

## Environmental Education/Project WET

Project WET, Water Education for Teachers, is a K-12 supplementary curriculum that addresses a number of coastal zone management priorities. Approximately 500 educators are trained annually by Project WET volunteer instructors. During the 6-hour workshops, teachers are introduced to Project WET's age-appropriate, science-based lessons about surface- and ground-water quality, cultural and historical water uses, nutrients, as well as fresh-water, riparian, wetland and estuarine habitats. Lessons also guide students and teachers in activities for meaningful public participation. Other projects supported by the grant include: the annual Conference for Environmental Education, the Directory of Environmental Education Resources, and the Department of Education's Standards of Learning Education Project.

Virginia Department of Environmental Quality  
 Contact: Ann Regn, 804.698.4442  
 Current Ongoing Activity  
 1993 - 1996 Task 2.1



## Virginia Coastal Program Newsletter

The Virginia Coastal Program News provides an important forum to Virginia's partners in coastal zone management, including the state agencies which administer the program's eight core programs, the local officials and governments who address coastal resource management issues on the local and regional level, environmental and conservation groups who play a key role in helping to implement measures to protect and preserve coastal resources, and Virginia's citizens who are at the core of effective and successful coastal resource management.

The newsletter is published three times a year (Winter, Spring/Summer, Fall). The program currently distributes 1500 copies of the newsletter.

Virginia Department of Environmental Quality  
 Contact: Virginia Witmer, Virginia Coastal Program,  
 804.698.4320  
 Ongoing Outreach Activity  
 1996 Task 1, 1997 Task 2



**VIRGINIA COASTAL PROGRAM NEWS**

Virginia's Coastal Resources Management Program links state, local, and federal efforts to enhance coastal resources. The program is coordinated by the Virginia Department of Environmental Quality.

Fall/Winter 1997  
 Volume 1  
 Number 3

### Charting the Future of the Virginia Coastal Program

This fall the Virginia Coastal Resources Management Program entered its 12th year of service to Virginia's coastal environment and its citizens. Since 1986 the Program has overseen the expenditure of more than \$25 million in federal CZM funds and more than \$23 million in state and local matching funds... a sizable sum over the span of a dozen years. As we look to the next dozen years, it seems very appropriate to pause and take stock of where we have been and where we should set our sights.

In cooperation with our federal partner, the National Oceanic and Atmospheric Administration's (NOAA) Office of Ocean and Coastal Resource Management, we will undertake a 3-4 year strategic plan. Some of the questions we will be asking ourselves and you are: *li Virginia's Coastal Program partnership working: How can we strengthen the Program's effectiveness in protecting and managing coastal resources and its coordinating coastal policy? What are the most important coastal management issues facing Virginia's state agencies, local governments and other coastal constituencies? What can the Coastal Program do to better address those priorities? How do other networked coastal programs operate? Should Virginia's Coastal Program be reoriented in any way to better address priorities?*

*continued on page 8*

### Restoring Life in Magothy Bay

The system of barrier islands, coastal bays and salt marshes along the Atlantic coast of Virginia's Eastern Shore, support an invaluable array of fish resources. Not only are these critical nursery areas for numerous commercially important finfish, they are critical habitats for nearshore shellfish, including clams and oysters.

In years past, thousands of Virginians relied on the direct harvest, processing and sale of what seemed to be a never ending source of fish. From the early to the mid-1900s more than one million bushels of oysters (25% - 30% of Virginia's entire harvest) came from the state's 40,000-plus acres of public oyster grounds. In addition, annual harvests yielded millions of bushels of crabs and thousands of pounds of clams, scallops, and finfish.

Beginning in the mid-1930s, seafood harvests declined dramatically. Today, only a fraction of individuals still make a part-time living from the harvest of seafood from Virginia's coastal bays.

What are the reasons for this decline? Is a recovery of these resources on Virginia's seaside possible? Magothy Bay may soon hold the answer.

Magothy Bay, located along the southern seaside of Northampton County, is the site of a Coastal Program, multidisciplinary restoration effort by the Virginia Marine Resources Commission and the Virginia Institute of Marine Science. They are attempting to restore two of the most ecologically important habitat types within Virginia's coastal zone: oyster reefs and seagrass beds.

*continued on page 9*

photo by Steve Lakin

**Tom Hopkins, Director of the Department of Environmental Quality, a Peregrine falcon in hand, visits the Rappahannock Station at the Eastern Shore Wildlife Refuge. The Rappahannock Station at the Refuge and another at Kiptopeke State Park are popular destinations during the Annual Eastern Shore Birding Festival, which is held each fall to celebrate the migration of millions of birds through Virginia. The festival has generated interest among bird watchers nationally and internationally, and has brought in hundreds of thousands of ecotourism dollars since the first annual event in 1993. This year's guest speaker was Pete Dunne, world-renowned author and birding expert from Cape May Bird Observatory in New Jersey. The festival, initiated and funded by the Coastal Program, is run by the Eastern Shore Chamber of Commerce. (See page 4 for highlights of species recorded.)**

**In this Issue . . .**

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## Chesapeake Youth Conservation Corps



The Chesapeake Youth Conservation Corps is a program designed to educate and involve at-risk youth (firt-time offenders) in environmental activities benefiting the Chesapeake Bay and its watershed, and surrounding communities. The Coastal Program has provided support to the Corps since 1993. During this period the Corps has provided valuable educational and work experience through activities such as: building a wildlife refuge, cleaning up shorelines, weekly water testing, stenciling storm drains with "Don't Dump", planting trees and beach grass, building osprey nesting platforms and Wood Duck boxes, participating in erosion control projects, and adopting beaches. The Corps has received numerous rewards for their efforts.

City of Chesapeake

Contact: William Cuthriell 757.382.8184, Dourina McCullen, 757.382.8196

Ongoing Activity

1993 Task 2.3, 1994 Task 2.8, 1995 Task 2.8, 1996 Task 52



## Natural Heritage Resources Fact Sheets

A series of educational fact sheets, written and distributed by the Natural Heritage Program at the Department of Conservation and Recreation, which describe not only the rarest species, natural communities, and invasive species in the Coastal Zone, but also natural area protection and management tools. These facts sheets are used to promote the conservation of the biological diversity in Virginia's coastal zone, and have been distributed to public and private natural area owners, citizens, localities, natural resource agencies, and conservation organizations. They are also available on the DCR, Natural Heritage web site at <http://www.state.va.us/~dcr/vaher.html>.

The topics of the fact sheets include: **Rare Natural Environments:** *Sea-level Fens, seasonal ponds, Turkey Oak Sandhills, Bald Cypress-Water Tupelo Swamp, Pocosins*; **Natural Area Protection:** *What is Natural Area Dedication?, What is a Natural Area Management Agreement?, Fire and Natural Areas: An Overview, Natural Area Stewardship*; **Invasive Alien Plant Species of Virginia:** *Mile-a-minute, Porcelain-berry, Kudzu, Asiatic Sand Sedge, Tree-of-Heaven*.

Virginia Department of Conservation and Recreation

Contact: Kevin Heffernan, 804.786.7951

June 1994

1992 Task 2.5



## Invasive Alien Plant Species of Virginia

### Japanese Honeysuckle (*Lonicera japonica* Thunberg)

#### Description

Japanese Honeysuckle is a trailing or twining woody vine that can grow to more than 30 feet in length. Young stems are often hairy; older stems are hollow with brownish bark that may peel off in shreds. The simple, opposite leaves are oval to oblong in shape and range from 1.5 to 3 inches in length. In much of Virginia, leaves of Japanese honeysuckle are semievergreen and may persist on vines year-round. The extremely fragrant, two-lipped flowers are borne in pairs in the axils of young branches and are produced throughout the summer. Flowers range from 1 to 2 inches in length and are white with a slight purple or pink tinge when young, changing to white or yellow with age. The fruit is a many-seeded, black, pulpy berry that matures in early autumn. Japanese honeysuckle is distinct from our two native honeysuckles, the trumpet honeysuckle (*Lonicera sempervirens*), and wild honeysuckle (*Lonicera dioica*). These natives both bear red to orange-red berries, and their uppermost pair of leaves is joined together.

#### Habitat

Japanese honeysuckle occurs primarily in disturbed habitats such as roadsides, trails, fence rows, abandoned fields and forest edges. It often invades native plant communities after natural or human induced disturbance such as logging, roadbuilding, floods, glaze and windstorms, or pest and disease outbreaks.

#### Distribution

Japanese honeysuckle is native to eastern Asia. Introduced to cultivation in 1862 on Long Island, Japanese honeysuckle is now widely naturalized in the eastern and central United States. Japanese honeysuckle was, and in some areas still is, planted as an ornamental ground

cover, for erosion control, and for wildlife food and habitat. In Virginia, Japanese honeysuckle is naturalized statewide, being most abundant in piedmont and coastal plain forests.

#### Threats

Where light levels are optimal, such as in forest edges, canopy gaps or under sparse, open forest, newly established Japanese honeysuckle vines grow and spread rapidly. Suppressed vines growing in dense shade, however, are capable of rapid growth and spread when light levels in a habitat are increased by disturbance. In forests, Japanese honeysuckle vines spread both vertically and horizontally by climbing up tree trunks and/or by trailing or clambering over the forest floor and associ-



Japanese Honeysuckle (*Lonicera japonica*)

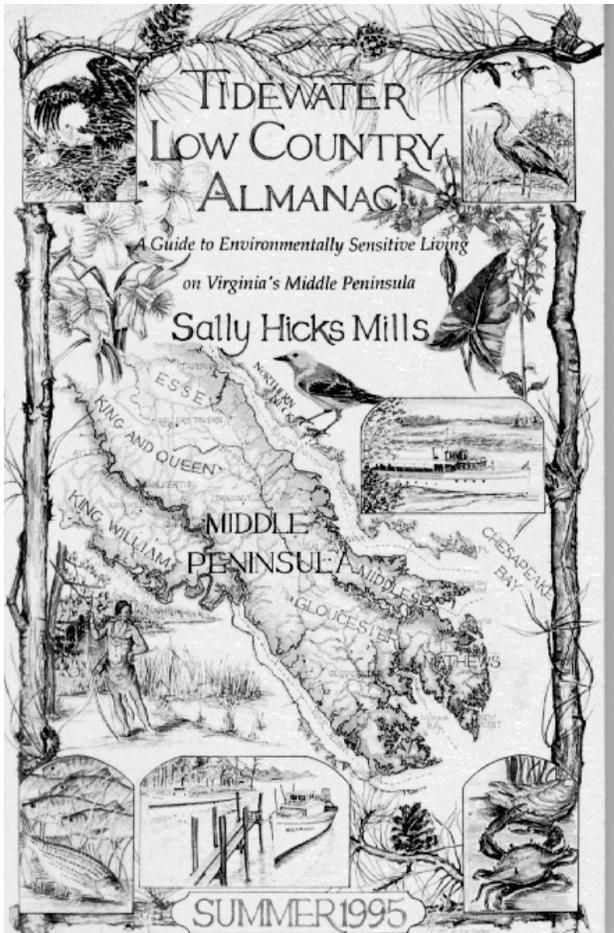
For more information, contact the Department of Conservation and Recreation or the Virginia Native Plant Society.

**DCR**  
Department of Conservation & Recreation  
DEVELOPING VIRGINIA'S NATURAL AND HISTORICAL RESOURCES  
1500 E. Main Street, Suite 312, Richmond, VA 23219  
(804) 786-7951

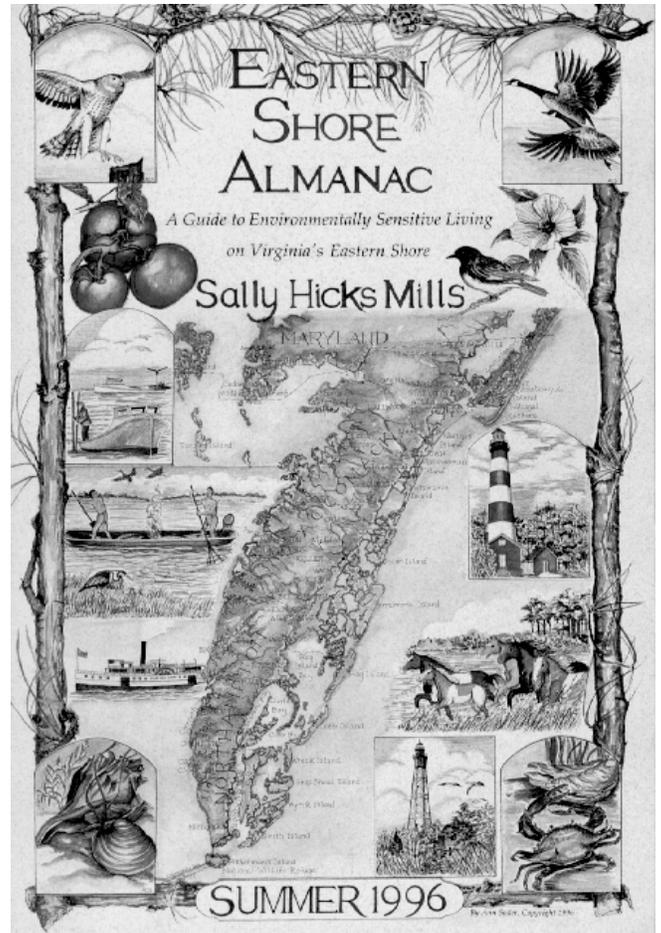


Virginia Native Plant Society  
P.O. Box 844, Annandale, VA 22039

# Public Education



Cover art by Ann Sader



Cover art by Ann Sader

## Tidewater Low Country Almanacs

The Tidewater Low Country Almanacs are regional guides intended to promote environmentally-friendly living in the home landscape of Virginia's coastal watersheds. The almanacs specifically target rural regions, which are often environmentally-sensitive, and are grappling with development pressures. The almanacs carry a message of stewardship.

Each approximately 80-page guide includes a brief regional history overview, a natural resource primer, and a review of the Chesapeake Bay Preservation Act and other conservation initiatives in the Commonwealth. Several chapters are devoted to the principles of conservation landscaping and followed by a regional native plants list for home planting. Also included is a telephone directory to help citizens find the appropriate local, state, or federal agency contacts for assistance on specific questions. The almanacs are popular for their "user-friendly" information and beautiful cover maps and illustrations. To date, almanacs have been produced for Virginia's Middle Peninsula, Eastern Shore and Northern Neck.

*Tidewater Low County Alamanac  
for the Middle Peninsula  
Tidewater Soil and Water Conservation District  
Contact: Burton Bland, 804.693.3562*

*Summer 1995  
1993 Task 2.7*



*Tidewater Low Country Almanac  
for the Eastern Shore  
Accomack-Northampton Planning District Commission  
Contact: Jim McGowan, 757.787.2936*

*Summer 1996  
1995 Task 53*



*Tidewater Low Country Almanac  
for the Northern Neck  
Northern Neck Planning District Commission  
Contact: Vonnie Reynolds, 804.529.7400*

*Winter 1997  
1994 Task 2.13*



# Public Education

## Aquatic Resource and Agricultural Land Use Conference Materials

This conference was held to educate soil and water conservation district employees, who in turn, heighten landowner understanding of aquatic systems and the impacts of nonpoint source pollution. Sessions included an introduction to the Chesapeake Bay and coastal watersheds; a discussion of man's influence on surface and ground water, nutrients, pesticides, and the role of wetlands; the effects of nonpoint source pollution on waterfowl, submerged vegetation, finfish, mollusks, and shellfish; and a waterman's perspective of how pollution impacts the seafood industry.

*Virginia Department of Conservation and Recreation*  
*Contact: Moira Croghan, 804.786.3958*  
*March 1994*  
*1992 Task 2.1*



## Common Saltwater Sportsfish of Virginia

Colored poster depicting twenty-four species of fish common to Virginia's tidal waters.

*Virginia Department of Game and Inland Fisheries*  
*Contact: Anne Skalski, 804.367.1000*  
*March 1993*  
*1991 Task 2*



## Fish Passage Display on the James River

Portable display unit that provides information concerning the striped bass population, including fish passage and blockage, on the James River Landings for the past 65 years.

*Virginia Department of Game and Inland Fisheries*  
*Contact: Anne Skalski, 804.367.1000*  
*March 1993*  
*1991 Task 2*



Portion of the Common Saltwater Sportsfish Species of  
Virginia poster.

# Public Education

## Fiddling Around with Fiddlers & Oysters and Oyster Reefs: A Winning Combination for the Future of the Chesapeake Bay

This project developed two educational brochures about the ecology, behavior and habitat requirements of two important species found along the York River and in the Chesapeake Bay National Estuarine Research Reserve in Virginia. ***Fiddling around with Fiddlers*** and ***Oysters and Oyster Reefs: A winning combination for the Chesapeake Bay*** describe the life cycles and ecological importance of these Chesapeake Bay residents.

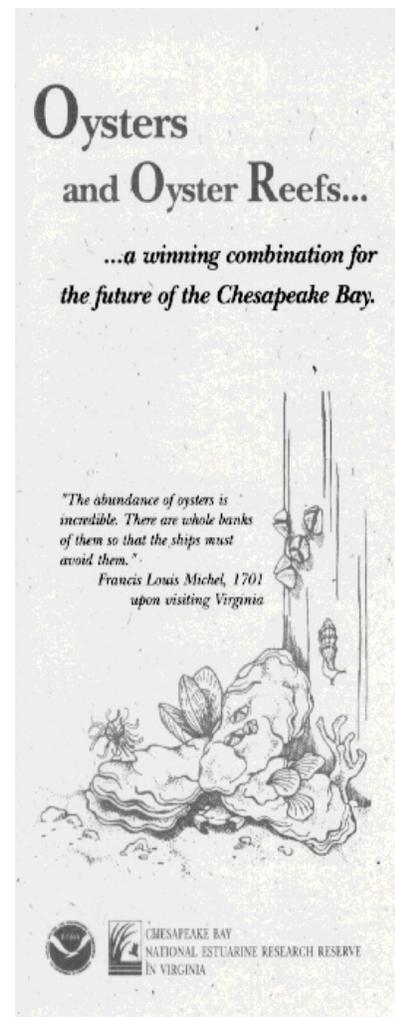
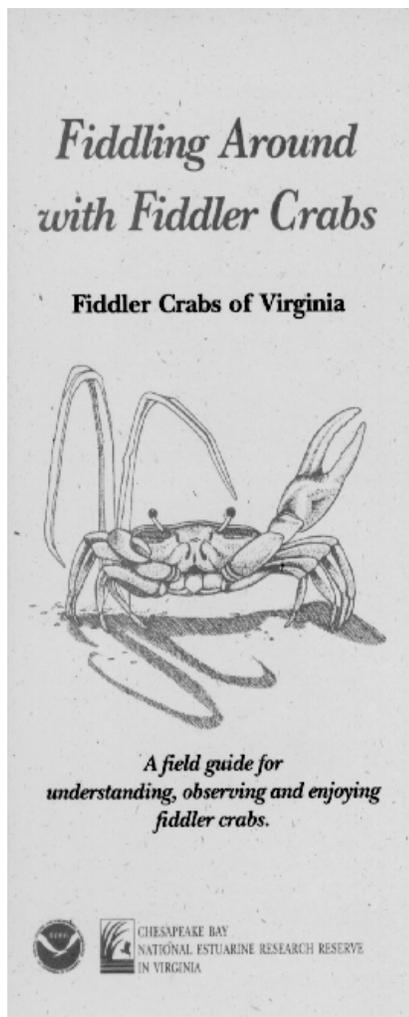
These brochures have been very successful, and requests for copies from around the country continue. They are also popular among reserve visitors and are used as educational tools in Reserve education programs, as well as in educational efforts by other coastal agencies throughout the Commonwealth.

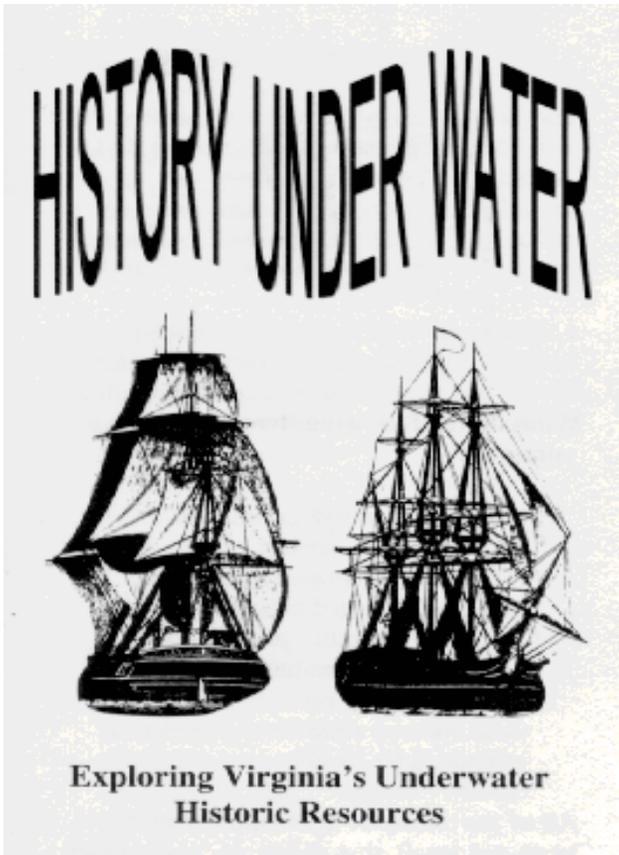
Virginia Chesapeake Bay National Estuarine Research Reserve System (CBNERRS)

Contact: Maurice "Mo" Lynch, 804.642.7135

Fall 1994

1993 Task 2.6





## A Guide to the Bay Act

The Chesapeake Bay Preservation Act was passed by the Virginia General Assembly in 1988. The purpose of the Bay Act is to protect the water quality of the Chesapeake Bay and its tributaries through measures to reduce adverse impacts of land use and development. The program is implemented through an active partnership between the Commonwealth and Virginia's Tidewater local governments.

This guide to the Bay Act was prepared by the Chesapeake Bay Local Assistance Department as a general reference for Virginia's citizens. Given the uniqueness of local Bay Act programs, the guide does not attempt to guide property owners on site-specific requirements, but to provide an overview of the purpose and intent of the Bay Act and the components of a local Bay Act program.

*Chesapeake Bay Local Assistance Department*

*Contact: Scott Kudlas, 804.225.3441*

*Fall 1995*

*1994 Task 9*



## History Under Water: Exploring Virginia's Underwater Historic Resources

The goal of this project was to increase public awareness of submerged historic resources, to present the results of **An Assessment of Virginia's Underwater Cultural Resources** (funded through an earlier NOAA grant - 1993 Task 11) to the dive community, and other interested individuals and groups, and to foster cooperation between the Department of Historic Resources and members of the public interested in submerged historic sites and objects. The Department worked with the Maritime Archaeological and Historical Society to host public workshops in Alexandria and Norfolk. The Society is a private, non-profit educational organization supporting responsible documentation of submerged historic sites.

A brochure was produced, **History Under Water: Exploring Virginia's Underwater Historic Resources**. This brochure briefly outlines some of the types of historic (and prehistoric) sites that can be found in Virginia's waters and the importance of reporting these sites and keeping them intact for future study, education and recreation. It also summarizes the situations in which various permits are required from the Navy, the U.S. Army Corps of Engineers and the Virginia Marine Resources Commission, and gives contacts for more information on submerged resources, permitting, training, and volunteer opportunities.

*Virginia Department of Historic Resources*

*Contact: Catherine Slusser, 804.225.3556*

*November 1996*

*1994 Task 14*



*See Also:*

*Environmental Management, page 15 -*

*An Assessment of Virginia's Underwater Cultural Resources*

## Nonstructural Alternatives for Shoreline Stabilization

Local wetlands boards and the Virginia Marine Resources Commission receive up to 600 applications for shoreline stabilization projects annually. Most are proposals to build bulkheads and stone revetments to control eroding shorelines. In some cases, VMRC staff have found wave energies do not justify construction of such structures. The brochure, ***Shoreline Erosion Problems? Think Green***, will help ensure that nonstructural alternatives to shoreline stabilization are included among the options known to property owners. The brochure discusses two types of marsh grass species, how and where to plant them, and illustrates the benefits to water quality and wildlife of using these grasses.

*Virginia Marine Resources Commission/Virginia Institute of Marine Science*  
Contact: Scott Hardaway, 804.642.7177  
May 1994  
1992 Task 27



### **SHORELINE EROSION PROBLEMS? Think Green . . .**

Control shoreline erosion, help restore the Chesapeake Bay and save money all at the same time.



If you have low to moderate shoreline recession problems, establishing marsh vegetation can provide long term shoreline stabilization at a fraction of the cost of conventional structures such as bulkheads and rock revetments. Additionally, no permits are required in many cases. A significant benefit to this "green" approach is the enhancement of Chesapeake Bay water quality and habitat availability.

## Virginia Erosion and Sediment Control Field Manual

Many individuals, businesses and government agencies expressed an interest in a pocket-sized version of the 1992 ***Virginia Erosion and Sediment Control Handbook*** for field use. The field manual was created and contains technical drawings and specifications to assist users in the implementation of proper erosion and sediment control measures. This "field manual" is a supplement to the Handbook. It was developed especially for people who must implement the State Erosion and Sediment Control Program in the field, such as local inspectors and job superintendents or foremen of construction projects. This pocket size field manual is available for order. It is also available in a universally accepted AutoCAD format.

Design criteria and design considerations can be found in the Handbook. The Handbook is a technical guide for complying with the requirements of the Virginia Erosion and Sediment Control Law and regulations. The Erosion and Sediment Control Program is an enforceable, mandatory program in Virginia's Coastal Zone, and throughout the state. The Handbook details numerous guidelines, technical standards, specifications and support materials to assist individuals responsible for regulating, permitting, enforcing and complying with erosion and sediment control requirements in coastal areas of Virginia and other states. Over 4,000 copies of the handbook have been distributed in Virginia.

*Virginia Department of Conservation and Recreation*  
Contact: Jimmy Edmonds, 804.786.3997  
June 1995  
1993 Task 22, 1994 Task 2.14



## 1991 Nor'easter on Cedar Island

A 20-minute video which documents the progress of beach erosion and the devastating results of the 1991 northeaster on Cedar Island, in Accomack County, off the Atlantic coast of Virginia's Eastern Shore.

*Virginia Marine Resources Commission*  
Contact: Chris Frye, 757.247.2200  
March 1993  
1991 Task 2



# Public Education

## Environmentally-Sound Landscape Management - Bayscapes

Bayscaping is an environmental education initiative developed by the Alliance for the Chesapeake Bay which teaches, through a series of workshops and publications, how to save time, energy, and money by using low-input landscape management to protect the streams, rivers, and waters of the Chesapeake Bay. The five principles of Bayscaping are: practice conservation landscaping, conserve water, create diversity, use beneficial plants, and plan for the long-term.

An extremely popular **Bayscapes** brochure was developed, which introduces the broad concepts of **Bayscaping** in a general manner. Pull-out fact sheets discuss the following topics: integrated pest management, long-term planning when planting, improving wildlife habitats, creating diversity, using beneficial plants, conservation landscaping, and conserving water. The brochure also includes a listing of plants beneficial to the Bay and our coastal waters, and guides the reader to other sources for more specific information. Reprintings funded by the Coastal Program and additional grants from a variety of sources has resulted in the distribution of more than 40,000 copies of the Bayscapes brochure.

*Alliance for the Chesapeake Bay  
Contact: Sarah Richardson, 804.775.0951  
March 1993, Second Reprinting July 1995  
1991 Task 2, 1995 Task 2.10*



## NVironment Newsletter

The Northern Virginia Planning District Commission's newsletter, the **NVironment** has the following goals: to increase awareness of regional environmental problems requiring local attention; to increase awareness of State, regional, and local coastal resources management initiatives; to disseminate information on various local solutions to environmental problems; and to provide information on new environmental legislation and regional environmental cooperative efforts. The NVironment currently has an audience of over 1,300 individuals and agencies and is published at least twice a year (Winter/Spring and Summer/Fall).

*Northern Virginia Planning District Commission  
Contact: David Bulova, 703.642.0700  
1986-96 Task 31  
(Ongoing Coastal Technical Assistance Activity)*



## Birds of the York River

This project developed a series of brochures about the ecology, behavior, habitat requirements and migration patterns of the bird species found along the York River and in the Chesapeake Bay National Estuarine Research Reserve in Virginia. Each brochure in the *Birds of the York River* series, **Taskinas Creek**, **Sweet Hall Marsh**, **Catlett Islands**, and **Goodwin Islands**, describes the key species and habitats found along the York River and includes a species check-list to help birdwatchers with locating and documenting sightings.

These brochures have been well received by Reserve visitors. They have been used by "non-birders" as an introduction to birds, and also by avid birders as a field guide supplement.

*Virginia Chesapeake Bay National Estuarine Research Reserve (CBNERRS)*

Contact: Maurice "Mo" Lynch, 804.642.7135

August 1994

1992 Task 2.3



## The Bald Eagle of Virginia: A Management Guide for Landowners

A full-color management guide for landowners who currently have Bald Eagles on their property or may have them in the future. This guide provides basic background information on the natural history of eagles and some information on management guidelines. Its goal is to increase the general public's awareness of the conservation efforts involving the Bald Eagles of the lower Chesapeake Bay.

*College of William & Mary, Center for Conservation Biology*

Contact: Bryan Watts, 804.221.2247

June 1995

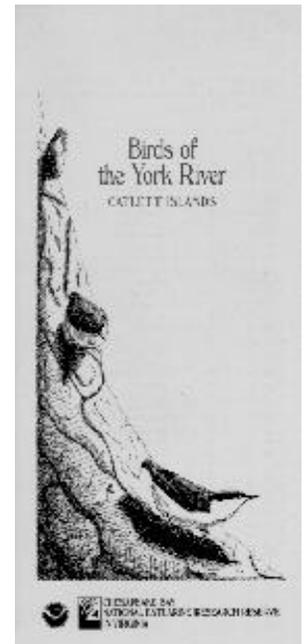
1992 Task 2.4



See Also:

Habitat & Wildlife Management, page 28:

*The Bald Eagle in Virginia: An Information Booklet for Land Planners*



# Public Education

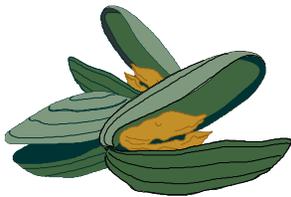
## Oyster Reef Symposium

The decline of oyster resources along most of the U.S. Atlantic and Gulf coasts has resulted in declines in the oyster fishery, and loss of critical reef habitat and ecosystem functions. A symposium entitled, **Oyster Reef Habitat Restoration, A Synopsis and Synthesis of Approaches**, was organized for resource management planners, industry representatives, and others in an effort to summarize and synthesize available information related to oyster reef habitat management practices and the ecological characteristics of the oyster reef habitat.

The Symposium was sponsored by state agencies from Virginia, Maryland, and South Carolina, the EPA, NOAA's Chesapeake Bay Program, the Chesapeake Bay Foundation, Atlantic Estuarine Research Society, Virginia Power and the Virginia Coastal Program.

Symposium topics included historical distributions of oyster reefs; overviews of ongoing restoration activities; ecological perspectives on reef development and utilization; disease management issues; the efficacy of using alternative substrates and the economic costs and benefits associated with restoration efforts. A 29-page program containing schedules and abstracts from all 40 scientific presentations is available. Two thousand copies of the symposium announcement and 800 copies of the program booklet were distributed. The symposium, which was attended by over 150 people, helped to focus attention on the ecological importance of oyster reef habitat.

*Virginia Institute of Marine Science  
Contact: Mark Luckenbach, 804.787.5816  
April 1995  
1993 Task 2.5*



## Constructed Wetlands for Wastewater Treatment - A Seminar

This project was developed and implemented by a planning committee from five partnering agencies: Henricopolis Soil and Water Conservation District, Virginia Department of Health, Virginia's Secretary of Natural Resources and Department of Environmental Quality, CH2MHill, and Resource International, Ltd.

The seminar was led by several of the foremost technological experts in the field of constructed wetland systems. The targeted audience was professional civil and environmental engineers, sanitarians, and government regulators. The seminar's goal was to provide information about current, proven technology on constructed wetland treatment systems, including treatment wetlands, hydrological and chemical tools, pollution reduction, nutrient reduction, design, costing and operation and maintenance.

The seminar was attended by 170 people. Interest has been shown in holding related conferences.

*Henricopolis Soil and Water Conservation District  
Contact: Terry Ruhlen, 804.672.5176  
October 1996  
1995 Task 2.7*



## Wetlands Newsletter & Technical Reports

The Virginia Institute of Marine Science's Wetlands Program produces the **Technical Report**, a monthly newsletter, and a series of wetlands technical fact sheets. Both of these publications are committed to furthering the preservation of wetlands and the prevention of wetland despoliation and destruction. Topics of interest include: tidal wetland values, wetland species descriptions, nontidal wetland policy, cumulative impacts of shoreline construction, wetlands and watershed management, and wetland mitigation banks.

*Virginia Institute of Marine Science  
Contact: Carl Hershner, 804.642.7000  
1989 Task 8, 1990 Task 8, 1992 Task 13, 1993 Task 24,  
1995 Task 12, 1996 Task 16*



## Wetlands Education Curriculum

The **Wetlands Education Curriculum** consists of a lecture series addressing the tidal wetland management program in Virginia. The lectures are designed for presentation by the Wetland Program staff of the Virginia Institute of Marine Science. The lecture series provides a consistent and comprehensive curriculum for wetland board members, planning staff, coastal resource managers, applicants, agents, contractors, and interested citizen groups.

The curriculum provides technical information on basic ecological, management and procedural issues central to appropriate management of the Commonwealth's tidal wetland resources. Each unit provides a standardized set of technical information in a consistent format.

The curriculum includes 19 education units, or sections, which address the basic needs and concerns of tidal wetland managers. These include values and functions of tidal wetlands, critical examination of coastal structures and their impacts to the marine environment, and the role of the local wetlands boards. The manual also includes more advanced lectures such as marine development, wetland mitigation and compensation, and plant and animal adaptations to the marine environment. Field trips are offered to reinforce lecture material. Field work will generally be held in conjunction with classroom training. An Instructor's Manual has also been produced.

Four of the Tidal Wetland Education units are available in a self-taught format. Each unit comes with a video-tape, reference materials, and a final self-exam. These units focus on Wetlands Ecology, Wetlands Values, Coastal Structures, and Human Activities: Impacts and Alternatives.

*Virginia Institute of Marine Science  
Contact: Bill Roberts, 804.642.7380  
January 1994, April 1996  
1990 Task 15, 1992 Task 12, 1994 Task 17*



## Coping with Wetlands Workshop Series

This technically-oriented series of workshops, designed for developers and consultants, government officials, and the general community, including citizens and teachers, offered strategies for confronting the complex issues of advance planning for wetlands identification, mitigation, and permitting.

*Northern Virginia Planning District Commission  
Contact: David Bulova, 703.642.0700  
July 1991  
1990 Task 31*



# Public Education

## Coastal Virginia Ecotour Guide Certification Training Program

Local ecotour businesses introduce the commonwealth's natural resources to thousands of visitors each year. Ecotourism makes sense for coastal Virginia, and responsible, educated ecotour guides and ecotourists, and an "ecotourism code of ethics," could play a vital role in the future protection and health of our unique coastal ecosystems and cultural resources as well as in promoting sustainable development of a successful ecotourism industry. Ecotourism can help strengthen faltering local economies through diversification and innovation. The keys to attaining this dual goal are communication, planning, and education.

As currently conceptualized, a voluntary ecotour guide certification program would serve three fundamental purposes: 1) protect shared natural resource capital from misuse caused by a simple lack of knowledge; 2) provide a valuable marketing edge to guides who earn an official "seal of approval" or certification logo; and 3) foster sustainable growth of Virginia's ecotourism industry by offering ecotourists high quality, educational experiences.

A draft Ecotour Guide Certification Training Curriculum for Coastal Virginia was developed that includes three basic elements: 1) the role of ecotourism in coastal resource conservation and local economic development; 2) the natural limits of sensitive resources and the need for a cooperative approach to protecting ecotourism's assets; and 3) a basic understanding of the natural history of coastal Virginia. The curriculum is divided into two parts. The first part details a three-day regional workshop which would focus primarily on the above elements (1) and (2) and secondarily on element (3). The second part consists of a series of locally-oriented field trips that highlight natural history (element). Included in this are outlines for three local field training excursions designed for the Eastern Shore.

This draft curriculum also proposes the creation of an advocacy organization or association (it may be a private cooperative, independent non-profit, or public-private partnership). This ecotourism association would provide new information to members, insuring quality among certified ecotour businesses, promoting certified operators, and protecting shared natural assets. To earn certification, ecotour businesses would be required to participate in a training workshop and a number of local field-based training excursions tailored to their bioregion. Minimum standards of operation would be required to maintain certification, as would participation in a continuing-education program.

The Coastal Program has presented this curriculum and the voluntary ecotour guide certification program concept to ecotour guides and businesses, local governments and other state agencies in a series of meetings in the summer and fall of 1997. Discussions will continue into 1998.

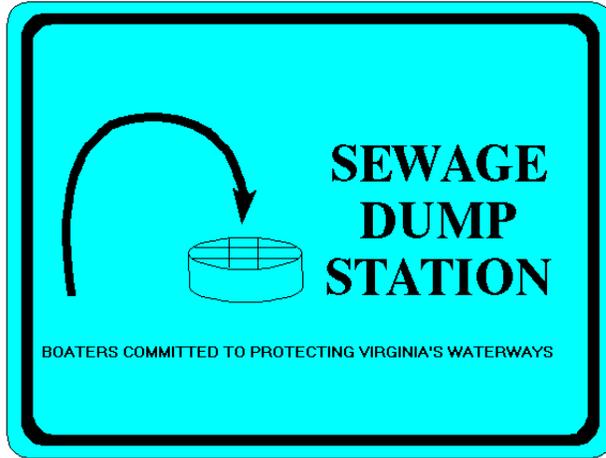
*Virginia Department of Environmental Quality/Virginia Department of Conservation and Recreation*

*Contact: Laura McKay, Virginia Coastal Program, 804.698.4323*

*February 1997*

*1994 Task 2.11*





## Demonstration of Marina Pump-Out Facilities

This program detailed the success of demonstration pump-out facilities for use by local boaters. Demonstration units purchased through this grant are moved around to various coastal marinas. Among the sites where units have been located are Portside in Portsmouth, Leesylvania State Park, the Hopewell Yacht Club, and Onancock Public Dock in Accomack County.

*Virginia Department of Health*  
Contact: Cal Sawyer, 804.786.1755  
March 1991  
1989 Task 14



## Boat Holding Tank Pump-Out Facilities in Virginia

This list, compiled by the Virginia Department of Health, identifies marinas and other boat-mooring places that are equipped with pump-out facilities. The list is updated annually. More than 1,000 aluminum signs were provided to marinas and other facilities to promote the use of pump-out and dump stations.

*Virginia Department of Health*  
Contact: Cal Sawyer, 804.786.1755  
January 1991  
1990 Task 2



## Marine Debris Placard

Produced as part of the Middle Peninsula's Marine Debris Program, this placard, waterproofed for use on boats, tells boaters how to comply with federal and state regulations regarding overboard dumping. It is distributed to boaters free of charge. The program also includes Bay/river/stream cleanup projects.

*Middle Peninsula Planning District Commission*  
Contact: Jim Uzel, 804.758.3211  
October 1993  
1992 Task 58



# Public Education

## Virginia Beach Agricultural Reserve Program Public Opinion Survey

The farmland surrounding the North Landing River Preserve in Virginia Beach is some of the most productive in Virginia and a valuable open space area. It not only provides a buffer to the Preserve, but also constitutes a rural way of life in a rapidly urbanizing area of southeastern Virginia. Agriculture is an important local industry in Virginia Beach, but City's Green Line Policy (the extent of infrastructure development), which has been used as a way to manage growth in the City, has been difficult to enforce. There is an increasing incompatibility between residential development and agricultural activities.

At the request of the City Council of Virginia Beach, the Nature Conservancy was asked to conduct a public opinion poll in the Fall of 1994. The purpose of the poll was to assess the attitudes of the citizenry towards a proposed purchase of development rights program and future land use policies. The poll also assessed citizen's attitudes regarding southern Virginia Beach's natural cultural and agricultural assets. The poll showed overwhelming support for the creation of an Agricultural Reserve Program, a strong concern about growth in Virginia Beach, and strong support for maintaining family farms in Virginia Beach. Those polled also expressed a strong desire to save natural areas and open space. The poll showed that 88% of voters believe that if natural areas and open space are not saved now, they will be lost forever, and 93% believe that the natural areas of Virginia Beach are part of their heritage and the people owe it to their children and grandchildren to preserve it.

As a result of the poll, the Virginia Beach Agricultural Reserve Program was adopted by the Virginia Beach City Council and funded in May of 1995. The program, which may affect 20,000 acres of prime farmland in the southern watersheds of Virginia Beach, is a voluntary program that allows for the sale of development rights by farmland owners, in return for working capital which can then be reinvested in the farm. Purchases made through the program are reviewed after a minimum of 25 years. The review board has an option of selling back the rights, at market value, to the farm owner. Fourteen other states have used this program to great success.

*The Nature Conservancy/City of Virginia Beach  
Contact: Michael Lipford, 804.295.6101  
October 1994  
1993 Task 2.4*



## Advanced Internet and World Wide Web Training for Coastal Resource Managers

The Chesapeake Bay National Estuarine Research Reserve System (CBNERRS) at the Virginia Institute of Marine Science held a series of introductory and advanced Internet training workshops for coastal resource managers. Workshop participants were led in on-line demonstrations, introduced to the basics of HTML language and home-page development, and given training in forming efficient information searches, downloading and data handling procedures. Questionnaires were distributed to participants prior to the workshop to determine their specific information needs. The positive response to the introductory workshops led to the offer of advanced training. CBNERRS is currently working with the Coastal Program to develop and distribute an Internet survey to resource managers throughout the coastal zone to assess their Internet and WWW link status, and determine what specific information needs exist.

*Virginia Chesapeake Bay National Estuarine Research  
Reserve (CBNERRS)*

*Contact: David Niebuhr, 804.642.7144*

*December 1996*

*1995 Task 71*



*See also:*

*Habitat & Wildlife Management, page 76:*

*Conservation Plan for Marine Mammals and Sea Turtles  
in Virginia, article - Swimming Beyond Boundaries*

*For more information on the Agricultural Reserve  
Program, contact Mary Heinrich, Southeastern Association  
for Virginia's Environment, 804.460.0750*