Virginia Coastal Zone Management

Summer/Fall 2008

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Virginia Coastal Zone
MANAGEMENT PROGRAM

Protecting, restoring, strengthening our coastal ecosystems & economy

Virginia Coastal Zone Management Program

The Virginia CZM Program is a network of state and local government agencies working to create more vital and sustainable coastal communities and ecosystems. Virginia's coastal zone includes the 29 counties and 17 cities of Tidewater Virginia and all tidal waters out to the three mile territorial sea boundary.

The Virginia CZM Program includes state and local laws and policies to protect and manage Virginia's coastal resources, implemented by:

Virginia Department of Environmental Quality– lead agency
Virginia Department of Conservation and Recreation
Virginia Department of Game and Inland Fisheries
Virginia Department of Health
Virginia Marine Resources Commission
Tidewater local governments

The program is guided by the Coastal Policy Team which provides a forum for managing cross-cutting coastal resource issues. The Coastal Policy Team is comprised of the partner agencies listed above as well as:

Virginia Department of Agriculture and Consumer Services
Virginia Department of Forestry
Virginia Department of Historic Resources
Virginia Department of Transportation
Virginia Economic Development Partnership
Virginia Institute of Marine Science
Virginia Planning District Commissions (8 Tidewater regions)

The Virginia CZM Program is part of the national coastal zone management program, a voluntary partnership between the National Oceanic and Atmospheric Administration and U.S. coastal states and territories authorized by the Coastal Zone Management Act of 1972, as amended.

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Virginia Coastal Zone Management is published twice a year to highlight coastal resource management issues in the Commonwealth. Virginia Coastal Zone Management magazine is also available on the Web. Go to www.deq.virginia.gov/coastal/magazine. Please direct ideas for future issues or subscription requests to Virginia Witmer, editor and graphic designer, at Virginia.Witmer@deq.virginia.gov

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Visit us on the Web at: www.deq.virginia.gov/coastal/

Cover Photo: *Climate change has an effect on the distribution of species like Brown pelicans, whose nesting range has expanded into the Chesapeake Bay area, with detrimental consequences to individual birds who try to overwinter here. See more about this in our cover story on page 5. Photo by Bill Portlock.*

Message from the Program Manager

It's been awhile since our last magazine! Yes, we've been awfully busy this year. The Virginia Coastal Zone Partners Workshop last December was productive. More than 120 partners attended and helped develop ideas for our next focal area, which by vote of the Coastal Policy Team will be "Sustainable Communities" with an emphasis on adapting to climate change and conserving ecologically important lands and waters.

We've also completed the Coastal and Estuarine Land Conservation Program (CELCP) plan – an-80 page book *(see page 8)*! The plan ensures Virginia's continued eligibility to receive CELCP funds from NOAA.

On an entertaining note, we were honored to have my dear friends, Kim and James Taylor, arrange a benefit concert on behalf of our southern tip songbird habitat conservation effort. Kim and James have donated funds for the past few years to our efforts on the Eastern Shore, but the concert in Virginia Beach on May 22 was a real high note! It generated about $200,000 for additional land acquisition on the southern tip.

On another sweet note, the Virginia CZM Program and our four partners in the "Southern Tip Partnership": Department of Conservation and Recreation, Department of Game and Inland Fisheries, US Fish and Wildlife Service and The Nature Conservancy were jointly honored by receiving the Governor's Environmental Excellence Award (Gold) for land conservation. We've worked together since 1990 to research habitat needs and protect approximately 24,000 acres of migration stopover habitat. We have amazing friends!

Laura McKay

Laura McKay, program manager (center) with Kim and James Taylor at a reception prior to the May 22 migratory bird benefit concert in Virginia Beach. "Their song is the music of the biosphere," said Taylor of the neotropical songbirds at a press conference the previous day. (TNC)

Virginia Coastal Zone Management

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Wellman/DEQ

Since this staff photo was taken, we had to say a fond farewell to Kelly and Jacquie. Kelly has taken a new job in North Carolina and Jacquie's NOAA/CSC fellowship ended. They each contributed a great deal to the projects we report on in this issue and they will be greatly missed. Appearing in photo (left to right) Jacquie Shapo, Virginia Witmer, Nick Meade, Kelly Price, Laura McKay, Shep Moon.

Virginia Witmer/VACZM

Virginia Coastal Zone
MANAGEMENT PROGRAM

Understanding Challenges and Adapting to Changes on Our Coast

By Shep Moon, Virginia CZM

Although news about the earth's changing climate has been common since NASA scientist James Hansen first spoke to the U.S. Senate twenty years ago, the release of the United Nations Intergovernmental Panel on Climate Change (IPCC) report in 2007 heightened interest in the subject. Hansen warned in 1988 that climate change was already occurring and wasn't just a potential threat for future generations.

In the absence of a national initiative, the issue has become more localized as state governments have begun to consider the potential implications of climate change and to evaluate what their response should be. Virginia Governor Tim Kaine created the Governor's Commission on Climate Change in December 2007 with the charge of preparing a plan for reducing greenhouse gases and evaluating the expected impacts of climate change on Virginia's citizens, natural resources and economy. In its draft findings, the Commission acknowledged that that global climate change is happening and could affect Virginia in a number of ways including its ecosystems, agriculture and forestry industries, fisheries harvest, transportation network, military installations and insurance industry.

Although the entire Commonwealth may be affected, Virginia's coastal zone is likely to face the greatest challenges. Threats to coastal resources include rising water levels, more frequent and stronger hurricanes and storms, changes in precipitation patterns and warmer air and water temperatures that will affect coastal habitats and the livelihoods and lifestyles of coastal residents.

Arthur Schwarzchild/ABCRC-UVA

ANPDC

In the Village of Oyster in Northampton County (above), homeowners have elevated their homes in expectation of more storm surges, like the one brought by Hurricane Isabel (below).

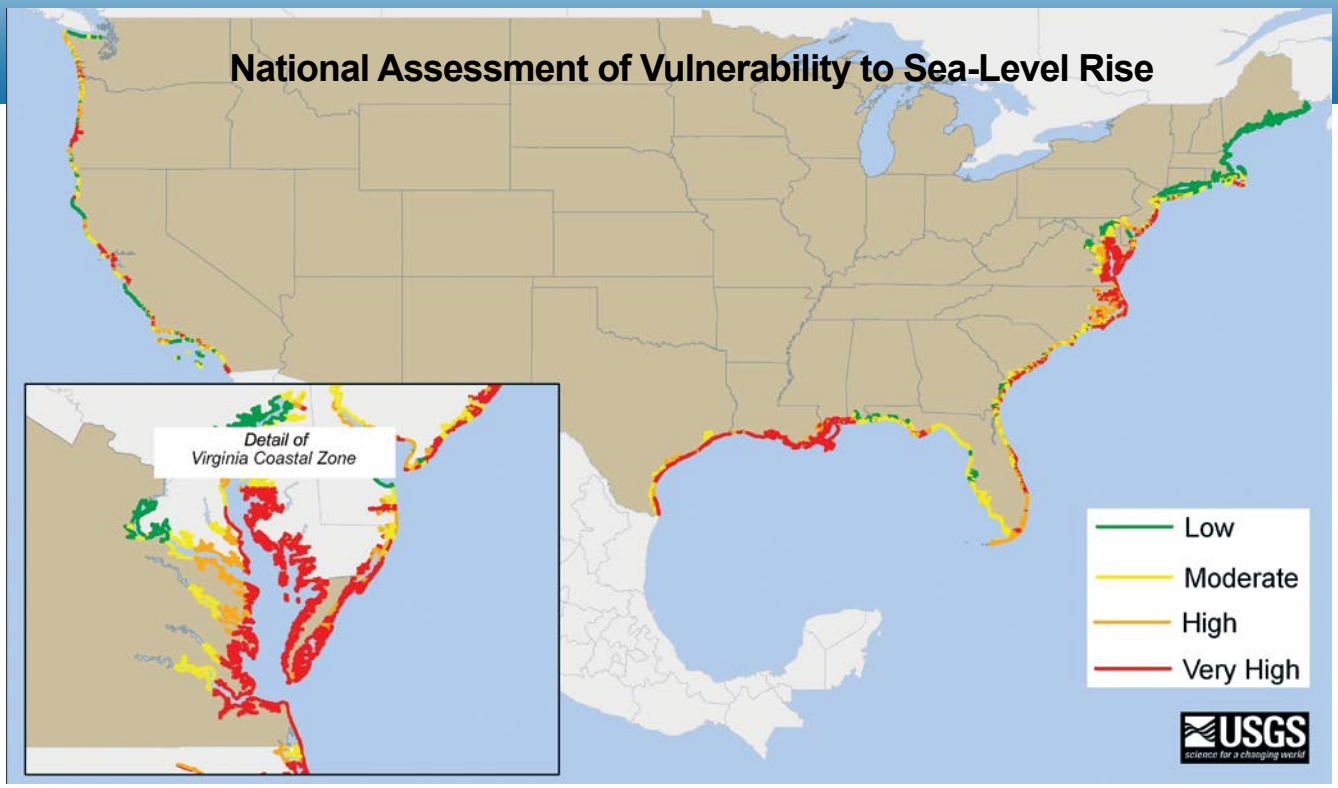
Rising Waters

The most publicized change is probably the expected rise in sea level, which is predicted to be at least two feet within the next 100 years, or double the rate from the past century. The region has added vulnerability because it is also gradually subsiding as a result of geologic changes related to the last ice age. As a result, Virginia's coastal zone faces the highest rate of relative sea level rise on the East Coast. According to a recent report by the National Wildlife Federation, the Chesapeake Bay region, rimmed with marshes and other low-lying lands, may be one of the hardest-hit areas in the country.

Rising water levels pose a threat to both private development and public infrastructure. Roads, rail lines, wastewater treatment plants, water and sewer lines, and port and military facilities could all be endangered by rising water levels. Saltwater intrusion into potable groundwater supplies may also affect both public and private sources of water.

While many of the expenses of adapting to higher water levels will have to be born by the various levels of government, a significant burden will fall on individual waterfront property-owners. Already, many have been forced to elevate their houses in response to increasingly severe storm flooding and to rebuild seawalls and revetments that were originally designed for lower water levels. Septic systems are also being affected by higher water levels and frequently the only replacement options are expensive alternative on-site wastewater treatment systems. In other cases houses, especially on low-lying islands, are being abandoned as waters rise and land washes away.

Some coastal lands may eventually be completely inundated and converted to marsh, while other wetlands are flooded and



The US Geological Service shows Virginia's coastal zone to be one of the most vulnerable areas in the nation to inundation as sea level rises. (Thieler, E.R., and Hammar-Klose, E.S., 1999. National assessment of coastal vulnerability to sea-level rise: Preliminary results for the U.S. Atlantic coast. U.S. Geological Survey Open-File Report 99-593. http://pubs.usgs.gov/of/of99-593/).

become open water. A draft EPA study predicts inundation of 760 square miles of wetlands and adjacent uplands in Virginia's coastal zone over the next 100 years. Some estimates show that up to 80% percent of Virginia's tidal wetlands could be lost by the end of the century. Other wetlands will undergo significant species changes as water levels rise and salinities increase. Fringe marshes and beaches along developed lands with shorelines hardened by bulkheads or revetments are likely to vanish because they are unable to "migrate" inland as sea level rises. Along with the loss of wetlands, of course, comes the loss of their habitat and water quality protection values.

A Changing Climate

Scientists also predict long term changes in air and water temperatures and precipitation patterns. Temperatures in the Chesapeake Bay have already risen by about two degrees since the 1950's and are expected to continue to warm with average water temperatures increasing by about .6 degrees Fahrenheit per decade. Precipitation is predicted to increase overall, with up to a 10% increase in total rainfall, but may arrive through fewer but more intense rain events. Increasing periods of heavy rain, especially during the spring, would have a severe impact on coastal water quality. Extreme rain events, like the remnants of Hurricane Agnes that deluged the Chesapeake Bay watershed in June 1972, wash tremendous amounts of extra sediment and nutrients into the estuary along with enough fresh water to significantly lower salinity levels. According to some theories, the effects of this one huge storm, which occurred early during the Bay's growing cycle, are still being felt today.

Conversely, we may also experience more frequent and severe droughts. These may actually temporarily improve coastal water quality because of less runoff, but at the expense of agricultural production and potable water supplies. The saltier waters that move up the tributaries during prolonged periods of drought also cause habitat changes and affect less salt tolerant species of vegetation. Warmer temperatures also contribute to the decline of some species through additional environmental stress. Warmer waters hold less oxygen and are more favorable to various diseases that may affect important species like oysters and rockfish. Higher air and water temperatures may also affect important habitats and aggravate current water quality problems.

Taken together, the changes brought by climate change are likely to have far-reaching impacts on Virginia's coastal zone and present a range of challenges for coastal resource managers. According to Skip Styles, director of Wetlands Watch and a member of the Governor's Commission on Climate Change, the first step should be to look at the combined impacts of sea level rise, temperature changes, and weather variability on our coastal ecosystems. Then, he notes, the tough work begins: managing that ecosystem in a rapidly changing world.

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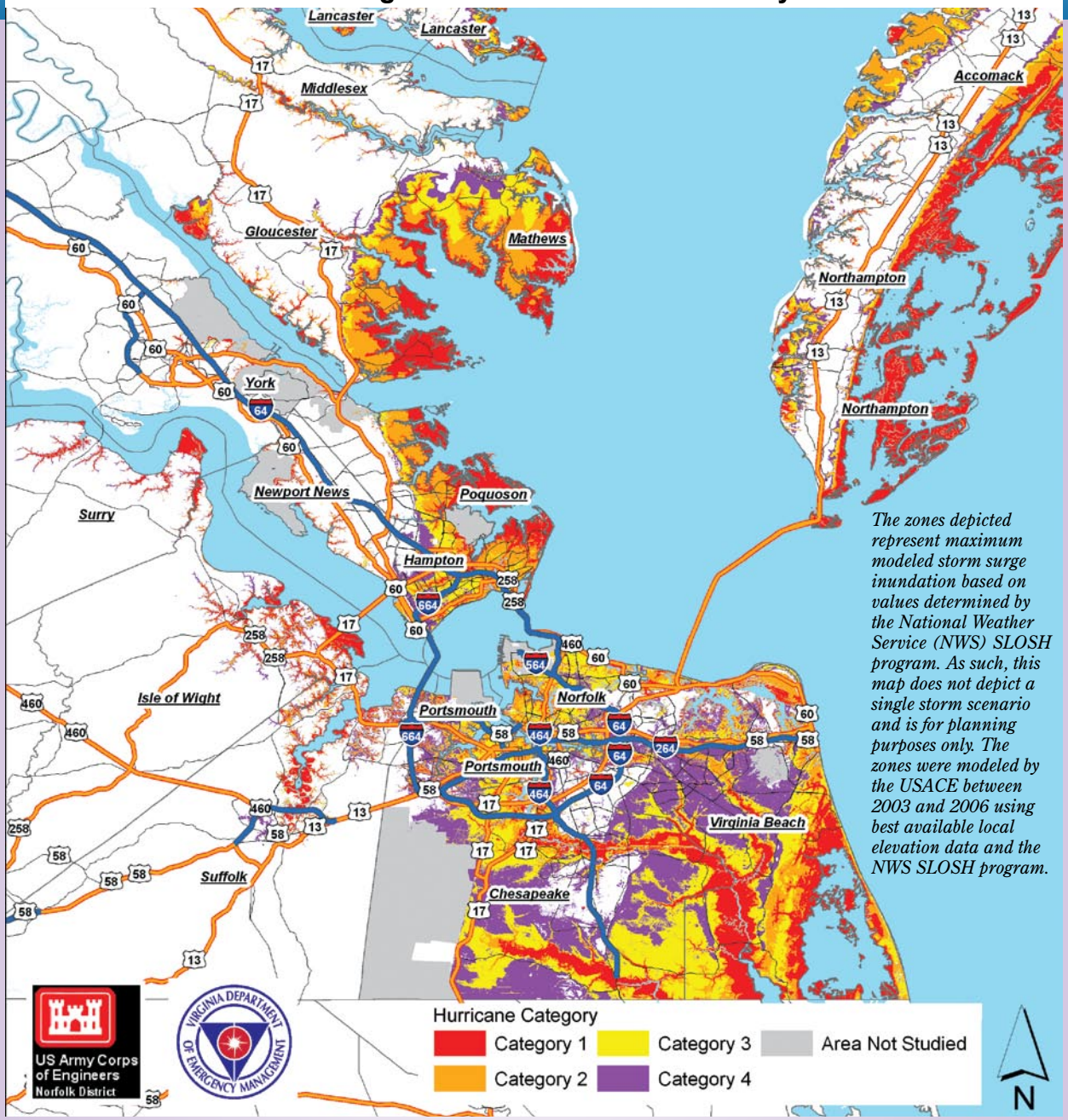
Maximum Storm Surge Inundation
2008 Virginia Hurricane Evacuation Study



Stormy Weather

Scientists predict that climate change will result in more frequent and intense coastal storm events such as hurricanes and nor'easters. Coastal flooding from these events is likely to be worsened by the anticipated rise in sea level. Although Hurricane Isabel in 2003 was not as strong as the famous August 1933 storm that devastated Virginia's coast, the extent of flooding was similar because water levels are now higher. The effect of increasing coastal property damage is already being seen as a number of major insurance companies are no longer offering coverage to some coastal localities.

Many more people and properties are also now in harm's way because of rapid coastal population growth and a boom in waterfront development since World War II. Hampton Roads is now considered to be the largest population center at the greatest risk from sea level rise outside of New Orleans. According to the Virginia Department of Emergency Management, updated storm surge predictions for even a category 1 hurricane would require evacuation of 100,000 people from the Hampton Roads area alone (see above map).

Habitat Effects

Virginia Witmer/VACZM

Blue Crab in eelgrass.

The Chesapeake region is near the southern extent of the range of eelgrass, an important species of submerged aquatic vegetation that provides critical habitat for Blue Crabs and other animals. Eelgrass is extremely susceptible to warmer water, as was shown in 2005 when a large scale die-off occurred in late summer due to unusually high water temperatures.

Higher water temperatures are a double strike against a species already struggling to maintain a foothold in nutrient polluted waters. “Unless strong measures to improve water quality in the Chesapeake Bay are adopted by management and regulatory agencies, the future of eelgrass, which requires a significant amount of sunlight and is limited to the shallowest areas of the Bay and its tributaries, is uncertain,” says Dr. Robert Orth with the Virginia Institute of Marine Science, the foremost expert on eelgrass in Virginia.

Water Quality Effects

When combined with heavier nutrient loadings from increased runoff, warming coastal waters may face larger and more persistent oxygen depleted “dead zones,” and more harmful algal blooms. More sediment from runoff, coupled with an increase in nutrients may also result in declining water clarity and corresponding impacts on underwater grasses. Coastal waters may also become more acidic as atmospheric carbon dioxide levels increase and more CO2 is absorbed into the water. Already, ocean acidity has changed from a pre-industrial pH of about 8.2 to a current pH of less than 8.1. This may result in problems with shell formation for organisms like phytoplankton, shellfish and corals.

Wildlife Effects

Bryan Watts/W&M-CCB

Brown Pelicans nesting.

Some southern species previously at the northern extent of their range are experiencing significant population growth as their habitat expands. Brown Pelicans, for example, didn’t nest in the Chesapeake region before 1987 but are now common with more than 2000 breeding pairs.

According to Dr. Bryan Watts, director of the Center for Conservation Biology at William and Mary, some Brown Pelicans are also trying to overwinter in Virginia, but are facing a variety of problems. Pelicans have lots of exposed skin and can’t tolerate the cold. The fish they feed on also move to deeper waters in winter, making feeding more difficult. In 2006, for example, 30-40 pelicans were found starving because they could not feed during a period of extended cold weather.

Steve Earley/The Virginian-Pilot

The Lafayette River in Norfolk shows the dark stains of an algal bloom. Warmer waters and increased runoff due to climate change may make events like this more common in the future.

Climate Change - *Continued from page 4*

Adapting to Change

Taken together, the predicted effects of climate change are likely to result in significant alteration of natural habitats and lifestyle changes for watermen, waterfront property owners and coastal communities. Recognizing the potential severity of these changes, many states have begun their own climate change initiatives. While the primary goal of these initiatives is often to reduce greenhouse gas emissions, coastal zone management efforts will need to focus more on planning for, and adapting to, the climate change impacts that now appear inevitable.

Coastal programs from around the country are developing policies to address issues such as the siting of public infrastructure, development project planning, wetland conservation and restoration, shoreline building setbacks, building elevations and alternatives to shoreline hardening for erosion control. The Maryland Coastal Program, for example, has developed a sea level rise response strategy to help guide state efforts. Through initiatives such as "StormSmart Coasts" from the Massachusetts Coastal Zone Management Program, local decision-makers are gaining access to better information on how to protect themselves from coastal storm damage and flooding, and to prepare for sea level rise and climate change. The program provides regional workshops and an extensive website that translates complex technical information into user-friendly guidance with links to the best information and data from around the nation. (See text box on page 7.)

The Virginia CZM Program is responding to climate change issues through several initiatives. The December, 2007 Coastal Partners Workshop in Portsmouth focused on climate change and included a discussion of coastal issues to be addressed through the Program's next "focal area." The priority issue identified was sustainable community planning, with an emphasis on both local adaptation to climate change and blue-green infrastructure protection planning. The Virginia CZM program will be providing about $1.1 million in grants to planning district commissions and state agencies over the next three years to address these issues.

The Virginia CZM Program's shoreline management strategy grants also address climate change by promoting the use of more environmentally friendly "living shoreline" techniques to manage shoreline erosion. These techniques help preserve the habitat and water quality protection functions of natural shorelines while still protecting property from erosion. They also allow for the gradual landward retreat of fringe wetlands as sea levels rise. The shoreline management strategy includes a variety of projects with total funding of $750,000 over a five-year period that runs through September 2011.

Initiatives are also underway at the federal level. The National Oceanic and Atmospheric Administration (NOAA) has proposed creating a National Climate Service to mirror the work of NOAA's National Weather Service, providing a clearinghouse for climate-related research, data and community assistance. The Coastal Zone Management Act (CZMA) also provides a ready structure for helping states better prepare for climate change. Congress is currently considering reauthorization of the CZMA, and an amendment has been proposed that would provide additional funds and authority for states to develop specific coastal climate change plans.

VIMS

"Hard" shoreline erosion control techniques like this bulkhead don't allow fringe wetlands to retreat landward as sea level rises. The result will be the loss of critical wetland habitats along developed shorelines as marshes are drowned by rising waters and scoured by wave action.

Karen Duhring/VIMS

"Living shorelines," like this restored wetland with a rock sill, can protect property from erosion while maintaining the natural habitat and water quality protection functions of a fringe marsh. These techniques can better accommodate sea level rise by allowing marsh plants to slowly migrate inland.

Future Challenges

Climate change is likely to bring new coastal resource management challenges to the network of agency partners that constitute the Virginia CZM Program. Rising water levels, for example, may eventually cause changes to lands designated as resource protection areas under the Chesapeake Bay Preservation Act. Stormwater management techniques and calculations for determining total maximum daily loads (TMDLs) of pollutants may need to be altered in response to changing precipitation patterns. And localities may need to re-examine land use designations in low-lying areas given the anticipated consequences of sea level rise and more storms. This last issue has grown in importance with recent changes to on-site septic regulations that now allow development with alternative systems in many low-lying areas that were previously considered undevelopable.

In order to adequately plan for climate change, Virginia will need more information in the form of higher resolution elevation mapping, research into the effects of climate change on coastal resources, and other data collection, modeling and forecasting products. There will also be a need for intergovernmental coordination and technical assistance to local governments. At this point we can only speculate as to what future challenges climate change may bring. There may even be some positive changes. In any case, climate change is likely to be a key issue for coastal resource managers for the foreseeable future.

Learn More About Climate Change

Intergovernmental Panel on Climate Change - *http://www.ipcc.ch*

Governor's Commission on Climate Change - *http://www.deq.virginia.gov/info/climatechange.html*

VIMS Center for Coastal Climate Change - *http://www.vims.edu/climatechange*

Maryland Coastal Program's Sea Level Rise Response Strategy - *http://www.dnr.state.md.us/Bay/czm/sea_level_rise.html*

Massachusetts StormSmart Coasts - *http://www.mass.gov/czm/stormsmart*

Chesapeake Bay Foundation - Climate Change and the Chesapeake Bay: Challenges, Impacts, and the Multiple Benefits of Agricultural Conservation Work - http://www.cbf.org

National Wildlife Federation - Sea Level Rise and Coastal Habitats of the Chesapeake Bay - *http://www.nwf.org*

EPA Climate Change Initiatives - *http://www.epa.gov/climatechange*

Chesapeake Bay Program, Science and Technical Advisory Committee - "Climate Change and the Chesapeake Bay: State-of-the-Science Review and Recommendations" - - *http://www.chesapeake.org/stac/Pubs/climchangereport.pdf*

Climate Impacts Group - University of Washington - "Preparing for Climate Change: A Guidebook for Local, Regional, and State Governments" - *http://www.cses.washington.edu/cig/fpt/guidebook.shtml*

Monitoring Estuarine Ecosystems' Responses to Climate Change

Last fall the Chesapeake Bay National Estuarine Research Reserve System in Virginia (CBNERRSVA) was selected as one of five reserves to receive funding through the NOAA Restoration Center to establish their reserve as a restoration reference site, or "sentinel site." CBNERRSVA is one of 27 reserves throughout the United States and Puerto Rico which together protect more than one million acres of estuarine waters, wetlands, and uplands.

CBNERRSVA staff will soon begin collecting information on salt marsh vegetation, ground water, soils and changes in sediment elevation. Data will be used to evaluate the success of nearby restoration projects, and assess and predict changes in estuarine marsh ecosystems, in response to climate-driven changes in sea level, storms, precipitation, salinity, water temperature, and invasive species. The National Geodetic Survey (NGS) and the Center for Operational Oceanographic Products and Services (CO-OPS) provided training to reserve staff who are necessary to study and monitor vertical changes in coastal elevation with respect to local sea level, subsidence, erosion and other issues.

Since 1995, the CBNERRSVA has collected long-term, year-round continuous water quality, meteorological and nutrient data through its network of monitoring stations within the York River watershed. More recently, since 2004, they have been collecting biological data where submerged aquatic vegetation (SAV) is present at selected sites throughout the York River estuary. These data collections are part of the System-wide Monitoring Program (SWMP), established by the Reserves and NOAA in 1995 as a nationally coordinated monitoring program to identify and track both short-term and long-term changes in estuarine ecosystems and coastal watersheds. SWMP data addresses one of the principal goals of the Reserve's Strategic Plan to "improve coastal decision making by generating and transferring knowledge about coastal ecosystems." Funding limitations have prevented CBNERRSVA from expanding their SWMP to include bio-monitoring of emergent vegetation communities and monitoring of land use and habitat changes in the reserve watershed.

Through monitoring of Virginia's "sentinel sites," CBNERRSVA anticipates becoming a national leader in monitoring climate change responses in estuarine marsh ecosystems and disseminating relevant information to local and regional stakeholders.

For more information, contact Scott Lerberg, CBNERRSVA, at (804) 684-7129 or lerbergs@vims.edu.

Virginia Coastal and Estuarine Land Conservation Program

By Kelly Price, Virginia CZM

The Virginia CZM Program has a long history of protecting Virginia's special coastal places. Each year, since 1991, this protection has included setting aside a portion of our Coastal Zone Management Act funds for land acquisition.

To date, more than $4.6 million in CZM and matching funds have been used to protect more than 2,300 acres in Virginia's coastal zone. Most of the lands acquired have been within "Special Area Management Plan" (SAMP) boundaries. SAMPs are special geographic areas selected by the Virginia CZM Program for multi-year funding based primarily on their ecological importance. These include Northampton County, one of the most critical stopover areas for migratory songbirds; the southern watersheds of Virginia Beach and Chesapeake, whose unique wind-driven marshes provide habitat for many of the state's rare species; and the Dragon Run watershed, one of the most pristine sub-watersheds draining to the Chesapeake Bay.

More recently, the Virginia CZM Program has been using geographic information systems (GIS) to map the locations of our coastal resources and identify areas of high ecological value in the coastal zone. These GIS data layers, created from years of research conducted by our CZM partners, have allowed us to develop a comprehensive assessment of coastal land conservation needs and map ecologically important areas of high priority for protection. The assessment and priority maps are compiled into the Virginia Coastal and Estuarine Land Conservation Program (CELCP) Plan.

The Virginia CZM Program has participated in the national Coastal and Estuarine Land Conservation Program, which is administered by NOAA's Office of Coastal Resource Management since 2002. CELCP and matching funds have been used to purchase nearly 1,000 acres in Virginia's coastal zone for the purpose of protecting important coastal and estuarine areas that have significant conservation, recreation, ecological, historical, or aesthetic values, or that are threatened by conversion from their natural or recreational state to other uses, giving priority to lands which can be effectively managed and protected and that have significant ecological value.

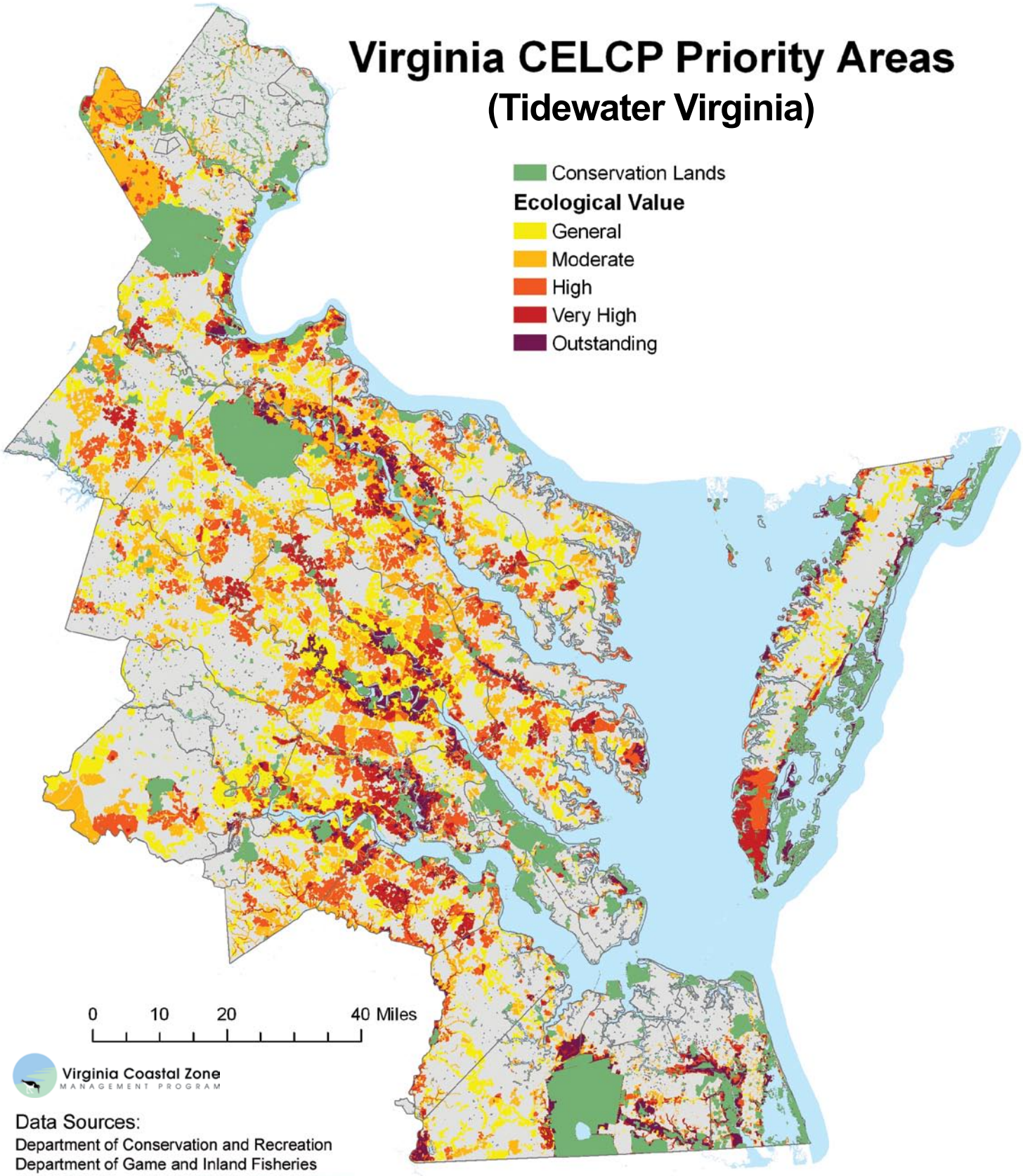
Prior to 2007, all CELCP funding received in Virginia was awarded through congressional earmarks. New rules require all coastal states to compete for this land acquisition funding and develop a state level CELCP plan to remain eligible for funding. As the state's lead on CELCP, the Virginia CZM Program coordinated development of the Virginia's CELCP Plan.

The draft Virginia CELCP Plan was released for public comment and submitted to NOAA in April 2008. It is a guide for state agencies, planning district commissions, localities and non-profit conservation organizations to use in identifying coastal land conservation priorities and to coordinate on common strategic open space and land conservation goals. The plan provides:

- A map of priority coastal areas whose conservation will protect the best remaining coastal resources under the greatest threats of conversion (see Virginia CELCP Priority Areas map at right).
- Information on existing state and regional acquisition plans consistent with the goals of the CELCP and the Virginia CZM Program.
- Eligibility requirements and a description of Virginia's evaluation process and scoring criteria to be used by the Virginia CZM Program in ranking CELCP land conservation proposals.

Virginia Witmer/ViACZM

An offshore view of the new Magothy Bay Natural Area Preserve. Funding from the Virginia Coastal and Estuarine Land Conservation Program and the Virginia CZM Program (along with several other sources) made this new preserve possible.


Virginia CELCP Priority Areas
(Tidewater Virginia)
Conservation Lands
Ecological Value
General
Moderate
High
Very High
Outstanding
0
10
20
40 Miles
Virginia Coastal Zone
MANAGEMENT PROGRAM
Data Sources:
Department of Conservation and Recreation
Department of Game and Inland Fisheries
College of William and Mary Center for Conservation Biology
Virginia Coastal Zone Management Program

ViACZM

The Chickahominy Watershed includes many "very high" and "Outstanding" parcels of land based on Virginia's CELCP Map.

The Virginia CZM Program created the Virginia CELCP Priority Areas map through a synthesis of the state's best available ecological assessments, including the Virginia Natural Landscape Assessment and Conservation Site data from the Department of Conservation and Recreation, Division of Natural Heritage; the Wildlife Action Plan species of greatest conservation need data from the Department of Game and Inland Fisheries; and Important Bird Areas data, created by William and Mary's Center for Conservation Biology for the Virginia Audubon Society. The Virginia CZM Program funded a large portion of the Virginia Natural Landscape Assessment work and all of the Important Bird Area work in the coastal zone. The resulting "priority areas," representing about 45 percent of the land area within Virginia's coastal zone, are distributed among five categories of ecological significance in an effort to prioritize our pursuits so that we may acquire the most valuable lands first.

The Virginia CELCP Priority Areas map shows that Virginia's land conservation efforts have, in fact, been well placed. About 63 percent of lands within the 'outstanding' ecological value category have already been protected in perpetuity, compared to 3 percent in the 'general' category. The map also identifies as 'outstanding' or 'very high' ecological significance the areas in which the Virginia CZM Program has focused its SAMP efforts. These areas remain key targets for conservation.

The Priority Areas map also shows that our conservation needs are still great. In August 2008, the Department of Conservation and Recreation released a report showing progress made toward Governor Timothy M. Kaine's 400,000 acre land conservation goal. Although more than 250,000 acres have been protected, only 20 percent of that acreage is within Virginia's coastal zone. Based on the Priority Areas map, we have estimated that there are nearly 400,000 acres of 'outstanding' and 'very high' ecological value within the coastal zone alone in need of permanent protection for the public benefit.

The map brings to the forefront geographic areas with exceptional ecological value that need Virginia's attention. The Chickahominy Watershed as well as floodplain areas of the Potomac (south of Alexandria), Rappahannock, Pamunkey, and Mattaponi Rivers all fall in line with Virginia's strategy to protect ecologically valuable lands and would boost the acreage within the coastal zone that helps meet the Governor's goal. All of these areas should be targeted for future land conservation projects due to their significant ecological importance.

The Virginia CELCP Plan prioritizes the purchase of lands that are ecologically valuable and provide public access to the coast. Most of Virginia's recent land protection activity has been in conservation easements on private lands rather than fee simple acquisition for conservation purposes. The Department of Conservation and Recreation reports that 73 percent of the acreage protected in the coastal zone that meets the Governor's goal has been protected through conservation easements – mainly private donations eligible for personal tax credits. Private lands protected by conservation easements rarely include public access. Provision and preservation of public access is a key goal of the Virginia CZM Program.

The 2006 Virginia Outdoors Survey showed that citizens support the use of public funds for outdoor recreation and land conservation. 94 percent of citizens believe it is either "very important" or "important" to protect Virginia's natural and open space resources. Most *prefer* public funds be used to purchase lands that will provide public access. The two highest outdoor recreation needs indicated in the survey were additional public

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Land Conservation News from the Eastern Shore

TNC

James Taylor and his wife and children paddle the Seaside Water Trail with Shorekeeper, Dave Burden, as guide. For video of the trip visit http://www.jamestaylor.com/newsletters/ (August 2008 issue)

James Taylor Sings for the Birds

Prior to his May 22 concert in Virginia Beach to help protect migratory songbird habitat on Virginia's Eastern Shore, James Taylor, his wife Kim and their two young sons, enjoyed a kayaking trip on the "southern tip" through the Eastern Shore of Virginia National Wildlife Refuge, one loop along the Seaside Water Trail. Virginia CZM Program manager Laura McKay (a long-time friend of the Taylors) organized the trip. This was a true pleasure for the family. Although the Taylors have donated funds for the past few years to the partnership's efforts, they had not had the opportunity to experience the beauty of the area until this trip.

Partnership Awarded

In April 2008, the Southern Tip Partnership - comprised of the Virginia CZM Program, the Virginia Department of Conservation and Recreation, the Virginia Department of Game and Inland Fisheries, the US Fish and Wildlife Service, and The Nature Conservancy - was presented the *Governor's Gold Environmental Excellence Award* for its land conservation work on the Eastern Shore to conserve hundreds of acres of songbird habitat. Together they have protected and continue to manage more than 24,000 acres of land in the area.

The Virginia CZM Program recently published a new fact sheet outlining the efforts of this partnership - "Protecting Migratory Bird Habitat on the Southern Tip of Virginia's Eastern Shore: Efforts of the Virginia CZM Program and Its Partners." The fact sheet is available online at http://www.deq.virginia.gov/coastal/documents/migratorybirdhabitatfactsheet.pdf.

Land Conservation News from the Middle Peninsula

MPCBPAA

A serene view of Dragon Bridge in King and Queen County, one of three parcels protected by the Middle Peninsula Chesapeake Bay Public Access Authority using Coastal and Estuarine Land Conservation Program funds.

Dragon Run Parcels Conserved

The Middle Peninsula Chesapeake Bay Public Access Authority (MPCBPAA), the Virginia CZM Program, The Nature Conservancy, and the Virginia Outdoors Foundation partnered to promote land acquisition in the Dragon Run watershed for conservation, public access, and research purposes. The partners identified parcels along the mainstem of the Dragon Run which provide public access to the water and protect riparian corridor connectivity as a priority for protection.

Using $989,477 in Coastal and Estuarine Land Conservation Program (CELCP) funds, distributed through the Virginia CZM Program, the MPCBPAA purchased four parcels - a total of 566 acres. Three of these parcels - Dragon Bridge, Jackson, and Clay - are adjoining properties totaling 398 acres in the center of the watershed. They lie upstream from the 167-acre Thurston-Haworth Recreation Area (formerly the Haworth Tract) and provide extensive stream frontage on the Dragon Run (purchased with $392,000 in Virginia CZM funding in 2003). All four CELCP acquisitions link by water to the Browne Tract, the MPCBPAA's first multi-use public access parcel in the upper portion of Dragon Run. The parcels also link to other currently protected forest and swamp lands. Together these lands stabilize, protect, and expand the zone of conservation within the watershed.

The MPCBPAA began drafting a long-term stewardship plan for the Thurston-Haworth Recreation Area in February 2008, with input from local citizens, local and state governments, and non-governmental organizations. The plan considers passive and low-impact public access to associated land- and water-based ecosystems, habitat conservation, and multiple, traditional uses. The MPCBPAA also plans to draft a wildlife habitat management plan for the property.

- by Jacqueline Shapo, NOAA CSC/ERT Coastal Management Fellow

Shifting from Wild Harvest to Farming

By Laura McKay, Virginia CZM

Since Roman times people have known they can improve on nature's bounty by cultivating shellfish rather than simply collecting wild bivalves. There's a fascinating article on this by Oxford scholar, R.T. Gunther (see box on page 14).

Since the time of the Powhatan nation, Virginia's wild clams and oysters were so plentiful, one had only to wade out into shallow waters and scoop them up. Today, wild populations of these shellfish have been almost wiped out due to centuries of heavy harvesting, increasingly devastating shellfish diseases, and, as our human population explodes, severely decreased water quality.

VIMS

Farming the water may become as common as farming the land. Above are clam farms on Virginia's Eastern Shore.

Virginia's watermen face the same loss watermen in many other countries faced long ago. Japan began cultivating oysters in the 1500s in Hiroshima Bay. The French have relied on cultivated oysters since the reign of Napoleon Bonaparte in the 1860s. Their oyster farms are now legendary and oysters are a mainstay of French cuisine.

Shellfish farming is not exactly new in Virginia either. You could argue that we've been manipulating and increasing oyster production for a very long time by enhancing parts of their life cycle. But as our wild populations of clams and oysters have declined precipitously over the past 20 years, scientists and shellfish farmers have worked to perfect cultivation of their entire life cycle from spawning (collecting egg and sperm) in the lab, to feeding larvae and veligers lab-cultured algae, raising them to a certain size in the lab and finally growing them out to market size in near shore coastal waters in cages or under nets.

This shift in how we get shellfish to market is requiring changes in our state and local laws and policies – an issue the Virginia CZM Program has been working on since 1996. Through Section 309 of the Coastal Zone Management Act, NOAA provides match-free funds for the purpose of developing new enforceable policies for 9 different coastal management issues including marine aquaculture. Virginia CZM has used these funds for the past 12 years to award more than 20 grants totaling about $870,000 to various partners to improve our marine shellfish aquaculture policies.

Use Conflict Resolution

One set of grants has focused on resolving conflicts between shellfish farming and other uses of shallow, near shore waters. The first conflict the Virginia CZM Program studied looked at seagrass restoration versus clam farming (through grants to the Virginia Institute of Marine Science). Results showed less of a conflict than perceived because seagrass must always be underwater whereas clam farmers prefer to grow their crop in the intertidal zone where mud flats are exposed at low tide.[1] However, as clam farming expands and space becomes more limited, the conflict could increase unless clam farmers find economical ways to grow and harvest clams in deeper waters, beyond the areas where underwater grasses can grow.

The second conflict the Virginia CZM Program studied looked at shorebird foraging versus clam farming (through grants to VIMS and the William and Mary, Center for Conservation Biology). Again, happily, results showed not only a lack of conflict, but perhaps a benefit to shorebirds from clam farming in that shorebirds were

1. Virginia Institute of Marine Science, "Shallow Water Resource Use Conflicts: Development of Policy Guidance for SAV vs. Aquaculture," Virginia CZM project description web page <http://www.deq.virginia.gov/coastal/description/1997projects/tsk94-97.html>

observed to forage on small plants and animals growing on the plastic mesh used to protect clam beds from predators – a win-win situation for shorebirds and farmers.[2]

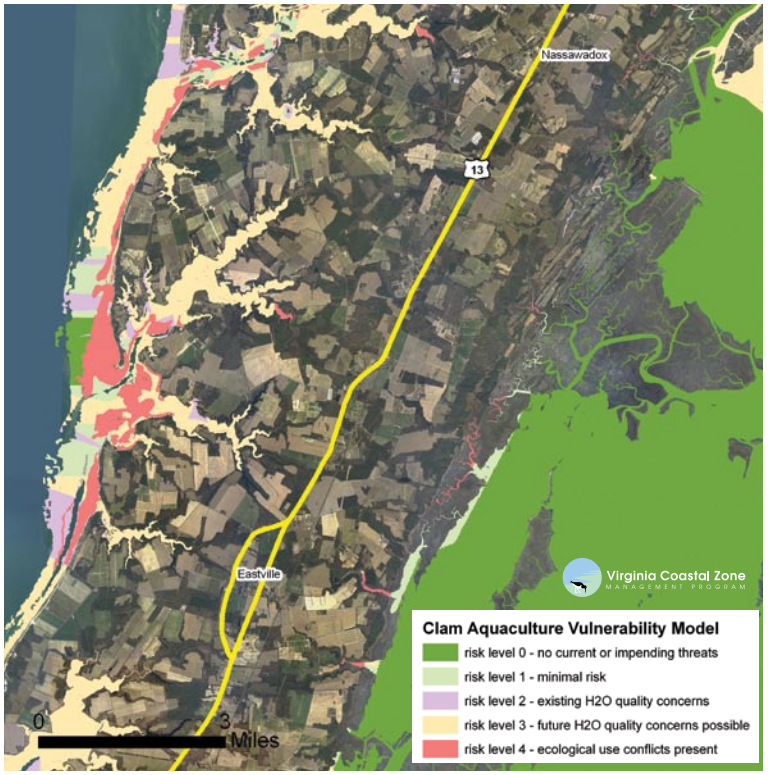
Finally, the Virginia CZM Program studied (through grants to VIMS and the Middle Peninsula Planning District Commission) matrices of all potential conflicts among near shore uses. VIMS reviewed uses from a state perspective and MPPDC from a local perspective – Gloucester County. The numbers of uses considered were huge. VIMS looked at 23 uses including commercial fishing uses, recreational uses and ecosystem functions as well as shellfish farming, mapped where these uses could be undertaken, analyzed conflicts, and identified potential policy options. MPPDC looked at 14 specific conflicts that were priorities in Gloucester and came up with seven recommendations for addressing them.[3]

Suitability and Vulnerability Models

Virginia CZM Program grants to VIMS, focusing on use conflicts, led to additional grants to refine maps of where coastal waters were optimal, suitable and unsuitable for oyster and clam farming, as well as mapping of shellfish growing waters vulnerable to degradation. Results showed that the Atlantic coast of the Eastern Shore has the largest expanses of water optimal for clam farming and there are very few areas anywhere that were deemed optimal for oyster farming. The vulnerability maps were completed for three counties: Gloucester, Accomack and Northampton. All of these maps can be viewed on the Virginia CZM Program Coastal Gems website at *http://www.deq.virginia.gov/coastal/coastalgems.html*.

Best Management Practices

Shellfish aquaculture is generally viewed as a positive activity both economically and environmentally. Economically, on the Eastern Shore clam farming generates approximately $50 million/year. Environmentally, clam farming increases the number of filter feeders removing algae in coastal waters and clams require no "feeding" or nutrient additives. Virginia CZM also has looked at how operations might be improved even further. Through grants to VIMS and Virginia Sea Grant, the program developed voluntary



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2. College of William & Mary, Center for Conservation Biology, "Shorebird/Clam Aquaculture Conflict Assessment and Portfolio of Landscape Data for Virginia Barrier Islands," Virginia CZM project description web page <http://www.deq.virginia.gov/coastal/description/2003projects/12-02-03.html>
Virginia Institute of Marine Science, "Interactions Between Clam Aquaculture and Shorebird Foraging," Virginia CZM project description web page <http://www.deq.virginia.gov/coastal/description/2004projects/11-03-04.html>

3. Virginia Institute of Marine Science, "Aquaculture Management Initiative," VIrginia CZM project description web page <http://www.deq.virginia.gov/coastal/description/1999projects/94-02-99.html>
Middle Peninsula Planning District Commission, "York River Use Conflicts- Issue Framing and Policy Need Identification (Phase 3)," Virginia CZM project description web page <http://www.deq.virginia.gov/coastal/description/2007projects/93-01.html>

best management practices and an environmental code of practice by working with scientists and industry.[4] Through this effort and those of the Shorekeeper funded under the Virginia CZM Program's Seaside Heritage Program, the problem of abandoned clam nets drifting up on shorelines has largely disappeared.

Policy Options and Economics

Since 1996, the Virginia CZM Program has awarded seven grants to the Marine Resources Commission to develop policies regarding the use of existing shellfish bottom leases to ensure they were being used; to draft legislation to provide for a 3-dimensional aquaculture leasing program; to develop criteria for siting aquaculture operations; to develop general permits and regulations for certain shellfish aquaculture activities; and to refine maps and GIS data layers of all existing and proposed aquaculture sites. All of this has culminated in the recent adoption by the commission of a new regulation that authorizes shellfish aquaculture structures that may be placed on and immediately above privately leased shellfish grounds without an individual permit from the commission.

More recently the Virginia CZM Program completed work through grants to VIMS and VA Tech to look at economic implications of alternative shellfish aquaculture management strategies. That work involved investigation of three types of policy options:[5]

1. Proposals to redefine or clarify the current leasing system.

2. Proposals to invest state funds in research and development for oyster and clam production.

3. Proposals to create direct economic incentives to boost commercial production.

Policy options were evaluated based on results from a survey of oyster and clam producers, a general model of oyster supply and demand that was specified in part with results from the survey, and information obtained from other sources including a bioeconomic model of oyster growth and mortality developed by Miller (2008).

In the Virginia Tech study oyster and clam growers reported that inadequate protection of water quality was one of the most important barriers to shellfish aquaculture expansion. There can be multiple sources of pollutants that can impede or prohibit shellfish farming. Fortunately DEQ's Water Division has been working on this issue on the Eastern Shore. A technical advisory committee was created in 2008 to guide DEQ's development of a new regulation to better protect Eastern Shore waters from point source discharges by requiring permit applicants to conduct analyses of alternatives to discharging waste into adjacent waters. That regulation is currently under executive review and is expected to be available for public comment early in 2009.

Virginia Witmer/VACZM

Holding a future harvest in hand, Tom Walker, illustrates the growth rate of clams at his clam aquaculture facility on Virginia's Eastern Shore. Below the dime, the smallest seed are 4 months old. The clams in the middle are 14 months old, while the largest clams are 3 years old.

Finally, through the Virginia CZM Program's Seaside Special Area Management Plan, we are continuing to work on ensuring proper siting and promotion of shellfish farming on the seaside of the Eastern Shore. One of the first enforceable policies being developed is by Accomack County to extend the Chesapeake Bay Preservation Act to Accomack's Atlantic coast to better protect seaside water quality. The Board of Supervisors recently voted to adopt an Atlantic Preservation Overlay District, in part to help ensure the continued success of Accomack's shellfish farming industry.

Learn More About Oyster Cultivation Around the World

History of oyster cultivation in Ancient Rome - *http://sabella.mba.ac.uk/171/01/The_oyster_culture_of_the_Ancient_Romans.pdf*

History of oyster cultivation in Japan - *http://www.unitar.org/hiroshima/programmes/shs05/resources/SHS05_Akashige_Abstract.pdf*

History of oyster cultivation in France - *http://www.ostrea.org/oyster_farming_history.html*

4. Virginia Institute of Marine Science, "Development of an Environmental Code of Practice and Best Management Practices for Virginia - Year 2," Virginia CZM project description web page <http://www.deq.virginia.gov/coastal/description/2007projects/92-03-07.html>

5. Virginia Tech, "Economic Implications of Promoting the Aquaculture Industry in Virginia: Alternative Management Strategies,"Virginia CZM project description web page <http://www.deq.virginia.gov/coastal/description/2007projects/92-02-07.html>

Virginia CELCP *Continued from page 11*

access to Virginia's waters and trails for walking and bicycling. Most of the lands acquired with Virginia CZM and CELCP funds do provide opportunities for public access. Future acquisition of public lands for state parks, natural area preserves, state forests, and wildlife management areas will be critical if we are to provide adequate access for Virginia's growing population.

The Virginia CELCP Plan also prioritizes lands that will preserve water quality as it drains through our coastal watersheds. Long term survival of aquatic species is dependent on good water quality. Poor water quality in the Chesapeake Bay has led to a decline in the once abundant sea grass beds and oyster and blue crab populations. In the face of continued population growth, protecting the integrity of lands adjacent to high quality waters and important aquatic resources may help to sustain our seafood industries. In the future, the CELCP Priority Areas map will incorporate more data on this `blue-green infrastructure' connection. In the interim, our Internet mapping system – Coastal GEMS – can help assess the benefits that protection of key adjacent lands will have on water quality and `blue infrastructure.'

Lastly, Virginia's CELCP Plan prioritizes the protection of large undeveloped forested uplands adjacent to shoreline and low-lying lands. Unlike wetlands, these uplands are not protected or managed through state or federal laws and as such are threatened by unsustainable development. Climate change makes protection of upland areas even more critical. Without gently sloping upland area, coastal wetlands cannot migrate inland as coastal areas are inundated. As localities prepare for increasing storms, flooding, and inundation from rising seas, one of the most effective tools they have to protect resources and property is to acquire and protect coastal lands that can serve as buffers against these threats.

Scenic Virginia

In October 2007, Scenic Virginia, Inc. honored the Middle Peninsula Chesapeake Bay Public Access Authority (MPCBPAA) and its partners, including the Virginia CZM Program, for their efforts to conserve habitat and public access in the 89,000-acre Dragon Run watershed in Essex, King and Queen, Middlesex, and Gloucester counties. Presenting the Honorable Mention is Peter Hunt, Scenic Virginia trustee (left). Accepting the award is Ronald Hachey, vice-chairman of the MPCBPAA (center), and Jacqueline Shapo, MPCBPAA staff (right).

Virginia CZM submitted three applications to NOAA for FY 2009 CELCP funding. Of the 46 proposals received and evaluated by NOAA, all three of Virginia's proposals ranked in the top half. The number one ranked proposal in the country was $3 million for Crow's Nest in Stafford County. Congress has not yet appropriated FY 2009 funds, so please be sure to let your Congressional representatives know you support Virginia's CELCP and CZM land acquisition efforts!

Kelly Price/VACZM

A view of the 209-acre Clay Tract in King and Queen County purchased with CELCP funding in April 2008. This tract abuts the Dragon Bridge and Jackson Tracts in the center of the Dragon Run watershed.

Websites

Virginia CZM land conservation website - *http://www.deq.virginia.gov/coastal/vaczmlandconservation.html*

NOAA CELCP website - *http://coastalmanagement.noaa.gov/land/welcome.html*

Preserving a Place for Virginia's Coastal Heritage

By Shep Moon, Virginia CZM

The term 'watermen' is used in only two places in the world - on the Thames River in England and in the Chesapeake Bay region. At various times of the year watermen may also identify themselves by their catch or their gear with names such as `oyster tongers', `crabbers', `clammers', `pound netters' or `scallop dredgers'. Regardless of which name is used, Virginians who make their living on the water continue a time-honored livelihood and culture that began hundreds of years ago and that still helps define our coastal heritage.

An Economic Cornerstone

Watermen are an important component of many local economies. According to the Virginia Institute of Marine Science, 45 counties and cities in Virginia have substantial economic dependency on the seafood industry. This includes not only the watermen that harvest the seafood, but the processing plants, wholesalers, retailers, and restaurants that rely on this harvest. There are also indirect economic benefits to those who build or repair boats, sell ice or run marinas.

Struggle and Decline

Watermen are known to be fiercely independent and adaptable to changing circumstances. But today they face an increasingly long list of challenges and their numbers are rapidly declining. Precise employment figures aren't available since most watermen are simply reported as "self employed." Other indicators of the number of watermen in Virginia, however, show a steady decline. According to the Virginia Marine Resources Commission, for example, the number of crab licensees reporting harvests declined by 33 percent between 2003 and 2007. There is also a shift toward "part-time watermen" as long-time watermen turn to other endeavors to earn a living.

Regulatory harvest restrictions designed to manage seafood stocks depleted by pollution, disease and over-harvesting, can limit the catch and income of watermen. Higher expenses for fuel and gear also make it harder to turn a profit. And increasingly, simply finding an affordable place, or sometimes any place at all, to dock workboats, process seafood and provide support services for these activities, has become difficult as more "working waterfronts" are displaced by private residential and recreational development. The loss of these traditional waterfronts is primarily the result of the tremendous demand for waterfront property and the resulting skyrocketing waterfront land values, real property taxes and marina slip fees. The issue is drawing more attention as watermen, and often the general public, are excluded from small family run marinas that have been converted to private waterfront developments.

Larry Chowning

Steps Toward Preservation

Interest in preserving working waterfronts is not unique to Virginia, as rural and urban waterfronts across the nation face similar circumstances. In response, a national symposium, "Working Waterways and Waterfronts 2007", was held in May 2007 in Norfolk to share local, state and national-level initiatives that address water access. Tom Murray, Marine Business Specialist with the Virginia Sea Grant program, helped organize the event with support from the Virginia CZM Program and a number of other sponsors. It drew 180 participants from across the country representing various levels of government, private advocacy groups, commercial fishermen and other water-dependent industries. Mr. Murray shared the key points raised during the symposium with Virginia Coastal Zone Partners Workshop attendees in Portsmouth in December 2007. He noted that a key outcome of the symposium was development of a structure for communicating among the diverse constituencies involved in working waterfront issues.

While the long-term plight of Virginia's watermen remains unclear, efforts are underway to provide help. Based on the request of Governor Tim Kaine and Maryland Governor Martin O'Malley, in September 2008 the U.S. Department of Commerce declared a fishery disaster in the Chesapeake Bay due to the

Larry Chowning

Larry Chowning

Virginia Sea Grant

Island Institute

Working waterfronts (like those in the above photos) once dominated the coastline. However as coastal population and disposable income have increased, recreational boating and waterfront development have become primary coastal activities (photos right). Demand for waterfront access has resulted in competition for the once seemingly endless waterfront, resulting in conflicts in a growing number of coastal communities.

degraded state of the Blue Crab fishery. Through this action Virginia can receive up to $10 million in disaster relief for watermen and seafood merchants. The funds will be disbursed based on a plan being developed by the State which may include employing watermen for removal of "ghost crab pots" and other marine debris, planting sea grasses, or helping scientists with field research. The idea of using some of the funds to help watermen start oyster hatcheries and aquaculture businesses has also been discussed.

While threats to the viability of our working waterfronts remain, there is growing recognition of the problem and an expanding list of possible solutions. Nationally, coastal states and localities are using planning, zoning, land conservation and acquisition, tax incentives, public improvements and state and local regulations to help preserve their working waterfronts. In many cases these initiatives are the result of a coalition of groups with similar interests. In Maine, the Working Waterfront Coalition was formed with representatives from more than 140 industry associations, nonprofit groups and government agencies. The Coalition has been successful in attracting media attention to the issue of working waterfronts and in advocating for funding to keep these waterfronts from becoming private residential developments.

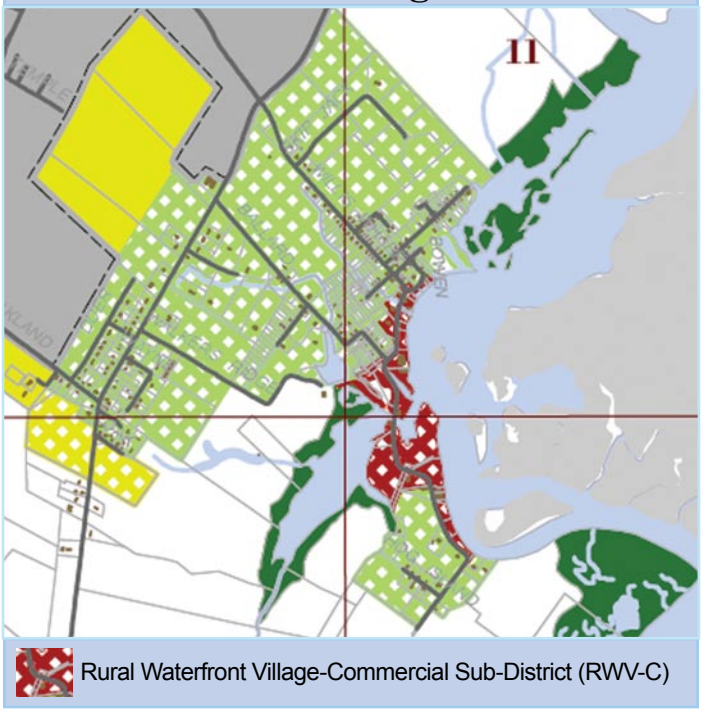
In Virginia, localities and regional authorities have taken a variety of steps to preserve working waterfronts. The Virginia CZM Program has provided support for localities to preserve working waterfronts through better planning. The CZM-sponsored York River Use Conflict Committee, for example, has recommended that Gloucester County develop a policy for the protection of working waterfront infrastructure. The committee, facilitated by the Middle Peninsula Planning District Commission, has discussed the concept of a "no net loss" policy for working waterfronts, developing an inventory of working waterfronts, and developing a zoning district to help preserve them.

The Virginia CZM Program also assisted the Village of Oyster in Northampton County in developing a "Community Vision" report which emphasizes protection of their working waterfront. The report was adopted as part of the county's comprehensive plan and a Rural Waterfront Village Zoning District has been proposed for Oyster which would limit uses along portions of the waterfront *(map above)*.

The zoning district already applies to the county's other designated waterfront village, Willis Wharf, and could also be used in other communities with strong ties to the water if conditions warrant in the future. The goal of establishing the district is to maintain the compact traditional form and uses of existing rural waterfront villages and to discourage new residential development within the working waterfront areas of these villages. The county's comprehensive plan also recommends protecting the ability of watermen to store and maintain fishing gear in working waterfronts *(portion of Northampton County zoning map above right)*.

Virginia localities have also taken steps to help maintain working waterfronts by investing in public infrastructure. The City of Poquoson has supported improvements to the city-owned Messick Point Landing. The Landing provides access to the Back River and lower Chesapeake Bay for recreational boaters and watermen alike. The city, with support from the Army Corps of Engineers, the Virginia Marine Resources Commission and the Virginia Port Authority, funded public improvements at the landing including channel dredging and construction of a parking area, restrooms, boat ramp and commercial boat pier. The pier has 26 slips and can accommodate boats up to 40 feet in length. The city is also inviting development proposals for the remainder of the site that would support and complement the existing waterfront uses

Willis Wharf Working Waterfront



A section of the Northampton County Zoning map (above) showing the Village of Willis Wharf, which is designated a Rural Waterfront Village District (RWV). The area highlighted with red hatching is a Rural Waterfront Village-Commercial sub-district, as defined in the ordinance. The sub-district allows for environmentally low-impact commercial activities which preserve the pristine quality of ground and surface waters and other natural resources in the village.

and expand opportunities for seafood processors and wholesalers in the area.

Nationally, there is hope for some assistance through a working waterfronts amendment to the Coastal Zone Management Act (CZMA). If passed, the "Keep Our Waterfronts Working Act of 2007" would add a section to the CZMA requiring the National Oceanic and Atmospheric Administration to establish a working waterfront grant program.

The proposed program is modeled after the CZMA Coastal and Estuarine Land Conservation Program. It would initially provide competitive grants to coastal states to develop plans to preserve and expand access to coastal waters for commercial fishing, recreational fishing, or other water-dependent coastal-related businesses. Once the plans are approved, states would be eligible to apply for funds to implement the plans, including acquisition of, or improvements to working waterfronts.

A wide menu of actions is available to preserve working waterfronts and to help the watermen who depend on them. An important first step, however, may be to simply recognize the problem and seek the support of local, state and federal legislators to protect this important part of our coastal economy, and heritage, before it is too late.

Learn More About Preserving Working Waterfronts

Websites -

Virginia Marine Resource Bulletin, Spring 2007 - Virginia Sea Grant Program - *http://www.vims.edu/adv/pubs/bulletin/Spring%2007.pdf*

Access to the Waterfront: Issues and Solutions Across the Nation (Sea Grant and CZM Program collaborative) - *http://www.seagrant.umaine.edu/documents/pdf/07access.pdf*

Working Waterways and Waterfronts 2007 (conference proceedings) - *http://www.wateraccessus.com/index.html*

Soundings Trade Only, June 2008 - "*On the Waterfront: Good Things are Happening*" - h*ttp://www.tradeonly-digital.com/tradeonly/200806/*

Village of Oyster Vision Plan - *http://www.deq.virginia.gov/coastal/description/2002projects/12-11-02.html*

Learn More About Working Watermen

Books -

Beautiful Swimmers: Watermen and Crabs of the Chesapeake Bay by William W. Warner

An Island Out of Time by Tom Horton

The Watermen of the Chesapeake Bay by John Hurt Whitehead III

Websites -

Watermen's Museum, Yorktown, Virginia - *http://www.watermens.org*

Mariners Museum, Newport News, Virginia - *http://www.mariner.org*

Expanded Protection for Critical Coastal Resources

By Shep Moon, Virginia CZM

Dunes and beaches provide critical habitat for a number of important plant and animal species, filter fresh water before it reaches salt or brackish water, and provide a buffer and wave energy absorption so that properties are protected from shoreline erosion.

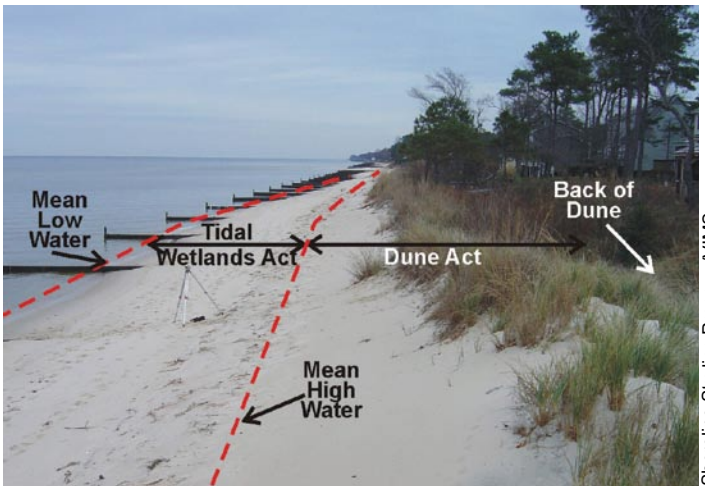
On Feb. 22, 2008, Governor Kaine signed legislation to help protect these important coastal resources by expanding the reach of the "Coastal Primary Sand Dunes and Beaches Act" from the original nine localities to the entire Virginia coastal zone. The result is added protection for approximately 1,300 estuarine beaches and dunes that encompass about 75 miles of shoreline along 24 additional counties and 14 cities. The legislation also added Virginia Pine, Broom Sedge and Japanese Sedge to the list of vegetation that help define primary sand dunes. Taken together, these modifications to the Act will result in significantly expanded beach and dune protection.

Passage of the legislation is the culmination of a more than 10 year partnership between the Virginia CZM Program, the Virginia Institute of Marine Science (VIMS) and the Virginia Marine Resources Commission (VMRC). According to Scott Hardaway of the Shoreline Studies Program at VIMS, the legislation will underscore the importance of sandy coasts in Virginia and provide a standard for future sand management efforts.

The original "Dune Act" was passed in 1980 and later expanded to cover sandy beaches above mean high water. At the time of the original legislation, coastal primary sand dunes were known to exist in the nine localities, but there was no comprehensive inventory of dune or beach resources. A series of studies funded by the Virginia CZM Program and conducted by Scott Hardaway, Lyle Varnell and others at VIMS showed that extensive dune and beach resources were unprotected, especially from the impacts of shoreline hardening structures such as rock revetments and wooden bulkheads. These structures are designed to control shoreline erosion, but can also affect dune and beach habitats and decrease the amount of sand necessary to maintain beaches. In some cases houses have even been constructed on primary dunes.

Prior to expansion of the Dunes and Beaches Act, shoreline resources in coastal localities not listed in the Act ("nonjurisdictional" localities) were managed only up to the mean high water level. This protection was afforded by the Tidal Wetlands law which includes "nonvegetated wetlands" up to mean high water. In these localities, sandy beaches above mean high water (supratidal beaches) and primary dunes (as defined in the Act) were given little or no protection. These areas did fall under the jurisdiction of the Chesapeake Bay Preservation Act, but Bay Act Regulations allow shoreline management structures within designated Resource Protection Areas (RPAs). The Bay Act also provides a process for localities to grant exceptions to certain "grandfathered lots" that could allow encroachment into the RPA and thus into areas with primary sand dunes.

Secondary dunes, older dunes found landward of primary dunes, are not covered by the Act. These sand features were not included in the original Act, in part because of the difficulty of defining their landward extent. Analysis by VIMS, however, showed that most of Virginia's secondary dunes were either already protected through public or private conservation ownership, were already significantly altered by development, or faced little threat of development because of limited access. VIMS recommended that the remaining unprotected but threatened secondary dune sites be protected through other means. These sites can be found in Northampton, Lancaster and Northumberland counties. VIMS suggested that this protection might be achieved through acquisition or conservation easements where property owners were willing. Unprotected secondary dunes are now a high priority in Virginia's CELCP Plan (see story page 8).



Shoreline Studies Program/VIMS

A beach and dune system on the Potomac River in Northumberland County, one of the original "Dune Act" localities. The Act provides protection for not only primary dunes, but also the sandy beach above mean high water.

Based on VIMS research on dunes and beaches, the Virginia CZM Coastal Policy Team supported the idea of expanding the Coastal Primary Sand Dunes and Beaches Act. Delegate Harvey Morgan also supported expansion and sponsored HB 1308 to amend the Act. With expansion of this legislation, more localities now have the ability to manage these critical resources by adopting a local dunes zoning ordinance. If a coastal locality chooses to adopt the ordinance, it would be administered by its local wetlands board. If a coastal locality chooses not to adopt the ordinance, VMRC will regulate development affecting dunes and beaches in that locality. In either case, improved management of dunes and beaches, two of Virginia's most important coastal resources, will be the result of the Virginia Coastal Zone Management Program partnership.

Dune and Beaches Act jurisdictions before and after the 2008 amendment (map above). The Town of Cape Charles was one of the nine localities included in the Act prior to the 2008 amendment.

Shoreline Studies Program/VIMS

A rock revetment and bulkhead in Westmoreland County, one of the localities added to the Dunes and Beaches Act in 2008. Prior to this change, the county wetlands board only had jurisdiction over shoreline management projects through the Tidal Wetlands Act, which extends only to the mean high water line. Projects like this one that lie above the mean high water mark will now be managed by the locality and VMRC under the authority of the Dune and Beach Act.

The Winning Ways of Willis Wharf

By Laura McKay, Virginia CZM

The Village of Willis Wharf, on the seaside of Virginia's Eastern Shore, is one of those places that you might think, "time forgot," but the truth is, it's at the forefront of some very innovative thinking when it comes to ecology and economy.

(Above) The Willis Wharf waterfront. (Left) Kayakers, like Virginia CZM Program's Shep Moon, find paddling out of Willis Wharf to be a very pleasurable trip. (Below) The floating dock installed at Willis Wharf allows paddlers to put in and take out their kayaks without trampling through sensitive marshes.

Virginia Witmer/VACZM

ANPDC

In the 1980s, Willis Wharf became a hot spot for pioneering work in shellfish farming and is now home to several shellfish aquaculture companies: Cherrystone Aqua Farms, J.C.Walker Brothers Seafood and Terry Brothers, Inc. Shellfish farming is now a $50 million/year industry on Virginia's Eastern Shore.

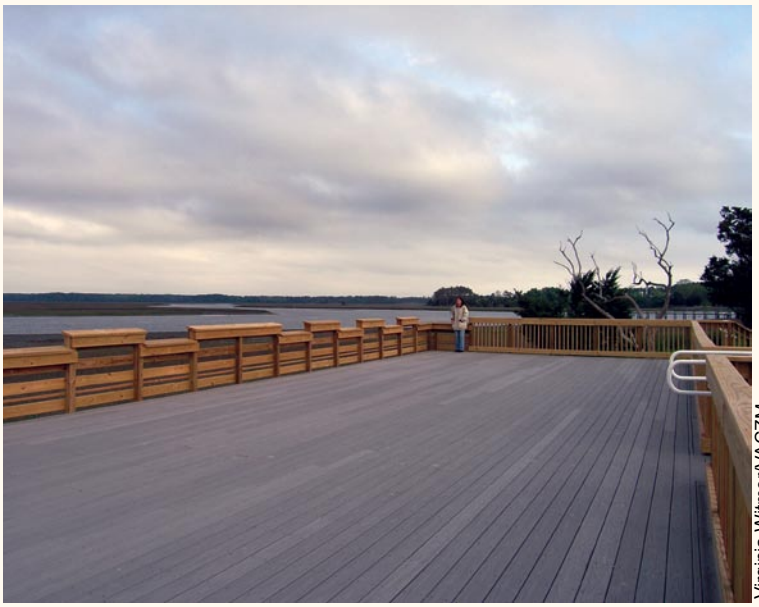
In 2004 it was one of the first locations to accept a Virginia CZM grant for a floating dock that would help highlight the Village as a prime put-in for our Seaside Water Trail, launching the village as an ecotourism destination. If you're interested in cashing in on that growing industry, sign up for the Virginia CZM-funded Ecotour Guide Certification courses to be offered at the Eastern Shore Community College in January 2009 by visiting http://www.es.cc.va.us.

In 2005, the Village petitioned Northampton County to adopt special zoning that protects its rural atmosphere and working waterfront ethic (see story page 19). Now in 2008 the Village has worked with the County, the Planning District Commission, the Department of Game and Inland Fisheries and Virginia CZM to install a state-of–the-art wildlife observation platform. The platform, funded by Virginia CZM, is constructed of recycled plastic lumber, has its own set of attached binoculars and provides one of the most panoramic views on the Eastern Shore. All sorts of shorebirds favor the vast wetlands that extend beyond the deck as you scan from the north, to the east and to the south. At low tide the mudflats are covered with herons, egrets, and sandpipers.

The area around the wildlife observation platform will become a demonstration site for the Virginia CZM Program's soon to be unveiled social marketing campaign to promote the planting of native trees, shrubs, flowers and grasses. This latter effort, which includes a long list of local, state, and federal partners, is also being funded through Virginia CZM's Seaside Heritage Program. As a prelude to this planting effort, potted specimens of selected native plants were on display at the observation deck for a September ribbon-cutting and dedication ceremony.

Later this winter, interpretive signage will be installed at the wildlife observation platform. These metal-framed signs, developed through the Seaside Heritage Program, will have three panels: two that describe the ecological and economic value of the seaside of Virginia's Eastern Shore and a third panel that will be designed with the local communities to depict the special coastal resources at that site. We plan to place these interpretive signs in Chincoteague, Wachapreague, Willis Wharf, Oyster and at the Eastern Shore National Wildlife Refuge.

So, if you would like a glimpse of what a sustainable coastal village of the future might offer, spend a day walking (or paddling) around Willis Wharf.



Virginia Witmer/VACZM

The new Willis Wharf Observation Platform on the seaside of Northampton County (above) was built by Eastern Shore Homecrafters using recycled plastic lumber for the decking.

The platform was dedicated on Sept. 19, during the 16th Annual Eastern Shore Birding and Wildlife Festival. Officials from the Village of Willis Wharf, Northampton County, the Department of Game and Inland Fisheries and the Virginia CZM Program, as well as the builder, Eastern Shore Homecrafters, cut the ribbon at the platform's dedication (photos right and below).

The dedication was attended by over 40 people including residents of the Village. Attendees enjoyed the view from the 64' X 24' platform, and bird watching through the permanently installed binoculars. DGIF provided portable scopes for the day.

David Whitehurst/DGIF

Jeff Trollinger/DGIF

Virginia Witmer/VACZM

News Around the Zone

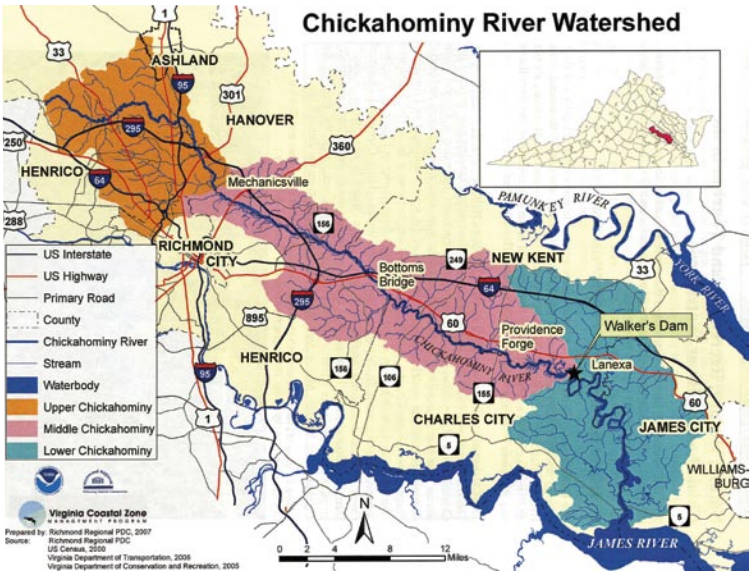
Chickahominy River Recreational Access Study

A million and a half people live within an hour's drive of the Chickahominy watershed. This spectacular natural area is visited by millions more every year. The river, which weaves almost a hundred miles through wetlands and diverse habitats, has enormous eco-tourism potential. Every year, thousands of bass anglers launch boats on the river. However, public access on the river for canoeists and kayakers is extremely limited. Many paddlers are forced to use a patchy network of informal put-ins to access the water.

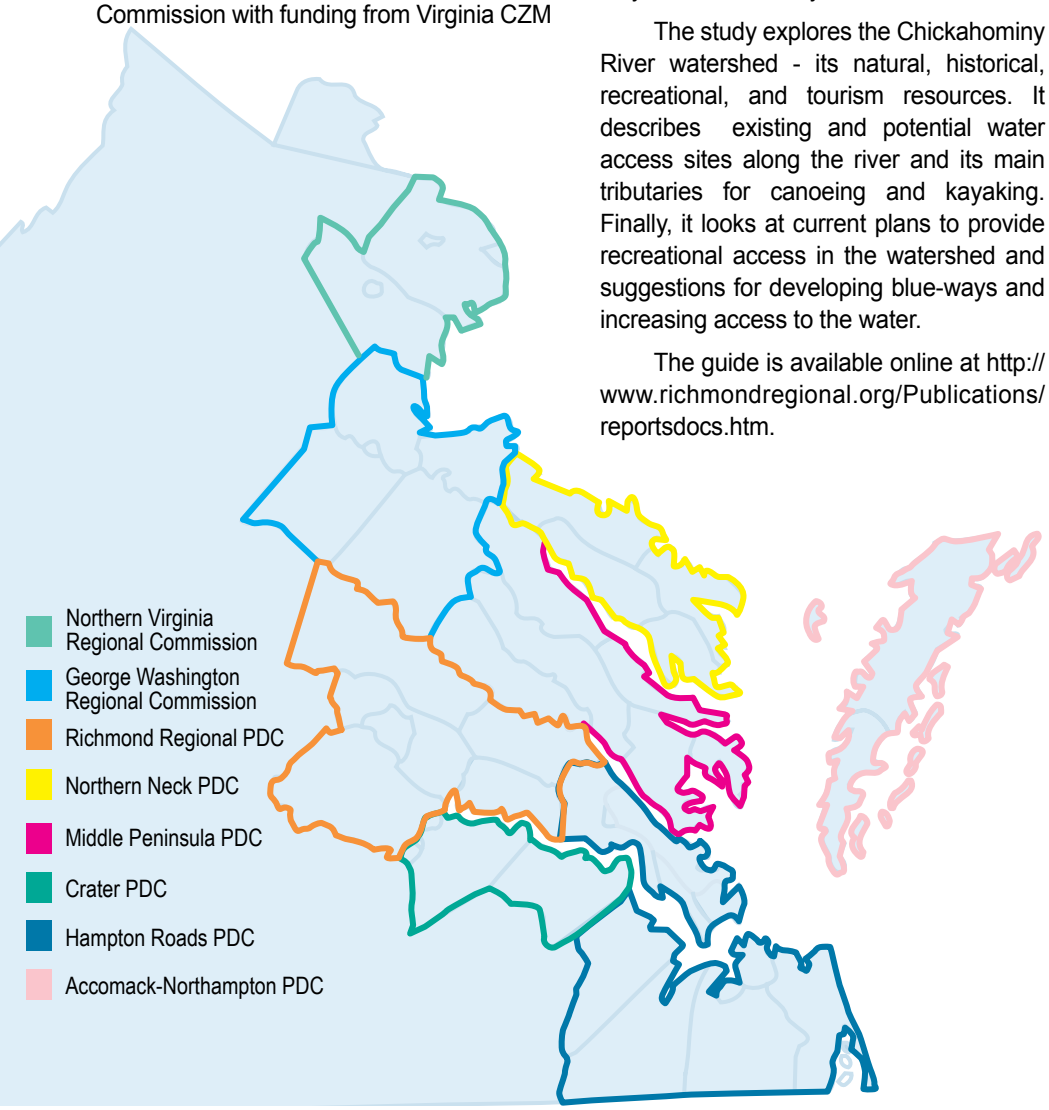
The Chickahominy River Recreational Access Study was published in October 2007 by the Richmond Regional Planning District Commission with funding from Virginia CZM to provide relevant information for creating a system of blue-ways on the river.

The study explores the Chickahominy River watershed - its natural, historical, recreational, and tourism resources. It describes existing and potential water access sites along the river and its main tributaries for canoeing and kayaking. Finally, it looks at current plans to provide recreational access in the watershed and suggestions for developing blue-ways and increasing access to the water.

The guide is available online at http://www.richmondregional.org/Publications/reportsdocs.htm.



In 1990, a 10.2 mile section of the Chickahominy River, in Hanover and Henrico counties was designated as a state Scenic River by the Virginia Scenic Rivers Program. The downstream sections of the Chickahominy River are potential Scenic River sites. The watershed includes many "very high" and "outstanding" parcels of land based on Virginia's new CELCP Priority Areas Map (see page 9).



Dragon Run Biodiesel Partnership

Under the Dragon Run Special Area Management Plan, the Middle Peninsula Planning District Commission, the Virginia CZM Program and Virginia Clean Cities partnered to establish a biodiesel partnership program between local farmers and area school systems in the Dragon Run watershed. The goal of the partnership is to economically support traditional industries and encourage environmental preservation of the Dragon Run watershed.

Local school boards in Middlesex, Gloucester, King and Queen, and Essex counties have passed resolutions to run school bus fleets off cleaner-burning biodiesel fuel blends and retrofit older buses with emissions-reducing technology. These retrofits can reduce pollution emissions in diesel-powered buses by 60-90 percent, according to the U.S. Environmental Protection Agency, as well as improve fuel efficiency, cut down maintenance costs, and provide cleaner air for area children. The biodiesel fuel, made from locally-grown soy beans, supports the local farm product market in hopes that farmers will continue to farm more than 60,000 acres dedicated to soy bean production in the Middle Peninsula rather than sell their land for housing development.

To facilitate the transition to biodiesel, an EPA Clean School Bus USA grant was awarded to the Hampton Roads Clean Cities Coalition. The funding enables participating counties to retrofit more than 100 school buses and will assist with the cost differential between biodiesel and petroleum diesel, enabling biodiesel use at no additional cost to the counties. School superintendents and school bus fleet managers were educated to vary biodiesel blends to control its cost – a technique which will promote sustainability of biodiesel use in many districts. Two of the four counties, Gloucester and King and Queen, have already converted their school buses to biodiesel and are supporting local farmers.

Energy Returned on Energy Invested: Soy vs. Corn

U.S. Dept. of Energy and U.S. Dept. of Agriculture analyses show soy biodiesel has a positive energy balance of 320 percent (it yields 320 percent more energy than it takes to produce) and that corn ethanol has a positive energy balance of 34 percent. These studies take into account all of the fossil energy used to produce the fuels during planting, harvesting, production and transportation to the end user. So where does all that positive energy come from? The sun!

For biodiesel to have a substantial, favorable impact on conserving the traditional Dragon Run lifestyle, it must be marketed by farmers as a value-added product benefitting the local community. Support for biodiesel use will need to extend through the supply chain and user groups from large government fleets to single private vehicles. Education and marketing to promote its use will be integral, and include "branding" the link between biodiesel and protection of the Dragon Run's traditional industry. The marketing slogan – "Dragon Power" – helps communicate how the biodiesel network fosters a more vital farm economy, maintains open space, preserves the rural lifestyle, and sustains the use of native natural resources.

– by Sara Stamp, MPPDC

Note: Algae grown in cylinders on farms may provide even higher energy conservation efficiency. Read more on the web at http://www.vcerc.org/biodiesel.htm and in future issues of Virginia Coastal Zone Management.

Delmarva Grapples with Growth

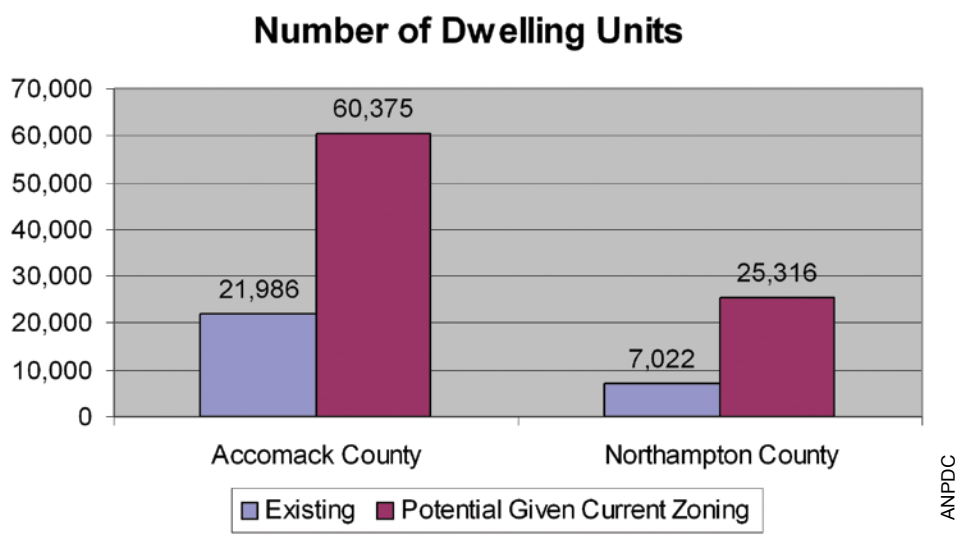
The Delaware, Maryland and Virginia CZM Programs, along with their Atlantic coast counties of Sussex, Worcester, Accomack and Northampton and the Maryland Coastal Bays Program formed a group in 2004 called the Delmarva Atlantic Watershed Network. See http://thedelmarvanetwork.org/. The network's focus is to look at this section of Atlantic coast from a regional perspective to see how cooperative efforts might better deal with increasing populations and better protect Atlantic coast resources.

After a few initial workshops in 2005, one of the first things we've accomplished has been to install CommunityViz software in all four counties and run build-out analyses. This software uses maps to show the maximum number of dwelling units that could be built given the county's current zoning allowances and currently unbuildable areas. The software can also calculate how nitrogen and phosphorous would be added to receiving waters, water use requirements and other parameters associated with build out.

Planning professional and CommunityViz expert Chuck Donley was hired with Maryland and Virginia CZM funds to show the impacts from future build out on prime agricultural soils, green infrastructure, and wildlife habitat areas. The Virginia CZM funding was part of our Seaside Heritage Program. Donley also showed staff how to factor in attributes such as aquaculture operations, seagrass coverage, and sea level rise. The grant funds are also providing training for county staff to become proficient in updating their CommunityViz programs with proposed or new zoning. The tool allows staff to compare current land use with future build out scenarios and compare and contrast those with surrounding counties. It should help county supervisors meet the demands of their constituents for economic prosperity and environmental health. The graph below depicts output from the CommuityViz software showing the existing numbers of dwelling units in Accomack and Northampton counties and the potential number of dwelling units that could be built, given current zoning restrictions. In other words, current zoning would allow for roughly a tripling of dwelling units in each county - a realization that's causing both counties to reconsider current zoning allowances.

For more information about Northampton's efforts contact Sandra Benson at sbenson@co.northampton.va.us and for Accomack's efforts contact Jim McGowan at jmcgowan@co.accomack.va.us.

– by Laura McKay, Virginia CZM



2008 Virginia CZM Projects

Where Do Those Dollars Go?

By Laura McKay, Virginia CZM

Hard economic times are indeed upon us. Fortunately, the Virginia CZM Program operates on a one year lag of federal funding. So while Congress still hasn't determined a final FY 2009 budget, the Virginia CZM Program has received its FY 2008 funding from NOAA for grants that began on Oct. 1, 2008, and will run through Sept. 30, 2009 (see tasks on table next page). So the program will have some time to plan if there are cuts in the federal FY 2009 and 2010 budgets.

Much of the program's funding is used to help its network of agencies implement Virginia's coastal laws and policies. This includes everything from Virginia CZM staff salaries to environmental impact review, environmental education, habitat locality liaisons, coastal permitting, submerged aquatic vegetation mapping, and coastal land acquisition (Tasks 1-10). Every year the program also gives technical assistance grants to the eight coastal Planning District Commissions and funds the Virginia Aquarium's marine mammal and sea turtle stranding program (Tasks 41-49). The program also funds implementation of Virginia's coastal nonpoint source pollution program (Task 81) and the development of new enforceable policies (Tasks 91-97).

This year marks the end of an old "Focal Area" and the beginning of a new one (Tasks 11-12). For the past six years, the Virginia CZM Program has focused "discretionary" CZM funds on the Seaside Heritage Program. The expenditure of about $2.6 million has resulted in one of the most successful habitat restoration efforts in the country. On the seaside of Virginia's Eastern Shore, the program's partner agencies have been able to bring back hundreds of acres of eelgrass habitat and oyster reefs; map and remove hundreds of acres of Phragmites (an invasive reed); reduce predator impacts on beach nesting birds; reduce abandoned clam netting, start up a Shorekeeper program and create ecotourism infrastructure through creation of a Seaside Water Trail, four floating docks for paddlers and Ecotour guide certification courses.

Virginia Witmer/VACZM

A view of seaside marshes off-shore in Oyster on Virginia's Eastern Shore. Virginia's seaside is the site of a highly successful eelgrass restoration effort funded through the Virginia Seaside Heritage Program.

But this year it's time to move to a new focal area: Sustainable Community Planning. For the next three years, if congressional appropriations permit, these grants will go to state agencies and coastal PDCs to help coastal localities plan for adaptation to climate change or protect blue and green infrastructure. Blue or green infrastructure comprises those natural features on the land (e.g. forests, wildlife habitat, wetlands, etc.) or in the water (e.g. anadromous fish use areas, oyster reefs, underwater grass beds, etc.) that are critical to maintaining ecosystem and human health and survival.

There is always more the Virginia CZM Program partners wish they could do to protect and improve Virginia's coastal resources. But we are very grateful for the public tax dollars we have received and pledge to spend them wisely.

Ellie Donahue

Marine mammal and sea turtle strandings in Virginia were again at high levels during 2007 - a total of 262 animals - one of the highest levels per mile of coastline for any state in the country. Sixteen strandings involved live animals. Of these, the Virginia Aquarium's stranding program successfully rehabilitated and released five seals, one harbor porpoise and four sea turtles.

Table Acroymn Key:

DCR: Department of Conservation and Recreation
DCR-NH: DCR Division of Natural Heritage
DEQ: Department of Environmental Quality
DGIF: Department of Game and Inland Fisheries
ELI: Environmental Law Institute
RC and PDC: Regional Commission and Planning District Commissions
- see page 24
VAMSC: Virginia Aquarium and Marine Science Center
VCU: Virginia Commonwealth University
CES: Center for Environmental Studies
VMRC: Virginia Marine Resources Commission
VIMS: Virginia Institute of Marine Science

TOTAL FEDERAL AWARD: $2,571,000

Task	Grantee	Title	Federal $	Match $	Total $
1	DEQ	Program Management	$265,400	$0	$265,400
1.01	VIMS	Management Support	$50,252	$0	$50,252
1.02	VCU-CES	Management Support	$63,670	$0	$63,670
1.03	DEQ	Outreach & Publications	$94,000	$0	$94,000
2	TBD	Quick Response Tasks	$5,203	$0	$5,203
3	DEQ	EIR & Federal Consistency	$196,500	$0	$196,500
4	DEQ	Environmental Education	$93,975	$0	$93,975
5	DEQ	WQIF Match - Treatment Plant Upgrades)	$0	$768,311	$768,311
6	VMRC	Permit Review & Compliance	$160,000	$209,533	$369,533
7	DCR-NH	Habitat Conservation/Locality Liaison	$50,000	$60,313	$110,313
8	VIMS	Tidal Wetlands Mgmt Technical Support	$42,000	$42,000	$84,000
9	VIMS	SAV Mapping	$60,000	$60,000	$120,000
10	DEQ Subcontract	Eastern Shore Land Acquisition	$200,000	$132,000	$332,000
11.01	DCR	NEMO Support for Sustainable Community Planning	$30,944	$30,944	$61,888
11.02	DGIF/VCU/DCR	Assessment of Priority Green Infrastructure	$40,078	$40,104	$80,182
11.03	VIMS	Assessment of Priority Blue (Estuarine) Infrastructure	TBD	TBD	TBD
12.01	AN PDC	Blue-Green Infrastructure Planning	TBD	TBD	TBD
12.02	GWRC	Blue-Green Infrastructure Planning: Conservation Corridors	$26,385	$27,160	$53,545
12.03	HR PDC	Climate Change Adaptation in Hampton Roads	$40,000	$40,000	$80,000
12.04	MP PDC	Assessment of Potential Ecological & & Anthropogenic Impacts of Climate Change	$38,000	$38,000	$76,000
12.05	NN PDC	Blue-Green Infrastructure Planning: Conservation Corridors	$25,000	$25,000	$50,000
12.06	NVRC	Preparing Shorelines for Sea Level Rise	$51,500	$61,370	$112,870
12.07	RR PDC/Crater	Blue-Green Infrastructure Planning: Conservation Corridors	$52,332	$46,727	$99,059
41	AN PDC	Technical Assistance Program	$30,000	$30,000	$60,000
42	Crater PDC	Technical Assistance Program	$30,000	$30,000	$60,000
43	HR PDC	Technical Assistance Program	$60,000	$60,000	$120,000
44	MP PDC	Technical Assistance Program	$30,000	$30,000	$60,000
45	NN PDC	Technical Assistance Program	$30,000	$30,000	$60,000
46	NV RC	Technical Assistance Program	$30,000	$30,000	$60,000
47	GW RC	Technical Assistance Program	$30,000	$38,464	$68,464
48	RR PDC	Technical Assistance Program	$30,000	$30,000	$60,000
49	VA Beach/VAMCC	Marine Mammal & Sea Turtle Stranding Response	$31,000	$31,379	$62,379
81	DCR	Coastal Nonpoint Pollution Program	$68,000	$68,000	$136,000
91.01	VIMS	Virginia CZM Program Administration	$49,033	$0	$49,033
91.02	ELI	Program Administration: RPCs & Amendments	$20,967	$0	$20,967
92	MP PDC	Aquaculture: Local Policy Development	$70,000	$0	$70,000
93.01	VCU	Intergovernmental Decision-making: GEMS Updates	$16,000	$0	$16,000
93.02	TBD	Intergovernmental Decision-making: New GEMS Layers for Policy Decisions	$34,000	$0	$34,000
94.01	VIMS	Shoreline Management: Living Shoreline Design Manual	$50,000	$0	$50,000
94.02	VIMS	Shoreline Management: Inventories (York & Newport News)	$37,500	$0	$37,500
94.03	VIMS	Shoreline Management: Evolution Reports	$37,500	$0	$37,500
94.04	VIMS	Shoreline Management: Draft Management Plan MOA and Guidance Document for Local Governments	$25,000	$0	$25,000
95	MP PDC	Dragon Run Special Area Management Plan	$50,000	$0	$50,000
96	TBD	Seaside Eastern Shore Special Area Managment Plan	$75,000	$0	$75,000
97.01	MP PDC	Inventory of Non-traditional OSDS & Impacts on Land Use Patterns	$35,000	$0	$35,000
97.02	HR PDC	Hampton Roads Conservation Corridor	$36,000	$0	$36,000
GRAND TOTAL			**$2,490,239**	**$1,959,305**	**$4,449,544**
Funds to be allocated			***$80,761***	***$75,695***	

Note: Project Tasks in the 90 series are funded under Section 309 which does not require matching funds.

Welcome New Staff!

Kelly Price/VACZM

Coastal GIS Coordinator

Nick Meade joined the Virginia CZM Program as the GIS coordinator and coastal specialist in March 2008. Nick came to us from the Department of Conservation and Recreation where he worked in the award winning Natural Heritage Program.

Nick graduated from Longwood University in 2003 with a degree in biology. While enrolled in school, Nick performed botanical survey work for Longwood and archaeological survey work under a contract with Virginia Tech's Conservation Management Institute. After graduation, he was employed by Wildlife Habitat Council in Maryland, where he started as a research assistant and then went on to manage their habitat certification program. Nick then came back to Virginia to take a position with DCR's Natural Heritage Program, where he worked to track and share statewide land conservation data through DCR's Conservation Lands Database.

Nick's primary responsibility with Virginia CZM is to maintain and enhance Virginia Coastal GEMS *(see back cover)*. Nick will also organize Coastal GEMS training programs, support Virginia CZM staff and partners with GIS related needs, and represent Virginia CZM within Virginia's GIS community.

Virginia Witmer/VACZM

Coastal Grants Coordinator/Outreach Specialist

Shannon Girouard joined the Virginia CZM Program as grants coordinator and outreach specialist in September 2008. Most recently, she worked with a local non-profit organization to improve their strategic planning, grant research and writing, and data collection efforts.

Shannon graduated from the College of William and Mary in 1992 with a bachelor of arts in government. She has a master's degree in public administration from Virginia Commonwealth University. While a graduate student, Shannon worked with the Virginia Department of Housing and Community Development administering state and federally-funded grant programs targeting homeless, low-income and special needs residents. She also has worked with Thomas Nelson Community College as a grants specialist where she performed grant research and writing and worked to formalize the college's grants office.

In her present capacity with Virginia CZM, Shannon will coordinate grant-related activities, including federal reporting and maintaining financial and performance data for the program. She will also assist fellow staff with communicating the mission and goals of the program through publications, exhibits and web page development.

DCR/DNH

Coastal Natural Heritage Liasion

Kristal McKelvey joined the Environmental Review Team at the Department of Conservation and Recreation Division of Natural Heritage in February 2008.

Kristal graduated from Warren Wilson College in North Carolina, where she was a teaching assistant for the Department of Biology and Environmental Studies and an outreach and biological assistant intern for the US Fish and Wildlife Service's Virginia field office.

With funding from Virginia CZM, Kristal works with agencies, private individuals and consultants to assess the potential for proposed activities to impact natural heritage resources, and recommends ways to avoid or minimize these impacts. Kristal also provides training for coastal locality staff on tools such as the Natural Heritage Data Explorer mapping program, and consults with planners on incorporating natural heritage resource concerns into local comprehensive plans and permitting processes.

2007 Virginia Outdoors Plan

The Virginia Outdoors Plan, the state's guide to comprehensive outdoor recreation, conservation and open space planning, has expanded its focus in the face of rapidly changing population and land-use pressures. Compiled by the Virginia Department of Conservation and Recreation, and released every five years since 1965, the 2007 edition is Virginia's ninth.

This 2007 edition contains information new to the plan. Local and state outdoor recreation resources and open space is related to land conservation, green infrastructure, and "nature-deficit disorder." A growing concern, "nature-deficit disorder" was coined by author Richard Louv and addresses a growing trend - children increasingly disconnected from the outdoors.

The 2007 plan also contains more land conservation information, including planning region maps showing all protected lands in the area, which will assist Virginia's land conservation organizations to target lands most suitable for conservation.

The plan calls for greater integration of green infrastructure planning into traditional forms of municipal planning. Green infrastructure is an environmentally inclusive approach to local and regional planning, which integrates outdoor recreation, open space, cultural resources and conservation lands into land use management decisions. The Virginia Outdoors Plan was written by DCR in coordination with federal and state natural resource agencies, local planning and recreation departments, the private sector and concerned citizens.

Copies of the plan were distributed to city, county and regional planners and major conservation organizations, and can be accessed at http://www.dcr.virginia.gov/recreational_planning/vop.shtml.

The VOP is also available on CD. Contact Beth Reed at (804) 786-5046 or beth.reed@dcr.virginia.gov.

- by Kim Hodges, DCR

NOAA Deploys "Smart Buoys" in Virginia

In the summer and fall of 2008, two new "smart buoys' were deployed by the NOAA Chesapeake Bay Office in the Rappahannock and Elizabeth rivers. Like the buoy deployed in Jamestown in 2007, these buoys will take observations of the Bay's changing conditions and help mark the Captain John Smith Chesapeake National Historic Trail.

NOAA CBO

One of three "smart buoys" stationed in Virginia waters, the buoy at Jamestown is visible from the site of Captain John Smith's fort.

The Rappahannock buoy was deployed off Stingray Point, near Deltaville, VA to mark the 400th anniversary of Captain John Smith's exploration of the region. In July 1608, Smith was stung by a stingray and nearly died, giving the peninsula where this incident occurred its name.

The three Virginia buoys are part of the Chesapeake Bay Interpretive Buoy System which collects weather, oceanographic and water-quality observations and transmits this data wirelessly in near-real time. These measurements, necessary to track Bay restoration progress, as well as historical and cultural information about the Bay, can be accessed at http://www.buoybay.org and by phone at 877-BUOY-BAY (877-286-9229). The system includes two buoys in Maryland and one in Pennsylvania.

Middle Penninsula Receives Boating Access Award

The Middle Penninsula Planning District Commission received a 2007 Recreational Boating Access Award from the Boat Owners Association of the United States (BoatUS) for creation of the Middle Peninsula Chesapeake Bay Public Access Authority (MPCBPAA). The award was one of seven distributed by BoatUS, the nation's leading advocate for recreational boaters.

BOATUS

Receiving the award (left to right) Frank Pleva - PAA Chairmen, Lewie Lawrence - MPPDC, Director of Regional Planning, Richard Schwartz - founder of BoatUS, and Mo Lynch - MPPDC Chairmen.

Virginia CZM has supported the MPCBPAA since 2003 with over $1.3 million in funding for development of the PAA organizational framework, land acquisition, enhancements to public access sites, an inventory of road endings in the Middle Peninsula that provide water access and the development of legislation that eliminates an obstacle for conserving these road ending for public water access when they are transferred from the Commonwealth Transportation Board (H.B. 2781).

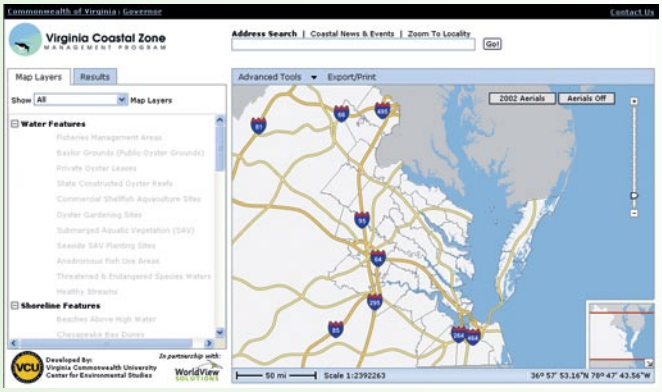
The award was presented at the 2007 *Working Waterways and Waterfronts: A National Symposium on Water Access* Conference in Norfolk.

Do you know what Coastal GEMS are in your 'backyard'?

Visit this website to find out!

The Virginia Coastal Geospatial and Educational Mapping System is a gateway to information on the location, value and management of Virginia's coastal resources.

Explore Over 50 data layers



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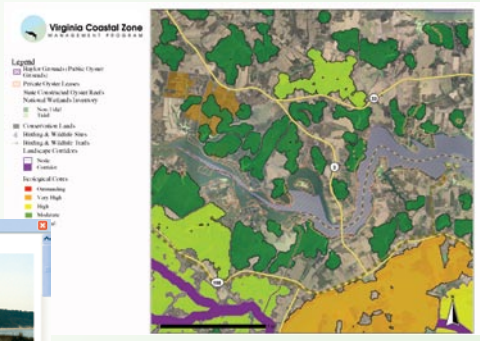

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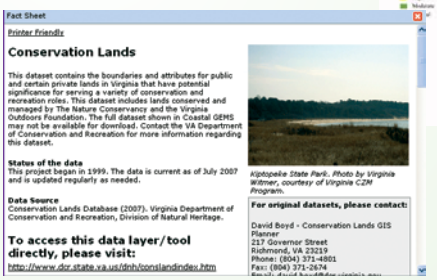

Virginia Coastal Zone
MANAGEMENT PROGRAM

www.deq.virginia.gov/coastal/coastalgems.html

Virginia Coastal Zone Management Program
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