth River. The proposed action involves mechanically dredging within the boat launch area to a maximum depth of eight feet below mean water and mechanically dredging within the small boat basin to a maximum depth of twelve feet below mean water. The dredged material would be hauled by barge to the Craney Island Rehandling Basin. On behalf of the Commonwealth, DEQ concurred with the USCG's FCD that the proposed action is consistent with the enforceable policies of the Virginia Coastal Resources Management Program. The DEQ's

recommendations included further coordination with DEQ and the Department of Historic Resources with respect to solid and hazardous waste management and requirements under the National Historic Preservation Act.

Deepwater Training Facility – DEQ completed the coordinated review of a Federal Consistency Determination (FCD) submitted by the U.S. Coast Guard (USCG) for the construction of the Deepwater Training Facility at the USCG Training Center (TRACEN) Yorktown in York County. The 55,880 square-foot facility would be constructed in a partially developed wooded site south of Taylor Hall. The proposal includes the construction of a commercial building, installation of various training aids (engine labs), access roads, and parking. On behalf of the Commonwealth, DEQ concurred with the USCG's FCD that the proposed action is consistent with the enforceable policies of the Virginia Coastal Resources Management Program. The DEQ response included recommendations that the USCG coordinate with the appropriate state agencies on erosion and sediment control, Chesapeake Bay Preservation Areas, air emissions, solid and hazardous wastes and historic resources.

Craney Island Eastward Expansion, Norfolk Harbor and Channels – DEQ completed the coordinated review of an Environmental Assessment Supplemental Information and Federal Consistency Determination (FCD) submitted by the U.S. Army Corps of Engineers for the proposed eastward expansion of the Craney Island Dredged Material Management Area at the Port of Hampton Roads between the cities of Portsmouth and Norfolk. In 2006 the Corps and the Virginia Port Authority prepared a Final Environmental Impact Statement for the proposed 580-acre (now 522-acre) eastward expansion and the development of a container terminal. A Record of Decision was signed on August 20, 2007. The supplemental information includes: a Virginia Institute of Marine Science 2007/2008 hydrodynamic/water quality study; a geotechnical evaluation for sand borrow activities; dredged material evaluations (Green Book Testing) for placement in the Norfolk Ocean Disposal Site; a dredged material management plan; minor additional wetlands impacts; mitigation plan implementation effects; and historical and cultural resources investigations. As stated in previous reviews, significant impacts to surface waters and wetlands are anticipated and will require mitigation. State agencies expressed concerns about some aspects of the proposed compensatory mitigation, including the significant use of state-owned submerged land, the extensive use of sediment/stone isolation caps for sediment remediation, the location and placement of proposed oyster reefs, the appropriateness of the mitigation component at Ragged Island, claiming areas of natural attenuation in the acreage of sediment cleanup, and a significant scaling back of the overall oyster restoration. However, reviewers are confident that remaining concerns will be addressed during the permit review process. On behalf of the Commonwealth, DEQ conditionally concurred with the FCD, based on the Corps obtaining all applicable permits and approvals.

Installation of Floating Docks – DEQ completed the coordinated review of a federal consistency determination (FCD) submitted by the Navy for the proposed installation of floating docks at Pier 60 at Naval Amphibious Base Little Creek in the City of Virginia Beach. The proposed action includes the installation of two floating docks and the relocation of a previously authorized floating dock to an existing open-pile pier in order to improve access and increase safety at the pier. The docks would be accessed via a standard 20-foot long by 4-foot gangway. Removal and installation activities will be conducted over open water. On behalf of the Commonwealth, DEQ concurred with the Navy's FCD that the proposed action is consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Resources Management Program. The DEQ response included recommendations that the Navy coordinate with the appropriate state agencies for potential impacts to subaqueous lands, water quality, air, solid and hazardous wastes, protected species (bald eagle) and historic resources.

Warriors in Transition at Fort Belvoir - DEQ completed the coordinated review of an environmental assessment submitted by the U.S. Department of the Army for the construction and operation of a Warrior in Transition Unit Complex on a 16.6-acre site located at the former South Post golf course at Fort Belvoir. DEQ recently coordinated and responded to a Federal Consistency Determination (FCD) for this same project. Therefore, DEQ recommend that, for future reviews, Fort Belvoir include the FCD under the Coastal Zone Management

Act in the National Environmental Policy Act document to improve the efficiency of the review process. This approach would allow the Commonwealth's concurrent review of both documents which would also be beneficial to the Army, in that both reviews would be completed within 60 days instead of two separate reviews with different deadlines.

New Lodging Facilities at Fort Lee - DEQ completed the coordinated review of an environmental assessment and a federal consistency determination submitted by the U.S. Department of the Army (Army) for the construction of a lodging facility at Fort Lee adjacent to the new Army Logistics University. The 1000-unit facility would support the approximately 8,200 personnel to be added to Fort Lee by 2011 under the Base Realignment and Closure (BRAC) recommendations. The facilities to be constructed would include a 15-story hotel, with a maintenance building and 850-vehicle surface parking lot. In addition to the 1,000 guest rooms, the facility would include a lobby, restaurant, meeting rooms, study rooms, storage, fitness and laundry areas. Based on reviewers' comments, DEQ concurred that the proposal is consistent with the enforceable policies of the Virginia Coastal Resources Management Program. The Commonwealth's response included recommendations that the Army coordinate with the DEQ to modify its DEQ-issued Virginia Pollution Discharge Elimination System permits, to coordinate with the Department of Historic Resources and the National Park Service to avoid and minimize impacts to Petersburg National Battlefield, to ensure protection for state-listed Threatened species, including bald eagles, and to ensure consistency with the Chesapeake Bay Preservation Act.

DEQ – Stone Breakwater at Fort Story – DEQ completed the coordinated review of a federal consistency determination submitted by the U.S. Army to construct an 805 linear foot stone breakwater at Fort Story along the Chesapeake Bay shoreline. The breakwater is intended to correct serious erosion issues that are threatening the stability of Atlantic Avenue and utilities and buildings adjacent to the road. No clearing of vegetation or disruption of the existing dune system will be required for access to the site. Based on reviewers' comments, DEQ concurred that the proposal is consistent with the enforceable policies of the Virginia Coastal Resources Management Program. DEQ's response includes the recommendation to re-establish vegetation within the buffer after project activities are complete and to align the revetment as far landward as possible to minimize impacts to the beach.

Waterline Distribution system at U.S. Coast Guard Training Center – DEQ completed the coordinated review of a Federal Consistency Determination submitted by the U.S. Coast Guard for the proposal to upgrade the waterline distribution system at Training Center in Yorktown (TRACEN). The upgrade would occur in three areas from: (1) Yorktown Village to the front gate at TRACEN; (2) the Historical Tour Road to the TRACEN gate; and (3) within the TRACEN facility. Installation outside TRACEN would occur within the existing Virginia Department of Transportation right-of-way and National Park Service (NPS) and Dominion Virginia Power easements. DEQ recommended further coordination with Virginia Marine Resources Commission and Department of Conservation and Recreation's Division of Chesapeake Bay Local Assistance to ensure consistency with the subaqueous lands and coastal lands management enforceable policies of the Virginia Coastal Resources Management Program. DEQ also recommended consultation with the Baltimore District, U.S. Army Corps of Engineers concerning requirements of the Comprehensive Environmental Response, Compensation, and Liability Act related to the federal facility's restoration activities.

High Energy Mobile X-Ray Inspection Systems (HEMXRIS) at the Port of Virginia DEQ completed the coordinated review of an Environmental Assessment and Federal Consistency Determination submitted by U.S. Customs and Border Protection (USCBP) for the operation of high energy mobile x-ray inspection systems at the Port of Virginia in the cities of Norfolk, Newport News and Portsmouth. The purpose of the proposed action is to enable USCBP to conduct non-intrusive inspections of high-density cargo containers for contraband such as illicit drugs, currency, guns and weapons of mass destruction. HEMXRIS employs an X-ray source to produce images of the contents of tankers, commercial trucks, sea and air containers, and other cargo containers. The system is mounted on a truck chassis and operated by a three-man crew. The system is

operated by slowly driving past a container with the boom extended over the target container. The Department of Health's Division of Radiological Health determined that the equipment, when operated as designed, should not result in exceeding any federal and state radiation protection standards.

Relocation of 3 Demolition Sites at Fort A.P. Hill – DEQ completed a supplemental environmental assessment (EA) and federal consistency determination (FCD) to relocate three demolition sites at Fort A.P. Hill. The Army is proposing to relocate them from a designed explosives ordnance disposal field training area, which has already been environmentally evaluated, to an existing demolition range. The document identifies and evaluates the environmental effects of the proposed action and the no action alternative. About 23 acres of land would be cleared for an access road, demolition pit and bunker for one of the sites. The other two sites are already cleared and operating as live-fire ranges. Based on reviewers' comments, DEQ concurred that the proposal is consistent with the enforceable policies of the Virginia Coastal Resources Management. The Commonwealth's response included a recommendation to coordinate with the Department of Conservation and Recreation, Virginia Department of Agriculture and Consumer Services and the U.S. Fish and Wildlife Service on the protection of endangered, threatened and rare species.

Oyster Restoration in the Chesapeake Bay– DEQ completed a limited coordinated review of the final Programmatic Environmental Impact Statement submitted by the Norfolk District, U.S. Army Corps of Engineers for oyster restoration in the Chesapeake Bay, including the use of a native and/or nonnative oyster. The proposed action that prompted the preparation of the PEIS was to introduce a nonnative species, the Suminoe oyster, and continue efforts to restore the native Eastern oyster. The Suminoe oyster is a native of the China Sea that has environmental requirements and tolerances similar to those of the Eastern oyster but is resistant to diseases that have adversely affected the Eastern oyster. Seven alternatives that would involve one or more oyster species individually or together were evaluated in the PEIS. In addition, Alternative 8 proposed three combinations of the individual alternatives. DEQ's December 15, 2008 response to the draft PEIS on behalf of the Commonwealth expressed the concerns of the Virginia Institute of Marine Science, Virginia Department of Health-Division of Shellfish Sanitation, Department of Game and Inland Fisheries, Virginia Department of Agriculture and Consumer Services and Hampton Roads Planning District Commission with the introduction of non-native species such as the Suminoe oyster and recommended precautionary measures to prevent adverse impacts on native species. After considering all available information and the input of all stakeholders, the final PEIS recommends a combination of alternatives that involves only the native Eastern oyster (Alternative 8a) as the preferred approach for restoring the Chesapeake Bay oyster population. Reviewers did not indicate any concerns with the final document or with the selection of Alternate 8a (VIMS' preferred alternative)

Dam Rehabilitation - DEQ completed a coordinated review of an environmental assessment issued by the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) for the Pohick Creek Watershed in Fairfax County. Project sponsors are the Fairfax County Board of Supervisors and the Northern Virginia Soil and Water Conservation District. The recommended plan is to rehabilitate the Lake Barton dam to meet current federal and state design, safety and performance standards. The plan provides for building a reinforced concrete wall at the end of the level section and a concrete secant wall at the end of the outlet section. The permanent pool elevation would be raised 0.8 feet to achieve the required sediment storage capacity. There will be no change in the current levels of flood protection downstream. The Commonwealth's response included the recommendations for Fairfax to continue to work with the Department of Conservation and Recreation to receive approval of the Alteration Permit for the proposed project and for the County to submit a consistency certification to DEQ for review under the Virginia Coastal Resources Management Program.

Privatization of Navy Family Housing- DEQ completed the coordinated review of a federal consistency determination submitted by the U.S. Navy for the proposed Public/Private Venture to privatize Navy family housing. The Navy would work with a single business partner, a Limited Liability Company (LLC), to privatize housing. In Virginia, the housing to be privatized is located at the Arlington Services Center (ASC) in

Arlington. The Navy would transfer the ownership of four quarters (Buildings 10, 805, 807 and 809), their outbuildings and utilities, and lease the underlying land to the LLC for approximately 50 years. The total land acreage is approximately 1.5 acres. Once leased, the housing units would be renovated. At the end of the lease period, the facilities would revert to the Navy. Based on reviewers' comments, DEQ concurred that the proposal is consistent with the enforceable policies of the Virginia Coastal Resources Management Program. The Commonwealth's response included the requirement to work with the Department of Historic Resources to ensure compliance with the National Historic Preservation Act and the proper use of erosion and sediment control measures during rehabilitation activities.

Expansion of the Wallops Flight Facility Launch Range – DEQ completed the coordinated review of an environmental assessment and federal consistency determination submitted by the National Aeronautics and Space Administration (NASA) for the expansion of the Wallops Flight Facility launch range in Accomack County. Site improvements to support launch operations include: modifications to the boat dock on the north end of Wallops Island; construction of a dedicated Payload Fueling Facility, a Payload Processing Facility and storage; construction of new roads and minor upgrades to existing roads; construction of a new launch complex at the existing Pad 0-A, including a Liquid Fueling Facility; and minor interior modifications to launch support facilities. The Commonwealth has no objection to the proposal provided NASA obtains all required permits, including a Virginia Water Protection permit and Virginia Pollution Discharge Elimination System permit for proposed wetland and water quality impacts. DEQ's response recommends that NASA coordinate closely with the U.S. Fish and Wildlife Service, National Marine Fisheries Service and the Virginia Department of Game and Inland Fisheries to ensure that impacts on protected species including shorebirds, sea turtles and marine mammals are adequately avoided and minimized.

Sandbridge Beach Nourishment - DEQ completed the Commonwealth's coordinated review of the U.S. Army Corps of Engineers (Corps) environmental assessment and consistency determination to nourish the beach at the Sandbridge oceanfront. The nourishment area is approximately 5 miles long and 125 feet wide and extends from the U.S. Naval Fleet Anti-Air Warfare Training Center at Dam Neck to the north to Back Bay National Wildlife Refuge to the south. Replenishment activities would occur approximately every 3 years depending upon weather conditions, availability of funding, and behavior of subsequently placed material at the project site. The designated borrow area is Sandbridge Shoal, located approximately 3 nautical miles from the shoreline, outside of Virginia's territorial sea. Therefore, Virginia Marine Resources Commission has no direct permit authority over the dredging/borrow operation. DEQ's response includes a recommendation that the Corps consider the project's potential impacts on existing natural resources and habitats. These include, existing finfish, shellfish, turtle and avian species and their critical time periods for spawning, nesting and nursery functions in areas of submerged or intertidal and beach habitat.

Construction Program at Virginia Air National Guard – DEQ completed the coordinated review of an environmental assessment and federal consistency determination submitted for the construction program at Virginia Air National Guard 203 Red Horse Squadron in Virginia Beach. The proposed action includes: the construction of a Disaster Response Beddown Set covered storage facility; a K-Span storage facility; replacement of the existing weigh station scale house; installation of an underground power supply line; removal of the existing, unused fuel island; installation of geo-thermal wells behind Building 203; repaving the Unit Training Area; and resurfacing D Street and Red Horse Drive. Three alternatives are analyzed in the EA, including a No Action Alternative, Alternative 1 (ANG preference) and Alternative 2. Review agencies did not identify any project impacts that could not be mitigated. However, the Hampton Roads Planning District Commission recommends Alternative 2 as the preferred alternative since it does not require the demolition of Building 424, a contributing resource to the Camp Pendleton/State Military Reservation Historic District.

NASA Langley Research Center (LaRC) – The National Aeronautics and Space Administration (NASA) proposes to deconstruct twenty-one buildings at LaRC in the City of Hampton. According to the environmental assessment and federal consistency determination, the buildings are abandoned or are in the process of being

closed and are no longer needed. The project would reduce the footprint of LaRC facilities and create additional green space at the center. The deconstruction approach would include the reuse and recycling of the building materials. Reviewers concluded that since the project involves removing buildings from the mapped 100-year floodplain, the potential damage from a 100-year storm would be less and, therefore, the action would result in better floodplain management. NASA must characterize all materials from industrial activities prior to reuse, recycling or disposal and coordinate this proposal with the Department of Historic Resources for compliance with the National Historic Preservation Act.

Shoreline Stabilization at Naval Amphibious Base –DEQ completed the coordinated review of a federal consistency determination submitted by the U.S. Navy for a shoreline stabilization project at the Naval Amphibious Base Little Creek in the City of Virginia Beach. The project includes the installation of an oyster reef in the intertidal zone on the east side of Little Creek Cove. The proposed reef will provide a buffer from the water’s actions along the shoreline, providing stabilization to an eroded shoreline. Five thousand bushels of oyster shells will be purchased from the Virginia Marine Resources Commission and temporarily located on the beach within a fenced storage area. The oyster shells will be moved from the beach to the reef by a barge. Reviewers indicated that the information submitted for review was inadequate to conclusively concur with the Navy’s consistency determination. Accordingly, DEQ conditionally concurs that the proposal is consistent with the enforceable policies of the Virginia Coastal Resources Management Program (VCP). The conditional concurrence is based on the Navy obtaining all applicable approvals for potential project impacts on subaqueous lands and wetlands. This requires providing adequate information to agencies administering these enforceable policies of the VCP. DEQ’s response also includes the recommendation that the Navy continue to coordinate this project with the U.S. Fish and Wildlife Service with respect to federally-listed threatened and endangered sea turtles.

Testing of High Energy Lasers - DEQ completed a coordinated review of a federal consistency determination for a proposal from the Navy to expand its outdoor high energy laser research, development, and testing and evaluation operations. The Dahlgren Naval Surface Warfare Center will conduct tests including directing up to 100 kilowatts of laser power over water and land at fixed targets in maritime conditions. Laser beam operation could take place up to 40 times per day with each operation taking up to two minutes. The only proposed construction for the project would occur at Terminal Range, which is located at the Dahlgren Naval Support Facility near the Potomac River. Based on reviewers’ comments, DEQ concurs that the proposal is consistent with the enforceable policies of the Virginia Coastal Resources Management Program. The Commonwealth’s response included a recommendation to coordinate with the Department of Game and Inland Fisheries (DGIF) to ensure the protection of bald eagles and their nest sites. Also included is DGIF’s recommendation that the Navy maintain protective zones of at least 660 feet around all the bald eagle nesting locations.

II. Residual Category

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

Van Metre Woodland Park Apartments - DEQ completed the Commonwealth’s review of a federal consistency determination for residential development in Fairfax County. HUD is processing an application for mortgage insurance to finance the private construction of the apartment complex which includes the construction of two, 4-story structures containing 115-dwelling units on a 4.38-acre undeveloped parcel. DEQ concurred that the proposal is consistent with the enforceable policies of Virginia Coastal Resources Management Program (VCP) provided that the applicant adheres to the performance criteria of the County’s Chesapeake Bay Preservation Area Designation and Management Regulations, one of the enforceable policies of the VCP. DEQ recommended that the applicant work with the Department of Transportation and Fairfax County to complete a traffic analysis to determine if turn lanes to/from the main road are needed at the selected entrance location.

Eagle Harbor, Phase II DEQ completed the Commonwealth's review of a federal consistency determination for residential development in Isle of Wight County. This project was previously submitted to DEQ and in January 2009, DEQ found the project inconsistent with the coastal lands management enforceable policy of the Virginia Coastal Resources Management Program (VCP). At that time, the proposed development would occur within the locally-designated Chesapeake Bay Resource Protection Area (RPA) on site where non-water dependent development is prohibited. The Department of Housing and Urban Development acknowledged the objection and submitted a new development plan which removed all construction previously located within RPAs. Accordingly, DEQ lifted its objection and concurred that the project, as currently proposed, is consistent with the VCP. DEQ's response included the requirements that the applicant continue coordinating with (i) the Department of Conservation and Recreation's Division of Chesapeake Bay Local Assistance to meet the general performance criteria of the Chesapeake Bay Preservation Act Regulations and (ii) the Department of Historic Resources to conduct a cultural resources survey prior to construction.

Apartment Complex in the City of Richmond - DEQ completed the Commonwealth's review of a federal consistency determination for residential development in the City of Richmond. The East Broad Street Development, LLC will finance the construction of a multi-family apartment complex with 75 dwelling units and a small parking lot. The property consists of several undeveloped parcels totaling about 0.69 acres at the intersection of 21st and Broad Streets. The U.S. Department of Housing and Urban Development will provide funding for the project. Based on reviewers' comments, DEQ concurs that the proposal is consistent with the enforceable policies of the Virginia Coastal Resources Management Program. DEQ's response included the recommendation to coordinate with the Department of Historic Resources on development of an archaeological survey and the architectural design of the proposed complex and provided guidance on limiting emissions of ozone precursors and the proper use of erosion and sediment control measures.

East Beach Condominiums in Norfolk - DEQ completed the Commonwealth's review of a federal consistency determination for residential development in the City of Norfolk involving the construction of one 4-story apartment building with 122 units, parking, a clubhouse and pool on approximately 1.7 acres of land. The U.S. Department of Housing and Urban Development will provide funding for the project. The applicant has received permits from the City of Norfolk, the U.S. Army Corps of Engineers and DEQ for impacts to tidal wetlands, mudflats and subaqueous lands for the development of the entire parcel, which includes the construction of the super yacht facility and the condominium complex. Based on reviewers' comments, DEQ concurs that the proposal is consistent with the enforceable policies of the Virginia Coastal Resources Management Program.

New Dawn Assisted Living Facility, James City County - DEQ completed a coordinated review of a federal consistency determination submitted by the U.S. Department of Housing and Urban Development (HUD). HUD is processing an application for mortgage insurance to finance the construction of the proposed New Dawn Assisted Living facility in James City County. The proposed project site is 6 acres of undeveloped wooded land and grasslands. Capital Funding Group will finance the clearing of the land and the construction of three buildings with 48 units. The facility will include an Alzheimer care section. HUD has determined that the development of the facility would be consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Resources Management Program (VCP). Based on the review of the consistency determination and the comments submitted by agencies administering the enforceable policies of the VCP, DEQ concurs that the proposal is consistent with the VCP provided all applicable permits and approvals are obtained. In addition to the federal consistency analysis, DEQ's review includes recommendations on how to report and dispose of petroleum-contaminated soils and a request to coordinate with DEQ on the sewage pump station at the proposed project site in order to ensure compliance with the Commonwealth's Sewage Collection and Treatment regulations.

New Dawn Assisted Living Facility, Henrico County - DEQ completed a coordinated review of a federal consistency determination submitted by the U.S. Department of Housing and Urban Development (HUD). HUD

is processing an application for mortgage insurance to finance the construction of the proposed New Dawn Assisted Living facility in Henrico County. Capital Funding Group will finance the clearing of land and the construction of three buildings with 48 housing units. The proposed project site consists of about 5.5 acres of undeveloped woodlands. Barbara Lane and an intermittent tributary of Deep Run are on the property. HUD has determined that the development of the facility would be consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Resources Management Program (VCP). Based on the review of the consistency determination and the comments submitted by agencies administering the enforceable policies of the VCP, DEQ concurs that the proposal is consistent with the VCP provided all applicable permits and approvals, including those related to potential wetland impacts, are obtained. DEQ's review also includes recommendations on how to protect trees not slated for removal and minimize overall impacts to natural resources, given the proposed site's proximity to Deep Run stream.

Wachovia Center Apartments- DEQ completed a coordinated review of a federal consistency determination submitted by the U.S. Department of Housing and Urban Development (HUD). HUD is processing an application for mortgage insurance to finance the construction of the Wachovia Center Apartments in Norfolk under HUD Section 221(d)(4) Multifamily Rental Housing for Moderate-Income Families. AGM Financial Services, Inc. will finance the clearing of land and the construction of two buildings. The buildings will house 121 units and commercial space on the first floor. The property consists of two parcels of land totaling about 1.7 acres. The apartment complex will be surrounded by Monticello Avenue, Charlotte Street, Bank Street and Freemason Street. Based on the review of the consistency determination and the comments submitted by agencies administering the enforceable policies of the Virginia Coastal Resources Management Program (VCP), DEQ concurs that the proposal is consistent with the VCP provided all applicable permits and approvals are obtained. In addition to the federal consistency analysis, DEQ's response included recommendations on how to properly test and dispose of contaminated soil and groundwater if discovered during construction since DEQ records indicate the property is the site of a past petroleum release.

III. Federal Activities (Permits, Licenses and Approval)

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

High Occupancy Toll and Bus Lanes in Northern Virginia - DEQ completed a coordinated review of a federal consistency certification (FCC) for a project to expand existing high occupancy vehicle lanes in Northern Virginia for high occupancy toll (HOT) and bus lanes and to construct new entry and exit points along Interstate 95 and Interstate 395. The project will be constructed in Arlington, Fairfax, Prince William and Stafford counties, and the City of Alexandria. Based on the review of the FCC and the comments submitted by agencies administering the enforceable policies of the Virginia Coastal Resources Management Program (VCP), DEQ concurs that the proposal is consistent with the VCP provided all applicable permits and approvals are obtained. The consistency concurrence included recommendations to coordinate with state and federal officials regarding the protection of listed wildlife resources and with county and town officials about local concerns.

Manassas Regional Airport Runway Extension – DEQ completed the coordinated review of an Environmental Assessment/Environmental Impact Report and Federal Consistency Certification submitted by the Manassas Regional Airport for the extension of Runway 16L/34R in the City of Manassas. Proposed improvements consist of the: extension of the primary runway and Taxiway B by 500 feet; relocation of the existing Instrument Landing System localizer; installation of an approach lighting system for Runway 34R; widening of the runway and taxiway bridges; and relocation of Taxiway K. The purpose of the proposal is to better accommodate the existing and future aircraft fleet, meet Federal Aviation Administration design standards and enhance safety. DEQ's review included a public hearing as required by the Department of Aviation's statute. There were no concerns raised during the public review period or at the June 27, 2009 public hearing. Proposed improvements will require a Virginia Water Protection Permit for water quality impacts and possible modification to the airport's existing Virginia Pollutant Discharge Elimination System permit for anticipated

increases in stormwater discharges. A permit will also be required from the Virginia Marine Resources Commission for proposed impacts to subaqueous lands.

Removal of On-Airport Obstructions –DEQ completed the coordinated review of federal consistency certification submitted by the Chesapeake Regional Airport Authority for the removal of trees at the airport in the City of Chesapeake. The airport authority proposes to remove and maintain 109.8 acres of forested wetlands on airport property as a silviculture activity. The action would involve the cutting of trees approximately 3-6 inches above the ground with no grubbing, and replanting and maintaining a tree canopy of 10 percent. The information provided was inadequate to determine the applicability of the Virginia Water Protection Permit (VWPP). Therefore, DEQ conditionally concurs that the proposal is consistent with the enforceable policies of the Virginia Coastal Resources Management Program. In particular, the conditional concurrence is based on either (1) the Airport Authority demonstrating to DEQ that the proposed tree removal qualifies as a silvicultural activity and, therefore, a VWPP is not required, or (2) obtaining a VWPP from DEQ for the proposed action. The Airport Authority intends to submit a long-term forestry management plan to the Virginia Department of Forestry (DOF) for review and approval. DOF will determine whether the management plan describes a long-term silvicultural activity. Based on this determination, DEQ will be able to determine if a VWPP is required.

Chesterfield County Airport: DEQ completed a coordinated review of a federal consistency certification (FCC) for a taxiway overlay project at the Chesterfield County Airport. The airport is planning to overlay an existing parallel taxiway and associated connector taxiways with asphalt. The project will disturb more than one acre of land. DEQ requested and obtained additional information before commencing the Commonwealth's coordinated review. Based on the review of the consistency certification and the comments submitted by agencies administering the enforceable policies of the VCP, DEQ concurs that the proposal is consistent with the VCP provided all applicable permits and approvals are obtained. DEQ's response included analysis of the enforceable policies applicable to this project: nonpoint source pollution control, air pollution control, coastal lands management and point source pollution control (related to the airport's industrial stormwater permit).

Cinder Bed Road Bus Operations and Maintenance Facility – DEQ completed the coordinated review of a Federal Consistency Certification (FCC) submitted by the Washington Metropolitan Area Transportation Authority (WMATA) for the construction of the Cinder Bed Road Bus Operations and Maintenance Facility in Fairfax County. WMATA proposes to relocate bus operations from the existing Royal Street facility in the City of Alexandria to a new facility that would be constructed in Fairfax County at 7901 Cinder Bed Road on four parcels totaling 17.4 acres. Primary and secondary access roads will be constructed and two design options for the location of the secondary access road have been developed. On behalf of the Commonwealth, DEQ concurred with the FCC, provided that WMATA obtain all applicable permits and approvals including: a VMRC permit for encroachments on or over state-owned subaqueous beds; DEQ authorization through the Virginia Water Protection Permit program and Virginia; and erosion and sediment control, stormwater management, and Chesapeake Bay Preservation Area regulations. Furthermore, authorizations are required from Fairfax County including: special exception approval for the specific use and disturbance within the 100-year floodplain; Virginia State Code provision (Section 15.2-2232) which requires local approval of a 2232 application for a public facility; and connections to the county's water supply and sanitary sewer systems.

Norfolk International Airport. The Norfolk Airport Authority submitted a federal consistency certification (FCC) to construct a nine-story parking garage at Norfolk International Airport (NIA). The structure will have an exterior exit ramp, a new exit plaza and reconfigured ingress/egress. The garage will be constructed on an existing surface parking lot and over a portion of a freshwater pond that was formerly a part of Lake Whitehurst, a drinking water source. The pond is utilized as a stormwater pond for airport property and contains non-tidal wetlands. More than an acre and a half of the pond would be filled, and a new stormwater management pond would be constructed on nearly two acres. Based on the review of the FCC and the comments submitted by agencies administering the enforceable policies of the VCP, DEQ concurs that the

proposal is consistent with the Virginia Coastal Resources Management Program provided all applicable permits and approvals are obtained. In its response, DEQ recommended coordination with the DEQ regional office regarding potential modifications to the airport's discharge permit and the Virginia Department of Health to ensure that the nearby drinking water source is adequately protected.

South Norfolk Jordan Bridge – DEQ completed the expedited review of a Combined Environmental Assessment/Finding of No Significant Impact and federal consistency certification (FCC) submitted by the U.S. Coast Guard (USCG) for the construction of the South Norfolk Jordan Bridge in the cities of Chesapeake and Portsmouth. Under the Coastal Zone Management Act, DEQ is allowed up to six months to conduct a coordinated review and respond to submitted FCCs. The six-month review period ends on December 11, 2009. Figg Bridge Developers, LLC proposes to replace the former Jordan Bridge by constructing a two-lane fixed-span high-rise bridge. The new 5,530-foot bridge will reconnect Poindexter Street in the City of Chesapeake to Elm Avenue in the City of Portsmouth over the Southern Branch of the Elizabeth River. The construction of a bridge over a navigable waterway requires a permit from the USCG as well as other local, state, and federal agencies. A Joint Permit Application is under review by the Army Corps of Engineers (Corps), Virginia Marine Resources Commission (VMRC) and local wetlands boards for proposed impacts to surface waters and wetlands. The permit review is considering time-of-year restrictions on construction due to the presence of known anadromous fish species and mitigation requirements due to the potential re-suspension of polycyclic aromatic hydrocarbon-contaminated sediments in the project area. The requirement for a Virginia Water Protection Permit will be waived provided permits from the Corps, VMRC and local wetlands boards are obtained. Chesapeake Bay Preservation Area impacts as subject to local review and approval, and the applicant is coordinating with the Department of Historic Resources on potential impacts to underwater archaeological resources. DEQ conditionally concurs with the applicant's finding of consistency with the enforceable policies of the Virginia Coastal Resources Management Program. However, the applicant must obtain all necessary permits and authorizations prior to implementing the project otherwise, the concurrence becomes an objection in accordance with Federal Consistency Regulations.

Columbia Gas Transmission Corporation – DEQ completed the coordinated review of a federal consistency certification submitted by Columbia Gas Transmission Corporation to replace a section of pipeline in Prince George County. Columbia must conduct internal inspections of line VM-118 in accordance with the U.S. Department of Transportation's safety requirements. In order to run the internal inspection device through the pipeline, Columbia must prepare the pipeline by replacing 957 linear feet of an 18-inch pipeline with a 12-inch pipeline. The project activities are all located within Columbia's existing and previously disturbed pipeline right-of-way. The DEQ review found that if hydrostatic wastewater was discharged to State waters, a Virginia Pollutant Discharge Elimination System General Permit for Discharges from Contaminated Sites, Groundwater Remediation and Hydrostatic Tests would be required. According to the Virginia Department of Transportation (VDOT), the proposed project will require a permit from VDOT because work is proposed within the I-295 right-of-way and under I-295. Based on reviewers' comments, DEQ concurred that the proposal is consistent with the enforceable policies of the Virginia Coastal Resources Management Program.

Fixed Based Operator Facility - DEQ completed the Commonwealth's review of a federal consistency certification for projects at the Richmond International Airport in Henrico County. The Capital Region Airport Commission proposes to construct a fixed based operator facility at the Richmond International Airport located in Henrico County. The project includes the partial reconstruction of an existing apron and construction of a new aircraft apron, hangar and office building. Associated facilities include vehicle parking, new utilities and modifications to existing utilities and the installation of a new storm drain and modifications to existing storm drains. Based on reviewers' comments, DEQ concurs that the proposal is consistent with the enforceable policies of the Virginia Coastal Resources Management Program. The Commonwealth's response recommended that the Commission contact Henrico County to determine if a Plan of Development must be submitted for review, coordinate with DEQ to modify its existing Virginia Pollutant Discharge Elimination System permit, maintain all erosion and sediment controls and best management practices during the

construction period, and minimize the emission of volatile organic compounds and oxides of nitrogen during asphalt paving and other construction activities.

Dominion Cove Point LNG - DEQ completed the Commonwealth's review of a federal consistency certification for the pier reinforcement project proposed by Dominion Cove Point LNG, LP (Dominion). The Federal Energy Regulatory Commission (FERC) must issue a certificate to Dominion authorizing the construction and operation of facilities for the transportation of liquefied natural gas (LNG). The project includes dredging, which will allow larger ships, up to 267,000 cubic meter capacity, to access the terminal. The ships will transit to the terminal along the federally approved channel and anchorage areas within the mainstem of Chesapeake Bay. Three placement sites are being evaluated for the placement of dredge spoil. Although not the preferred site, one of the proposed sites for placement of dredge spoil is Port Tobacco at Weanack. Also known as Shirley Plantation, the site is located along the James River in Charles City County and is an existing pit mine reclamation site. The Commonwealth's response included the requirement that if the disposal site in Virginia is selected, to be consistent with the Virginia Coastal Resources Management Program, Dominion must ensure that the appropriate DEQ-issued Virginia Pollution Abatement permits are modified. Also, based on comments submitted by DCR's Division of Chesapeake Bay Local Assistance, DEQ advised Dominion that filling is not a permitted activity in Resource Protection Areas (RPA). Therefore, if any other land disturbance or placement of fill within RPAs is proposed, a review from the locality would be required and an exception or variance from the local Bay Act ordinance or zoning ordinance may be required.

IV. OCS Reviews

OCS Oil and Gas Leasing Program 2010-2015 – DEQ completed the coordinated review of the Draft Proposed Outer Continental Shelf (OCS) Oil and Gas Leasing Program 2010-2015 (DPP) submitted by the Department of the Interior's Minerals Management Service (MMS) for the preparation of a 5-year OCS oil and gas leasing program for 2010-2015 and an Environmental Impact Statement. The proposed lease sale program areas in the draft document (including lease sale 220 off the Virginia coast) will receive further study and analysis by MMS based on oil and gas resource estimates and previous scoping comments. MMS will also evaluate prospective alternative energy projects on the OCS. MMS will consider the potential interaction between alternative energy projects and potential oil and natural gas leasing activities. The Commonwealth's response was submitted in two parts consisting of a letter from the Governor describing the Commonwealth's current policy on OCS oil and gas development and the DEQ coordinated response which provides technical information and analysis on OCS resources off the Virginia coast. Reviewers reiterated their previous comments which were sent to MMS in past reviews.

C. PROGRAM CHANGES

During the reporting period Virginia CZM program staff received comments from the Department of Game and Inland Fisheries concurring with the analysis of changes to fisheries statutes prepared by the Environmental Law Institute. This was the last of the agency comments needed before program change packages could be submitted to NOAA. Virginia CZM staff revised the packages to incorporate the various agencies' comments and submitted them in draft form to NOAA staff for review. Virginia CZM and NOAA staff have had several conversations about the drafts and about the review process. During the next reporting period it is anticipated that the proposed program changes will be public noticed and formally submitted to NOAA for review and approval.

As described in the last report, an issue of continuing concern and debate is the lack of any species protection laws in Virginia's CZM Program. This issue was discussed at the September 30, 2009 Coastal Policy Team meeting, and consideration of a program amendment to include these laws in the Virginia CZM Program are still underway. Another potential future program change discussed at the meeting was a revised CZM executive order from Virginia's next governor.

D. SECTION 312 EVALUATION PROGRESS

1. Coastal Policy Team

PROGRAM SUGGESTION: The Coastal Policy Team should establish a strategic planning effort for the team and the VCZMP. The strategic plan could also set annual objectives and some measurable goals or performance measure criteria to help gauge success.

RESPONSE: It seems we already have multiple strategic planning processes in place: 1) Every three years the Coastal Policy Team goes through a process (sometimes associated with our biennial Partners Workshop) to identify a new “focal area” for the small amount of funds (~\$350-500,000 per year) that we have available after our required continuing grants are covered; 2) Every five years the Coastal Policy Team engages in the Section 309 Coastal Needs Assessment & Strategy Development process – a strategic plan for prioritizing and developing new policies; 3) At almost every CPT meeting (2-3 times per year) the group discusses the next priority for incorporating new state laws or regulations into the Virginia CZM Program. Given the limited resources we have, both in staff time and available dollars, it’s not clear that sufficient benefit would derive from adding on yet another strategic planning process. We would like to discuss the need for this further with NOAA in the event that there is some aspect of strategic planning that we are neglecting but do or could have the resources to address.

2. Grants Management

PROGRAM SUGGESTION: Prior to development of the application for 2007 grant award funds, the VCZMP should consider ways to diversify match used for the CZMA cooperative agreement and to ensure mechanisms are in place to spend federal funds within the 18-month time frame of the award.

RESPONSE: While it is understandable that NOAA would like to see the CZM funds that DEQ retains for its own staff be matched task by task, it is just not realistic to expect in this economic climate that the Commonwealth can afford to allocate new funds to the Virginia CZM Program. Like most states, Virginia has been through several rounds of state budget cuts and more expected. State revenues have continued to decline. Fortunately the WQIF funds that are used to match DEQ tasks have been maintained and the Commonwealth is actually millions more dollars on sewage treatment plant upgrades than are captured as match for our CZM awards.

3. Water Quality

PROGRAM SUGGESTION: With the ‘devolution’ of local road planning, operations, and maintenance from the Virginia DOT to the local level, the VCZMP should consider using nonpoint program funding to support targeted assistance for the “Roads, Highways, and Bridges” nonpoint program management measures. The VCZMP and the nonpoint program manager should work to establish priorities for the nonpoint program and identify and develop for implementation some projects for whenever and whatever funding becomes available.

RESPONSE: In the event that funding for special initiatives for the water quality and non-point source program become available, the Virginia CZM Program will work closely with the Coastal Non-point Manager to identify opportunities for targeted assistance to local governments for the “Roads, Highways, and Bridges” nonpoint program management measures.” To date, Virginia CZM has received only non-discretionary funds during years 2006, 2008 and 2009 to support Coastal Non-point Management and to develop and establish a Coastal Networked Education for Municipal Officials (NEMO) program in Virginia. Through this support, Virginia CZM works with the Coastal Non-point Manager to prioritize non-point program activities and identify additional opportunities to expand and enhance the efforts of Coastal NEMO.

4. Coastal Hazards

PROGRAM SUGGESTION: The VCZMP and its Commonwealth, regional, and local community partners should consider development of a coastal community resiliency initiative through existing partnerships and programs (e.g., SAMPS, directed technical assistance) as a further means to address coastal hazards. Existing research data and results and recent development of infrastructure (i.e., data layers and geospatial information) such as Coastal GEMS could be translated and disseminated through training programs and workshops for local government decision-makers as part of this effort.

RESPONSE: Virginia has used the concept of focal areas since 1999 in order to concentrate financial and policy efforts on a particular resource or geographic region for a three-year period. The current focal area, Sustainable Community Planning, was chosen after extensive input from partner agencies at the 2007 Coastal Partners Workshop and through discussions of the Coastal Policy Team. As a result, Virginia CZM resources, including staff time and grants, are being directed at state agencies and coastal planning district commissions to help coastal localities plan for adaptation to climate change and to protect blue and green infrastructure. Both of these topics, but especially climate change adaptation, address the NOAA suggestion for a community resiliency initiative. Coastal GEMS is an important component of this initiative, and a number of local government training sessions have been conducted by Virginia CZM staff (see Suggestion 6).

5. Federal Consistency

PROGRAM SUGGESTION: The Coastal Policy Team should consider using federal consistency as a tool for identifying opportunities to review state policies or influencing new state policy based upon new situations presented in federal consistency determinations.

RESPONSE: Starting in July 2008, the Environmental Impact Review Program Manager began discussions with Stephanie Altman and Jim McElfish of the Environmental Law Institute regarding the strengths and weaknesses of the enforceable policies of the Virginia CZM Program. For example, the fisheries enforceable policy administered by VRMC is only used if a subaqueous permit is required. Adding the State T & E species legislation was recommended. At the September 30 Coastal Policy Team meeting DGIF and DCR Natural Heritage both supported the concept however, VDOT had reservations about incorporating those state laws. The EIR Program Manager also asked ELI to evaluate other policies addressing coastal uses such as recreational fishing and boating, public access, use of public beaches to determine if they could be added as new enforceable policies. DCR's public access expert thought that there wasn't the necessary legislative support to do this and ELI did not believe they could be used. Discussions will continue and CZM staff would like to discuss the concept further with NOAA/OCRM staff to ensure that the suggestion is being fully pursued.

6. Public Participation and Outreach

PROGRAM SUGGESTION: The Virginia Coastal Zone Management Program should evaluate the numerous educational and outreach markets it serves and consider a stronger focus on the local and coastal decision-makers. The planning district commissions, Sea Grant, the Chesapeake Bay-Virginia NERR Coastal Training Program, and the federal staff of the Chesapeake NEMO program could provide coordination and assistance.

RESPONSE: In early 2008, Virginia CZM released an improved version of Coastal GEMS. Since that time, numerous data layers have been developed and added to GEMS to make the system even more-user-friendly to planners and to make the connections between land and water resources more visible. For example, several data layers were synthesized to create a single, comprehensive Priority Conservation Areas (PCA) dataset which allows PDCs and local planners to use a single layer for comprehensive planning versus the multiple layers previously available. Virginia CZM staff provides training on the use of this and other layers in GEMS to regional and local planners and decision-makers. This year Virginia CZM hosted a workshop to unveil the PCA data layer and to demonstrate how this layer can be used in CommunityViz software which then allows

planners to analyze impacts on priority conservation areas given different zoning scenarios (use of this software was piloted by Northampton County through a Virginia CZM grant).

Virginia CZM's "focal area" during the fiscal years 2008, 2009 and 2010 is "Sustainable Communities: Protecting Blue-Green Infrastructure and Adapting to Climate Change." Representatives from each of Virginia's eight coastal planning district commissions helped refine this "focal area" during the 2007 Coastal Partners Workshop where the need for more education for local planners and decision-makers was identified as a high priority. Community planning occurs at the local government level and "focal area" grants to the coastal PDCs will continue to be the most effective and efficient means for the Virginia CZM Program to provide education and training to local planners and officials. The PDCs are coordinating with Virginia NEMO and a grant to Virginia NEMO at the Department of Conservation and Recreation is helping to provide direct technical assistance to those localities requesting it. The focal area projects should result in better informed local planning staff and decision-makers and better protection and management of important coastal resources through adoption of local plans and ordinances.

Since Virginia's coastal planning district commissions are in an excellent position to provide local planners and officials regularly scheduled training on coastal resource management issues through their quarterly meetings, Virginia CZM has asked each coastal PDC to provide four training opportunities each year as a deliverable of their technical assistance funding. These trainings, on topics related to Virginia CZM goals and initiatives, have been ongoing for the last few years and are generally well attended across the eight coastal PDCs.

Virginia CZM staff has taken advantage of several opportunities to improve coordination with our NOAA "sister" programs, CBNERRS and Sea Grant. Most recently, Virginia CZM staff participated in Virginia Sea Grant strategic planning sessions and Virginia CZM and CBNERRS staff held a "collaboration meeting." The Director of Virginia Sea Grant and Manager of CBNERRS are members of the Coastal Policy Team and Virginia CZM staff serve on the CBNERRS Coastal Training Steering Committee. These are all important venues for identifying common goals, priorities and programs. The Coastal Training Program at CBNERRS recently provided a climate change training session for local government staff and officials, supporting Virginia CZM's focal area effort. Virginia CZM has invited both Sea Grant and CBNERRS to co-host the 2010 Virginia Coastal Partners Workshop.