



Virginia

COASTAL MANAGEMENT

Protecting, Restoring, Strengthening Our Coastal Ecosystems & Economy

Summer/Fall 2005



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Virginia's coastal zone management program links state, local, and federal efforts to create more vital and sustainable coastal communities and ecosystems. Virginia's coastal zone includes the 29 counties and 15 cities of Tidewater Virginia, and all tidal waters out to the three mile territorial sea boundary. The program includes state and local laws and policies to protect and manage Virginia's coastal resources, implemented by the Departments of Environmental Quality, Conservation and Recreation, Game and Inland Fisheries, Health, the Marine Resources Commission and Tidewater local governments. The Department of Environmental Quality serves as the lead agency for the program.

Message from the DEQ Director

What's in a name? Quite a lot apparently. Smart communicators are finding out, for instance, that if we describe natural areas as "open space," many people think we are talking about "unused or "useless" space. Finding the right words that resonate in just the right way, that evoke the response we seek, is a real science that requires a laboratory, computers and analysts! Most of us don't have the time nor the resources to communicate with that degree of accuracy. So I hope you, our readers, will bear with us as we search for the right words to describe how critical it is that we manage growth in ways that preserve our ecosystem, our economy and our heritage. The Virginia Coastal Program has been asked by its partner agencies and local governments to help them deal with our increasing coastal population and the demands we place on our coastal resources. It is a sensitive issue and a lot is at stake. I hope our opening article will provide you with some basics on what various levels of government can do and are doing to manage growth. And I hope you will work with us to find ways to retain and protect what we hold so dear – Virginia's coast.



Robert Burnley, Director of Virginia's Department of Environmental Quality – lead agency for the Virginia Coastal Program.

Virginia Coastal Management Summer/Fall 2005

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Front row (left to right) — Laura McKay, Rachel Bullene, Virginia Witmer. Back row (left to right) — Shep Moon, Julie Bixby, Scott Lerberg. Photo by John Tragesser, DEQ.

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Cover Photo: The busy coastal waterways of Hampton Roads. Photo by Kevin Heffernan, DCR-DNH.



Keeping Our Coastal Communities Strong: Preserving Tradition and Providing Opportunity

By Laura McKay, Coastal Program Manager

It seems we all want the same thing, but we don't understand or agree how to get there. We want clean water and air, lots of crabs and oysters, beautiful views, quaint villages, no traffic jams, job opportunities for ourselves and our children. So who is in charge of this and how do they make it happen?

At recent open houses held by DEQ across the state, many people said they thought it was state government. Many think it's the federal government. The truth is, the power to shape how a community looks and grows rests most heavily with our local governments. Most of us learned about federal and state government in school, but did you ever learn about the powers of local government? They are greater than you might think (see box on page 2). Federal and state laws can have an impact, but city, county and town officials make some of the most important decisions about where growth occurs and what it can look like.

One of the ways that your state coastal zone management program - the Virginia Coastal Program - is trying to help is by bringing speakers and planners like Ed McMahon of the Urban Land Institute and Randall Arendt of Greener Prospects (his conservation planning firm) to Virginia to meet with local officials and share their ideas for creating healthy coastal communities. Last November we brought Ed McMahon to the Middle Peninsula to share his inspirational stories of how local officials used "comprehensive plans" and "zoning ordinances" to maintain the unique character of places like Freeport, Maine. Downtown Freeport was about to witness the conversion of a quaint New England farmhouse to a standard McDonalds' chain restaurant. But the town officials said no and upheld their historic preservation ordinance. They asked McDonalds to keep the exterior of the house and just convert the interior. McDonalds sued the town, but the little town won! The best part of the story? This unique McDonalds is now one of the highest grossing in the country! Ed told similar stories involving Lowe's, Home Depot and Taco Bell from all over the country. Sometimes everyone can win...

Another example of building a healthy community occurred right here in our own City of Chesapeake. The Coastal Program through a grant to Hampton Roads PDC hired Randall Arendt to design a residential development that preserves wetlands and wildlife habitat and provides hiking trails and boardwalks. This 310 acre

development clusters the houses and condos on 21% of the land, leaving the rest of the land in its natural state. The best part of this story? Houses are selling for far more than originally anticipated even before construction is finished!

Managing growth is not easy. Many communities across the U.S. are struggling with it. Some call it "smart growth" some call it "livable communities" and others call it "intelligent planning." Whatever we choose to call the concept in Virginia, we need to begin working on it in earnest. According to NOAA's report, "Population Trends Along the Coastal United States: 1980-2008," Virginia ranks 5th in the U.S. on 3 counts:

- 1) number of people moving into the coastal area of a state between 1980 and 2003 (1.6 million);

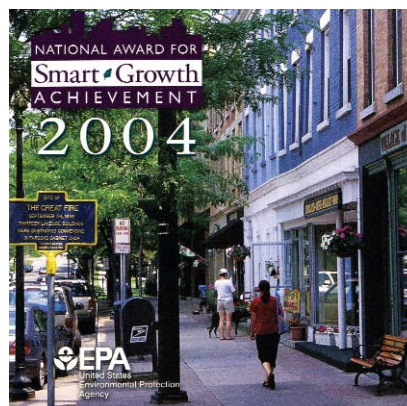
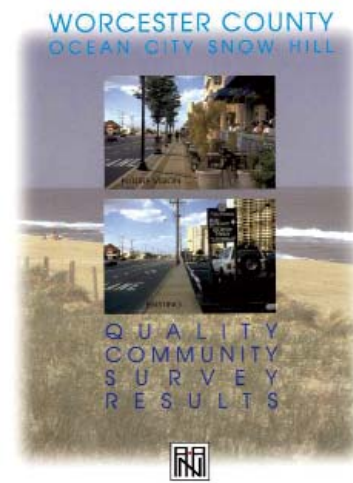
- 2) % change in population between 1980 and 2003 (48%);

- 3) building permits between 1999 and 2003 for single family units (142,000).

Between 2003 and 2008, the greatest % population change for the northeast region (Maine through Virginia) is expected in Virginia with 8 counties experiencing 10-15% or greater population increase. By 2008 we can expect to have 69% of Virginia's population living within our coastal area which is only about 23% of the land area of the state. How will we accommodate this? By working with our local officials and giving them the tools to protect our coastal resources and our coastal heritage.

Last December coastal zone managers from across the country met with staff from NOAA and EPA in Washington, D.C. to discuss implementation of growth management strategies in the coastal zone. We listened to people like Harriet Tregoning, Director of the Smart Growth Leadership Institute and Don Chen Director of Smart Growth America. (See box for contact information and website addresses.) Harriet reminded us that the Coastal Zone Management Act of 1972 is the closest this country has ever come to federal involvement in land use. The CZMA was enacted just one year after a federal

land use law failed in Congress by only one vote under President Nixon. Ms. Tregoning sees responsibility for improving land use decisions legitimately placed in coastal management programs. She also described "unplanned growth" or "sprawl" as a "default setting." It's what happens when no one is looking at the big picture. So we'll



Many coastal states and agencies are developing growth management plans.

Continued on page 2

have to work hard with many partners to overcome the inertia of the default setting. She recommends that we:

- establish broad coalitions;
- communicate the urgency of the situation by using clear indicators and showing growth patterns on maps;
- develop a community vision for an alternative way of growing;
- leverage catalytic projects that show success; and generate short term “wins” early on in the process.

Don Chen spoke of the importance of “Fix It First.” In other words, we should fix our downtowns or village centers before we consume more undeveloped land outside these traditional centers of population. This takes tremendous political will. Don reminded us to create a “communication infrastructure” that uses consistent language that everyone understands and to which everyone responds positively. Research already shows that most people’s top issues of concern are high water quality, easy transportation, affordable housing, and public health. We should not forget that well-designed, compact communities allow for plenty of exercise such as walking to school, work and shops. Obesity is becoming one of our major health problems in this country. The way many communities have grown forces us to rely almost solely on the automobile rather than our own two feet.

One thing federal agencies have done recently to help support better growth patterns is to form their own coalitions. Just last January NOAA and EPA signed a Memorandum of Agreement to leverage the assets of each agency to support state and local development innovations. The NOAA-EPA Partnership promises to provide:

- * training for local government staff and officials;
- * citizen workshops in cooperation with local governments;
- * a clearinghouse of innovative policies, ordinances and initiatives;
- * assessments of local development rules and policies; and,
- * access to development “swat teams” to work on locally identified issues.

The Virginia Coastal Program will keep you updated on these opportunities through our Web site (www.deq.virginia.gov/coastal).

By late fall of 2005, our Web site will offer a mapping system that will allow you to zoom into your locality and see where the best remaining natural areas on the land (green infrastructure) and in the water (blue infrastructure) are located. Our Blue and Green Infrastructure are those places on which we rely for critical ecological and community services such as filtering water, absorbing excess nutrients, producing oxygen, protecting us from floods and storms, and providing habitat for rare species and even some commercial species. Once we can all better see where this infrastructure is located, we can help our communities steer development away from those areas that should be protected and toward those areas where development is appropriate.

The Code of Virginia Allows Local Government Officials to*...

Adopt **Comprehensive Plans** for the orderly development of their community

Zone areas within the community for various purposes such as increasing or decreasing housing density or protecting environmentally sensitive areas. Zoning should be consistent with the comprehensive plan.

Adopt **Subdivision Regulations** to permit the orderly division of land into parcels or lots for development

Adopt a **Capital Improvement Program (CIP)** to calculate size, time and location of public facilities such as roads, schools, parks, and water and sewer facilities

Incorporate **Fiscal Impact Analysis** into planning, zoning and land use decisions

Incorporate **Level of Service Standards** to determine adequacy of facilities for future development

Employ **Conditional Use Permits** to assess and mitigate potential adverse effects of a zoned land use

Use **Conditional Zoning** to mitigate impact of development related to rezoning; e.g. allow development but require road improvements, parks, certain architectural styles, landscaping, density limitations, etc.

Accept **Cash Proffers** to mitigate development impacts if they are high growth localities and in the process of rezoning

Designate **Targeted Development Areas** in the comprehensive plan and zoning ordinance to control use and density

Hold **Conservation, Open Space or Scenic Easements** on private property to protect values in perpetuity, but allow private ownership to continue

Purchase Development Rights within specially designated service districts to preserve habitat, open space or agricultural production

Create a **Land Use Assessment and Taxation Program** to provide discounts in property tax assessments to promote and preserve agricultural and forestal land uses and open space

Adopt an **Agricultural and Forest Conservation District Program** whereby property owners agree to maintain their property in agriculture or forest and thus receive a land use assessment resulting in lower taxes.

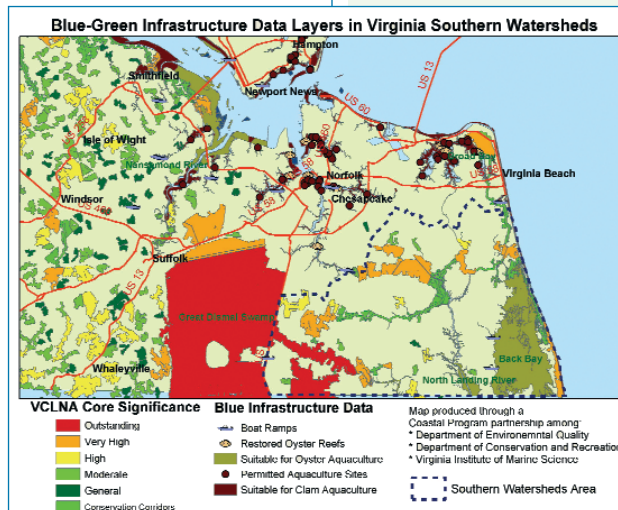
Engage in **Revenue Sharing** with each other to offset the consequences of development patterns (e.g. between a city and its neighboring county)

Apply to the Virginia Department of Housing and Community Development to create a Governor-approved **Enterprise Zone** within which businesses receive tax breaks for their revitalization efforts

Promote private investment in blighted areas through real estate **Tax Increment Financing**. This tool allows the incremental increase in real estate tax revenues from new development to be used to pay for public investment in infrastructure in areas needing redevelopment.

Offer developers **Density Incentives** whereby they can have higher densities of housing if they set aside land for environmental protection.

*Source: Virginia’s Growth Management Tools, prepared by Virginia Chapter of the American Planning Association, June 1999, updated January 2002



COASTAL NETWORK IN ACTION



Coastal Program Investment in Seaside Restoration: \$2,000,000 Future Value: Priceless

By Scott Lerberg, Coastal Specialist

In September of 2002, the Virginia Seaside Heritage Program (VSHP) was initiated by the Coastal Program to help restore the ecology and economy of Virginia's Atlantic barrier island lagoon system. The VSHP has tremendous potential to demonstrate habitat restoration techniques and appropriate management of economic development within a rare and fragile ecosystem.

Initially designed as a three-year \$1.5 million project, the VCP's interagency Coastal Policy Team agreed to continue funding the VSHP for a fourth year and build upon the successes already achieved by the VSHP partners. These successes were highlighted during a recent "Seaside Day"—a meeting of the Program's partners at Cobb Station in Oyster.



Laura McKay discusses habitat restoration efforts on the seaside of Virginia's Eastern Shore with partners in the Virginia Seaside Heritage Program. Photo by Virginia Witmer, VCP.

Habitat Restoration...

Eelgrass Restoration

Eelgrass recovery rates are very promising given the near total absence of eelgrass from the seaside since the 1930's. Recent aerial photography shows a wonderful natural spread of grasses from restoration sites. The current method of large scale-restoration involves broadcasting seeds by hand instead of transplanting whole plants. In the fall of 2003, over 1.7 million seeds were dispersed in 35 half-acre plots in Cobb Bay and Spider Crab Bay by the Virginia Institute of

Not only are restored beds on the seaside thriving but they are actually spreading as shown in this recent aerial photo. Photo courtesy of VIMS.



Marine Science (VIMS). In the spring of 2004, another 6.87 million seeds were dispersed in 35 acres in plots ranging in size from 1 to 5 acres in Spider Crab Bay. VIMS will continue to monitor the rate of recovery of these beds and ambient water quality as the beds spread. VIMS, the Army Corps of Engineers, the Virginia Marine Resources Commission (VMRC), and the Nature Conservancy (TNC) are also currently negotiating sites for eelgrass restoration in Hog Island Bay where public grounds are limited.

In a complimentary project, VMRC staff is coordinating with TNC to raise bay scallops in eelgrass restoration areas in South Bay. It is hoped that these scallops will spawn and produce offspring. The scallops, which come from remnant stocks in Chincoteague Bay, are genetically distinct from the more northern strains of bay scallops found from Massachusetts to New York and from a more southern strain found in North Carolina. These genetic differences may prove to be very helpful in tracking the progress of scallop restoration on Virginia's Eastern Shore.

Oyster Restoration

Oyster reef restoration efforts on the seaside continued, as VMRC constructed approximately three acres of reef in 2003 and 2004. This includes two acres around Gull Marsh and Wreck Island and one acre in the Gargathy Bay/Cockle Creek area. Over 65,350 bushels of shell, harvested in 2002, spatset (the settlement of juvenile oysters) was fairly high in the Gull Marsh area (548 spat/meter), but poor in Gargathy Bay (12 spat/meter). Spatset was more promising in 2003, averaging 1000 spat/ meter in Wreck Island and Cockle Creek. Future restoration sites include Cobb Island and the backside of Parramore Island.



Signs posted on the seaside identify restored oyster reefs as sanctuaries which are closed to harvesting to allow natural regeneration of the population to take place. Photo courtesy of VMRC.

Phragmites Mapping and Removal

On a national level, invasive species have been identified as the number two threat to biological diversity, second only to loss of species and habitat from development and urban sprawl. *Phragmites australis*, an invasive wetland grass also known as common reed, is one of the most serious and problematic invasive plant species in Virginia and other coastal States. This fast-spreading plant grows up to 4 meters tall and forms dense monotypic stands, crowding out other native marsh plants.



Phragmites has been mapped along the entire seaside of the Eastern Shore, including all Virginia's barrier islands. 1400 occurrences were documented via helicopter. Patches are as small as 1/4 acre and as large as 90 acres. Photos by Kevin Heffernan, DCR-NH.

Disturbances that expose mineral substrate (e.g., dredging) or natural disturbances such as wildfires or hurricanes can increase the probability and rate of *Phragmites* colonization to a particular location. Although data is still being collected and analyzed by researchers at VCU, a huge spread of *Phragmites* on Parramore Island is attributed to a lightning induced wildfire in September 2002. The identification and treatment of *Phragmites* within high priority areas on the Seaside is necessary to slow the rate of spread of this species and protect natural biological diversity.

All patches of *Phragmites* on the mainland interface, lagoon system, and barrier islands of the Seaside were located, measured for area coverage and mapped using GPS methods during July to September 2004. Results indicate that approximately 2,024 acres of *Phragmites* currently exist on the Seaside in 1,404 patches with the largest patch covering 186 acres. An atlas of the distribution and abundance of *Phragmites* on the Shore was created using GPS field data from the DCR, supplemented by US. Fish & Wildlife data from Chincoteague Island. In order to prioritize *Phragmites* control efforts, these patches are being compared with known occurrences of sensitive rare species habitats and communities.

In the summer of 2005, emphasis shifted to *Phragmites* control, especially targeting high priority patches (e.g. high marsh communities) using both aerial and ground applications of approved herbicides. In 2004, *Phragmites* control efforts were hampered by the damaging effects of high winds and salt spray from Hurricane Isabel. Isabel caused "top kill" of many *Phragmites* strands – although the root system of the plant remained protected underground, the tops of the plants were destroyed, rendering herbicides ineffective. A new wetland herbicide - "Habitat", appears promising as it can be used earlier in the growing season (before hurricane season) and can eliminate *Phragmites* with one application.

Improving Avian Habitat through Predator Removal

Historically, the Virginia Barrier islands have been among the most important nesting areas for shorebirds and colonial waterbirds on the entire Atlantic coast of North America. However decades of research have shown that beach nesting birds are in serious decline. Predation by the raccoon (*Procyon lotor*) and red fox (*Vulpes vulpes*) is a major factor in the decline of these birds. The Virginia Natural History Museum has been working with the Coastal Program since 1998 to develop and implement a plan to manage these predators and restore avian nesting habitat on the Virginia Barrier Islands.

To test for the effects of predation management, US Fish and Wildlife Service field staff removed red foxes and raccoons from six Virginia Barrier Islands including Assawoman, Fisherman, Metompkin, Myrtle, North Cedar, and Ship Shoal. Avian nesting was then monitored from June to August 2004 with very promising early results. Bird numbers and nest productivity increased in most cases. Colonial waterbird abundance in 2004 was greater than the five year average between 1998 and 2003. Piping plover nest productivity was the highest, since 1980, on Assawoman, Metompkin, and Cedar Island. Oystercatcher nest productivity was the highest ever reported on Metompkin Island.



Black Skimmers and Royal Terns on Wreck Island. Photo by Dot Field, DCR-NH.

These results indicate that predator removal can be very effective but researchers note that it is seldom complete and remains a controversial subject. A new method is currently being evaluated. Instead of physically removing predators, project staff will attempt to "convince" predators not to eat the eggs through conditioned taste aversion. Oral-estrogen appears to be the most promising, effective, and safe "aversive agent" for reducing nest and egg predation. It is biodegradable, stable when injected into quail eggs (which are used to distract predators from shore bird eggs), and shown to induce a conditioned taste aversion to shorebird, terrapin, and sea turtle eggs. Trials using oral estrogen were conducted this summer and results should be available soon.



Sustainable Ecotourism...



Organized canoe and kayak trips led by certified ecotour guides can help protect sensitive coastal resources and stimulate the economies of rural coastal communities. Photo courtesy of Southeast Expeditions.

First Ecotour Guide Certifications Awarded

The first Ecotourism Guide Certification Training Course was held in November 2003 at the VIMS Eastern Shore Lab in Wachapreague. The day-long course included field and classroom work. Nineteen of the 24 attendees passed the required written final exam and received certificates good for three years, as well as official ecotour guide logos denoting their new status as certified operators. A course to train ecotour guide instructors will be held in late fall of 2005.

Seaside Canoe/Kayak Water Trail

A Seaside Water Trail Map and Guide will soon be available. Developed by Accomack-Northampton Planning District Commission, and Coastal Program staff, with input from many of the VSHP partners, this guide outlines over 100 miles of paddling routes in the barrier island system. Thirty-two paddling routes have been mapped between the Eastern Shore Wildlife Refuge in Cape Charles to Chincoteague Island. The water trail guide and a companion Web site will identify appropriate public access locations and cultural resources and amenities near those locations; expected paddling time and level of difficulty for each of the 32 paddling routes; emergency and safety information; an overview of barrier island visitation rules and regulations; and information on wildlife and conservation practices along the trail.

Paddling "Put-Ins"

Funding is also in place to install about 6 canoe/kayak floating docks. The first two will be placed on town property in Chincoteague and Wachapreague this fall. Additional docks are slated for Oyster and Willis Wharf.



Chincoteague East Side Landing. New floating dock will be constructed adjacent to the boat ramp. Photo courtesy of Southeast Expeditions.

Management and Education...

Aquaculture Best Management Practices

Working closely with the five largest members of the clam aquaculture industry, VIMS has developed a draft set of Environmental Codes of Practice and Best Management Practices. The draft ECOPs were presented at a 2003 annual meeting of clam growers on the Eastern Shore and received general endorsement. The ultimate goal is to get industry "buy-in" to this process along with their commitment to implement these BMPs. The Virginia Eastern Shorekeeper will work with the clam farmers to try to implement the best practices.



The Seaside Heritage Program is addressing possible use conflicts on the seaside. One such study underway is focused on the interactions among aquaculture, seagrass and shorebird foraging sites.

Photo courtesy of VIMS.

VIMS is also working with the Center for Conservation Biology to understand how clam aquaculture affects the feeding activity of migratory shorebirds. Historical shorebird concentration data from 1994 through 1996 has been combined with clam net locational data from the southern portion of the seaside to produce a GIS map showing the actual overlap between shorebird foraging areas and clam aquaculture sites. Benthic samples have been taken at sites with and without clam aquaculture to determine the type and abundance of prey species available to shorebirds and the potential impacts of clam aquaculture on prey availability. The VSHP will focus on obtaining more recent shorebird concentration data as well as current shellfish lease ground data from VMRC. Preliminary data indicates potential conflicts between shorebird foraging and clam aquaculture may be limited. Shorebirds tend to feed higher in the intertidal zone than the clam aquaculture sites are located. This data will be important to consider when aquaculture best management practice guidelines are finalized.

Virginia Eastern Shorekeeper

The Virginia Eastern Shorekeeper (Richard Ayers) logged over 420 hours on water patrol between 2003 and 2004. The Shorekeeper encourages community involvement and works with Creek Watchers, a group of volunteers who assist in monitoring, seaside patrols and beach cleanups. In 2004, the Shorekeeper produced a report documenting current human impacts to the natural resources of Barrier Islands. Recommendations include: clearly defining/post-

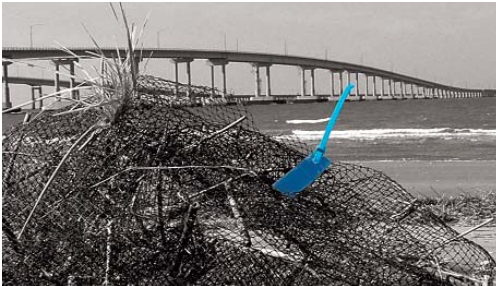
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Seaside Restoration... Continued from page 5

ing colonial nesting bird areas; bringing property owners and land resource managers together to protect the resources without compromising private property rights; and developing consistent barrier island land use policy that addresses seasonally closed areas, public access issues, and enforcing “closed” barrier island areas.

An inventory of clam aquaculture netting and an assessment of its potential cumulative and secondary impacts to this fragile ecosystem were the focus of a 2004 report, “Discarded and Abandoned



A common pollutant found on Barrier Island beaches is the plastic netting used in clam aquaculture. Photo by Richard Ayers.

clam nets. Clam growers are working with the Shorekeeper to create a “Clam Net Hotline” to report discarded net which will be cleaned up by the growers. Preliminary results indicate that the netting has little short term environmental impact and acts in a very similar fashion to beach wrack. However future study is warranted due to the longevity of the netting and its possible long term cumulative impacts.

Bird Migration Studies

The Virginia Coastal Program received a grant from the Virginia Department of Mines, Minerals and Energy to conduct the first systematic seabird migration watch on Virginia’s seaside. The watch was conducted in late 2004 through early 2005 by William and Mary’s Center for Conservation Biology. The SeaWatch project was conducted from the 191 foot tall Cape Charles Lighthouse on Smith Island, using high-powered spotting scopes and binoculars. Spotters recorded 71,298 seabirds of 38 different species in late fall 2003 and 42,808 seabirds of 27 species in early spring 2004. The spotters recorded the birds’ distance from shore and altitude above the water while a wireless weather station recorded meteorological conditions. This information will help DMME to better assess potential impacts of wind farms along the seaside of the Shore.



Using a high-powered spotting scope, a member of the SeaWatch Project Team records the numbers and flight patterns of migrating seabirds above Smith Island. Photos courtesy of William and Mary.

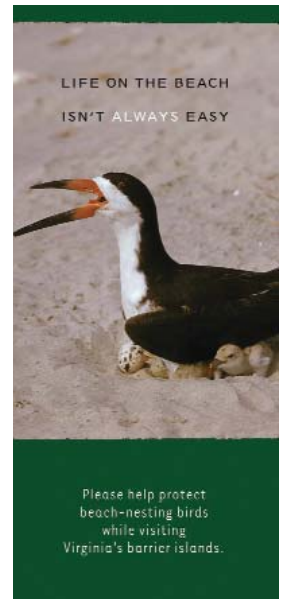
Educating Landowners about Phragmites

In April and May 2005, DCR offered *Phragmites* workshops in Accomack and Northampton Counties which focused on the history,

ecology, abundance, and control methods for *Phragmites* as well as strategies private landowners can use to fight *Phragmites* invasions. Workshop materials are available at www.deq.virginia.gov/coastal/vshp/homepage.html.

Beach Nesting Bird Brochure

A new brochure, “Life on the Beach Isn’t Always Easy,” is now available to help educate barrier island visitors about the critical role island habitats play in the life-cycle of beach nesting birds. Thousands of birds nest on the beaches of the barrier islands each year from April to September, which coincides with the height of tourism in the region. The survival of beach nesting birds on the islands is already difficult due to predation on eggs and small chicks, and natural forces such as storm waves and high tides which threaten to wash the nests away. People using these beaches can also affect the birds’ survival by scaring the birds off the nest and exposing their eggs to lethally hot sun, accidentally stepping on nests, bringing dogs to the island, and leaving trash on the islands which attract predators to these areas. The brochure, developed by Coastal Program staff and the Seaside Heritage Program partners, is available at ecotour shops, visitor centers, waterfront information kiosks and on the Web at www.deq.virginia.gov/coastal/vshp/homepage.html.



Internet Mapping System: Online Tool for Long-Term Management Strategies

The Seaside Internet Mapping System, developed and maintained by the Virginia Coastal Program Office, serves as the foundation for long term restoration and management strategies for the seaside of Virginia’s Eastern Shore. The IMS includes data layers for the Seaside Water Trail, major seaside public access locations, barrier island ownership and access, forest change analysis in Northampton County, shorebird concentration layers (1994-1996), colonial waterbird survey, oyster restoration sites, seagrass restoration sites and *Phragmites* coverage.

As new geospatial data is collected it will be added to the Seaside IMS (www.deq.virginia.gov/coastal/vshp/homepage.html). In the future, visitors to the site will be able to query a database for specific datasets.

Seaside Management Plan

In the fall of 2005, the Virginia Coastal Program will begin development of a draft seaside management plan. Drawing on the experience, research and restoration efforts of the Seaside Heritage Program partners, the draft plan will begin to formulate recommendations for improved policies to protect seaside resources and promote sustainable industries.





From Maritime Forest to Marsh - Take a Walk on Virginia's Seaside

A new trail, boardwalk and overlook on the seaside of Virginia's Eastern Shore offers a unique inside view of a coastal maritime forest and a spectacular vista of seaside marsh along Brockenberry Bay. The Seaside Trail, located in Northampton County is ready for bird watchers, hikers and educational field trips. The maritime forest, about 45 acres, is rare on the East Coast of the US and provides a haven to migrating songbirds traveling south for the winter. The maritime forest is also a natural buffer for the shallow waters of the seaside, offering protection from runoff to finfish and shellfish.

The 370 foot boardwalk and 12'x16' overlook were funded by the Coastal Program and constructed by Eastern Shore Homecrafters, Inc. The grant for this new public access was administered by Northampton County Parks and Recreation.

The trail and boardwalk are located on Seaside Road off highway 636 near Eastville and Cheriton adjacent to the current County Landfill. The Norfolk-Virginia Beach area is within a 40-minute drive of the site. 🐢

For directions and more information about access to the Seaside Trail contact Barry Randall at (757) 678-0468.



A new wooded trail on Northampton County land, leads to a boardwalk and overlook with spectacular views of a seaside marsh. Photos by Virginia Witmer, VCP.

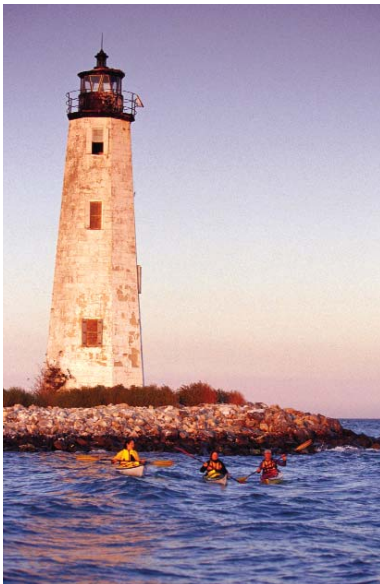


Photo courtesy of Matthews County Visitor and Information Center.

Fireworks Light Up the New Point Comfort Lighthouse Bicentennial

A celebration in fireworks was held at historic New Point Comfort Lighthouse in Mathews County on June 4, 2005 to commemorate the first lighting of the station two hundred years ago.

The lighthouse was illuminated as night fell. One shell was set off for each decade the lighthouse has been in existence. The event was sponsored by the New Point Comfort Lighthouse Preservation Task Force, the County of Mathews, and the Mathews Visitor and Information Center.

New Point Comfort Lighthouse, the third oldest lighthouse in the Chesapeake Bay, has a long and distinguished history: it was commissioned by the Second Congress, burned by the British during the War of 1812, was a key landmark during the Civil War, and had one of

the few officially appointed African-American lightkeepers in the U.S.

Two hurricanes in 1933 severed the lighthouse from the mainland and the 63-foot sandstone tower now stands on a small rip-rap island in the Chesapeake Bay approximately 1/2 mile from the mainland.

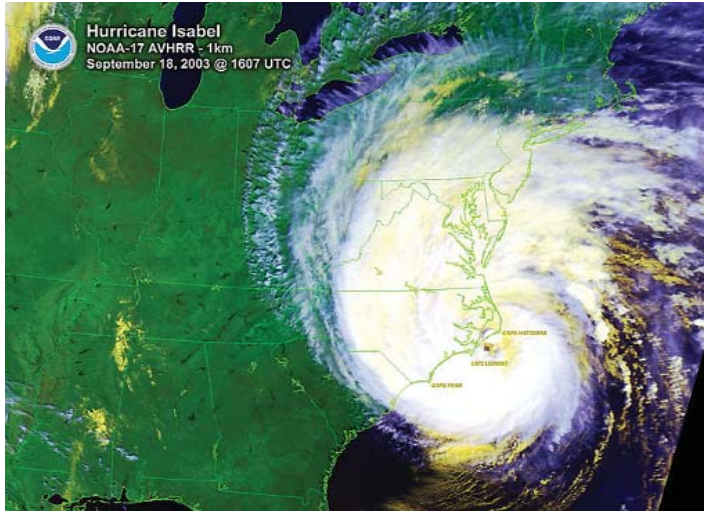
The lighthouse is now the subject of an intense preservation effort due to severe erosion of the lighthouse island. Mathews County, the Commonwealth of Virginia, and the Preservation Task Force are working with the Army Corps of Engineers on a study of how to preserve, expand, and maintain the island. Congresswoman JoAnn Davis and Senator George Allen have been instrumental in ensuring that Congress approved federal funds for the project.

To improve safe public access to the lighthouse and facilitate preservation and maintenance efforts, the Coastal Program gave a grant to the Middle Peninsula Chesapeake Bay Public Access Authority to reconstruct a 16-foot pier and T head, destroyed by storms, on the southwest side of the island as well as a new security door.

For more information about the lighthouse and preservation efforts, please contact Stephen Whiteway, Mathews County Administrator at (804) 725-7172, or Earl Soles, Chairman, New Point Comfort Lighthouse Preservation Task Force at (804) 776-6194. 🐢

Hurricanes Affecting Virginia: What Can We Learn From Hurricane Isabel?

By Julie Bixby, Coastal Planner



In the movie *The Perfect Storm*, three storms combined to form one storm of such magnitude and complexity that it created an almost apocalyptic situation in the Atlantic Ocean. The series of events that came together to produce devastation on the scale of Hurricane Isabel are also certainly worth our attention. The 2003 Virginia Coastal Partners Workshop offered a review of the immediate impacts of Hurricane Isabel and discussion of how this event will shape Virginia's future coastal hazard management programs and policies. For session presentations go to the Coastal Program Web site at www.deq.state.va.us/coastal/session03.html

Virginians often deal with the affects of hurricanes. However there are only a handful of storms with which most of us are familiar. What makes a storm notable?

"Category" is not the only thing that matters

Storm surge, rainfall and wind - if in the right combination - can create a perfect storm, causing tidal and overland flooding, erosion, tree damage and infrastructure loss. Although news coverage on hurricanes typically focuses on the "category" of storms as rated by the Saffir-Simpson scale - a scale which is based solely on rotational wind speed - some of the storms that have had the greatest impact on Virginia were only rated Tropical Storms by the time they reached Virginia. (see text box on page 9).

When trying to predict the impact of a hurricane or tropical storm, several factors should be considered:

(1) *Overland speed:* A hurricane traveling quickly through the area is likely to leave less rainfall. On the other hand, Tropical Storm Gaston "stalled out" over Virginia and dumped 10-15 inches of rain in 2004 causing catastrophic flooding in Richmond.

(2) *Time of year:* Pollutants and sediments wash into our coastal waters during storms, greatly affecting water quality. During spring growth this can be quite devastating ecologically. Cloudy waters, for example, inhibit the growth of bay and sea grasses, which in turn reduces the availability of habitat to many other coastal species.

(3) *Track of the storm:* The most dangerous weather associated with a hurricane is in the northeastern quadrant of the storm. Also, because hurricane winds rotate counterclockwise, the driving winds

Hurricane Katrina recently devastated the Gulf Coast. Our hearts go out to the communities affected. We hope that what we learn from these experiences not only will result in better emergency planning but also stronger appreciation of the value of wetlands and dunes in protecting our coastlines.

from a storm whose eye passes inland will funnel water up into the tributaries and cause extensive tidal flooding. In contrast a storm that passes out in the Atlantic will push water to the east in the Bay, not up the tidal tributaries.

(4) *Diameter:* The diameter of a storm is one of the factors that determine how long Virginia will feel its affects. For example, the diameter of Hurricane Agnes was approximately 1,000 miles. So while the eye of the storm never passed over Virginia, its rainfall and wind affected Virginia for days.

(5) *Weather prior to hurricane event:* If soils are already saturated prior to a hurricane's landfall, there is an increased risk for flooding and tree fall. Conversely, in a very dry year, a very large rain event from a hurricane can deliver a real blow to our waters by washing stored nutrients and sediment off the land all at once.

What happened during Hurricane Isabel?

A Category 1 hurricane, Isabel's track was such that the eye passed just to the west of Richmond and its dangerous northwesterly winds were over our shorelines and rivers throughout its passing. Reported water levels were as high, if not higher, than those of the record breaking 1933 Storm.

Prior to Isabel's arrival, Virginia experienced a wet summer and the ground was already saturated. The additional rainfall and steady winds from Isabel resulted in dramatic tree damage. Trees, and their entire roots systems, were up-rooted, bringing down countless power lines and causing one of the largest power outages in Virginia's history.

What can we expect in the future?

While hurricane impacts are somewhat unpredictable because so many factors affect the type of storm we experience, there are trends that suggest both an increasing number and increasing intensity of storms.

Changes in Sea Level - Sea level in the Bay is one foot higher today than it was in 1933. This explains why water levels were as high (if not higher) during Hurricane Isabel as they were during the 1933 Storm, even though the 1933 Storm had a higher storm surge. Of this 12 inch increase in sea level, scientists believe that 6 inches are due to land subsidence (sinking of the land in the mid-Atlantic due to shifts in the earth's surface) and the other 6 inches can be attributed to an actual rise in sea level. Together these two forces are having a large impact on our coastlines. As sea level continues to rise, coastal flooding from storms will move further and further inland particularly where natural barriers such as oyster reefs, wetlands, dunes and riparian forests are absent.



Hurricane Isabel resulted in over \$1.6 billion in damages and power loss for 1.8 million of Dominion Power's 2.2 million customers. Photo by Kendell Jenkins, courtesy of the VCP.

Global Temperature Change – According to the Intergovernmental Panel on Climate Change, one likely scenario for the future is that increases in global temperature will intensify mid-latitude and tropical storms. If this scenario proves to be true, we could see both an increased number of storms as well as more destructive storms affecting Virginia.

Coastal Storms Meet Coastal Development

Not only is there evidence that Virginia may experience more intense storms in the future, but as development along our coastal shorelines continues to boom, the damage from these storms will be far greater and intensified. Virginia ranks 5th in the nation for the number of new single-family units built in coastal counties from 1999-2003 and 8th for multi-family units. It is anticipated that 300,000 more people will make Virginia's coastal zone their home before 2008.

Planning for the Future: How Can We Be Better Prepared?

What did we learn from Hurricane Isabel and how did our experience with this *perfect storm* show us where we need to be better prepared for the next? We have a glimpse into what the future may hold for our coast – a future not only of nature's making but of our own. So, what can we do to change the shape of what is to come?

Enhancements in weather technology and forecasting continue everyday. NOAA hurricane models gave a pretty accurate prediction

Continued on page 10

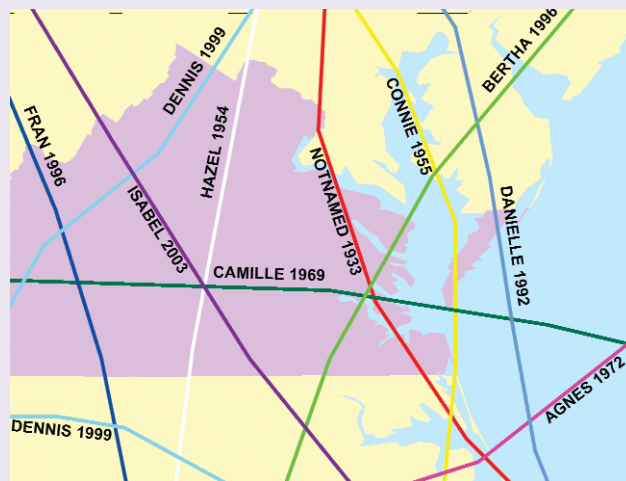
Storm Surge Versus Storm Tide

Storm Surge is the additional rise in water level caused by low pressure systems. This rise is measured above the predicted normal tidal level.

Storm Tide is the observed water level during a storm. For example, if a 3 foot storm surge hits at a 2 foot high tide, the observed water level (or storm tide) will be 5 feet. For more information visit www.vims.edu/physical/research/isabel/



The village of Oyster experienced high water levels during Hurricane Isabel. Photo courtesy of The Nature Conservancy.



Notable Hurricanes of Virginia's Past

August Storm of 1933 – Remembered for its tidal flooding and widespread power outages. Track was similar to Isabel, centering destructive winds over Virginia. Impacted Virginia at spring high tide, producing tremendous storm tides.

Hurricane Hazel (1954) – Hazel hit at the highest tide of the year. A 15 to 18 foot storm surge was reported in North Carolina at landfall. Hazel's legacy is the strong winds it carried, with gusts up to 130mph in Virginia. But Hazel moved through very quickly so rainfall was not an issue. It only took Hazel 12 hours to move from landfall in North Carolina to Ontario, Canada.

Hurricane Connie (1955) – This tropical storm tracked up the center of the Chesapeake Bay, but was small in diameter and came through at low tide causing minimal flooding and damage.

Hurricane Camille (1969) – A Category 3 storm when it crossed into Virginia, Camille was a very strong but fast moving storm. It tracked across Virginia from west to east but right over the Blue Ridge picked up extra moisture, dumping nearly 31 inches of rain near Charlottesville and causing flash floods and mudslides leading to a large loss of life and property.

Hurricane Agnes (1972) – Overland flooding is the legacy of Agnes. This storm, which brought over 15 inches of rain fall, was over 1,000 miles in diameter, keeping it over Virginia for a very long time. Hurricane Agnes struck in June. The rainfall amounts were so great in areas of Pennsylvania that the flood gates were opened on several dams on the Susquehanna River, releasing tons of sediment into the Chesapeake Bay and at a time of year when the grass beds were growing rapidly. The turbidity in the water resulted in a large scale die-back of grass beds in the Bay. Oyster reefs were also buried and the oysters smothered. Hurricane Agnes is a good example of how one storm can have such a devastating affect on our natural resources. For Hurricane Isabel's affects on our coastal environment see the text box on page 10.

Hurricane Fran (1996) – Both tidal and overland flooding were problems as a result of Fran. The storm's inland track pushed waters up the western tributaries and widespread rainfall of 10-15 inches caused significant damage.

For more information on these and other hurricanes: www.vdem.state.va.us/library/vaburr/va-burr.htm

of Isabel – her landfall, storm surge, storm path and rainfall. But how we *interpret* these models could make a difference in our future response to storms like Isabel.

Preceding Isabel's landfall, NOAA web sites and the news media reported *storm surge* numbers. While this is very useful information, many coastal homeowners and business owners were most affected by Isabel's *storm tide*, or water level. If Virginia had accurate near shore elevation data, pre-disaster models could show how far inland water will travel under different storm surge and storm tide scenarios. The technology needed to gather elevation data, accurate to within six inches, exists but it is very expensive and not widely available.

State agencies and local governments could benefit from additional pre-disaster planning. Hurricane Isabel caused a massive amount of infrastructure damage. The coastal management community needs to be better prepared for a massive rebuilding of houses, docks and piers and accessory structures. In Isabel's aftermath, the Virginia Marine Resources Commission and former Chesapeake Bay Local Assistance Department did respond to Hurricane Isabel by issuing emergency guidance on rebuilding procedures. But there was confusion regarding the guidance and many requests for clarification.

In addition, most local government and state agency emergency guidance and policies allowed land owners only to replicate structures

damaged or destroyed by the storm if they wanted to avoid a more extensive review. This essentially eliminated the opportunity for property owners to build more shoreline friendly structures, resulting in thousands of missed opportunities to improve upon the infrastructure of our coastal zone. For example, if a homeowner's bulkhead was destroyed, they could not replace it with a living shoreline of oyster reefs or wetlands, or rip-rap, practices that provide better habitat along our shorelines.

Much of this pre-disaster planning is taking place right now throughout Virginia. All Hazard Mitigation Planning is underway locally, regionally and at the state level under the requirements of the Disaster Mitigation Act of 2000. Coincidentally, most governments did not start their plans until after Hurricane Isabel hit so this has provided a tremendous opportunity for us not only to learn from our experiences but to apply what we have learned to plans for the future.

Virginia has over 5,000 miles of tidal shoreline. Those who live here already know or quickly learn that living in such a dynamic area comes with certain risks. As Hurricane Isabel and so many storms before her have attested – nature can be destructive and unforgiving. We thrive and rejoice in what our coastal environment has to offer, but we cannot harness nature. The best we can do is try to be better prepared. ♪

Hurricane Impacts to Virginia's Natural Resources

The consequences of hurricanes are often evaluated in terms of impacts to the human environment (power outages, property damage etc.), but hurricanes also have the potential to put a lot of stress on our ecosystems. Hurricane force wind and rain can change sediment transport dynamics; alter food webs and habitats; affect fishery stocks; and impact water quality by increasing pollutant loads and turbidity.

For an ecosystem like the Chesapeake Bay, already under stress, this type of event can be catastrophic. The sediment load to the Chesapeake Bay from Hurricane Agnes (1972) nearly wiped out all the viable underwater grass beds in the Bay. Restoration efforts are *still* underway to bring back this vital resource as a result.

Fortunately, the impacts to our natural resources from Hurricane Isabel could have been worse and appear to have been temporary:

Water Quality – Isabel produced a dramatic, but temporary, peak in turbidity and nitrogen which led to very low Dissolved Oxygen readings. However Isabel hit in late September and this was less of a problem. Oxygen levels are usually low at that time of year due to normal seasonal fluctuations.

Underwater Grass Beds – In the lower Bay, beds were impacted by erosion and sedimentation. However entire beds were not decimated, so rapid recovery is expected to be fueled by the plants (and seeds) that remain.

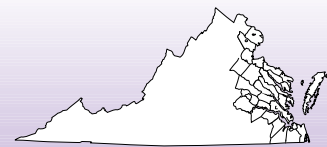
Forests – Interior forests suffered disturbances from the storm. Since this type of impact on an ecosystem can provide opportunity for invasive species proliferation, this is a long term concern.

Dunes: Natural Protection from Coastal Storms

Coastal Program funded research by VIMS has shown that in some settings, sand dunes can be a very viable part of shoreline protection for landowners around the Chesapeake Bay. Hurricane Isabel provided evidence of how dunes can help reduce the impact of severe storm events on waterfront properties and how these dunes can recover over time. The series of photos below show a dune system in Mathews County before Isabel, soon after Isabel, and then ten months later when the dune is beginning to recover.



NEWS AROUND THE ZONE



Back Bay Symposium

The Back Bay Restoration Foundation in conjunction with the Virginia Coastal Program hosted the 2005 Back Bay Forum in March. Presentations by local, state and federal agencies covered a wide range of issues and restoration and protection efforts, from "Wetland Restoration in the Back Bay Watershed" to "Gypsy Moth Management at False Cape State Park." The Foundation hopes the Back Bay Forum will become an annual event in a continuing effort to understand this waterway system and how its health can be restored and maintained.

The Forum was open to anyone interested in management of Back Bay and the day's 117 participants represented many different facets of the community and areas of expertise. Participants posed a variety of questions and issues which will need to be addressed. Of particular concern was a proposal

for a marina at Sandbridge, the effects of salt water overflow on the turbidity of Back Bay, and restoration of submerged aquatic vegetation to Back Bay. Feedback provided during the Forum will assist the Back Bay Restoration Foundation in guiding and supporting future research and restoration efforts. "By listening to the concerns of those who are interested in the Bay's well-being, and identifying the gaps in available data, we hope to have a better idea of what needs to be done to restore the Bay," states the Foundation's President Richard Dyer.

Mainstreaming LID in Northern Virginia

In recent years, Low Impact Development (LID) has been in the stormwater spotlight. LID is a comprehensive, site-based planning and design strategy to manage both the quantity and quality of stormwater runoff in a manner that mimics pre-development hydrologic conditions. LID offers improved control over the volume, velocity and quality of surface runoff. The net result is better protection of our coastal downstream waterways.

The Northern Virginia Regional Commission (NVRC), which receives annual support from the Virginia Coastal Program to provide coastal technical assistance to the region's localities, recently produced several tools focusing on LID. Additional funding to develop the following products was provided by the EPA's Chesapeake Bay Program through the Virginia Department of Conservation and Recreation.

Reining in the Storm: One Building at a Time is a 30-minute film of LID around

the Commonwealth.

The film is an introduction to LID for elected officials, planning commissioners and others. Live musicians recorded an original musical sound track to accompany the visuals. Narration

was performed by National Public Radio announcer, Frank Stasio. NVRC also produced an eight-page, full-color, introductory guide to LID to accompany the film. The guide can be downloaded at www.novaregion.org.

LID Electronic Slide Show: Echoing the themes of the LID film and basic guide, a 20-slide Power Point presentation was prepared as part of a LID education package. The presentation includes an animated hydrograph to present the concept of the rising and falling of streams during and after rainfall.

On the horizon - A LID Demonstration Site: Tinner Hill, an African-American heritage site in Falls Church and Fairfax County will feature two turn-of-the-century styled buildings, a small cultural center/museum and a performance barn. LID practices on the Tinner Hill site are designed to replicate undisturbed forested conditions, achieving stormwater quantity and quality controls well beyond code requirements.

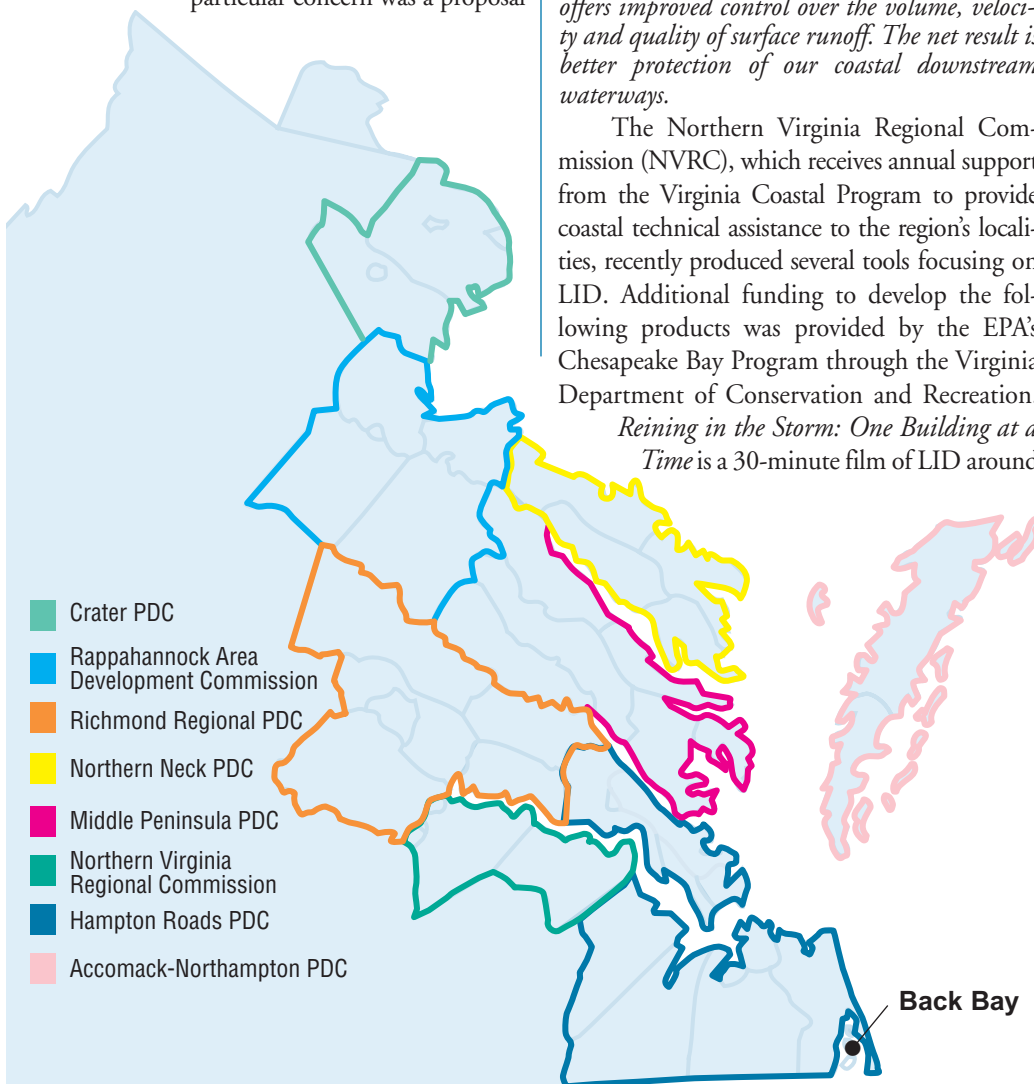
Site and soils analyses to determine the optimal locations for LID practices were performed prior to site design and location of buildings and driveways. LID practices include grasspave, pervious pavers, rain gardens, infiltration trench, partial green roof, and cisterns. The practices are integrated into the structures and will complement efforts to achieve a LEED design certification by employing a range of sustainable building techniques.

Connecting stories of the past to the modern day, water has been and continues to be an enduring theme. LID practices will be the central feature of an interpretive trail, "Follow the Drinking Gourd," and will be accompanied by interpretive signage.

For more information about any of the products above or the Tinner Hill Demonstration Site, please contact Katherine Mull, NVRC, at (703) 642-4625 or kmull@novaregion.org.



A Coastal Program exhibit formed a back drop at the Symposium. Photos courtesy of the BBRE.



Back Bay

Virginia's Maritime Heritage

By Shep Moon, Coastal Planner

...The Legacy of Virginia's Shorelines

The bounty and beauty of Virginia's coastal waters has long attracted people to its shores. Native Americans settled along Virginia's Coastal Plain drawn not only to the abundance of food but to the ease of transportation. Later, European settlers remarked on the incredible natural resources and the excellent natural harbors that the coastal plain offered. As the Commonwealth prepares to celebrate the 400th anniversary of the Jamestown settlement, it is important to remember the critical role that life along our coastal waters has played and continues to play in our culture.

This issue of Virginia Coastal Management will highlight some of the topics that constitute Virginia's maritime heritage as well as the "keepers" of this heritage – Virginia's many fine museums with ties to our maritime culture. Future issues will explore specific maritime heritage topics, the efforts of museums or other organizations to recover or preserve artifacts, or simply expose readers to our rich coastal history.



Replica 1607 ships at Jamestown Settlement – Susan Constant, Godspeed and Discovery at Jamestown Settlement history museum. Courtesy of the Jamestown-Yorktown Foundation.

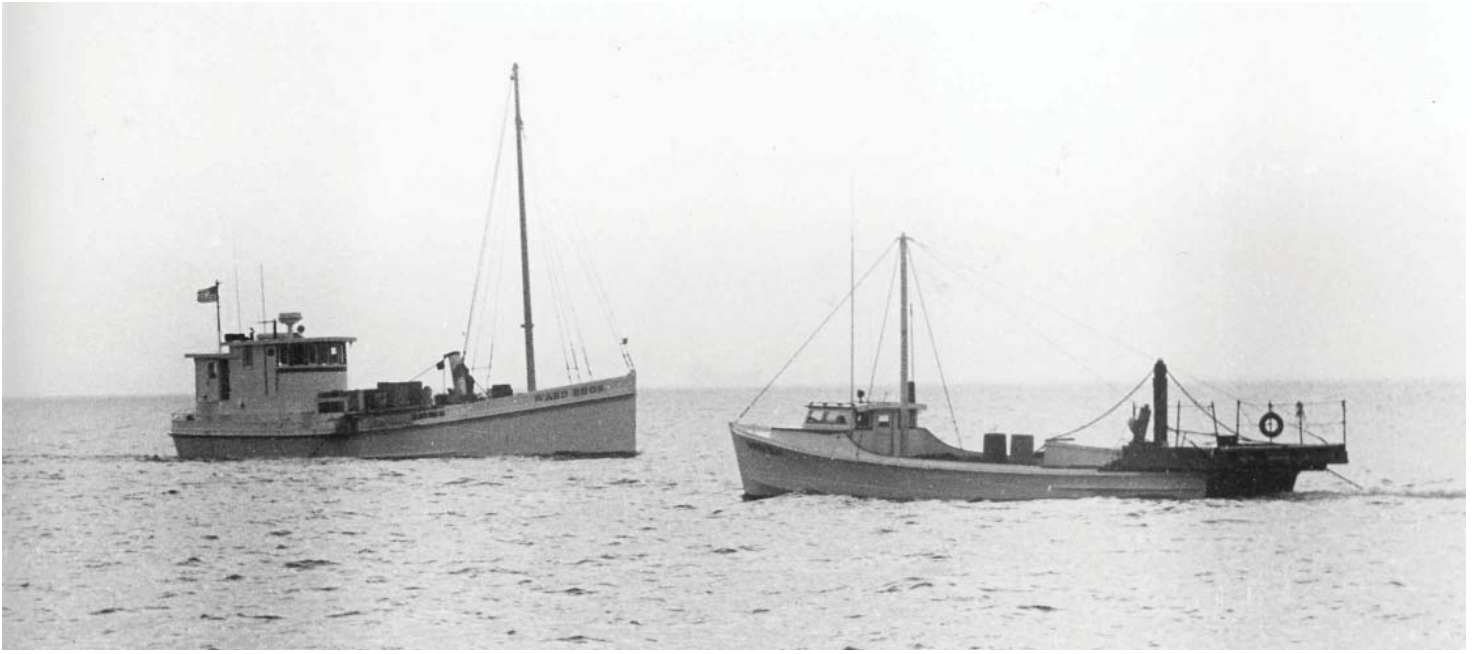


"Bird's Eye View of Alexandria, Va." Charles Magnus's lithographic view showing the river port of Alexandria in 1863 contrasts with a present day aerial view of a busy port in Hampton Roads (above.) Lithograph courtesy of the Library of Virginia (Voorhes Collection) and aerial photo by Kevin Heffernan, DCR-NH

Transportation...For much of the Commonwealth's history, good transportation alternatives over land were few or nonexistent. Our extensive network of coastal waterways, however, provided relatively easy access to large tracts of fertile land and heavily influenced development patterns during colonial times.

Plantation culture relied on waterborne transportation for exporting raw materials and importing finished goods. Some colonial ports of entry, like the Town of Urbanna in Middlesex County, were

designated by the British Crown to control trade. Later, trade centers developed along the limits of tide. Cities like Richmond, Petersburg, Fredericksburg and Alexandria grew and prospered. Well into the Twentieth Century many rural areas, lacking good roads, bridges and rail lines, depended on steamboat transportation. Today, the Port of Hampton Roads, located in the world's largest natural harbor, is the largest port complex in the United States.



Chesapeake Bay Deck boats and Deadrise Work boats have long been used for pound net fishing, oystering, crabbing and transporting goods. Photo by Larry Chowning.

Coastal Fisheries...Evidence of fishing and shellfish collecting by Native Americans dates back thousands of years. From the earliest Colonial times to the present, watermen have earned their living by harvesting oysters, crabs, fish and other species. Today commercial landings of menhaden regularly make the small town of Reedville the third-largest U.S. port in terms of fish landings.

Watercraft...Regardless of the topic or period, Virginia's watercraft remain the most recognizable symbol of our maritime heritage. Native American log canoes, colonial era Pilot Boats, Buyboats, Steamboats, and Aircraft Carriers all have strong ties to Virginia. Their use, and their construction, have long been an important part of our economy and our culture and remain so today.

Continued on page 14



A 15-foot, Indian dug-out canoe, found by a citizen in a mud bank on Upper Machodoc Creek on the Northern Neck, is now on display at the Virginia Historical Society. The canoe was first sighted in 1954. In 1996, it finally eroded completely from the mud, enabling conservators from the Department of Historic Resources to preserve it. This process took 9 months. Photo courtesy of DHR.

Maritime Historic Resources and the Virginia Coastal Program



As a member agency in the Coastal Program partnership, the Department of Historic Resources is key to the Program's success in achieving its goal to preserve our maritime culture. In the DHR photo above, a conservator at DHR uses an air-scribe to clean out corrosion from the barrel of a 'swivel gun' belonging to Yorktown Victory Center.

The Coastal Zone Management Act (CZMA) states that "it is the national policy to provide for...sensitive preservation and restoration of historic, cultural, and esthetic coastal features."

Preserving our maritime heritage and underwater archeological sites is an important component of coastal resource management in Virginia. Funding from the CZMA has enabled Virginia to help carry out this policy. Executive Order 23, signed by Governor Warner in 2002, directs the Virginia Coastal Program to "protect and restore (the Commonwealth's) coastal resources" including "underwater or maritime cultural resources". Over the years, the Coastal Program has provided CZMA funding for Maritime Heritage projects. For more information on the projects listed below, visit the Program's Web site at www.deq.virginia.gov/coastal/projects.html and search by title:

Virginia Department of Historic Resources:

*Coastal Historic Resources Inventory
Underwater Cultural Resources Assessment
"History Under Water" Brochure
GIS Database for Underwater Archeological Resources
Solving History's Mysteries exhibit*

Middle Peninsula Planning District Commission:

New Point Comfort Lighthouse Restoration



Photo and drawing courtesy of Monitor Marine Sanctuary Program.

Warfare...Centuries of naval warfare, both within our waters and on foreign shores, has played an important role in Virginia's maritime heritage. The first battle between ironclad warships took place in Hampton Roads during the Civil War. This battle between the USS Monitor and the CSS Virginia permanently changed naval warfare and is the focus of a new multimillion



The Battleship Wisconsin, now retired, is docked at Nauticus in Norfolk. Photo courtesy of NOAA

dollar exhibit under construction at the Mariners' Museum in Newport News (photos left and top left). Today, Naval Station Norfolk is the largest naval base in the world. 

Maritime Heritage Museums – Centers of Discovery

Virginia has a wealth of museums and centers that capture our maritime heritage, ranging from large, established places like the Mariner's Museum – where you can learn about a broad spectrum of maritime issues – to smaller, newer places like the Steamboat Era Museum where they focus on a single topic. With so much to see and learn about Virginia's maritime culture, the Coastal Program encourages every Virginian to learn more by visiting some of these “keepers” of maritime history as we count down to 2007.

Barrier Islands Center in Machipongo

757-678-5550
www.barrierislandscenter.com

Deltaville Maritime Museum

804-776-7200
www.therivahweb.com/deltavillepark/parkindex.html

Hampton Roads Naval Museum in Norfolk

757-322-2987
www.hrn.navy.mil/about.html

Jamestown-Yorktown Visitor's Center in Williamsburg

(757) 253-4838 or toll-free (888)593-4682
<http://www.historyisfun.org/>

Library of Virginia in Richmond

804-692-3500
<http://www.lva.lib.va.us/>

Mariners' Museum in Newport News

800-581-7245
www.mariner.org

Nauticus: National Maritime Center in Norfolk

800-664-1080
www.nauticus.org

Naval Shipyard Museum in Portsmouth

757-393-8591
www.portsnaval museums.com

Oyster & Maritime Museum in Chincoteague

757-336-6117
www.chincoteaguechamber.com/oyster/om.html

Reedville Fishermen's Museum

804-453-6529
www.rfmuseum.org

Steamboat Era Museum in Irvington

804-438-6888
www.steamboatermuseum.org

Virginia Historical Society in Richmond

804-358-4901
www.vahistorical.org

Watermen's Museum in Yorktown

757-887-2641
www.watermens.org

COASTAL COMMUNITY IN ACTION

“Lynnhaven Soup” – Kingston Elementary School’s Recipe to Rescue Its River

Can 600 elementary school students stop Slim Sludge from polluting the Lynnhaven River?

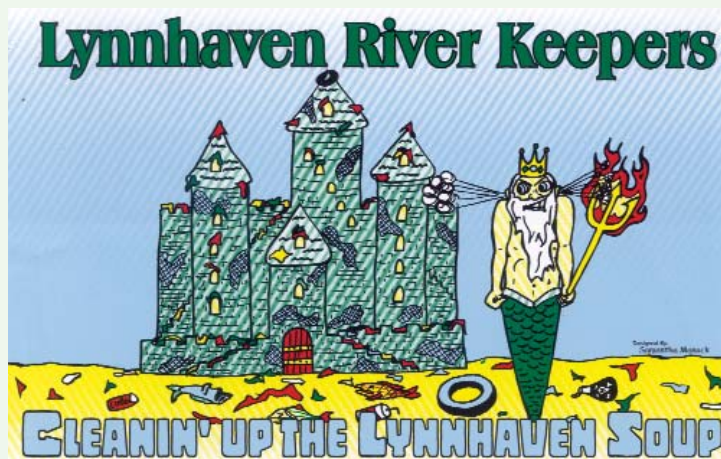
Kingston Elementary students showed how they can do just that in “Lynnhaven Soup” – an original 35-minute drama they presented alongside faculty and parents at their Virginia Beach school in March. “Omar of the Reef,” mascot of the Virginia Oyster Heritage Program, a Coastal Program private-public partnership initiative to restore Virginia’s oyster population, made a special guest appearance representing the River’s oyster population.

Lynnhaven Soup is the pinnacle of an innovative program at Kingston to teach students about Virginia’s water resources through stewardship of the Lynnhaven River. Kingston Elementary is located at the mouth of the Lynnhaven River.



Photo courtesy of Kingston Park Elementary.

Spurred by increasing reports on the river’s demise, the Kingston PTA created the Lynnhaven River Keeper Program. The program aims to enlist the help of all students, faculty and staff in rescuing the Lynnhaven River. In just four months, more than 670 Kingston students and teachers have become official “Lynnhaven River Keepers,” adopting seven acres of forest and wetlands along the waterway in 2004. This year the focus is on identifying the sources of pollution and becoming good stewards of the environment. Agreeing to environmentally-friendly practices in their homes, Kingston’s River Keepers are also participating in neighborhood conservation projects including storm drain marking and trash cleanups.



The evening presentation of Lynnhaven Soup included a “science smorgasbord” of information gathered by students on pollution solutions. Special invitations were extended to federal and state agencies and private organizations that play a role in managing and restoring the Lynnhaven. An invitation was also sent to President George Bush. According to one young Lynnhaven Soup cast member “We don’t know if he’ll come, but at least he’ll hear about what we’re doing to help the Lynnhaven River.”

Increasing awareness is the overall goal of Kingston’s program. “We hope to have a ripple effect—from our students, to their families, and on to the broader community. The education and awareness created about the Lynnhaven River has the potential to go far beyond the hallways and classrooms at our school,” stated Kathryn O’Hara, Chair of the Kingston PTA committee that developed the program.

Kingston’s “Lynnhaven Soup” was funded in part by a Virginia Beach Public Schools Education Foundation Building Futures Grant and a Hampton Roads Planning District Commission HR3 Environmental Education Mini-Grant.

Special Update: The “Lynnhaven River Keepers” were recently honored with a 2005 Environmental Stewardship Award!

For more information about the Lynnhaven River Keeper Program, contact Kathryn O’Hara at (757) 431-1921 or Virginia O’Malley (757) 431-4015.

For the Most Sensitive Coastal Lands, Acquisition May Still Be the Best Bet

By Laura McKay, Coastal Program Manager

Despite all the other tools at our disposal, the surest way to guarantee long term protection of natural coastal lands is through ownership or perpetual conservation easements. As mentioned in our cover article on managing a growing human population, we expect a lot of neighbors to be joining us in Virginia's coastal zone over the coming years. We will have to find room for them. And we can and must work with our local governments to adopt appropriate ordinances and incentives to accommodate that growth in ways that keep our communities livable and pleasant. But will this continued growth ultimately mean that few to none of our rural, natural coastal landscapes will remain?

Although the cost of waterfront and even near-coast property is skyrocketing in Virginia, the Coastal Program continues to do what it can with its limited funds to help protect some of our most sensitive coastal areas. Fortunately we have good partners who can help us stretch our dollars. And they are all working with us to come up with a prioritization plan.

In fact, all state coastal management programs across the country are working with NOAA and their state and local partners to develop prioritization plans for acquiring coastal land. That's because a few years ago Congress began "earmarking" funds in the federal budget for certain coastal land acquisitions under a program called CELCP – the Coastal and Estuarine Land Conservation Program. Congress recognizes the fast rate of growth in coastal areas and the need to preserve the ecological, aesthetic and historic values of coastal areas. NOAA and the coastal states are trying to bring a more organized approach to the "earmarking" process (whereby a single legislator identifies a particular area or parcel for acquisition) by developing acquisition priority plans that incorporate ecological criteria and are approved by the public. The Virginia Coastal Program is responsible for developing the plan in Virginia, which we are doing with the help of our many conservation partners. Keep an eye on our Website this fall and winter for updates on our CELCP plan and notice of a public meeting and public comment period.

In the meantime, the Virginia Coastal Program is receiving earmarked CELCP funds for acquisitions and conservation easements in two areas: about \$6 million for the Potomac Gorge in Northern Virginia and about \$1 million for the Dragon Run in the Middle Penin-



Virginia's diverse coast is reflected in this view of Potomac Gorge, a tract being purchased and protected as a natural area with CELCP funding. Photo by ©Gary Fleming.

sula. Work is underway to purchase fee simple rights to land and conservation easements in those areas.

The Virginia Coastal Program also has one other source of funds for land acquisition: Section 306A of the Coastal Zone Management Act. As part of our annual award of about \$3M per year, we set aside about \$200,000 for land acquisition. Of course that buys precious little these days, but by allocating those funds toward the same project area each year, we are starting to make a difference.

This summer we have been working with The Nature Conservancy, the Department of Conservation and Recreation, the Depart-



Aerial showing a portion of the tract being purchased in the Dragon Run with CELCP funding. Photo by Teta Kain.



The Coastal Program is partially funding acquisition of the seaside tract outlined in blue. Map by Scott Lerberg, VCP.

ment of Game and Inland Fisheries and the US Fish & Wildlife Service to acquire two major properties on the southern tip of the Eastern Shore. This area has long been a priority for the Coastal Program and our partner conservation agencies. It was with Virginia Coastal Program funds in 1990-93 that this area was first scientifically documented as a hemispherically important migratory songbird stopover area. For years the Coastal Program funded a Special Area Management Plan in an attempt to develop new local land use policies to protect this habitat, but local political will faltered and ordinances to protect the habitat and its native vegetation were never adopted. Then this spring The Nature Conservancy purchased two key properties on

the tip with the expectation that federal and state agencies would buy it from them as soon as grant funds could be secured. Currently we have about \$856,000 in CZM funds from 4 different grant year awards dedicated to the seaside property. DCR's Natural Heritage Program may match these grants with about \$350,000 in state funds. This \$1.2 million will be the first "buy back" funding TNC will receive toward their recent purchases. Without all of us working together on complex projects such as this, we could never accomplish this scale of land protection. We still have a long way to go on this one, but we're hoping that additional CELCP and other federal and state funds will come our way over the next few years! 

Virginia Coastal Program Land Acquisition History

Year	Grantee	Parcel	Locality	Acres	CZM\$	Match \$	Total
1991	Isle of Wight	Jones Creek	Isle of Wight	4.00	\$40,000	\$40,000	\$80,000
1992	DCR	Kellam/Alton's Creek (N Landing NAP)	VA Beach	45.00	\$85,000	\$95,787	\$180,787
1992	TNC	New Pt Comfort	Mathews	95.00	\$85,000	Lily Pt	\$85,000
1993	DCR	McAlpine (Northwest River)	Chesapeake	926.00	\$183,000	\$184,769	\$367,769
1994	DCR	Maxey (Northwest River timber rights)	Chesapeake	415.00	\$178,575	\$192,881	\$371,456
1995	DCR	Fitchett (Bethel Beach NAP)	Mathews	35.63	\$37,161	N Landing	\$37,161
1997	ANPDC/DCR	Parsons (Kiptopeke State Park)	Northampton		\$100,000	\$100,000	\$200,000
1998	DCR	Parsons (Kiptopeke State Park)	Northampton		\$182,504	\$178,114	\$360,618
1999	DCR	Parsons (Kiptopeke State Park)	Northampton	161.25	\$200,000	\$709,382	\$909,382
1999	VIMS/CBNERRS	Dragon Run	King & Queen	121.12	\$90,000	\$15,200	\$105,200
2000	MPPAA/DOF	Brown (Dragon Run)	Essex	137.00	\$200,000	\$0	\$200,000
2001	MPPAA/DOF	Brown (Dragon Run)	Essex/K&Q	137.00	\$192,000	\$0	\$192,000
2002*	DCR	Southern Tip	Northampton	17.82	\$225,652	\$0	\$225,652
2003*	DCR	Southern Tip	Northampton	32.65	\$263,792	\$150,000	\$413,792
2004*	DCR	Southern Tip	Northampton	28.92	\$167,000	\$200,000	\$367,000
2005*	DCR	Southern Tip	Northampton	15.76	\$200,000	\$0	\$200,000
TOTAL				2172.15	\$2,429,684	\$1,866,133	\$4,295,817

*grants currently in negotiation

Keep Our Communities Strong... Continued from page 2

Also coming up this fall are two major undertakings for the Virginia Coastal Program. The first, which is now underway, is our 5 year Coastal Needs Assessment and Strategy Development. UVA's Institute for Environmental Negotiation is helping us prepare this 2- part document. One of the 9 areas that will be assessed is our ability to deal with the cumulative impacts of coastal growth and development. If this area is ranked by our Coastal Policy Team as a "high priority" and a strategy for making improvements to our ability to deal with growth issues is developed, we could receive up to \$540,000/year for 5 years from NOAA for this work. The public will have an opportunity to comment on the needs assessment between October 15 and November 15.

The second undertaking is our October 5-7 Biennial Coastal Partners Workshop. This year will be quite different though – we will simultaneously be hosting the Northeast Regional CZM meeting. This will be a unique opportunity for those involved in coastal management in Virginia to share experiences and dialogues with their counterparts from Maryland to Maine. The workshop will focus on 3 major areas: growth management, coastal impacts and planning for energy production and distribution and social marketing.

So let's roll up our sleeves, start talking to our neighbors, local officials and even counterparts from other states to make our communities grow the way we want them to – after all we, the people, are the government! 

Smart Growth and Related Web Sites

Smart Growth America:

www.smartgrowthamerica.com/

Environmental Protection Agency:

www.epa.gov/smartgrowth/

Smart Growth Leadership Institute: www.sgli.org/

University of Maryland National Center for Smart Growth: www.smartgrowth.umd.edu/

National Geographic:

www.nationalgeographic.com/earthpulse/sprawl/index_flash.html

Randall Arendt:

www.greenerprospects.com/

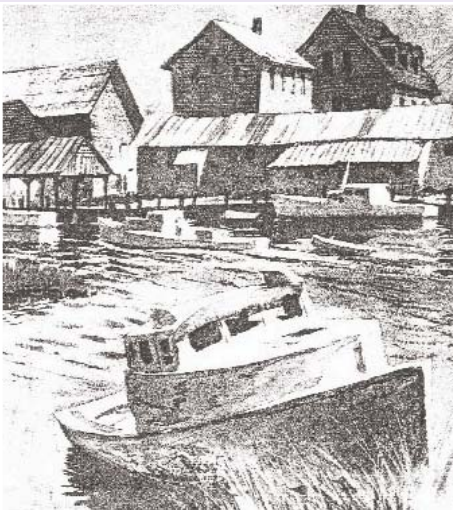
Ed McMahon: www.uli.org

VIRGINIA'S HISTORIC COASTAL PLACES

The Small Seaside Village of Oyster Has Big Plans

The seaside Village of Oyster is tucked away on the southern tip of Virginia's Eastern Shore. This tiny community sits on the Atlantic Ocean protected by barrier islands and has the southernmost deep water harbor on the eastern side of the Peninsula.

Oyster began in 1737 as a private port for Littleton Eyres's Broad Creek Plantation. With the expansion of the seaside oyster industry and coming of the railroad in 1884, Oyster grew into a small community of watermen who lived their lives according to the tides. In the late 1890s Hog Island residents relocated their homes to Oyster after a series of hurricanes put the community under water. Today, Oyster is a peaceful village with fewer than 100 residents.



The traditional industry of Oyster was seafood and the fortunes of the Village's harbor and working waterfront have mirrored the fortunes and cycles of the East Coast seafood market over the years. At one time, the waterfront held several seafood processing businesses, numerous docks for working watermen and even a Victorian-era hotel overlooking the harbor and off shore barrier islands. Today, traditional water-related industries still maintain a toehold

on the harbor, but due to the collapse of the native oyster industry, the harbor has suffered. There are two wholesale seafood businesses and a few watermen that still operate from Oyster. The harbor is periodically dredged by the Army Corps of Engineers. Deep water dockage is available in portions of the harbor, although much of the waterfront bulk heading is broken up and not dockable.

The residential areas of the Village have an authentic charm, based not on elaborate architecture or public amenities, but on a combination of traditional compact neighborhoods contrasting against the wide open farmland and coastal scenery surrounding the Village. Several houses were floated to Oyster from the former Hog Island community of Broadwater, after a series of hurricanes devastated the now uninhabited barrier island. A tiny post office and well-proportioned old church (Travis Chapel) are local landmarks, in addition to some of the older houses.

Oyster's location in the heart of an important natural area has attracted global attention and a number of conservation-based initiatives over the years. The portion of the seaside that includes Oys-



Oyster's New Vision For the Future

Oyster has a unique opportunity to plan for a more compatible and sustainable future that respects its natural and cultural heritage and its traditional water-dependent economy. Recognizing this, the Virginia Coastal Program partnered with Citizen's for a Better Eastern Shore and The Nature Conservancy and provided Coastal Zone Management Act funds to develop the "Oyster Community Vision", a blueprint of changes for the village that could help it maintain its values, history and character.

The Oyster Community Vision Project is a citizen-based visioning effort, completed in October 2004 with the assistance of a professional facilitator, Paradigm Design. The process involved a series of public forums which culminated in affirmation of an Oyster Community Vision Plan and a citizen committee to implement the plan. Northampton County, which participated in the public forums, has expressed support for the plan and pledged to help prepare an amendment to the Northampton County Comprehensive Plan to incorporate the Village's vision in its policy framework.

Donna Fauber, chair of the citizen working group, expresses the eagerness and optimism of local resident leaders to get started. "The Vision is a wonderful thing for Oyster. It gives us a common sense of purpose and a plan to preserve and enhance the place we all love."

ter is ecologically important partly because it lies within a critical stopover area for migratory songbirds headed south for the winter. Coastal areas such as this on the southern tip of the Delmarva peninsula are among the most important migration staging areas on the Atlantic coast. A large number of neotropical migratory songbirds use remaining thickets and wooded areas to replenish their fat reserves before crossing the Chesapeake Bay and continuing their journey to winter homes in Central and South America. The exten-

sive salt marshes on the seaside of the Eastern Shore also provide important feeding and spawning areas for many finfish and shellfish as well as habitat for shorebirds.

Oyster is a very popular place for sport fishermen to “put-in.” Projects are underway to expand the current harbor parking lot, construct a public pier and a public memorial for watermen. The Coastal



Program also plans to install a canoe/kayak floating dock as part of its Seaside Heritage Program (see page 5.) The University of Virginia is constructing a Coastal Research Facility on the harbor front. The area around Oyster has been the focus of coastal ecology research for over 15 years by a UVA Long Term Ecological Research Program. The Nature Conservancy has owned over 1,000 acres of farmland and coastal marsh in and around the Village for almost 20 years. These purchases were an effort to protect the mainland areas that bordered off shore barrier islands preserved by TNC.

Oyster has also been targeted by the private sector for significant residential growth. Human uses of this seaside landscape can have major impacts on water quality and the subsequent health of the adjoining estuarine system. Incompatible development in or around the village could have impacts that reach deep into the delicate estuarine bays and salt marshes that are the lifeblood of these globally important seaside ecosystems. 🐡

Beach Pollution: A Top Ten List *Not* to Brag About

When you hear “Top Ten” and “Beaches” in the same sentence, it is a sure bet that it is not the list below that springs to mind. However, this is what volunteers in the 2004 International Coastal Cleanup (ICC) found last fall strewn on Virginia’s beaches:

1. Beverage Bottles (plastic) 2 liters or less (2,694)
2. Cigarettes/ Cigarette filters (1,984)
3. Food wrappers/containers (1,712)
4. Caps, Lids (1,587)
5. Balloons (1,250)
6. Beverage cans (1,143)
7. Beverage bottles (glass) (926)
8. Bags (847)
9. Cups, Plates, Forks, Knives, Spoons (825)
10. Rope (588)

“During the cleanups, we found plastic bottles and grocery bags, small buoys, fishing lures, mylar balloons, and nearly 200 toys,” states Richard Ayers, the Virginia Eastern Shorekeeper. Ayers, who is funded in part by the Virginia Coastal Program (see page 5), was instrumental in working with the Coastal Program to pull together many of the sites involved in the regional cleanup on Virginia’s Eastern Shore.

“Balloons and rope are the biggest story,” according to Katie Register, Executive Director of Clean Virginia Waterways which organizes the ICC statewide and works with local litter coordinators and programs throughout the year. “Balloons have made the Top Ten list only once in the last 10 years for the entire state, yet they are commonly in the Top Ten list when we look just at the beaches.”

Released balloons return to the land and sea where they can be mistaken for prey and eaten by animals. Balloons are hazards when they enter the aquatic environment because they can look a great deal like jellyfish, a major source of food for many animals. Sea turtles, dolphins, whales, fish, and seabirds have been reported with balloons in their stomachs. Mass-releases of balloons are illegal in Virginia and several other states due to the potential harm they cause to wildlife when they return to land or sea.

For more on the Eastern Shore Beach cleanup effort this September and October and what you can do to help, visit the Coastal Program Web! –Virginia Witmer, Outreach Coordinator 🐡



There were 7 official ICC cleanup sites on Virginia’s Eastern Shore in October 2004. Twelve miles of beach were cleaned - 301 volunteers (including those shown at Savage Neck) collected 7,360 pounds of trash—that’s approximately 490 bags! Photo by Richard Ayers.



COASTAL CLIPS & CONTRIBUTIONS

Welcome New Coastal Staff!

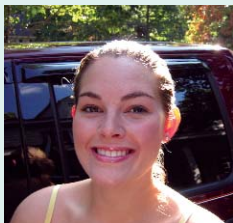


Rachel Bullene recently joined the Virginia Coastal Program as the new Grants Coordinator and Outreach Specialist. Prior to joining the Coastal Program, Rachel served as the Environmental Educator at Virginia Zoo in Norfolk, VA, and as an educator at the Virginia Aquarium.

Rachel is a graduate of the College of William and Mary where she completed a Bachelor's degree in Political Economy.

At the Coastal Program, Rachel will oversee all grants management activities of the Program. As Outreach Specialist, Rachel will be working with the Outreach Coordinator to produce publications and exhibits, provide workshops and training, and increase the Program's visibility.

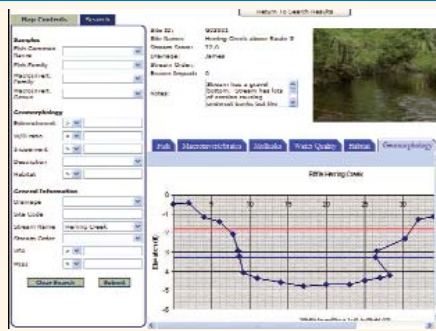
Thanks to our Summer Intern!



Lauren Harris, oyster gardener extraordinaire and recent graduate of Midlothian High School, spent her summer before attending Virginia Tech helping the Coastal Program with two projects. Her first assignment—conversion of old paper grant files to digital format (ugh!).

But then we lived things up and asked her to tackle updating of the VIMS 1999 oyster gardening manual—"Introduction to Oyster Culturing in Virginia." Lauren did a fine job integrating comments from key partners in the effort—VIMS, the VA Oyster Reef Heritage Foundation and the Tidewater Oyster Gardeners Association (TOGA). Look for the new manual coming this fall in print and on the Web.

Thanks, Lauren!



INSTAR Gives Insight Into Virginia's Coastal Stream Systems

Virginia Commonwealth University, through support from the Coastal Program and the Department of Conservation and Recreation has created a new stream assessment online tool, INSTAR. The INTERactive Stream Assessment Resource is an interactive mapping and database application that provides users access to aquatic resources information from more than 500 sites in Virginia's Coastal Zone.

This stream data is also one of the "Blue Infrastructure" data layers in the Coastal Program's Blue-Green Infrastructure Internet Mapping System - see page 2.

Traditionally stream restoration programs have faced two major challenges. First, there are multiple stream assessment protocols available and application of the appropriate protocols can be difficult. Second, it is difficult to define restoration endpoints (i.e. when is a stream considered "restored"?). Both of these challenges are dependent on an understanding of, and comparison to, relevant reference conditions that accurately describe the ecological potential of streams in that region. Due to widespread development in Virginia, there are very few, if any, streams that can be used as examples, or references.

INSTAR addresses these challenges by compiling a robust database of stream information for Virginia and analyzing the data so the user can see a current quality assessment of streams and also compare that stream to modeled "ideal" conditions.

The Coastal Program continues to support data collection and analysis to expand the geographic scope for INSTAR. INSTAR can be accessed online at: <http://gaia.vcu.edu/>

For more information, contact Dr. Greg Garman at VCU (ggarman@mail2.vcu.edu)

Coastal Project Illustrate Good Community Involvement

Good community involvement has been at the root of the Special Area Management Plan in the Dragon Watershed. The SAMP was highlighted as an example of citizen initiative and resolve at a "Community Involvement Workshop" sponsored by the Department of Environmental Quality during the 16th Annual Environment Virginia Conference last April.

David Fuss, Coordinator for the Dragon Run SAMP at the Middle Peninsula Planning District Commission shared how citizen-based advisory groups have helped shape a management plan for the Dragon Run Watershed. The watershed is recognized by many as one of the most ecologically significant areas in Virginia's coastal zone. Fuss also pointed out the importance of keeping communication and opportunities for citizen involvement going as the plan is implemented.

The workshop was held as part of DEQ's community involvement initiative - an ongoing effort to improve Virginians' ability to participate in significant environmental actions that affect individuals, businesses, governing bodies and organizations across the state.

The highlight of community involvement activities in 2005 has been community meetings held in each DEQ region of Virginia during the summer and fall. Several dozen participants attended the first meetings held in the Lynchburg and Roanoke regional offices, and similar attendance was expected in Abingdon, Chesapeake, Woodbridge, Glen Allen and Harrisonburg.

The DEQ regional offices also have developed community involvement plans, specific to each region of the state. These plans detail actions that will help DEQ meet its goal of stronger community involvement

The meetings are part of DEQ's initiative to increase understanding of how DEQ operates, identify issues that are a priority in each region and enhance opportunities for community involvement in environmental activities in Virginia. They were open to the public, and DEQ encouraged business owners, educators, local governments, community leaders and others who are interested in environmental protection to attend.

Coastal Program Sponsors Two National Conferences

The Virginia Coastal Program is supporting two major conferences coming to Virginia this fall: the Watchable Wildlife Conference on October 10–14 in Virginia Beach and the National Estuarine Research Federation Conference on October 17–21 in Norfolk.



Coastal Program funding is enabling the National Estuarine Research Federation to produce conference proceedings. This scientific program will include a two-day Chesapeake Bay Colloquium (organized in conjunction with the Chesapeake Research Consortium). For more information and to register, visit www.erf.org.

The Virginia Coastal Program Manager, Laura McKay, serves on the International Wildlife Conference Planning Committee, whose goal is to provide conference attendees with the most comprehensive and useful program related to responsible wildlife viewing while helping to sustain community character. For more on what this conference will offer, visit www.watchablewildlife.org/.



Media Award Presented to Eastern Shore Environmental Education Council

The Virginia Coastal Program congratulates the Eastern Shore Environmental Education Council on their receipt of the 2004 June Sekoll Media Award!

The award was presented to the Council for their work on Shore Outdoors, a special quarterly insert in the Eastern Shore News which focuses on the value and protection of the Shore's coastal resources.

Since July 2003, the Council has published a quarterly edition of Shore Outdoors to increase environmental literacy and encourage good stewardship on the Eastern Shore. The insert reaches a wide audience of over 65% of Eastern Shore households (a distribution of 12,000).



The Virginia Coastal Program provided funding support for two issues of Shore Outdoors which featured articles on the efforts of the Virginia Seaside Heritage Program (see an update on this initiative on page 2).

The award was announced at the Soil & Water Conservation Society's October 2004 awards luncheon in Blacksburg, Virginia, and is given in memory of June Sekoll, former editor of the Farm Chronicle.

Virginia CBNERRS Dedicates New Building; Director Named NOAA Hero

On September 12, Chesapeake Bay National Estuarine Research Reserve in Virginia dedicated a new building, the Catlett-Burruss Research and Education Laboratory, to the Catlett and Burruss families for their generous support to CBNERR and to VIMS over the years. The new facility supports water quality monitoring in Chesapeake Bay coastal waters, watershed and shallow water habitat studies, and education of students, teachers, and coastal decision-makers.

At this event, Willy Reay, Director of the CBNERRVA was formally presented with a 2005 NOAA Environmental Hero Award. NOAA Deputy Assistant Secretary of Oceans Tim Keeney made the presentation. Given in conjunction with Earth Day celebrations, the award honors NOAA volunteers for their "tireless efforts to preserve and protect our nation's environment." Dr. Reay was recognized as a local and national leader in the effort to improve water quality, weather and habitat monitoring in estuarine environments. The NOAA award notes: "In the Chesapeake Bay, his work has contributed to establishing better shallow water quality criteria for the Chesapeake Bay Program and the state of Vir-

ginia, and documenting the impacts of Hurricane Isabel on estuarine water quality. As a leader within the NOAA National Estuarine Research Reserve System, Reay has continually encouraged and exemplified excellence in the System Wide Monitoring Program; ensuring that reserves around the country produce high quality data and exploring technology to expand the scope and parameters of monitoring data."

Established in 1996, the Environmental Hero award is presented to individuals and organizations that volunteer their time and energy to help NOAA carry out its mission. This year, the award was given to 34 individuals and three organizations from across the United States and around the world.

NOAA's Science on a Sphere Unveiled at Nauticus

Virginia Coastal Program staff were present as NOAA and Nauticus officials unveiled NOAA's Science on a Sphere at the National Maritime Center in Norfolk, Virginia, on June 2, 2005. Imagine gazing upon Earth as you are suspended in orbit 22,000 miles above its surface.

NOAA chief of staff Scott Rayder and Norfolk Mayor Paul Fraim gave keynote remarks during the unveiling of the Sphere. Dr. Alexander MacDonald, director of NOAA's Forecast Systems Laboratory and inventor of the Sphere, demonstrated a variety of datasets - for example, he projected the dramatic satellite imagery of the hurricanes that landed along the US Atlantic coastline during 2004. According to Scott Raydor, "the NOAA and Nauticus partnership has created the opportunity for NOAA to integrate its science with education and outreach efforts. The new exhibit and NOAA teacher resource center will provide the Norfolk community and its visitors valuable information about our environment."

NOAA SOS "is an exciting and informative way for people to see NOAA's climate, weather and ocean science," states retired Navy Vice Admiral Conrad C. Lautenbacher, Ph.D., Undersecretary of Commerce for Oceans and Atmosphere and NOAA Administrator. "For example, viewers can watch how the warm water of the Pacific that signals an El Nino travels across the ocean, or watch a hurricane form, as a small storm slowly gathers strength, traveling westward from Africa, across the Atlantic Ocean, toward the Gulf of Mexico."



Festival Continues to Attract Birders, Students, Families and First-Time Visitors to Virginia's Eastern Shore!

13th Annual Eastern Shore Birding and Wildlife Festival

Friday, October 7 -
Sunday, October 9,
2005

Best Western Sunset Beach Resort
(on the tip of Virginia's Eastern Shore south of Cape Charles)



Guided tours, boat trips, lectures, live-bird exhibits, aquatic wildlife viewing, workshops, silent auction/raffle, bird banding, Run for the Birds, Eastern Shore arts, children's tent, food, music and more!

Keynote Speaker: Dr. Sidney A. Gauthreaux, Jr.
"Radar Ornithology and the Conservation of Migratory Birds"

www.esvachamber.org
or call 757.787.2460

Indigo Bunting by Belle Baldessarre,
Nandua High School,
Winner - Birding and Wildlife Festival Art Contest
(border art by Kim Richardson, Northampton High School)
Poster by Virginia Coastal Zone Management Program,
Department of Environmental Quality

Eastern Shore of Virginia Annual Birding & Wildlife Festival

This yearly October festival celebrates the seasonal migration of birds through the southern tip of the Tidewater peninsula. For more details on the festival visit www.esvachamber.org



The Eastern Shore of Virginia is a globally important migration corridor and nest area for our declining neotropical songbirds.

As birds that nest in northern North America fly south each autumn to Central and South America, they are "funneled" into the southern tip of the Eastern Shore. Here they stop and nest before crossing open waters.

Migratory songbirds depend on local homes and insects to fuel their trip to the tropics, burning their stored fat at the fuel economy of 720,000 miles/gallon. They also only can choose where to hide from predators.

I'd told you how you can create a better "nest stop" for birds in your backyard, go to www.deq.virginia.gov/coastalgonative.html

An annual art contest is held each spring to bring awareness of migratory songbird conservation needs to students at Accomack and Northampton high schools. Winning artwork is featured on this placemat and at the second Birding and Wildlife Festival.

This map of the Delmarva peninsula was produced by watercolorist Kimberly A. Hays for the Eastern Shore of Virginia Chamber of Commerce.

13th Annual Eastern Shore of Virginia Annual Birding and Wildlife Festival
The Eastern Shore of Virginia is a globally important migration corridor and nest area for our declining neotropical songbirds.



1" Plack 2005 - Gary Sharp
"Yellowthroat Warbler"



1" Plack 2005 - John W. Hinkley
"American Goldfinch"



1" Plack 2005 - Kimberly A. Hays
"Yellowthroat Warbler"



1" Plack 2005 - Belle Baldessarre
"Indigo Bunting"



1" Plack 2005 - John W. Hinkley
"American Goldfinch"



1" Plack 2005 - Kimberly A. Hays
"Yellowthroat Warbler"

What the Virginia Coastal Program initiated in 1993 is now a local tradition. And it keeps growing! This year, the festival has been renamed the Eastern Shore of Virginia Birding and Wildlife Festival. New venues have been added to show how bird ecology is intertwined with other wildlife and their habitats. We've also produced a paper placemat for use in local restaurants to get the word out. The Coastal Program and DGIF are printing 30,000, so look for them at your favorite "stopover" on the Eastern Shore.

VIRGINIA COASTAL MANAGEMENT

Virginia Coastal Resources Management Program
Virginia Department of
Environmental Quality
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