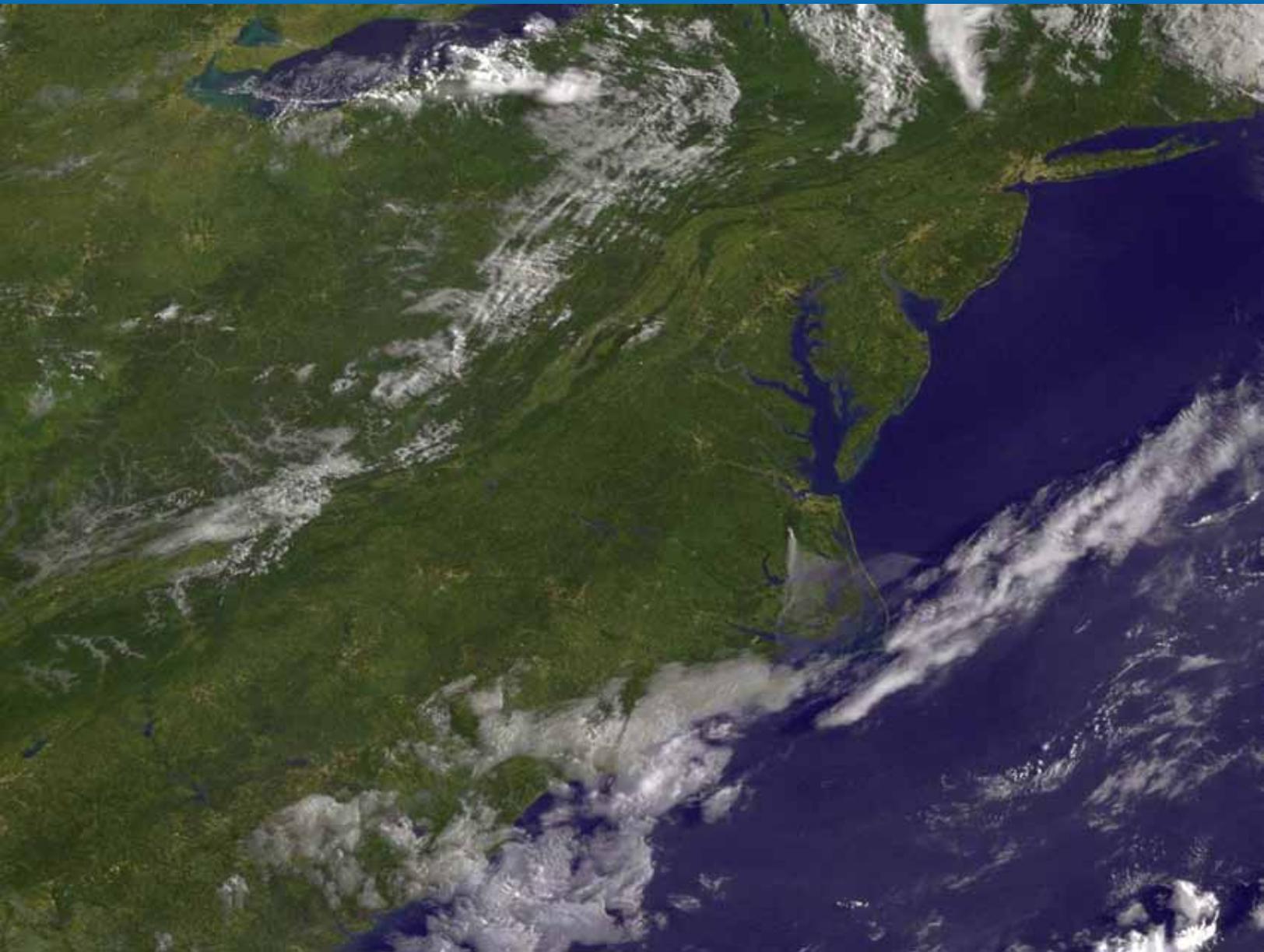




Virginia

# Coastal Zone Management

Anniversary Edition - Fall 2011



*Celebrating 25 Years of CZM in Virginia*



**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 Mines, Minerals and Energy  
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.

This Virginia Coastal Zone Management magazine is funded through grants from the U.S. Department of Commerce, NOAA, under the Coastal Zone Management Act of 1972, as amended. The views in this publication are those of the authors and do not necessarily reflect the views of NOAA, the U.S. Department of Commerce, or any of its subagencies.



*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](http://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](mailto:Virginia.Witmer@deq.virginia.gov)

Visit us on the Web at: [www.deq.virginia.gov/coastal/](http://www.deq.virginia.gov/coastal/)

*Cover Photo: Satellite imagery of the mid-Atlantic coast. The outline of Virginia's shoreline is distinctively clear - the Chesapeake Bay, the lower Delmarva Peninsula and our seaside barrier island lagoon system. Photo courtesy of NASA.*



## Message from the DEQ Director

*I am very pleased to offer my congratulations to the Virginia Coastal Zone Management Program for 25 years of dedicated service. For two and a half decades now, this important program has focused on Virginia's coastal zone in innovative and resourceful ways, always with the goal of preserving the Commonwealth's abundant coastal resources.*

*The program has a long list of accomplishments, ranging from saving eelgrass on the seaside to enhancing oyster populations, from improving protection of beaches and dunes to increasing opportunities for ecotourism. These efforts and many others have led to numerous success stories where the Virginia CZMP frequently takes the lead.*

*Under the umbrella of the National Oceanic and Atmospheric Administration, the Virginia CZMP and its partner agencies have broken new ground in some areas and protected old ground in others. The result has been the promotion of a unique perspective on Virginia's coastal zone.*

*Best wishes for continued success in the coming years.*

## Message from the CZM Program Manager

*The Virginia CZM Program, and coincidentally my daughter, were both born in 1986. And so I often link events in the program to events in her life. So she was two when I came to the program in 1988 and none of our paperwork was digital. She was six when she excitedly helped me think of activities for the first Birding Festival in 1993. And she was graduating from college in 2008 as we made plans for the Southern Tip migratory birds benefit concert.*

*Aligning these events helps me remember how much they've both grown and matured. I've also come to understand that maturity and growth--successful growth--only happen in the presence of positive relationships.*

*So in this issue, we, the CZM staff, wanted to take stock of all the successes that have been made possible over the past 25 years, thanks to all of our wonderful and long relationships with so many of you. This program is a network that works, and for that we are deeply grateful to all of our partners.*

# Virginia Coastal Zone Management

Virginia Department of Environmental Quality



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DEQ



# 25 YEARS OF... *Increasing Efficiency*

The Virginia CZM Program has a 25 year history of doing more with less. The first full year of funding in 1987 was \$1,919,000. The 2010-11 award was \$2,566,000, but when adjusted for inflation that represents a 48% cut—equivalent to only \$1,289,731. During the same time Virginia’s coastal population grew from about 3.6 million in 1986 to about 5.1 million in 2010—a 41% increase of more people, placing more pressure on finite coastal resources. So how does a program remain effective given a 48% cut in funding and a 41% increase in population? For us, the answers have been implementing technology, aligning and leveraging our resources and missions with our partners, and having a dedicated but small staff.

Technological advances have been tremendous. Basic processes of grants management have become far more efficient. In the early years of the program, grant funds were allocated through a complex competitive process that included copying, mailing, reading, and ranking scores of long proposals. And once funded, these grants were reported quarterly—resulting in piles of paper literally on the floors. Those reams of paper were copied, reviewed and mailed to NOAA and others. But soon this evolved into a much more organized filing system, and by 1992 a database was developed to track grant progress and maintain records. Switching from quarterly to semiannual progress reports also reduced paperwork for everyone. The move to digital reporting and final product submission in recent years has greatly improved efficiency and drastically reduced the amount of paper and postage used.

Eventually, a more sophisticated system of allocating grant funds also evolved. As the Program matured, grant priorities moved away from the long list of all CZM activities identified in the federal Coastal Zone Management Act to more targeted issues identified by the Program’s Coastal Policy Team. NOAA’s Coastal Needs Assessment and Strategy process is also used to help prioritize

and focus grant applications. In 1999, the process was further consolidated through elimination of competitive grants and adoption of “focal areas” for 3 years. The first one being the Oyster Heritage Program where the \$500,000/year available supported oyster reef restoration. In 2002 the Executive Order that continues the Virginia CZM Program was streamlined to reduce its 25 goals down to 10 (see goals in text box below right.)

In 2012 as Congress struggles to reduce the nation’s deficit, the need for an even more efficient, streamlined program will be more important than ever. Increased involvement of a larger, more representative Coastal Policy Team in various initiatives continues to improve decision making. Finding common ground and missions with other agencies has also helped us get “more bang for the buck”—especially in the areas of coastal land conservation and habitat restoration where we have established long-term relationships with US Fish & Wildlife Service and The Nature Conservancy. The program continues to look for more ways to increase efficiency such as an online searchable database of grant products and web-based submission of proposals, progress reports and final products.

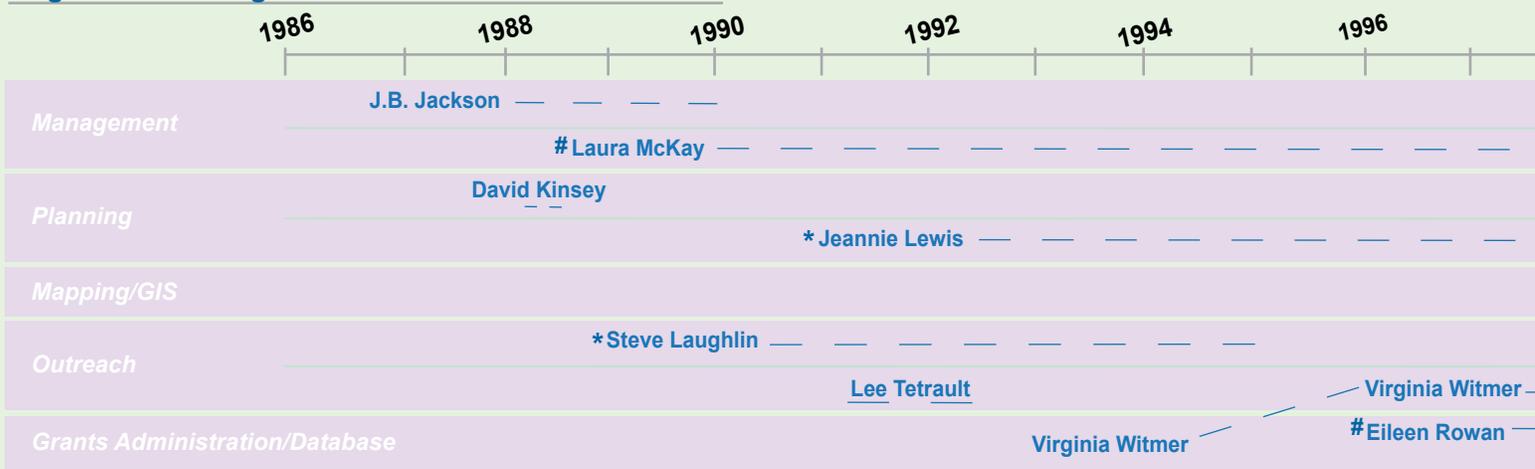
In the face of declining federal resources and pressing new coastal issues, we will need to continue looking for new ways to “do more with less.” 

## From Paper to Computer

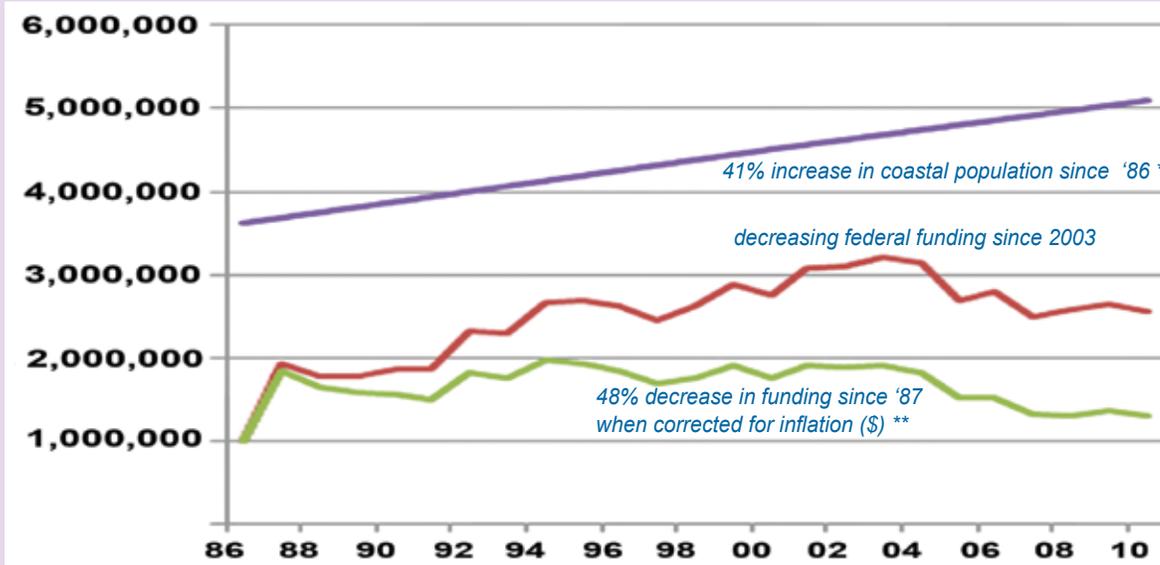


*Digital technology has made grant reporting more efficient, cheaper and greener! Before electronic submission of it’s applications to NOAA, the Virginia CZM Program mailed two paper copies at an average weight of over 42 pounds (8 reams of paper!) and postage cost of around \$18! Quarterly reports averaged 20 lbs., another 4 reams of paper and \$24 of postage. Mailing final reports really tallied up - an average of 72 lbs. (16 reams of paper)! Over the years, digital submissions have saved a lot of grant funds and a lot of trees!*

## Virginia CZM Program Office Staff Over the Years



## An Uncertain Financial Future...and a Growing Coastal Population



\* 1986 Coastal Population - 3,621,100 - and 2010 coastal population - 5,096,273 - from the Weldon Cooper Center for Public Service at the University of Virginia.

\*\* Federal funds adjusted for inflation from 1986 based on the Consumer Price Index from the U.S. Bureau of Labor Statistics

### Virginia CZM's 10 Goals

1. Protect and restore coastal habitats
2. Restore and maintain water quality
3. Protect air quality
4. Reduce or prevent losses due to storms and other hazards
5. Provide for sustainable fisheries and aquaculture
6. Promote sustainable ecotourism and public access
7. Promote renewable energy and appropriate extraction
8. Ensure sustainable development on coastal lands
9. Avoid and minimize coastal use conflicts
10. Promote informed decision-making

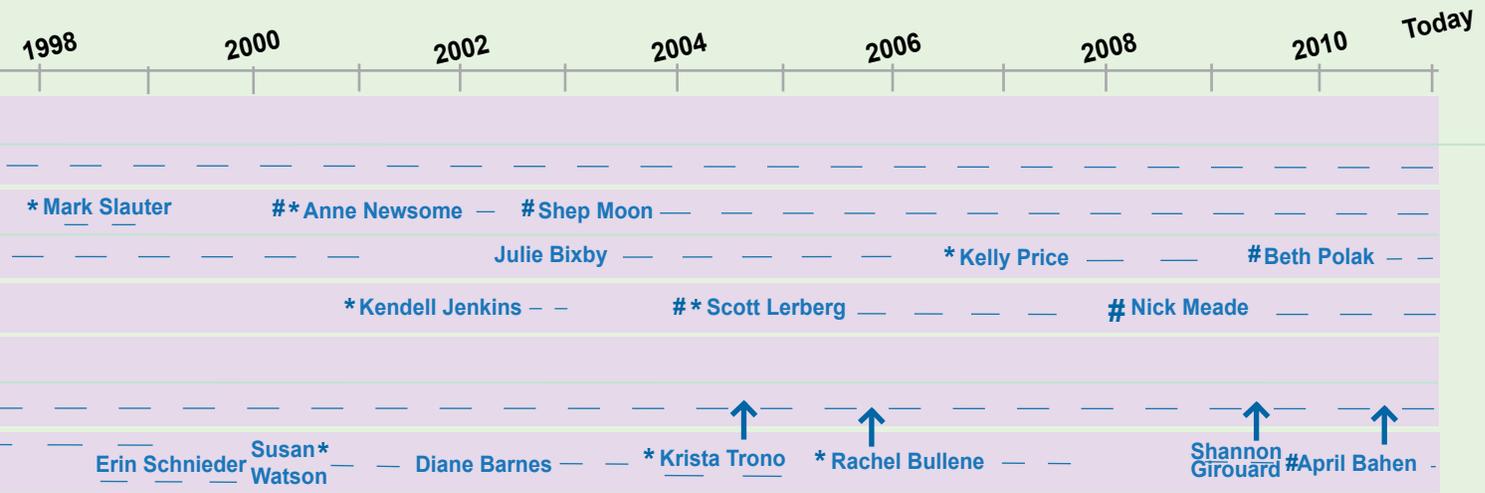
### Thank you NOAA for 25 Years of Support!

John Kuriawa (shown restoring beach grass) is Virginia's NOAA Program Specialist, in the Office of Ocean and Coastal Resource Management. John advises the Virginia CZM Program, serving as its "eyes and ears" at the federal level. John continues the work of previous specialists, who have helped the Program implement its policies: David Kaiser, Jim Mills, Josh Lott, Bill O'Beirne, Elisabeth Morgan, and Randy Schneider.

John's experience in nonpoint source pollution and watershed management and his extensive experience in inter-agency coordination, has been very valuable. "It's very rewarding to work with a Program whose staff is professional, conscientious, and focused on achieving tangible results," describes Kuriawa. "From the eelgrass beds of the Seaside Bays and the protected lands of the Eastern Shore's Southern Tip to the meeting rooms of local governments to the backyards of waterfront landowners, Virginia CZM is achieving shining examples!"



NOAA



\* left office for position with federal or state CZM partner  
# joined office from federal or state CZM partner

# 25 YEARS OF... Success Stories



Virginia CZM

## More Protected Beaches!

Beaches and dunes are our first natural defense against storms. Inventorying and protecting these critical coastal resources has been a focus of the Virginia CZM Program.

"Partnership in the Virginia CZM Program has been valuable and provided the necessary funding for detailed analyses of Virginia's beaches and dunes," describes [Scott Hardaway, VIMS](#). "The results of this research have led to a change in the Code of Virginia that significantly expands protection of these valuable estuarine resources to all coastal localities."

"Ongoing Virginia CZM funding to assess the effectiveness of living shorelines has provided the scientific foundation for guidance to Tidewater localities," continued Hardaway. "Coastal localities will look to the program for further support as [shoreline management](#) becomes a necessary requirement for comprehensive planning in the coastal zone of the Commonwealth." (See page 6 - "Shoreline Management.")



VIMS



Middle Peninsula PDC

## More Public Involvement!

"Born and raised in the Middle Peninsula, I understand first hand the cultural and economic importance of the Dragon Run watershed to our residents," says [Lewie Lawrence, Middle Peninsula Planning District Commission \(MPPDC\)](#). "I've been fortunate to have the opportunity to guide and coordinate the development of the [Dragon Run Special Area Management Plan \(SAMP\)](#) over the last decade. Protecting the Dragon is a challenge, but programs such as the Virginia CZM Program understand the importance of sustaining coastal identity, protecting special places and creating sustainable industries."

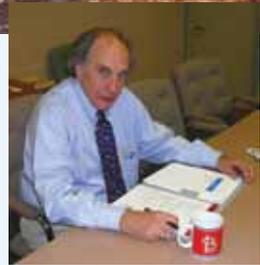
"SAMPs, like that in the Dragon Run, also illustrate how Virginia CZM brings together local and state partners as well as citizen groups such as the Dragon Run Steering Committee to work toward a common vision." (See page 7 - "Dragon Run SAMP.")



## More Long-term Solutions!

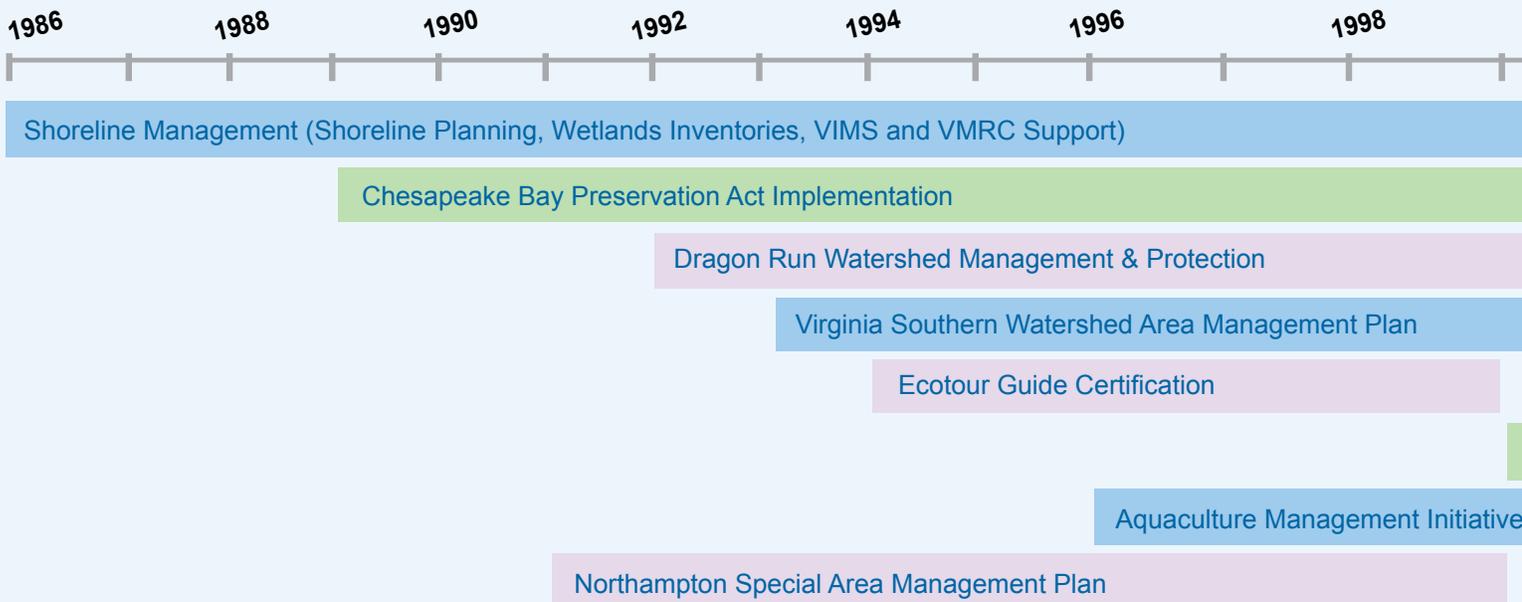
"The Virginia CZM Program is a model for state-local-regional-federal partnership and cooperative consideration of scientific research to support policy decisions," states [John Carlock, Hampton Roads Planning District Commission \(HRPDC\)](#).

"In Hampton Roads, the Program has provided the seed for ongoing regional programs in coastal and water resource management and environmental education. Through the [Southern Watershed Special Area Management Program](#), the HRPDC and the cities of Chesapeake and Virginia Beach worked with state agencies to develop tools and practices that are now incorporated into the local Comprehensive Plans and Memoranda of Agreement." (See page 8 - "Southern Watershed SAMP.")



Hampton Roads PDC

## Major Virginia CZM Program Initiatives





# 25 YEARS OF... *Success Stories*

## *Shoreline Management*



From the beginning, one of the Virginia CZM Program's priorities has been improving management of the "edge" environments where water and land meet. Since 1989, Program funds have supported staff involved in ongoing implementation of laws protecting beaches, dunes and wetlands at the Program's partner agencies, the Virginia Marine Resources Commission and the Virginia Institute of Marine Science. This partnership also resulted in improvements in the way these critical coastal resources are managed.

The Virginia CZM Program initially improved shoreline management by developing local shoreline and wetland inventories. Promoting the concept of "living shorelines" as an alternative to hard erosion control structures like wooden bulkheads and rock revetments, began in 1992 and was the focus of the Program's 2006-2010 Shoreline Strategy. This Strategy provided over \$800,000 and resulted in a joint "Living Shoreline Summit" with Maryland, revisions to management policies, new research and design standards for living shorelines, a training program for shoreline contractors, a new website and outreach materials, 10 local shoreline inventories and 12 local shoreline evolution reports. These inventories and reports, along with updated policies, provide the necessary framework for local shoreline management plans. The Program's 2011-2015 Shoreline Strategy allocates \$720,000 for guidance and development of these local plans. Passage of Senate Bill 964 by the 2011 General Assembly should ensure local adoption of the plans.

The Program also has been successful in improving management of coastal sand dunes and beaches. Initially only nine localities were included in the 1980 Coastal Primary Sand Dune and Beach Act. Funding for inventories of dunes and beaches confirmed these features in numerous other localities. As a result, the 2008 General Assembly expanded coverage of the Act to all localities in the coastal zone. 

## *Water Quality*



Protecting and restoring the quality of coastal waters has always been an important goal of the Virginia CZM Program. A number of partner agencies, institutions and local governments have been involved in these efforts through a wide range of CZM-supported projects. Some projects have resulted in direct water quality improvements such as riparian buffer restoration projects and upgrades to wastewater treatment plants through state Water Quality Improvement Fund matching grants. Others affect water quality indirectly, such as research projects into stormwater management, plasticulture, on-site wastewater treatment and agricultural runoff, support for state and citizen monitoring of our coastal waters, and environmental education and social marketing campaigns.

Much needed support was provided for the new Chesapeake Bay Preservation Act beginning in 1989 for delineation of local Resource Management Areas, Resource Protection Areas and comprehensive plan and ordinance amendments. Virginia CZM Program funds enabled the former Chesapeake Bay Local Assistance Department to undertake special projects, such as its Better Site Design initiative, Polecat Creek monitoring, and perennial stream identification training for local officials. The Coastal Nonpoint Program began in 1992 and has provided grant funds for initiatives such as the Clean Marina program and the Network for Education of Municipal Officials, NEMO. Ongoing technical assistance grants to the eight coastal planning district commissions as well as support for the Local Environmental Planning Assistance Program at the former Council on the Environment has helped localities address regional water quality initiatives such as Tributary Strategies, Nutrient Reduction Strategies, and Watershed Management Plans. Funding also has been provided for local government staff to implement water quality protection plans and ordinances. Future water quality protection efforts are likely to focus on mandated Watershed Implementation Plans (WIPs). 

## Northampton SAMP



Roger Mayhorn

In 1989 one of the oldest, continuously-running bird banding stations on the east coast was about to be sold and turned into a housing development. In 2012, that same banding station, now located within Kiptopeke State Park on Virginia's Eastern Shore, will celebrate its 50th year of operation.

By bringing that impending sale to the attention of the Virginia CZM Program, the Natural Heritage Division at the Department of Conservation and Recreation started the Program on a long journey that continues today. In 1990, the Program organized a multi-state, multi-agency Migratory Songbird Coastal Corridor Study to document the migration corridor and stopover areas from Cape May, New Jersey, through Cape Charles, Virginia. In 1991, the Program initiated the Northampton County Special Area Management Plan (SAMP), a partnership of the Program and its agencies, the county, the U.S. Fish & Wildlife Service, The Nature Conservancy, the Center for Conservation Biology and the shellfish and ecotourism industries. The main purpose of this SAMP was to protect migratory bird habitat and water quality while promoting the sustainable industries that depend on those things, such as ecotourism and shellfish aquaculture. One of the policies pursued through the SAMP was an ordinance to minimize the loss of native vegetation in the county to decrease the loss of habitat and increase water quality. Although the ordinance was never adopted, the effort to increase native vegetation gained traction through subsequent projects by the Program and partners, including land acquisition, habitat restoration and social marketing.

During the Northampton SAMP, more than 22 projects worth over \$1.5 million were completed. An additional 17 projects (\$440,000), were completed to build ecotourism infrastructure and promote sustainable industries, including the Eastern Shore Birding and Wildlife Festival which will celebrate its 20th year in October 2012. 🦋

## Dragon Run SAMP



Teta Kaini/Friends of the Dragon Run

The Virginia CZM Program has been investing in protection of the unique features and resources of the Dragon Run watershed for more than a decade. Fondly known by locals as simply “the Dragon,” this slender, sinuous vein of water forms the boundary between King and Queen and Middlesex counties in the Middle Peninsula, and through the Piankatank River eventually makes its way to the Chesapeake Bay. Home to a myriad of rare natural heritage resources, the Dragon Run ranked second in terms of ecological significance in a study of 232 rivers and streams in the Chesapeake Bay by The Nature Conservancy and the Chesapeake Bay Foundation.

The Virginia CZM Program has supported and promoted community-based efforts to preserve the cultural, historic and natural character of the communities surrounding the Dragon Run, while preserving property rights and traditional uses within the watershed. Through the Dragon Run Special Area Management Plan (SAMP), the Dragon Run Watershed Management Plan was developed and formally adopted in 2003 by Essex, Gloucester and King and Queen counties. During the early years, the SAMP focused on three areas of implementation: new zoning and comprehensive plans, public access/conservation lands management and sustainable economic development practices.

Land-use planning has been an instrumental part of the SAMP. All four counties that comprise the Dragon Run watershed (Essex, Gloucester, King and Queen, Middlesex) have adopted language in their comprehensive plans to recognize the watershed's significance and protect its resources. Conservation lands have multiplied throughout the watershed due to increased acquisition by both public and non-governmental organizations, which in turn also has increased public access opportunities in certain areas of the watershed. 🦋

# 25 YEARS OF... *Success Stories*

## *Southern Watershed SWAMP*



Hampton Roads PDC

The Southern Watershed Area Management Program (SWAMP), for the watersheds of Back Bay, the Northwest River, and the North Landing River, was a partnership between the Virginia CZM Program, the Hampton Roads Planning District Commission, and the cities of Virginia Beach and Chesapeake. This region contains some of the most diverse and extensive wetlands in Virginia with over 40 rare or endangered species—the highest concentration east of the Blue Ridge Mountains. The area also faces significant development pressure from the growing municipalities of Hampton Roads.

The Virginia CZM Program's involvement began in 1992 with preliminary studies on water quality status and trends, and in 1994 a Local Government Advisory Committee was formed to identify critical watershed priorities, goals and recommendations for future technical studies. SWAMP achievements over the years included memoranda of agreement on wetlands mitigation and water use conflicts on the North Landing River, along with a comprehensive geographic information system (GIS) for the region, and inclusion of SWAMP materials in comprehensive plans for both Virginia Beach and Chesapeake. Nationally recognized conservation planner Randall Arendt also reviewed local plans and ordinances and developed site plans for each locality to demonstrate conservation subdivision design principles. The site plan developed for the City of Chesapeake evolved into the "Preserve on the Elizabeth," featuring compact, clustered development and preservation measures for wetlands and woodlands.

With nearly \$2 million in funding during a ten-year period, SWAMP resulted in a number of products that have directly affected coastal management in the region. Just as importantly, SWAMP has laid the foundation for other efforts, including development of the Hampton Roads Conservation Corridor Network which has served as a model for similar work in the rest of Virginia's coastal zone. 🐾

## *Ecotourism*



Virginia CZM

Tourism is a major driver in Virginia's economy and ecotourism is especially important in coastal Virginia. Ecotourism connects people to the natural resources that the Virginia CZM Program is striving to protect and hopefully instills in them a strong will to take care of these life-sustaining resources.

The Virginia CZM Program and its partners have completed more than 54 ecotourism grants in the last 25 years worth over \$1 million. They focused on planning, inventorying, marketing and educational aspects of ecotourism as well as ongoing sponsorship of events such as Dragon Run Day and the Eastern Shore Birding & Wildlife Festival. (See pages 18-23 for additional projects that created ecotourism infrastructure.)

One major accomplishment of Virginia CZM Program funding was the Ecotour Guide Certification Program. In 1992, through the Northampton County SAMP, an initial ecotourism course was developed by DCR's Natural Heritage Program. In 2003 the Virginia Institute of Marine Science completed the curriculum and offered the course for the first time. Nineteen guides were certified. In 2005, VIMS conducted the first Eastern Shore Eco-Tour Instructors Training Course and passed five of the seven certified guides who attended. During 2007-2009 ecotour guide certification and trainers courses were created for use on an ongoing basis at the Eastern Shore Community College.

Another accomplishment has been the development of two major trails—one on land, one in the water. CZM grants to the Department of Game and Inland Fisheries in 1999 and 2000 designed the Coastal portion of the Virginia Birding and Wildlife Trail. It incorporates 210 public and private sites into 18 loops—all viewable in a full-color guide. In 2003 Accomack-Northampton PDC and Southeast Expeditions created an Eastern Shore Seaside Water Trail that gives paddlers an online, interactive portal to create their own trail map. 🐾

## Aquaculture/Working Waterfronts



Witmer/Virginia CZM

Aquaculture has become increasingly important to Virginia as wild fisheries have become more and more challenging to manage and sustain. Since 1996, the Virginia CZM Program has funded 25 different projects valued at almost \$1 million. Most of these projects were undertaken by the Virginia Marine Resources Commission (MRC) and the Virginia Institute of Marine Science (VIMS) to draft new policies, analyze use conflicts, develop suitability and vulnerability models, create Best Management Practices, and analyze the economics of shellfish aquaculture (the latter undertaken by Virginia Tech).

Grants to MRC from 1996 through 2002 resulted in a regulation to authorize aquaculture structures on leased bottom, a general permit for growing shellfish non-commercially, and abbreviated application process, a booklet summarizing Virginia's laws and policies pertaining to shellfish aquaculture, and a GIS data layer identifying existing aquaculture activities. To accommodate "off-bottom" cultivation, MRC developed draft legislation for a water column leasing program.

Grants to VIMS from 1997 up to today have focused on refining maps of where shellfish aquaculture would be most productive given various physical, biological and legal constraints as well as where local zoning and policies provide the best promise for continued excellent water quality. These maps are now available in Coastal GEMS.

More recently, Virginia CZM efforts have shifted to particular locations such as the York River and the Eastern Shore (see Seaside SAMP on page 10) where shellfish aquaculture is viewed as a very important jobs creator and economic development opportunity. In 2007-8, Virginia CZM funded the York River Use Conflict study which developed recommendations to balance multiple uses for Gloucester County. This effort is now evolving into a "working waterfronts" protection approach. This fall the Virginia CZM Program launched a five year grant strategy to preserve working waterfront infrastructure. 

## Oyster Heritage Program



Witmer/Virginia CZM

In 1999, then Director of the Department of Environmental Quality, Dennis Treacy, asked whether the Virginia CZM Program was required to divide its NOAA grant among so many smaller-scale, year-long projects. Instead, could the Program "focus" these funds on one topic over multiple years, resulting in a greater impact on the management of a single resource or issue? That year the Program ended its competitive grant process and began its focal area approach. And the topic? Up to that point, many nutrient reduction efforts had focused on land-based solutions. It seemed timely for a concerted focus on a water-based solution -- oysters.

In July 1999, the Virginia CZM Program initiated the Virginia Oyster Heritage Program (VOHP), a multi-partner, public-private effort to increase Virginia's wild oyster population through restoration of natural 3-dimensional reef habitat. The VOHP "spawned" the Oyster Reef Heritage Foundation, which continues to raise funds for oyster restoration. As a result of its 3-year coordination and funding of the VOHP, the Virginia CZM Program leveraged its \$1.5 million to raise millions more in private and public dollars, and successfully joined together many partners under this common goal. The VOHP also helped raise the public's awareness of the value of this coastal resource, including numerous exhibits featuring aquaria to demonstrate oyster reef habitat and filtration. A t-shirt, temporary tattoo, and costume character, Omar of the Reef, carried the message of the amazing oyster to the public. Omar even flew to Japan to promote wild oyster restoration in Tokyo Bay.

Virginia CZM Program funding restored 14 one-acre oyster sanctuary reefs and 500 acres of adjacent 2-dimensional harvest areas in the Rappahannock River. Oyster reef restoration on the seaside of Virginia's Eastern Shore laid the foundation for the next Virginia CZM Program focal area, the Virginia Seaside Heritage Program. 

# 25 YEARS OF... *Success Stories*

## *Seaside Heritage Program*



As the VOHP was reaching its third year, the Virginia CZM Program began working through its interagency Coastal Policy Team to identify the next “focal area” for funding. Given the successes with oyster and eelgrass restoration, it was an easy decision to continue and expand efforts on the Seaside. So the Virginia CZM Program brought together many of its partners including the Virginia Marine Resources Commission, the departments of Conservation & Recreation and Game & Inland Fisheries, the Virginia Institute of Marine Science, The Nature Conservancy, the Center for Conservation Biology and the Eastern Shorekeeper to work on habitat restoration in the water and along the shoreline as well as economic restoration for ecotourism and the shellfish industry.

As described more fully in the summer/fall 2010 issue of *Virginia Coastal Zone Management*, the Virginia Seaside Heritage Program restored 14 acres of oyster reefs, almost 5,000 acres of eelgrass, treated over 4,630 acres of invasive reeds to allow native marsh grass to return, controlled predators (raccoons and foxes) on the barrier islands to boost survival of rare shorebirds, built ecotourism infrastructure such as floating docks, interpretive signage, a wildlife observation deck, and a kayaking water trail and created an Ecotour Guide Certification Program. The Virginia CZM Program also funded an oyster industry and the development of shellfish aquaculture BMPs to help keep that industry sustainable.

This focal area was so successful that the Coastal Policy Team agreed it should get a second round of funding. With the help of continued funding through NOAA in 2009 and 2010, the partners’ initial dream of reintroducing bay scallops became true. Work will continue on eelgrass and bay scallop restoration with Virginia CZM Program funds through March 2013. 🐚

## *Seaside SAMP*



The Seaside of Virginia’s Eastern Shore is a fantastically rich ecosystem that provides a multitude of services to humans. We use it for recreational boating, kayaking, recreational fishing, harvesting wild finfish and shellfish, culturing shellfish and bird watching. Its barrier islands protect the mainland from storms and erosion. Its wild beauty has the power to “re-create” us. So as follow-up to the Seaside Heritage Program and its restoration successes, we are focusing on how to sustain the compatibility of all these uses and ensure that we “protect the goose that lays the golden eggs.” This may require looking at the way we manage the shallow waters inside the barrier islands from a fresh, new perspective--a more flexible perspective that allows human boundaries (such as where we allow public and private shellfishing and habitat restoration/protection) to shift in concert with nature’s ever-shifting boundaries as storms and other factors re-shape this area.

Analyzing maps of current uses and potential uses on the Seaside has shown, for instance, that within the boundaries established in the 1880s for public shellfishing, only 56% of that underwater habitat is now suitable for oysters and only 43% of natural oyster reefs actually lie within the public grounds. We are simply not making the most of the space and are wasting opportunities for more seafood production and more restoration.

This Seaside SAMP is the CZM Program’s first foray into “marine spatial planning.” We hope that lessons learned through this effort will help us with larger planning efforts that are beginning in the Mid-Atlantic Ocean. The ocean uses will differ (e.g. shipping, military practice, offshore wind farms) but we hope to establish a new marine spatial planning process that allows citizens to help create greater efficiency, flexibility, productivity and sustainability for our marine ecosystems. 🐚

## Ocean Management



Lisa Morse-Marine Photobank

The Virginia CZM Program's newest initiative is ocean planning. As uses of the ocean continue to increase, particularly shipping and energy facilities construction, it is important that we use our ocean space wisely while also protecting key ocean habitats on which commercial and recreational fishers and rare wildlife depend.

To help Virginia reach that goal, the Virginia CZM Program is working with neighboring states under the auspices of the Mid-Atlantic Regional Council on the Ocean (MARCO). A mapping and planning, interactive, web-based portal has already been created with Virginia CZM funds (see [midatlanticocean.org](http://midatlanticocean.org)) which contains about 30 different data layers and allows users to create and download a own custom map.

Next spring the Mid-Atlantic states, including Virginia, will be engaging stakeholders in small groups to collect more data on human uses, particularly areas important for fishing and recreation to better understand where the best locations will be for increased shipping traffic and offshore wind farms. At the same time, space for existing uses such as military training areas, rocket launching crash zones, dredge spoil disposal sites and many other uses must be preserved. Finding ways to integrate resource protection and coastal development is a key role of the nation's state CZM programs.

Virginia CZM will also be working to reduce the marine debris that ends up in the ocean. Working with partners at VIMS and Clean Water Action, sources of marine debris will be prioritized, current efforts will be identified, and then a more integrated plan to target reduction of the largest sources will be developed with input from key players. Plans are underway to hold a Marine Debris Summit sometime next year. 🐬

## Sustainable Communities



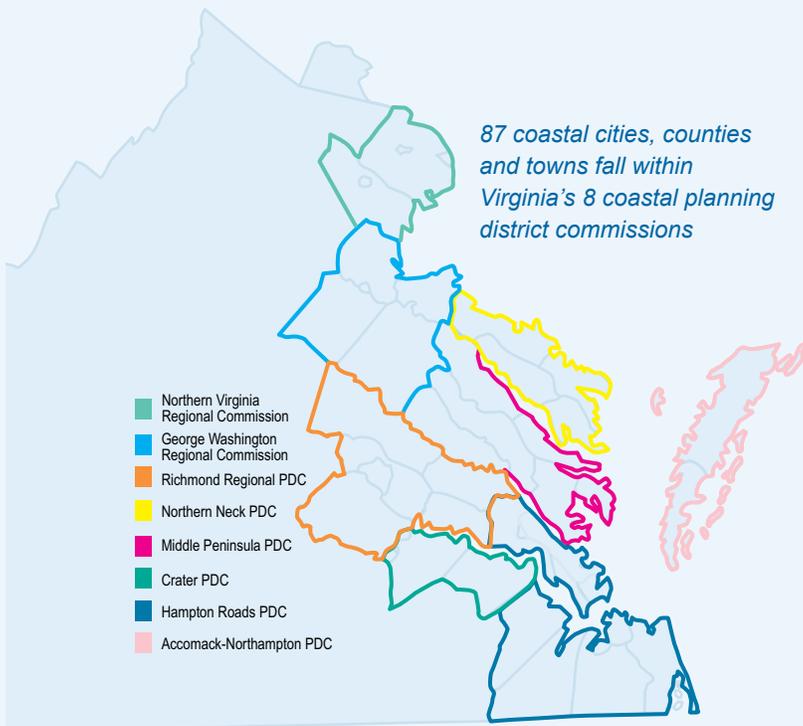
Dot Filed/DCR

The Virginia CZM Program's Sustainable Communities focal area was designed to help regional and local governments address two of the coastal zone's most pressing issues.

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. The Virginia CZM Program began funding projects to state agency partners 23 years ago and more recently to the eight coastal planning district commissions (PDC) to identify and map the best remaining blue and green natural features within Virginia's coastal zone. The PDCs use this information to work with their local governments to develop policy and promote adoption of local plans and ordinances that will better protect and manage important coastal resources.

Under the Sustainable Communities focal area, the Virginia CZM Program also is taking steps to help prepare for the predicted effects of climate change, particularly sea-level rise, on Virginia's coastal resources. Program coordination and funding for three of Virginia's coastal PDCs has enabled assessment and mapping of the potential impacts of sea-level rise and severe storm events to both developed and natural areas. Hampton Roads PDC, Middle Peninsula PDC and the Northern Virginia Regional Commission are now moving toward policy development that will establish a framework for local response to these issues. In addition, the Program is supporting climate change outreach efforts through the state Office of Environmental Education (at the Department of Environmental Quality). The Program's various initiatives to promote the use of living shorelines also aims to help sustain wetlands as sea level rises. 🐬

# 25 YEARS OF... *Supporting Coastal Localities*



Virginia's 87 coastal localities play a critical role in implementing many of the goals of the Virginia CZM Program. In addition to their responsibility for land use planning and authority over local land use decisions, localities implement core CZM programs such as the Chesapeake Bay Preservation Act, the Erosion and Sediment Control Law, the Tidal Wetlands Act, and the Coastal Primary Sand Dunes and Beaches Act. Effective resource management among so many partners requires coordination, both among the localities and between the levels of government--local, state and federal.

Effectiveness also requires that local staff and officials receive the training they need on a wide range of complex issues. Given the number of localities and coastal resource topics, it would be impossible for the small staff of the Virginia CZM Program to directly provide local coordination and training. Virginia's eight coastal planning district commissions (PDCs), however, are perfectly suited to this goal. The mission of PDCs is to assist their localities by providing technical

assistance. The Virginia CZM Program provides on-going grants to each of the coastal PDCs to help achieve this mission and provide better management of coastal resources.

Through quarterly coordination meetings with CZM staff, other agency staff and other coastal PDCs as well as quarterly meetings with their own local land use administrators, the PDCs are able to keep their members informed and share coastal management techniques that work. PDC representatives also serve on the Coastal Policy Team and have a direct voice in determining the direction of the Virginia CZM Program.

As part of their annual Technical Assistance Grant, each PDC undertakes a special project to provide technical assistance to meet the needs of their region. The following are a few shining examples. 🐟

## *Working Waterfront Inventory*

In order to help plan for the protection of remaining water dependent businesses in the Northern Neck, the **Northern Neck Planning District Commission** has developed an inventory of working waterfronts. The inventory was produced by reviewing aerial photographs and by working with county officials. There is still a vibrant seafood industry in the Northern Neck with blue crab, menhaden and gill net fisheries and an oyster industry that is transitioning from a wild fishery to aquaculture. The Northern Neck is also home to a number of small boatbuilding businesses and marinas that provide important services to boaters. These sites help define the region's coastal culture, but are increasingly threatened by conversion into private waterfront communities and marinas. The inventory will be a valuable first step in an upcoming Virginia CZM effort to help protect working waterfronts and the benefits they bring to regional economies. 🐟



Stuart McKenzie/NNPDC

*The Lewisetta Store and Marina in Northumberland County has a long history as a schooner and steamboat landing. Today it continues to provide public access, fuel, repair services and boat slips for commercial and recreational fishermen and charter captains. Working waterfronts like this are disappearing as they are often targeted for conversion to private, limited access waterfront residential developments.*

## Regional Stormwater Education

A Regional Stormwater Education Campaign was initiated in Northern Virginia by the Clean Water Partners in 2003 to assist localities in leveraging funds to achieve common goals regarding stormwater education and outreach and promote consistent messages for fertilizer and pesticide use, pet waste disposal, and motor oil recycling. Virginia CZM support for the campaign began in FY09 through the **Northern Virginia Regional Commission** technical assistance grant. The campaign includes a main website, "Only Rain" ([www.onlyrain.org](http://www.onlyrain.org)), and has recently focused on the issue of pet waste. It contains a blog about dogs ([www.northern-virginia-dog-blog.com](http://www.northern-virginia-dog-blog.com)) which has attracted more than 1,000 subscribers. A Facebook page, and Twitter site also have been developed. The campaign satisfies MS4 (Municipal Separate Storm Sewer System) Phase I and Phase II permit requirements for stormwater education and documenting changes in behavior. 🐾

## Mapping Impervious Surfaces

The **Richmond Regional Planning District Commission** has been mapping impervious surfaces such as buildings, roads and parking lots with Virginia CZM support since 2005. On-going support has allowed the PDC to refine and update this effort, which now includes more than 685,000 records. This hand-digitized data, which is more detailed and accurate than previously available remotely sensed information, has proven useful in a number of coastal resource management efforts. The data has been especially useful for localities in helping the Virginia Department of Conservation and Recreation create a Watershed Implementation Plan mandated through the federal Clean Water Act. In the future, the PDC will use land use analysis software to better understand the relationship of land use characteristics to water quality. 🐾

## Shallow Water Dredging Plan

In 2007, the Virginia CZM Program funded the framework for a dredging master plan in the Middle Peninsula. Implementation of the framework began in FY10 through a supporting technical assistance grant to the **Middle Peninsula Planning District Commission** which identified the dredging and sediment needs in the six PDC counties: Essex, Gloucester, King and Queen, King William, Mathews and Middlesex. Having moved dialogue on shallow water dredging issues forward, both the framework and implementation effort are critical to the commercial and recreational prosperity of the region. Navigable channels are pivotal to the use and enjoyment of docks, marinas, boat yards, yacht brokers and eateries. Water borne traffic has been at the heart of Middle Peninsula waterways from the time of its earliest settlers. 🐾



Bahen/Virginia CZM

Staff from Virginia's 8 coastal planning district commissions at their fall 2011 quarterly meeting (l to r) Curt Smith - ANPDC, Laura Grape - NVRC, Stuart McKenzie - NNPDC, Lewie Lawrence - MPPDC, Kevin Byrnes - GWRC, Mark Bittner - Crater PDC, Sarah Stewart - RRPDC, Ben McFarlane - HRPDC.

## Lower Appomattox River Stewardship

The **Crater Planning District Commission** has provided staff support for the Friends of the Lower Appomattox River, or FOLAR, since its inception in 1999. FOLAR was formed as a result of the Appomattox River Corridor Plan developed by Crater PDC and funded by Virginia CZM. Other CZM funds have supported specific projects, such as the Lower Appomattox River Trail Guide and the Appomattox River Interpretive Guide, which depicts historical and natural features from Lake Chesdin to City Point in Hopewell. With Crater's assistance, FOLAR volunteers conduct spring and fall river cleanups, trail clearing, water quality monitoring, and sponsor an annual canoe and kayak race to highlight the importance of the lower Appomattox. FOLAR also has been especially successful in leveraging Virginia CZM Program funds to obtain corporate support and significant donations of money, materials, and use of equipment and labor over the years. With these resources FOLAR has constructed trails, bridges, overlooks, and a fishing pier, most of which are handicap accessible. 🐾



FOLAR

Battersea Bridge in Petersburg is one of FOLAR's largest projects.

# 25 YEARS OF... *Supporting State Efforts*

## *Core Enforceable Policy Support*

As part of the Coastal Zone Management Act's (CZMA) state-federal partnership, and to ensure Virginia's eligibility to receive CZMA funds, NOAA approves Virginia's enforceable policies to manage and protect coastal resources. These include policies for managing subaqueous lands, wetlands, dunes, fisheries, non-point source water pollution, point source water pollution, shoreline sanitation, air pollution, and coastal lands. In addition to providing the Commonwealth with funds to help the Virginia CZM Program's network of partner agencies implement these enforceable policies, NOAA approval gives Virginia the authority to require that certain federal actions be consistent with state coastal laws.

In order to help implement enforceable policies for subaqueous lands, wetlands and dunes, the Virginia CZM Program has provided on-going funding to the Virginia Marine Resources Commission (VMRC) and the Virginia Institute of Marine Science (VIMS) since 1988. VMRC is responsible for regulating encroachments on or over the State's 1,472,000 acres of submerged lands. They also have jurisdiction over 213,000 acres of vegetated tidal wetlands and 5,000 miles of tidal shoreline including all nonvegetated wetlands, coastal primary sand dunes and beaches, and provide oversight of the 36 local wetland boards that help manage these resources. VMRC uses its CZM funding to support day-to-day implementation of these three enforceable policies and to assess permit compliance. Compliance is determined by evaluating approximately 250 subaqueous permits and 125 randomly selected wetland permits per year. Since 1993 VMRC has conducted over 5,100 wetland permit compliance inspections. Compliance has improved over the years from approximately 50% when the program began to current rates of over 90%.

VIMS, in addition to its many research functions, is mandated by state code to provide technical assistance to VMRC and localities in managing coastal resources. Virginia CZM Program funds help provide operational support for the VIMS Wetlands Program. Support goes toward education and outreach efforts and the preparation of advisories and impact assessments for permit applications received by VMRC. The education effort includes the development and delivery of training for resource managers and the general public, publication of newsletters and maintenance of the permit database. VIMS permit reviews may recommend modifications to projects to reduce impacts to coastal resources, or suggest adequate compensation for any unavoidable losses.

Beyond support to state agencies for enforceable policy implementation, Virginia's status as an approved CZM program allows the Commonwealth to influence certain federal actions as they may affect coastal resources. The Virginia Department

Surfrider Foundation



*Beach nourishment projects, like this one in Virginia Beach, are regulated by several Virginia CZM Program Core Enforceable Policies. Projects like this, and many others, involve federal permits and funding so the DEQ-OEIR Federal Consistency coordinated review process is used to collect comments from all relevant partner agencies.*

of Environmental Quality's (DEQ) Office of Environmental Impact Review coordinates a review among CZM agencies of federal activities such as development projects, federal permits and licenses, outer continental shelf activities and federal assistance projects. Any of these federal actions with reasonably foreseeable direct, secondary or cumulative effects on any land or water use or natural resource of Virginia's coastal zone must be consistent with the Virginia CZM Program's enforceable policies. DEQ has used CZMA funds to help coordinate federal consistency reviews since 1990. Since the Virginia CZM Program's inception in 1986, DEQ estimates that over 4,100 federal activities have been reviewed for consistency with Virginia's enforceable policies. In order to ensure that these policies reflect changes made to state coastal laws and regulations, the Virginia CZM Program periodically submits updates called program changes to NOAA. Nineteen program changes have been submitted and approved by NOAA since 1986. 🐬

## *Marine Mammals & Sea Turtles*

All marine mammals and sea turtles are designated as protected species by the Marine Mammal Protection Act and/or the Endangered Species Act. Virginia strandings have included 30 different species of marine mammals, including cetaceans such as harbor porpoises, bottlenose dolphins, humpback and fin whales; and, pinnipeds such as harbor, grey, harp and hooded seals. Five endangered species of sea turtles have been found in Virginia's waters: Loggerhead, Kemp's ridley, Leatherback, Atlantic hawksbill and the Atlantic green sea turtle.

With support from the Virginia CZM Program, the Virginia Aquarium has established an excellent stranding response network (more than 4,800 responses since 1987) encompassing all tidal waters throughout the state. The network has responded to an annual average of 106 marine mammal strandings and 292 sea turtle strandings during the last ten years (2001-2010). Though most of these stranded animals are not alive, Aquarium staff have successfully rescued and rehabilitated many sea turtles and seals. Since 2001, an average of 20 live animals per year have stranded in Virginia. In addition, stranded sea turtles from other states within the

## Coastal Nonpoint

The Virginia Coastal Nonpoint Pollution Control Program was sixth of 33 state and territory coastal nonpoint programs in the nation to receive full approval by NOAA and the U.S. Environmental Protection Agency (EPA). This occurred in 2001, but the nonpoint program actually began almost a decade prior with funds from the Virginia CZM Program through section 310 of the CZMA for program development. Since then, the Virginia nonpoint program has addressed a multitude of water quality issues and provided technical support for local government through urban and agricultural BMP workshops and guidance manuals, the Virginia Clean Marina program, the Virginia Network for Education of Municipal Officials Program (VNEMO) and recently implementing the Virginia Healthy Waters Initiative. Although Congress allocated zero funds in FY2010 for coastal nonpoint, the Virginia CZM Program has continued to address nonpoint pollution issues via alternate CZMA funds as well as partnering with U.S. EPA through their Section 319 nonpoint funding. Coastal water pollution, associated with increased development and land conversion, continues to be an important issue for the Virginia CZM Program. The pressure it presents has coastal communities and stakeholders working to develop strategies to maintain watershed health and protect their limited coastal resources. 🐢



Elle Donahue

region are often transferred to the Aquarium for rehabilitation care. Many have been successfully rehabilitated and released back into their natural habitats. Whenever possible, rehabilitated animals are monitored after release using satellite tags that record information such as location and dive behavior, thus adding to our knowledge of the biology and ecology of the species in the mid-Atlantic region. As a result, Aquarium staff experienced with marine animal stranding response were called upon in 2010 to assist with sea turtle rescue operations associated with the Deepwater Horizon Oil Spill in the Gulf of Mexico.

Marine mammal and sea turtle strandings in Virginia remained at high levels during 2010, and are some of the highest levels per mile of coastline for any state in the country. Continued monitoring of standing trends will be critical to determining whether potential changes in management can reduce strandings. 🐢

## Natural Heritage Locality Liaison

Stuart McKenzie/NNPDC



Created in 1994 with support from the Virginia CZM Program, the Locality Assistance Program for Natural Heritage Conservation at the Virginia Department of Conservation and Recreation (DCR) has been the critical link between natural heritage resource protection and local-level planning. The program helps local governments, planning districts and conservation partners to fully utilize natural heritage resource information so that conservation of natural communities, flora and fauna identified as natural heritage resources in the coastal zone can be strengthened. Further, from Oct. 1, 1994 - Sept. 30, 2011, the program has reviewed over 20, 948 development projects to avoid and minimize impacts to natural heritage resources from newly proposed and existing sites.

Tom Smith, DCR Natural Heritage Program Division Director said, "When it comes to the conservation of our significant natural communities and native plant and animal species, there is no bigger player than local governments, PDCs and land trusts. CZM's support of the effort to provide these folks with information that helps them make more informed decisions is invaluable." 🐢

## Environmental Education

Through sustained support from the Virginia CZM Program, Virginia's environmental education (EE) program has matured to one of the leading EE programs in the country. Launched in 1989 to promote and coordinate Chesapeake Bay education through professional development of teachers, an annual conference and a resource directory, the program was recognized as the Virginia Office of Environmental Education in 2001. It has grown from approximately 100 organizations and 150 educators to more than 900 partners and 1,500 educators who are involved in the EE network and provide services and instruction. Estuary, ocean and other environmental issues and EE literacy concepts, are now integrated throughout K-12 education in Virginia's Science Standards of Learning. Staff continues to work with the state Department of Education and other natural resource agencies to implement the standards through Virginia Naturally (VaN), the Commonwealth's environmental education program. Measurable goals for specific VaN projects—Meaningful Watershed Experiences, Classroom Grants, Professional Development, EE Leadership and School Recognition are outlined in the state's Business Plan adopted in 2004. The program has leveraged more than \$2 million dollars in other public and private funding to support EE in Virginia. 🐢

# 25 YEARS OF... *Making Better Maps*

For its entire 25 year history, the Virginia CZM Program has been committed to mapping. Believing that better access to scientifically-sound information results in better planning and decision making. Although the various initiatives have changed names and improved with technology over the years, the overall goal of the Program's mapping focus has remained the same: to collect coastal resource spatial data and then make these data available to planners and decision makers.

In this context, mapping actually refers to the application of geographic information systems (GIS) to coastal zone management. While part of the process usually does involve a map, in basic terms GIS is actually a merging of cartography, statistical analysis, and database technology. For 25 years, the Virginia CZM program has embraced GIS and utilized its powerful planning and decision support capabilities by funding our partners to develop GIS data layers and facilitating the integration of that data into regional and local planning and policy decision making processes.

With rapid advances in computer and internet technologies over the past few decades, the look, feel, and capabilities of GIS tools changed dramatically over the years. Following is a look at a few of the major mapping initiatives in which the Virginia CZM Program has played a part since 1986.

## Virginia Rivers Inventory

Started in 1986, the Virginia Rivers Inventory (VRI) was envisioned as a collection of resource inventory data in GIS format that would allow multiple users access to a wide variety of spatially referenced information. Intended uses included those needed for state and local planning and resource management as well as research. The VRI program acknowledged the need to provide decision makers with as much pertinent information as possible and recognized the value of providing this information in a format that is both comprehensive and comprehensible. The Tidal Rivers

Inventory Program (TRIP) was a subset of the broader VRI project focused on estuarine and coastal resources funded by the Virginia CZM Program. The major success of the VRI program was the accumulation of a wide variety of resource information which was then assembled into a GIS. Although making this information more accessible was the intention from the beginning of the project, an efficient mechanism to share the collection of data was not established right away.

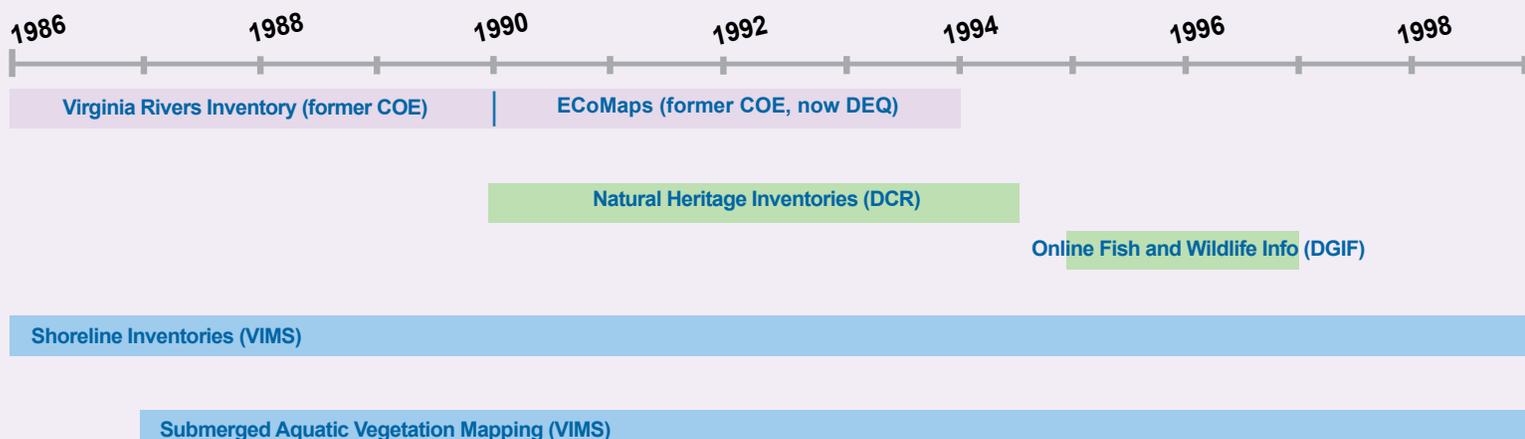
## ECoMAPS

The Virginia Environmental Conditions Management Analysis and Planning System (ECoMAPS) evolved directly from the VRI initiative and started in 1990 at the former Council on the Environment (COE). ECoMAPS utilized and improved upon the collection of data sets resulting from the VRI program and facilitated their availability to state and local governments by funding additional staff and equipment. Utilizing specialized GIS computer workstations, ECoMAPS staff were able to share data by fulfilling requests for paper maps from state agencies, planning district commissions, local governments, and universities. This mechanism for sharing data was a success and was the best option with the technology available at that time. Unfortunately, it was a relatively costly solution and EcoMAPS funding fell victim to budget cuts in 1994 after COE was merged into the new Department of Environmental Quality (DEQ).

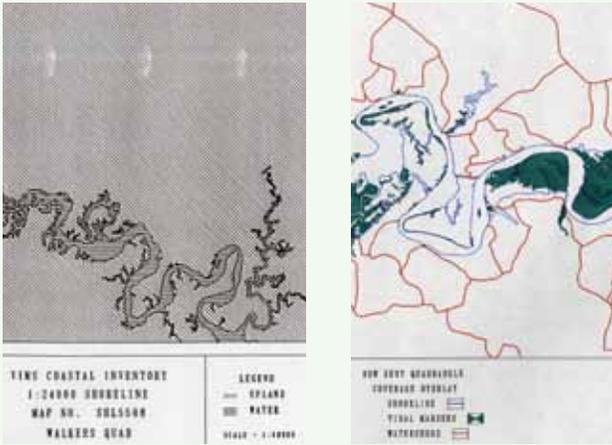
## Coastal GEMS

Several years passed before the next major initiative from the Virginia CZM Program began to take shape. During that time Internet use became widespread and GIS technology greatly improved. This led to the development of web mapping applications, the best way to date to share geographically referenced information with the world and the Program was at the forefront with Coastal GEMS (Geospatial and Educational Mapping System).

## Highlights of Virginia CZM Program Mapping Projects\*

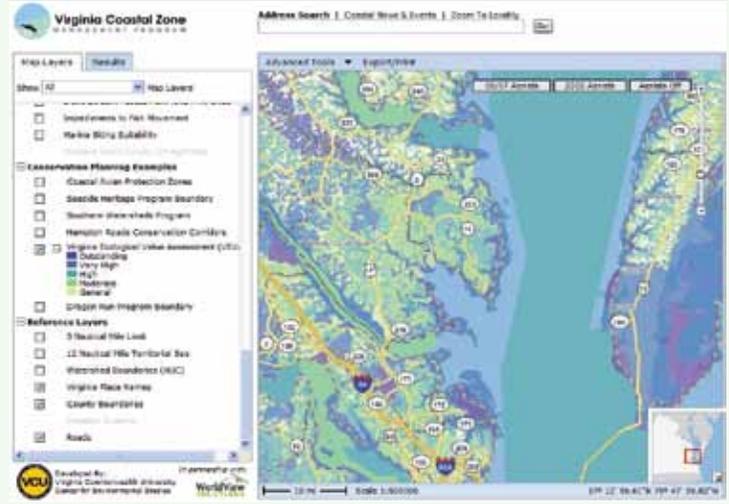


## The World of GIS Has Come a Long Way!



25 years ago

*Hard to share, over-sized paper maps with cryptic labeling and little or no accompanying explanatory information.*



Today

*Interactive, online portal with ability to overlay 80 data layers with their own user-friendly factsheets, create, download and print custom maps.*

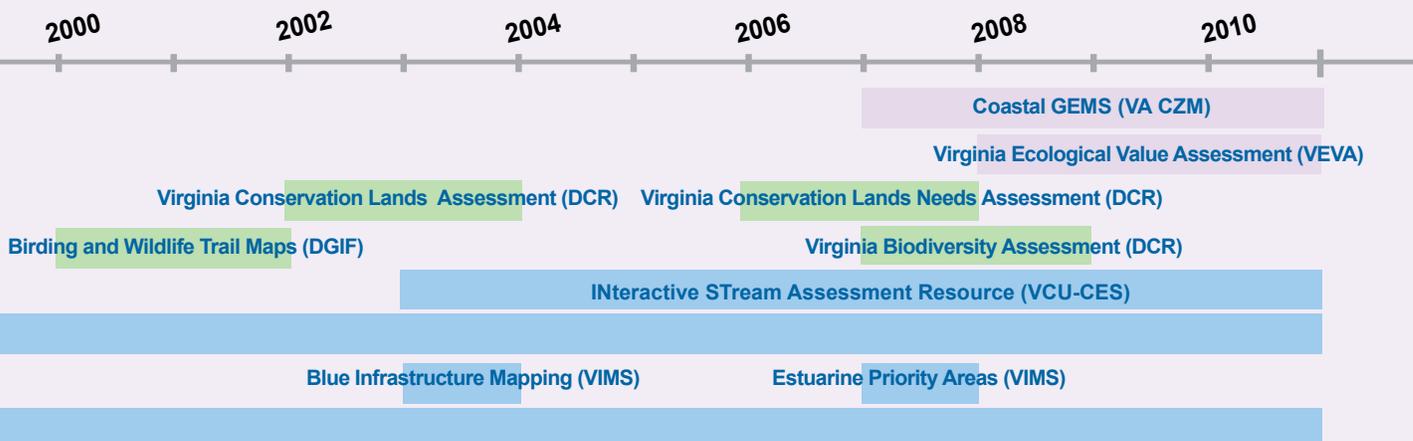
It all started at a Virginia CZM Partners Workshop in 2001 where the Program's partners expressed the need for a vision of the current status of Virginia's coastal resources. They wanted to identify and map the best remaining land (green) and water (blue) infrastructure so that they could be managed and protected in light of increasing development pressures. Like the VRI and ECoMAPS projects that came before, the idea behind GEMS was to provide access to a comprehensive collection of spatially referenced coastal resource information, but Coastal GEMS would take this idea to the next level by making the information accessible to anyone at anytime through an online interactive mapping portal. In addition to the spatial data, GEMS was also to include fact sheets with information about each data layer as well as links to collaborating agencies, and the ability to create and print one's own map with whichever data layers one chooses.

Virginia Commonwealth University's Center for Environmental Studies (VCU CES) signed on to develop (and still hosts) the portal.

The first version of Coastal GEMS went online in 2007 and the current version went online a year later in 2008.

### What's Next

Over the past few decades the Virginia CZM Program's mapping initiatives have focused on improvements in making coastal resource geographic data more available to more people, while at the same time improving cartographic and analytical capabilities. Future efforts will continue on this track with a Coastal GEMS update already is under contract with VCU CES. In addition to making the application available across a wider range of web browsers and facilitating faster data layer updates, this upgrade will also improve the map interface and add additional tools for exploring the data and creating custom maps with user markups. Look for the new version to be going online in the spring of next year! 🐦



# 25 YEARS OF... *Preserving Special Places*

*"To protect and restore coastal resources, habitats, and species of the Commonwealth"* has been one of the goals of the Virginia CZM Program embedded in its Executive Order since 1986. Soon after the Virginia CZM Program's first land acquisition project in 1991 at Jones Creek, Isle of Wight County, the program began setting aside \$200,000 each year to establish a small, continuous stream of funding for acquisition of significant tracts of land. Initially, the SAMPs in Northampton County, Dragon Run and Southern Watershed were the primary focal areas for acquisitions. This focus was later confirmed as scientifically valid by program funded projects that ultimately evolved into the Virginia Ecological Value Assessment (VEVA) completed in the spring of 2011 (see back cover). In addition to verifying the significance of SAMP areas, VEVA has highlighted some additional high value places such as the Chickahominy and bayside of Accomack County. The Virginia CZM Program has used both CZMA Section 306A funds as well as the Coastal and Estuarine Land Conservation Program (CELCP) funds from NOAA to acquire land.

**Total Virginia CZM Acquisition Funding: \$2,970,056**

**Total CELCP Acquisition Funding: \$9,282,028**



**Acquisition Parcels**

- 1 Parcel
- 2 Parcels
- 4 Parcels



USFWS

Magothy Bay Natural Area Preserve, Eastern Shore



DCR

Potomac Gorge, Fairfax County



DCR

North Landing River Natural Area Preserve, Virginia Beach

## Virginia CZM Program Acquisition Sites

### Federal CZMA (Section 306A) Funding

Year	Grantee	Parcel Name	Acres	Locality
1991	Isle of Wight	Jones Creek	4.00	Isle of Wight Co
1992	DCR-NH	North Landing River NAP	45.00	City of Virginia Beach
1992	TNC	New Point Comfort	95.00	Mathews Co
1993	DCR-NH	Northwest River NAP	673.46	City of Chesapeake
1994	DCR-NH	Northwest River NAP (Timber Acquisition)	485.00	City of Chesapeake
1995	DCR-NH	Bethel Beach NAP	428.44	Mathews Co
1997	ANPDC	Kiptopeke State Park	22.44	Northampton Co
1998	DCR-NH	Kiptopeke State Park	40.47	Northampton Co
1999	DCR-NH	Kiptopeke State Park	44.90	Northampton Co
1999	CBNERRS	Dragon Run Watershed	121.12	King & Queen Co
2000	MPPAA	Dragon Run Watershed	137.00	Essex Co
2001	MPPAA	Dragon Run Watershed	137.00	Essex, King & Queen Co
2003	DCR-NH	Magothy Bay NAP	30.40	Northampton Co
2004	DCR-NH	Magothy Bay NAP	29.67	Northampton Co
2005	DCR-NH	Magothy Bay NAP	14.81	Northampton Co
2006	DCR-NH	Magothy Bay NAP	14.37	Northampton Co
2006	DCR	Kiptopeke State Park	14.24	Northampton Co
2006	DCR	Kiptopeke State Park	11.76	Northampton Co

**Acres Subtotal: 2349.08**

### Federal CELCP Funding

Year	Grantee	Parcel Name	Acres	Locality
2002	VIMS	Taskinas Creek	44.54	James City Co
2002	DCR	Widewater State Park	92.62	Stafford Co
2005	Fairfax County Park Authority	Abuts the Manassas National Battlefield Park	35.00	Fairfax Co
2005	MPPAA/DOF	Dragon Run Watershed	635.64	King & Queen Co
2005	Fairfax	Potomac Gorge	5.03	Fairfax Co
2006	DCR	Magothy Bay NAP	76.26	Northampton Co
2006	James City Co	Jamestown Campground	63.36	James City Co
2009	DCR	Crow's Nest	235.71	Stafford Co

**Acres Subtotal: 1188.16**

**Total Acres CZMA & CELCP: 3537.24**

### Acronym Key for Tables on Pages 19 & 21:

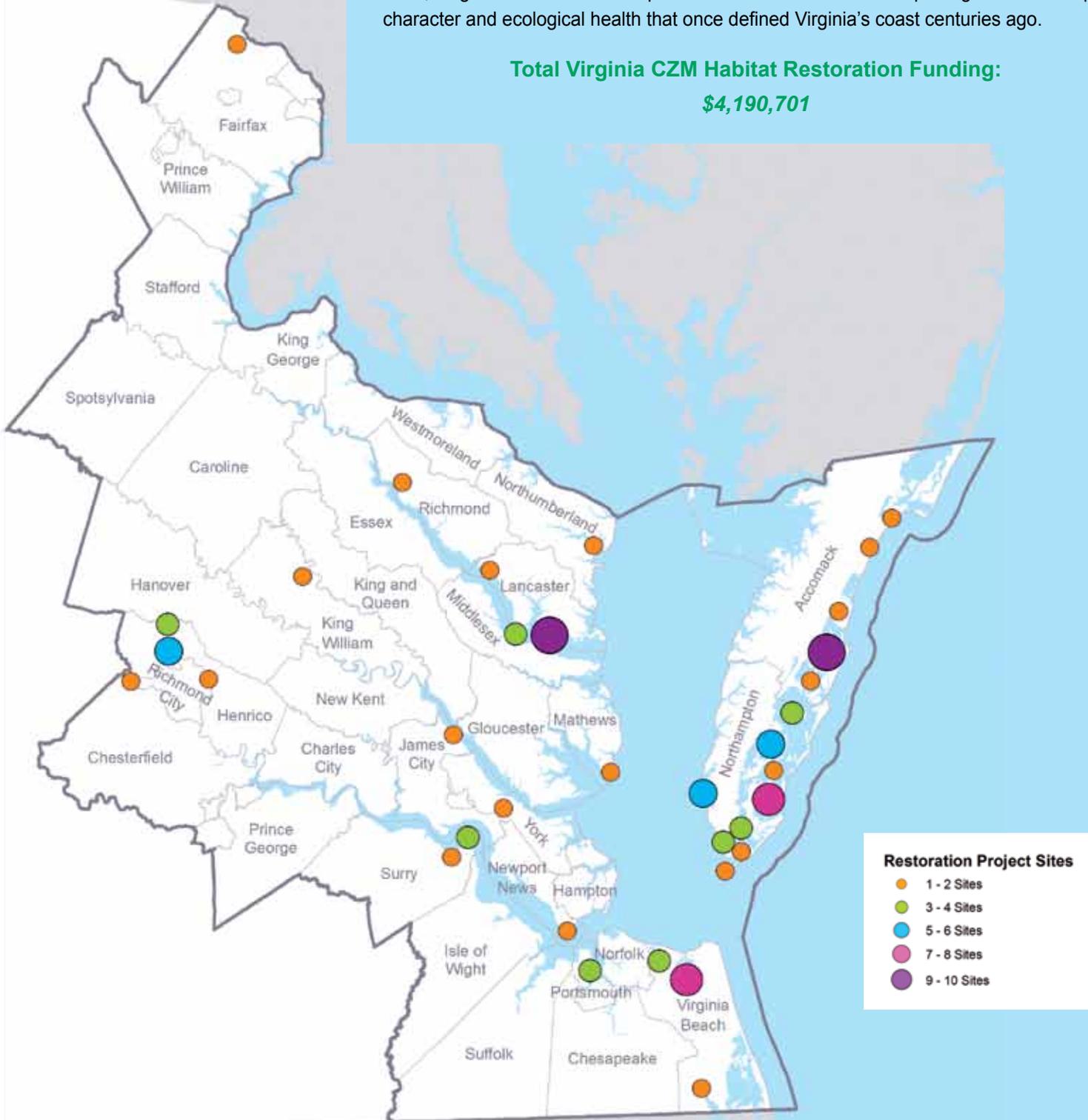
**ANPDC:** Accomack-Northampton Planning District Commission  
**CBNERRS:** Chesapeake Bay National Estuarine Research Reserve in Virginia  
**DCR:** Department of Conservation and Recreation  
**DCR-NH:** DCR Division of Natural Heritage  
**DGIF:** Department of Game and Inland Fisheries  
**DOF:** Virginia Department of Forestry  
**ESSWCD:** Eastern Shore Soil and Water Conservation District  
**MPPAA:** Middle Peninsula Public Access Authority  
**TNC:** The Nature Conservancy  
**VCU:** Virginia Commonwealth University  
**VIMS:** Virginia Institute of Marine Science  
**VMRC:** Virginia Marine Resources Commission  
**YCC:** Youth Conservation Corps

# 25 YEARS OF... *Restoring Coastal Habitat*

*"To protect and restore coastal resources, habitats, and species of the Commonwealth."*

Restoration has been an important part of the Virginia CZM Program's efforts. For the past 25 years, the program has invested in restoration of riparian buffers, native oyster reefs, eelgrass beds and native plant demonstration areas to help bring back the unique character and ecological health that once defined Virginia's coast centuries ago.

**Total Virginia CZM Habitat Restoration Funding:**  
**\$4,190,701**





Witmer/Virginia CZM

*Riparian buffer restoration at Yorktown Naval Weapons Station*



William Hester, USFWS

*Restored Eastern Shore oyster reef*



William Hester, USFWS

*Restored Eastern Shore eelgrass bed*

## Virginia CZM Program Restoration Sites

Year	Grantee	Project	Location
1987	DCR	Chippokes State Park Bank Stabilization Demo	Surry Co
1988	DCHR	Hog Island Marsh Grass Buffer Demo	Northampton Co
1994	Cape Charles	Cape Charles Habitat Restoration	Northampton Co
1994	VA Tech	Riparian Buffer Demo Plantings	Westmoreland/NoHo/Elizabeth R
1994	Newport News	King-Lincoln Park Beach Replenishment	Newport News
1995	DCR-NH	North Landing River Wetland Restoration	Virginia Beach
1995	VCU	Revegetation of Coastal Spoils in Swash Bay	Northampton Co
1995	Northampton	Cape Charles NAP Habitat Restoration	Northampton Co
1995	RRPDC	Habitat Restoration in Chickahominy Watershed	City or Richmond, Henrico Co
1995	VA Beach	Bay Watershed Habitat Restoration Demo	Virginia Beach
1995	VA Tech	Riparian Reforestation Demo	York Co
1996	DCR-SWC	Belle Isle/Hog Island Riparian Restoration	City of Richmond
1996	DOF	Difficult Run Riparian Restoration	Fairfax Co
1996	CBNERRS	Riparian Buffer Plantings/Workshops	Various
1996	YCC	Little Creek Amphib Base Habitat Restoration	Virginia Beach
1996	Richmond	Bryan Park Restoration	City of Richmond
1996	RRPDC	Chickahominy Watershed Riparian Restoration	City or Richmond, Henrico Co
1996	VA Beach	Habitat Restorations in Chesapeake Bay	Virginia Beach
1997	DOF	Difficult Run Riparian Restoration	Fairfax Co
1997	VMRC	Seagrass and Oyster Restoration	Magothy Bay
1997	VCU	Revegetation of Coastal Spoils in Swash Bay	Northampton Co
1997	Northampton	Cape Charles STIP Wetland Restoration	Northampton Co
1997	Portsmouth	Hoffler Creek Wildlife Preserve Habitat Restoration	City of Portsmouth
1997	VA Beach	Southern Watersheds Habitat Restoration	Virginia Beach
1997	VA Beach	Habitat Restoration Evaluation	Virginia Beach
1998	VCU	Evaluation of Revegetation at Swash Bay	Northampton Co
1998	DGIF	Shad Restoration	Upper James River
1998	VIMS	Optimal Use of Cultch to Maximize Settlement in Oyster Broodstock Sanctuaries	Great Wicomico, Piankatank
1998	YCC	Restoration Projects	Virginia Beach
1998	Henrico Co.	Riparian Restoration	Henrico Co
1999-01	VMRC	Oyster Restoration (VOHP)	Rappahannock River
2002-07	VIMS	Eelgrass Restoration (VSHP)	Seaside Bays
2002-07	VMRC	Oyster Restoration (VSHP)	Seaside Bays
03,06,07	DCR-NH	Phragmites Control (VSHP)	Seaside
2006	ESSWCD	Native Plant Demo - Onley	Only Medical Center
2006	DGIF	Native Plant Demo - Willis Wharf	Northampton Co
2007	ESSWCD	Native Plant Demo - ESNWR	Northampton Co
2007	ESSWCD	Native Plant Demo - Chincoteague	Accomack Co
2008	DCR	Habitat Restoration at Kiptopeke SP	Northampton Co
2008	Wachapreague	Native Plant Demo - Wachapreague	Accomack Co
2009	VIMS	Eelgrass/Bay Scallop Restoration	Seaside Bays
2011	VIMS	Eelgrass/Bay Scallop Restoration	Seaside Bays

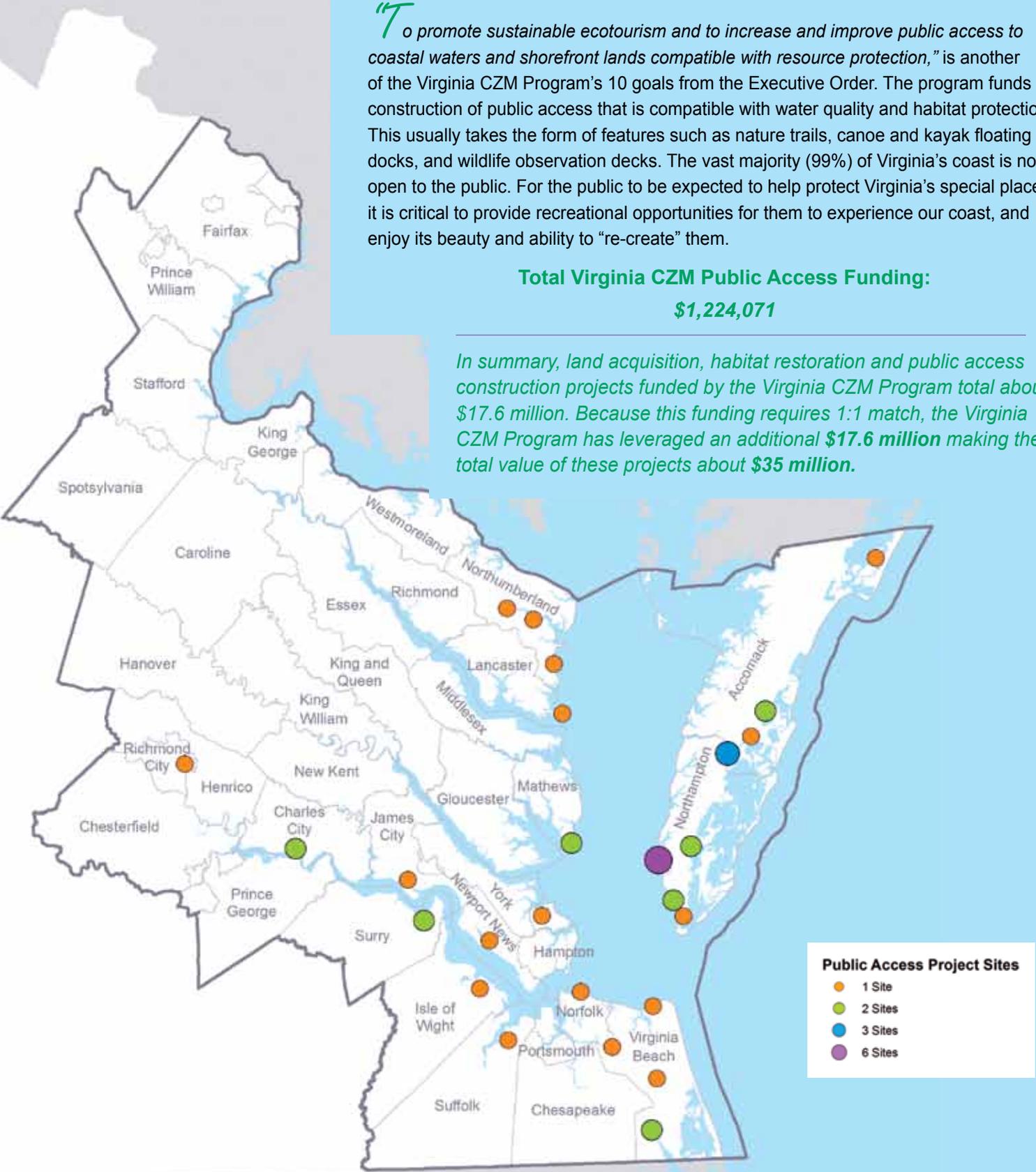
**Total # of Projects: 42**

# 25 YEARS OF... *Building Access to the Coast*

*"To promote sustainable ecotourism and to increase and improve public access to coastal waters and shoreline lands compatible with resource protection,"* is another of the Virginia CZM Program's 10 goals from the Executive Order. The program funds construction of public access that is compatible with water quality and habitat protection. This usually takes the form of features such as nature trails, canoe and kayak floating docks, and wildlife observation decks. The vast majority (99%) of Virginia's coast is not open to the public. For the public to be expected to help protect Virginia's special places, it is critical to provide recreational opportunities for them to experience our coast, and enjoy its beauty and ability to "re-create" them.

**Total Virginia CZM Public Access Funding:**  
**\$1,224,071**

*In summary, land acquisition, habitat restoration and public access construction projects funded by the Virginia CZM Program total about \$17.6 million. Because this funding requires 1:1 match, the Virginia CZM Program has leveraged an additional \$17.6 million making the total value of these projects about \$35 million.*





Glebe Fishing Pier



First Landing State Park Boardwalk



Chincoteague Floating Dock

## Virginia CZM Program Public Access Sites

Year	Grantee	Location of Parcel	Locality
1989	DCR	Chippokes Plantation State Park Access Trail	Surry Co
1990	Suffolk	Bennett's Creek Crabbing Pier Extension	City of Suffolk
1991	Charles City Co	Wilcox Wharf Public Fishing Pier	Charles City Co
1991	Norfolk	Monkey Bottom Wetland Walkway	City of Norfolk
1992	DCR	Hawk Platform, Dune Crossovers, Trails, Interpretive Signage	Northampton Co
1992	Cape Charles	Cape Charles Jetty Pier	Town of Cape Charles
1992	Isle of Wight Co	Jones Creek Boat Ramp	Isle of Wight Co
1993	James City Co	Powhatan Creek Canoe Launch	James City Co
1993	Cape Charles	Cape Charles Jetty Pier Enhancements	Town of Cape Charles
1993	Newport News	Riverview Farm Park Boardwalk	City of Newport News
1993	Virginia Beach	Elizabeth River Interpretive Path/Canoe Trail	City of Virginia Beach
1993	ANPDC	Wachapreague Harbor Boat Ramp	Town of Wachapreague
1994	Virginia Beach	Alton's Creek Boardwalk Canoe Trail	City of Virginia Beach
1994	Charles City Co	Lewis Park Scenic Overlook & Nature Trail	Charles City Co
1994	Virginia Beach	Canoe Access and Nature Trail	Virginia Beach
1994	Newport News	King-Lincoln Park Beach Replenishment	City of Newport News
1994	Cape Charles	Beach Dune Crossover Walkways	Town of Cape Charles
1995	DCR	Cape Charles NAP Boardwalk	Town of Cape Charles
1995	Mathews Co	Newpoint Comfort Boardwalk	Mathews Co
1996	Poquoson	White House Cove Pier Restoration	City of Poquoson
1997	Northampton Co	Cape Charles STIP Wetland Walkway	Town of Cape Charles
1999	Landcaster Co	Windmill Point Launch Site	Lancaster Co
1999	Northumberland Co	Great Wicomico Fishing Pier	Northumberland Co
2001	Mathews Co	New Point Comfort Lighthouse Improvements	Mathews Co
2001	Northampton Co	Seaside Woodland to Marsh Trail	Northampton Co
2002	Cape Charles	Cape Charles Jetty Pier Extension	Northampton Co
2003	ANPDC	Willis Wharf Floating Dock	Northampton Co
2004	ANPDC	Quinby Floating Dock - Willis Wharf Observation Platform	Northampton, Accomack Cos
2005	DGIF	Willis Wharf Wildlife Observation Platform	Northampton Co
2005	DCR	First Landing State Park Walkway Renovations	City of Virginia Beach
2011	RRPDC	James River - Chapel Island Trail and Paddle Boat Launch	City of Richmond

**Total # of Projects: 31**

### Acronym Key:

**DCR:** Department of Conservation and Recreation

**DGIF:** Department of Game and Inland Fisheries

**ANPDC:** Accomack-Northampton Planning District Commission

**RRPDC:** Richmond Regional Planning District Commission

**VMRC:** Virginia Marine Resources Commission

# 25 YEARS OF... *Telling the Story*



Winter 1991



Winter 1993



Winter 1997



Spring Summer 1997



Spring 1998

The name has been changed, color and pages have been added, but the goal of this publication has remained the same over the last two decades—telling the story of coastal zone management in Virginia.

Beginning with the release of the first issue of the Virginia Coastal Resources Management Program newsletter in 1991, to the current *Virginia Coastal Zone Management* magazine, the program has used this publication to share significant issues and accomplishments. The magazine format provides enough space to tell stories fully—to illustrate the extent of a coastal management problem, which partners were brought in to form solutions and how a series of grants lead to real, on-the-ground change and improvements. The magazine helps identify or brand the Virginia CZM Program. In fact it was the main vehicle used to unveil the new Virginia CZM Program logo in 2006. Adopting a new logo, and altering the program's name, was a step in increasing the visibility of the program. "Virginia CZM" establishes a more direct connection to the federal Coastal Zone Management Act that paved the way for creation of the program in 1986, and through which the program receives its sole source of funding.

The program's website ([www.deq.virginia.gov/coastal](http://www.deq.virginia.gov/coastal)) provides additional space for more background to the stories in the magazine. In the early 1990s when the Internet was new, the program had about 10 pages. Today, about 800 pages convey what the Virginia CZM Program is all about, how and to whom the CZMA funding is distributed, and

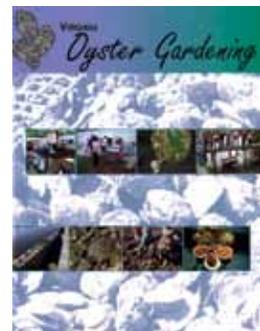
most importantly, gives an overview of coastal resources management issues and how the partnership works together to achieve its goals.

The Virginia CZM Program partnership also includes the public. Every Virginian can play a vital role in coastal resource protection. The program's outreach efforts have recently focused on the use of techniques that foster behavior change to protect Virginia's coastal environment.

## "But, What Can I Do?"... Making it Fun, Easy and Popular

A little lightheartedness has its place and can go a long way in capturing the attention of the public, helping raise awareness of coastal issues, and leaving a memorable impact, as Omar and Seacil have. But, once we have their attention, how do we get people to take the next step and change their behaviors that have an impact on the coastal resources they now better know and appreciate?

In busy lives often overloaded with information, simple, illustrated step by step guides of "how to do it" are one way. Sometimes a little more knowledge in the right format, or presented in just the right way, will encourage



## *A Pearl of a Story*

"Omar of the Reef", mascot of the Virginia Oyster Heritage Program, has made quite an impression with children and adults over the last decade. In 2005, Omar starred in a school play, "Lynnhaven Soup," written and performed by students of Kingston Elementary School in Virginia Beach to help share what residents could do to help save the river. Omar even traveled as far as Japan when he was officially invited to assist with public relations at the 1997 U.S.-Japan Oyster Reef Symposium in Chiba Prefecture.

*The story at left appeared in the Spring/Summer 2007 magazine. Organizers were very excited to discover wild oysters in Tokyo Bay, and so taken with Omar that they created a female version, "Kaki-hime," or "princess oyster," to attract the attention of Japanese citizens.*



Summer Fall 1998



Spring 1999



Fall Winter 2000



Spring Summer 2001

people to act. Omar is one way we have interjected **fun**, but the next step was making oyster gardening - a way many individuals could take on an active role in helping restore oysters - **easier**. Working with its partners, the Virginia CZM Program produced a "how to guide" to oyster gardening—complete with a simplified, tear out permit application. As a result of the guide, permits for oyster gardening have steadily increased.

But what happens when action is slow to happen, or does not happen at all? How do we make *doing* more **popular**?

In the Summer/Fall 2010 issue of the Virginia Coastal Zone Management magazine, the program shared the early results of its first social marketing campaign. In spring 2009, the program and its partners launched the "Plant ES Natives" community-based social marketing campaign through the Virginia Seaside Heritage Program (VSHP). The campaign is going beyond awareness to change a social norm. The campaign was designed after listening to Shore residents and identifying the barriers that were inhibiting the planting of natives.

The campaign uses a multi-media mix and makes planting natives **fun, easy and popular**. Just as the oyster gardening guide focused on making it easier to garden oysters, a colorful guide to



Eastern Shore native plants makes it easier for residents to identify native plants, and a series of noticeable, eye-catching, self-explanatory prompts at point of sale makes it easier to find them.

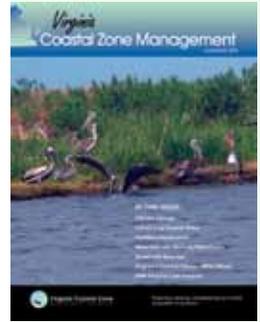
Much as the mini-oyster reef in the aquarium illustrated how this habitat is special, native plant demonstration gardens follow the rule that seeing is believing and showcase the beauty of Eastern Shore native plants. Most importantly, leaders in the community are helping make planting natives more popular.



Early indicators show the campaign's message, "They're Shore Beautiful", is on track, and use of social marketing will continue to be a significant part of the Virginia CZM Program's strategy and story. 🐾



Summer Fall 2010



Summer Fall 2008



Spring Summer 2007



Spring Summer 2006



NOAA



Kingston ES

(Above left) Omar visiting Cape Cod, MA, in October 2011 for the Wellfleet OysterFest NOAA exhibit (l to r) Peter Kelliher, Jill Ortiz, and Don Frei of NOAA. Omar in leading role in Kingston Elementary School play (above right).

"Seeing is Believing" was the goal of Virginia CZM Program staff when we traveled from Northern Virginia down to Virginia Beach and from the mountains to the Bay displaying aquaria featuring a mini version of an oyster reef during the Oyster Heritage Program. Both Omar, and his "cousin" Seacil, mascot of the Seaside Heritage Program, were star attractions at the 2004 Smithsonian Folklife Festival and helped demonstrate the importance of coastal habitats.

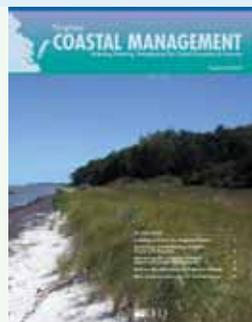
(Right) This pictorial story appeared in the Summer/Fall 2005 magazine.



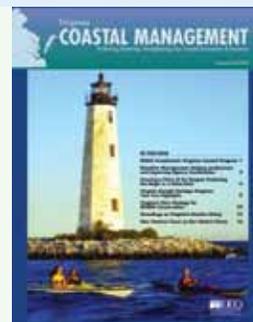
Spring Summer 2002



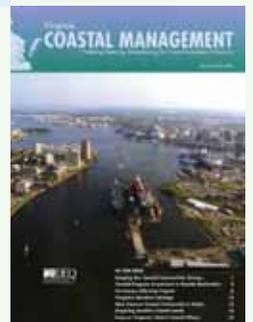
Winter 2003



Summer Fall 2003



Summer Fall 2004

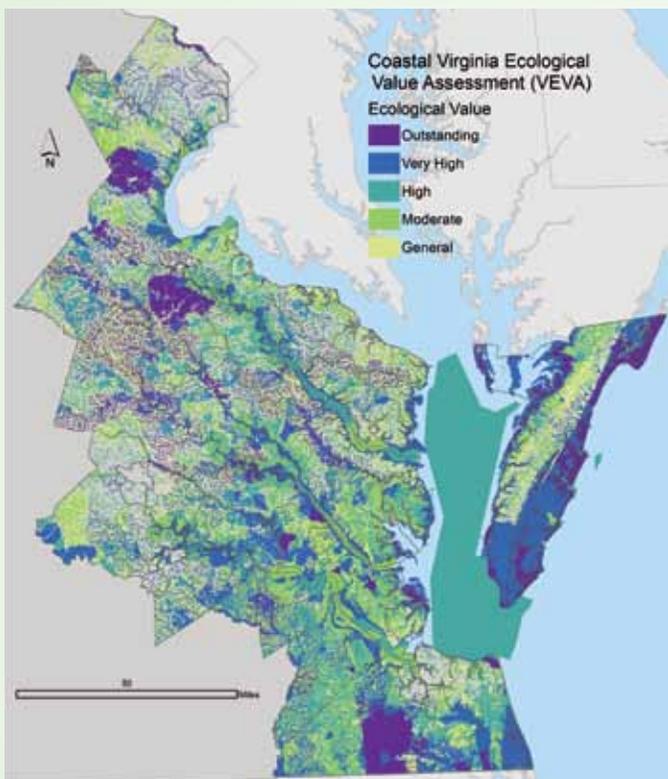


Summer Fall 2005

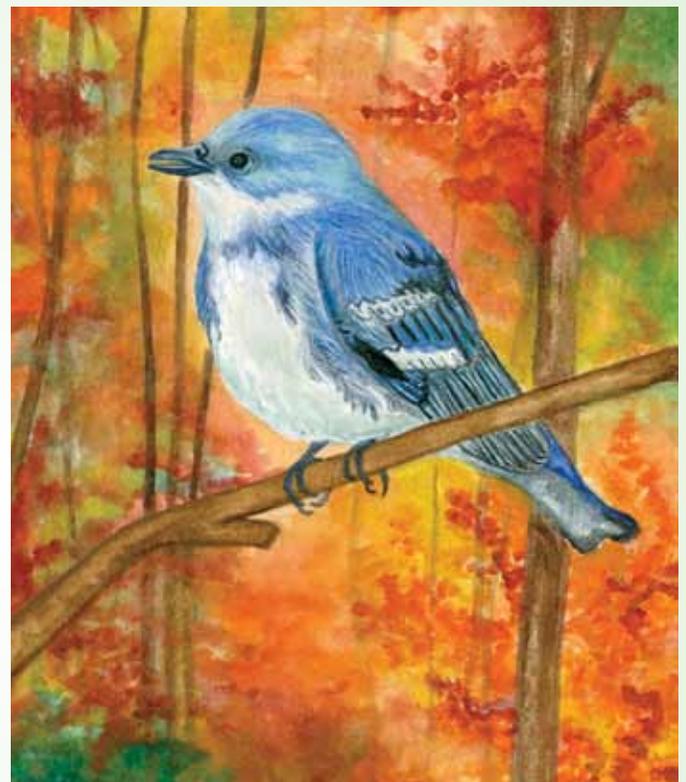
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"Cerulean Warbler" by Annie Jones, Broadwater Academy –winner of the 2011 Eastern Shore of Virginia Birding and Wildlife Festival Poster Contest. For fall 2012 festival information bookmark [www.esvafestivals.org](http://www.esvafestivals.org).