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### **Virginia’s Comprehensive Wetland Program Plan**

Virginia has a newly approved Wetland Program Plan (WPP). Virginia developed a wetland plan to assess current management efforts, identify actions to improve efforts and communicate those ideas. The development of a wetland plan is voluntarily. It was developed with guidance from the Environmental Protection Agency (EPA) and approved by that agency. The EPA encourages each State or Tribal government to produce a plan. As of yet, only a handful have done so. In this newsletter, we provide excerpts from the Virginia WPP.



## **Virginia’s Comprehensive Wetland Program Plan**

### **What is a Wetland Plan?**

A Wetland Plan is a planning and communication tool. The development of a plan requires a review of wetland efforts and identification of actions to strengthen management programs to achieve goals. The content of a Plan should include:

- summary and detailed information that describes a process to promote overall effective wetland protection and restoration goals,
- specific actions to successfully achieve goals, and
- a medium to communicate intentions and needs.

Four Core Elements form the framework for the wetland Plans. Each Plan does not need to address all, but must address at least one core element. The Core Elements are:

1. **Monitoring and Assessment**
2. **Regulation**
3. **Voluntary Restoration, and**
4. **Water Quality Standards for Wetlands.**

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Rivers & Coast/CCRM  
P.O. Box 1346  
Gloucester Pt., VA 23062  
(804) 684-7380  
dawnf@vims.edu

CCRM Director: Dr. Carl Hershner

Contributing Author: Pam Mason

Photographs: Pam Mason,  
Karen Reay

Layout: Ruth Hershner

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**Virginia Coastal Zone**  
MANAGEMENT PROGRAM

## The Virginia Wetland Program Plan

The plan recently developed for Virginia defines and describes a strategy to accomplish several existing wetland goals:

1. Achieve no net loss of existing wetland acreage and function through regulatory programs;
2. Achieve net wetland resource gain through wetland restoration; and
3. Assist local governments and community groups with development of wetland preservation plans as part of integrated locally based watershed planning. (Chesapeake Bay 2000 Agreement [http://www.chesapeakebay.net/content/publications/cbp\\_12081.pdf](http://www.chesapeakebay.net/content/publications/cbp_12081.pdf)).

For Virginia, plans to address the four core elements alone do not properly address long term sustainability of wetland resources. In order to do that, Virginia also needs the following elements:

- **Planning and Sustainability,**
- **Information Acquisition, and**
- **Outreach/Education.**

The Virginia Plan provides a framework to improve its wetland programs over the next five years (2011-2015). At the same time, the Plan recognizes issues, such as sea level rise, for which a longer-term planning horizon is important. Action items are identified to address gaps, or strengthen existing efforts.



Poquoson Flats

## A. Monitoring and Assessment

The overarching goal of Virginia's wetland monitoring and assessment program is to support efforts to protect the physical, chemical, and biological integrity of the Commonwealth's water resources, including wetlands. The assessment method involves three levels of data collection. Level 1 is a geo-spatial computer model built from remotely sensed data that provides an assessment of the water quality and habitat services provided by each wetland. Level 2 and Level 3 are field sampling efforts intended to calibrate and validate the computer model. The program is being implemented by the Department of Environmental Quality (DEQ) and the Center for Coastal Resources Management at the Virginia Institute of Marine Science (CCRM) using funds awarded through EPA's Wetland Program Development Grants. Virginia is recognized as one of five states leading this initiative nationally.

**Monitoring and Assessment Action:** Virginia will maintain wetland monitoring and assessment efforts over the next 5 years.

## B. Regulation

From the state perspective, Virginia's wetlands are managed primarily by two agencies. The Virginia Marine Resources Commission (VMRC) has state oversight of the local cooperative implementation of the Tidal Wetlands Act and the DEQ implements the Nontidal Wetlands Act as the Virginia Water Protection Permit. In addition, the Chesapeake Bay Preservation Act designates tidal and non-tidal wetlands adjacent to tidal wetlands as Resource Protection Areas.

The Tidal Wetlands Act (Va. Code §28.2-1300 et seq.) established a state-local program giving regulatory authority over tidal wetlands to the VMRC, with the option for Tidewater localities to adopt a model ordinance and regulate tidal wetlands through a citizen Wetlands Board. Currently, 34 Tidewater counties and cities, and 2 towns administer the ordinance. Twelve localities have not adopted the ordinance and the VMRC acts as the permitting authority for those locales.

Tidal wetlands and non-tidal wetlands adjacent to tidal wetlands are also considered Resource Protection Areas (RPAs) under the Chesapeake Bay Preservation Act (Va. Code §10.1-2100 thru 10.1-2116). The program establishes limitations on land uses permitted within RPAs and applies to all Tidewater localities.

The Virginia Water Protection Permit Program (VWP) is administered by DEQ's Office of Wetlands & Water Protection. A VWP permit must be obtained before disturbing a nontidal or tidal wetland or stream by clearing, filling, excavating, draining, or ditching.

In addition to the regulatory agencies, there are state and federal advisory agencies linked to wetland permit review including:

- Virginia Institute of Marine Science (VIMS)

- Virginia Department of Game and Inland Fisheries (DGIF)
- Virginia Department of Conservation and Recreation (DCR)
- Virginia Department of Historic Resources (DHR)
- U.S. National Resource Conservation Service (USDA-NRCS)
- U.S. Fish and Wildlife Service (USFWS) and
- National Marine Fisheries Service (NOAA-NMFS)

## Living Shorelines

Living shoreline designs have become a widely accepted and preferred strategy for tidal shoreline management. Living Shorelines address erosion by providing long-term protection, restoration or enhancement of vegetated shoreline habitats through strategic placement of plants, stone, sand fill and other structural or organic materials. Living shoreline treatments reflect the best understanding of how shoreline systems work, and how the benefits they provide can be sustained. For these reasons, promoting the use of living shorelines is seen as desirable by resource managers and scientific advisors.

Virginia has pursued efforts to promote the use of living shorelines. While there are many options for promotion of living shorelines, the recommendation put forth in the Joint Resolution 35 Report to the Governor and General Assembly of Virginia, was for the development of a general permit (CCRM, VIMS,

2010). This recommendation was included in Senate Bill 964 which will become law July 1, 2011.

**Living Shorelines Action:**  
Develop a general permit for living shorelines.

**Tidal Wetland Management Assessment**

VIMS is mandated by law to provide scientific and technical guidance on ecological aspects of tidal wetlands. This guidance can be used for project planning and during the permit review process. In addition to the ecological guidance from VIMS, local wetlands boards also consider the social and economic aspects of shoreline projects. CCRM is conducting a study aimed at describing to what extent ecologic, social and economic issues are being considered in the permit decision-making process. With that information, it is possible to suggest a framework to facilitate a consistent and transparent process

for incorporating these issues in decisions concerning tidal wetlands.

For the study, CCRM will monitor permit decisions made by local wetlands boards in order to describe the various considerations that go into a permit decision. The information that goes into project decisions is being compiled using Wetlands Board Hearing minutes and phone and email follow-up after each hearing. Data collection will be for two years. The outcome of the assessment will be used to direct changes in the guidance offered by CCRM as print material, online products, and training.

**Management Assessment Action:** Continue the assessment of tidal wetland decision-making. Modify CCRM outreach efforts based upon this assessment.

**Track Unpermitted Activities**

The DEQ Status and Trends Report (2010) for the VWP Program

shows there is no-net loss of wetlands, and a net gain associated with the permit process. And yet, there are continued nontidal wetland losses. This suggested that non-permitted losses are the issue. Working with a grant from DEQ, Virginia Tech conducted a pilot wetland change analysis in using automated methods to remotely detect potential wetland losses. The results of this study suggest that a wider application to other regions of the Commonwealth would be worthwhile. This expanded application will improve compliance with the WPP. Adding this capability will help Virginia meet its statutory requirement of no net-loss of wetland acreage and function.

**Track Wetlands Action:**  
Track unpermitted wetland impacts. DEQ is working to locate and quantify unpermitted wetland impacts.



*Spartina alterniflora*



First Landing State Park, *Tillandsia usneoides*

### C. Voluntary Protection and Restoration

Wetland protection is defined as removing a threat or preventing the decline of wetland conditions. Wetland restoration is the manipulation of a former or degraded wetland to return its natural functions.

Various non-governmental groups and federal government entities are known to have restored, purchased, or otherwise protected through easements many acres of tidal and non-tidal wetlands. The restoration projects have been undertaken by groups such as:

- The Nature Conservancy,
- the Chesapeake Bay Foundation,
- the Department of Defense,
- the Living River Restoration Trust (formerly the Elizabeth River Project), and others.

Virginia lacks a single comprehensive data set on these projects. In addition to the importance of this information from a Virginia perspective,

the data is necessary for tracking restoration goals set by Chesapeake Bay Program Partners. Virginia has made several unsuccessful attempts to collect data on voluntary restoration projects. Despite these various efforts, the last real estimate for Virginia was apparently too low and considered inaccurate by personnel commonly involved in wetland restoration projects.

Virginia needs an effective collection and reporting system for voluntary wetland restoration. This need also highlights the potential benefits of improved coordination among the regulatory and non-regulatory entities with regard to restoration targeting and project planning.

**Voluntary Efforts Action:**  
Develop and implement a voluntary wetland restoration geo-referenced database.

### D. Water Quality Standards for Wetlands

Water quality standards are the foundation of the water quality-based pollution control program established by the Clean Water Act (CWA). Standards define the goals for a water body by:

- designating attainable uses (ie. shellfish harvesting, water supply),
- setting criteria based on the current scientific information to protect those uses (ie. temperature, dissolved oxygen levels), and
- protecting from pollution.

All states have water quality standards programs, but they don't

have standards specific to the attainable uses and ecosystem services of wetlands. Standards developed specifically for wetlands would help ensure that the wetlands are protected under the Clean Water Act. There are five steps for developing water quality standards for wetlands:

1. define wetlands as “state waters”;
2. designate uses that protect the structure and function of wetlands;
3. adopt narrative criteria and appropriate numeric criteria in the standards to protect the designated uses;
4. adopt narrative biological criteria in the standards; and

5. extend the anti-degradation policy and implementation methods.

Virginia has completed the first step in the inclusion of wetlands in the definition of state waters. Virginia does not have designated uses, narrative or numeric criteria specific to wetlands.

#### **Water Quality Standards**

**Action:** Continue to assess the relationship between wetlands in the watershed and ambient water quality, particularly water quality impairment.

## **Tidal Wetlands Status and Trends**

According to the report, Status and Trends of Wetlands in the Coastal Watersheds of the Eastern United States, 1998 to 2004 (Stedman and Dahl 2008), about 18 percent of all coastal wetlands losses are tidal salt marsh. The cumulative losses of tidal wetlands and watershed development are having adverse effects on the health of Virginia’s tidal waters and the animals that inhabit them. Shoreline alteration linked with watershed land development has been shown to have negative effects on water quality and a wide variety of aquatic animal populations including blue crabs, finfish, marsh birds, and the benthic organisms living in the nearshore waters (Lerberg et al. 2000; DeLuca et al. 2004; King et al. 2005; Bilkovic et al. 2006; Seitz et al. 2006; Bilkovic and Roggero 2008).

Current trends suggest tidal marshes will not be able to maintain themselves at present and projected rates of sea level rise. In fact, estimates of tidal wetlands, beach, and riparian land loss in Virginia due to sea level rise are in the thousands to tens of thousands of acres (NWF 2008). The sustainability of tidal and riparian shoreline resources will largely depend upon the capacity of the resources to move landward. The capacity of marshes to migrate landward onto vacant land is limited by the high rate of anticipated development and the routine approval of shore protection structures in Virginia and throughout the Atlantic Coast (Titus et.al. 2009).



Tidal freshwater wetland, Chicahominy River

## E. Planning and Sustainability

Tidal wetlands are subject to both natural and human pressures. These pressures include: the effects of shoreline hardening, losses due to erosion and land conversion, and marsh drowning from relative sea level rise. Tidal wetland losses can be attributed to human activities, as well as erosion and sea level rise.

Maintaining valuable tidal marshes and shoreline resources will require planning to minimize wetland losses through the regulatory process and accommodate wetland retreat landward. Plans of this sort would be necessarily integrated and comprehensive enabling well informed permit decision-making regarding shoreline structures in the near-term, as well as future, long-term planning.

Those planning elements are being incorporated into the comprehensive coastal resource management plans, CCRMPs, under development at CCRM. In the production of the CCRMPs local conditions are inventoried, risks to both natural and human resources are assessed, preferred shoreline management strategies are identified, and opportunities to provide for natural resources into the future are delineated. The plans will enable integrated management of tidal shoreline resources, address shoreline erosion requirements for local comprehensive plans, and provide information to support local planning efforts to adapt to sea level rise.

The CCRMPs will be developed by the state on a local scale. The



development of the CCRMPs has been mandated by Senate Bill 964.

The plans will be built from existing data with the opportunity to incorporate local data where available. The Plans will incorporate data:

- Shoreline Inventories
- Tidal Wetland Inventories
- Shoreline Management Model
- Shoreline Evolution Data
- Non-tidal Wetland Data

**Planning Action:** Develop Comprehensive Coastal Resource Management Plans (CCRMPs).

## F. Information Acquisition

Virginia has a breadth and depth of information about its wetlands, and yet much of the information is dated, or lacks the necessary detail. The most important information need is landcover data that includes accurate, detailed elevation (such as LIDAR). Landcover data is required

for the on-going monitoring and assessment effort, to track status and trends and plan for integrated wetland restoration, preservation, and tidal wetland retreat in the face of sea level rise.

**Information Action:** Obtain iterative landcover data set. This effort is critical to a comprehensive picture of Virginia's wetlands with regard to human and/or natural losses of wetland acreage and ecosystem services. The timeline for this action is dependent upon funding availability.

## G. Outreach Education

Outreach and education on tidal and nontidal wetland issues in Virginia are undertaken by a broad range of entities from primary and secondary schools, to state agencies, institutes of higher education and non-governmental organizations. There are outreach programs that target the general, or regulated public, while others target specific audiences such as



school-aged children, citizens of a certain geographic area, or those in positions of decision-making.

Citizen-comprised local Wetlands Boards play a critical role in tidal wetland permit decision-making. Two other citizen boards, the Virginia Marine Resources Commission and the State Water Control Board are responsible for oversight and regulatory decisions for wetlands. Training, publications, and technical advice directed toward citizen decision-makers help ensure better informed decisions.

**Outreach Action:** Maintain and build upon existing outreach for local government decision-makers. CCRM will continue on-going outreach activities directed toward the local government decision-makers. Input from the assessment of tidal wetlands management will guide development of new training, tools and publications.

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