# Virginia Coastal Zone Management

*Fall 2012 - Winter 2013*

## IN THIS ISSUE:




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.

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*Virginia Coastal Zone Management* highlights coastal resource management issues in the Commonwealth, with a focus on initiatives and projects coordinated and funded through the Virginia CZM Program. Please direct comments, ideas for future issues or subscription requests to Virginia Witmer, editor/graphic designer, Virginia.Witmer@deq.virginia.gov.

Visit us on the Web at www.deq.virginia.gov/Programs/CoastalZoneManagement.aspx

*Cover Photo: A squat lobster, Eumunida picta, guards its patch of Paragorgia arborea. P. arborea has white, pink, and red varieties. Note the 8 tentacles per polyp. Image courtesy of Deepwater Canyons 2012 Expedition, NOAA-OER/BOEM.*

*(at right) Full view of Eumunida picta. Image above courtesy of Lophelia II 2008: Deepwater Coral Expedition: Reefs, Rigs, and Wrecks. Image below by Margot Bohan.*

# Message from the Manager

*It's been another busy year since our last magazine (the 25th anniversary issue) came out, but I'm grateful to say we are all still here and working hard with our network of state agencies, coastal localities and stakeholders. And last spring we helped NOAA celebrate the 40th anniversary of the federal Coastal Zone Management Act at an event we co-hosted with our sister program – the Chesapeake Bay National Estuarine Research Reserve at VIMS. So we've had back to back years of celebrations! You might enjoy listening to this podcast NOAA created for the CZMA 40th that describes some of our VA CZM efforts: http://oceanservice.noaa.gov/podcast/p1012.html#105.*

*We hope you enjoy this issue with its emphasis on new ocean planning activities, working waterfront preservation, coastal community highlights, new online mapping tools, shoreline protection, public access and more. Virginia's coast is a vital part of our Commonwealth's economy – thanks for helping us invest in its future.*

Laura McKay

*The Virginia CZM Program was awarded the "Otter" at the spring 2012 meeting of the Virginia Resource Education Council in recognition of the 23 years of support for environmental education in Virginia. A certificate was presented to each of Virginia CZM Program partner agencies. Accepting the award at the meeting are (l to r) David Johnson, Director, Department of Conservation and Recreation; Laura McKay, Virginia CZM Program Manager; Dave Paylor, Director, Department of Environmental Quality; Ellen Powell, Department of Forestry; Doug Domenech, Secretary of Natural Resources; and, Becky Gwynn, Virginia Department of Game and Island Fisheries.*

## *Virginia* Coastal Zone Management


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*Virginia CZM Program Office staff assisted in planting native trees and shrubs in the Mutton Hunk Natural Area Preserve on the Eastern Shore in early March this year. Image courtesy of DCR.*

Virginia Witmer/Virginia CZM

Virginia Coastal Zone
MANAGEMENT PROGRAM

# Ocean Management

## Ocean Planning Begins in Virginia

*By Laura McKay, Virginia CZM*

> *"There is, then, no water that is wholly of the Pacific, or wholly of the Atlantic, or of the Indian or the Antarctic. The surf that we find exhilarating at Virginia Beach, or at La Jolla today may have lapped at the base of Antarctic icebergs or sparkled in the Mediterranean sun, years ago, before it moved through dark and unseen waterways to the place we find it now. It is by the deep, hidden currents that the oceans are made one."*
>
> Rachel Carson. 1950. *The Sea Around Us*

Because the oceans are all one and we are all connected through it, it is critical that at the global, national, regional, state and local level, we all work together to better manage our ocean.

On June 28, 2012, the Virginia CZM Program invited about 50 representatives of a variety of ocean users and interests to a first-ever ocean planning kick-off meeting at our offices in Richmond. These ocean stakeholders represented the shipping, ports, fishing, boating, recreation, offshore wind energy, and tourism industries as well as the U.S. military, Virginia Atlantic coast local governments, academia and conservation organizations. Under the auspices of a 5-year grant from NOAA, the Virginia CZM Program will support

*Joe Atangan (top, right) of the Department of Defense describes the spatial training needs of the Navy in the break-out group for military, ports and shipping interests. Image by April Bahen, Virginia CZM Program.*

the development of a comprehensive ocean planning process that aims to sustain our current ocean industries and needs as well as allow for new uses such as offshore energy development while also protecting the ocean's habitats, wildlife and overall health. This has become an increasingly difficult challenge as coastal populations have grown, ocean uses have diversified and intensified and overall ocean health has declined.

*Aerial surveys flown in late summer along Virginia's Atlantic coast document dense recreational use along Virginia's Atlantic coast – especially as shown here at Assateague. Image by Nick Meade, Virginia CZM Program.*

The purpose of this first meeting in Virginia was threefold:

1. *To present progress to date in gathering data on the location of ocean resources and uses;*
2. *To collect participants' ideas as to who else should be included in the ocean planning process; and*
3. *To solicit ideas about how ocean planning should proceed.*

The conversations were lively. Results of break-out group discussions can be seen on our website: www.deq.virginia.gov/Programs/CoastalZoneManagement/CZMIssuesInitiatives/Ocean.aspx. At the June meeting Virginia CZM Program staff also demonstrated a new tool that allows groups of people to easily map and annotate areas that are important to them and immediately pull that data into a Geographic Information System (GIS). This technique is called Participatory GIS (PGIS) – a tool that the Virginia CZM Program is beginning to use to ensure that all ocean stakeholders' needs and future plans can be mapped.

*Ruth Boettcher, biologist with DGIF who observes bird and human activities on Virginia's barrier islands, draws important recreational areas on Virginia's Atlantic coast during the July Participatory GIS workshop. The E-beam stylus (pen) sends a signal to the reader attached to the wall, which then sends the data to a laptop. Image by Nick Meade, Virginia CZM Program.*

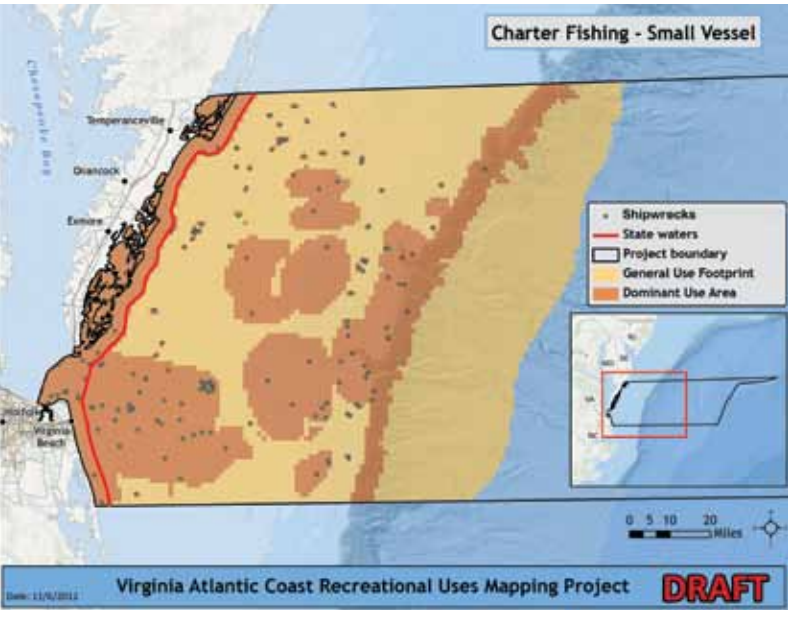
# Ocean Stakeholders Map Ocean Uses

Some of the biggest data gaps identified during our June meeting were maps of migration corridors for marine mammals, sea turtles and seabirds and key ocean habitats such as coldwater corals (*see page 6*), maps of recreational uses and maps depicting future shipping needs. So Virginia CZM set to work to begin filling these data gaps.

## Recreational Uses

In July, the Virginia CZM Program and Accomack-Northampton PDC co-hosted 3 days of PGIS workshops at the Eastern Shore Community College. Participants mapped 20 different recreational uses occurring along Virginia's Atlantic coast, from the shoreline out to the 200 mile US Exclusive Economic Zone (EEZ) boundary - everything from scuba diving, to charter fishing, to kayaking (see one of the draft maps below). Experts from NOAA taught the PGIS process to facilitators and GIS technicians from Virginia's CZM Program as well as from Maryland, Delaware and New Jersey. About 45 stakeholders from Virginia Beach and the Eastern Shore were divided into 5 groups. Each group mapped both the general footprint of each of the 20 uses and the dominant areas within each. The draft maps have been processed and Virginia CZM Program staff is now sharing them with stakeholders to ensure their accuracy. Once the validation process is complete, the maps will be viewable on Coastal GEMS and the Mid-Atlantic Regional Council on the Ocean (MARCO) Ocean Data Portal (*see page 5*).

Additionally, Virginia CZM funded the A-N PDC and Virginia Marine Resources Commission to conduct aerial surveys of recreational uses along Virginia's Atlantic Coast. Over 1,000 geo-coded photos were taken during August and September on week days and weekends. These will be used as another set of data to validate the maps produced from the PGIS workshops.




*Container ships coming into the Port of Hampton Roads have dramatically increased in size. Since the 1970's these ships have increased their capacity from carrying ~1700 TEU's (twenty foot container equivalent units) to ~4,800 and are projected to increase capacity to ~7,600. Image courtesy of Virginia Port Authority.*

## Shipping Uses

In September Virginia CZM Program staff organized a meeting with the Virginia Port Authority, the Virginia Pilot Association, the Coast Guard, the Army Corps of Engineers and the MARCO Ocean Data Portal contractors to ensure that we have all the relevant data and maps regarding current and future shipping spatial needs. As the size of container ships continues to grow (which increases fuel and labor efficiencies), maintaining shipping channels with adequate depths

*The Virginia Pilot Association sends harbor pilots out to meet incoming ships, even during rough seas, to guide them safely into the port. Image by Captain Ben Schill, Virginia Pilot Association.*

of 50-60 feet for these gigantic ships will be critical. The shipping industry will need the deepest offshore channels to be designated for shipping, and dredge spoil sites will have to be protected as well. At this meeting participants identified an important channel that runs northeast from the Chesapeake Bay which will be critical to consider in ocean planning efforts.

## Addressing Marine Debris Concerns

As we work on ocean planning in Virginia and accommodating expanding and new uses, we must also work hard to clean up the ocean. One of the biggest pollution problems in the ocean is marine debris – especially plastics of all sorts and derelict fishing gear. Virginia CZM Program is teaming up with the Virginia Aquarium, Clean Virginia Waterways, the Virginia Institute of Marine Science and Virginia Commonwealth University to host a Virginia Marine Debris Summit on February 27 - 28, 2013 at the Virginia Aquarium in Virginia Beach.

The sources and impacts of marine debris in Virginia will be examined and participants will develop and prioritize solutions for each type of marine debris. These solutions could include new ways to educate and motivate people, and new incentives and innovative products and technologies that help the marine environment.

*Derelict blue crab pots recovered by a waterman in the Virginia Marine Debris Location & Removal Program. Over 32,000 lost and abandoned crab pots were removed from Virginia coastal waters by 70 participating watermen between 2008 and 2012. See http://ccrm.vims.edu/marine_debris_removal/index.html for more information. Image of Center for Coastal Resource Management/ Virginia Institute of Marine Science.*

## Ocean Planning Continues in the Mid-Atlantic

Previous issues of our magazine (see www.deq.virginia.gov/Programs/CoastalZoneManagement/ReportsPublications/VACZMMagazine.aspx) covered the creation of the 5 state (Virginia through New York) Mid-Atlantic Regional Council on the Ocean (MARCO) in 2009. **Below is a synopsis of MARCO activities for 2012:**

In **January** MARCO and its contractor (the "Monmouth University Team") received a Regional Ocean Partnership grant from NOAA. These funds allowed the Monmouth Team to continue work on enhancing the MARCO Ocean Data Portal and assist all the Mid-Atlantic states with stakeholder engagement efforts such as the PGIS recreational use mapping workshops in VA, MD, DE and NJ (*see page 3*).

In **February** MARCO hired a Program Manager, Michelle Lennox, who organizes weekly calls and board meetings among the five states, researches various ocean management issues, develops workshops, represents MARCO at meetings and a variety of other assistance.

In **May** MARCO held its Management Board meeting in Cape Charles Virginia. An August meeting was held in Delaware.

In **July** the National Ocean Council sent out letters to governors of ocean and Great Lakes states requesting that they nominate 2 individuals to represent their state on a "Regional Planning Body" (RPB.) RPBs will also include federal agency, tribal and fishery management council representatives. For more see: www.whitehouse.gov/administration/eop/oceans/cmsp/regional-planning

In **August** Governor McDonnell appointed Deputy Secretary of Natural Resources, Maureen Matsen, and Marine Resources Commissioner, Jack Travelstead to represent Virginia. Laura McKay, Virginia CZM Program Manager was designated to support their efforts. Federal agency reps have also been appointed but a few seats remain to be designated on the Mid-Atlantic RPB.

In late **September** MARCO and the Monmouth Team launched a new version of its Ocean Data Portal (see next page).

In **early 2013**, a Regional Ocean Stakeholders Workshop will be held.

## MARCO's Ocean Data Portal

Last September MARCO launched an upgraded Mid-Atlantic Ocean Data Portal to support multi-use, regional-scale ocean planning. The Portal gathers the best-available, regionally relevant data and presents it in a user-friendly platform to engage all stakeholders in ocean planning from the five state Mid-Atlantic region. This version includes more data layers, more easy-to-use functions and a data catalogue that allows users to download data layers and view data priorities.

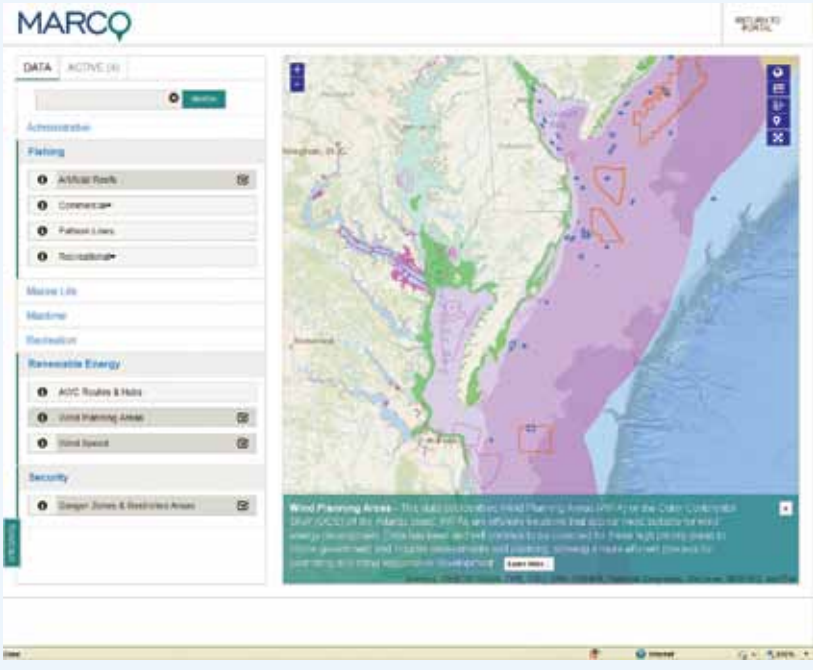

## Explore the MARCO Portal today!

## www.midatlanticocean.org/

As you enter the portal, you can click on buttons to "Learn," "Explore" or "Visualize." "Learn" takes you to fact sheets about each of the themes. "Explore" takes you to an annotated listing of data with options to download the data as well as a listing of data needs and their development status. "Visualize" launches the marine planner where you can view data layers and create your own downloadable map.

Both the data and the mapping tool, Marine Planner, are organized around industry sectors and focus-area themes highly relevant to planning in the Mid-Atlantic, including: Administrative Boundaries, Fishing, Marine Life, Maritime Industries, Recreation, Renewable Energy, and Security.

Over the coming months, the MARCO Portal project team will be conducting outreach to collect critical data and allow key stakeholders in regional planning to develop the Portal further. In the meantime, we hope that you will take some time to test drive the new Portal and give us your feedback.




*The screenshot above shows the Bureau of Ocean Energy Management (BOEM wind planning areas, wind speeds, artificial fishing reefs and military danger and restricted zones.*

# Ocean Planning

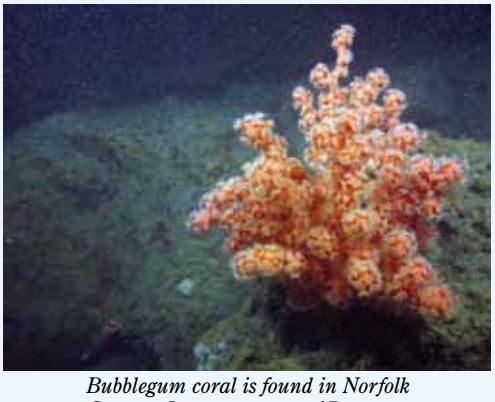
## Filling Biological Data Gaps

Good progress is being made in filling identified data gaps for biological resources in the Mid-Atlantic Ocean. With support from NOAA, BOEM (the Bureau of Ocean Energy Management) and the Department of Energy, mapping of canyons, corals, whales and seabirds is underway. The need to find the most suitable places for offshore energy has been the motivation for BOEM, DOE and the Virginia CZM Program to collect this important biological data for the region.

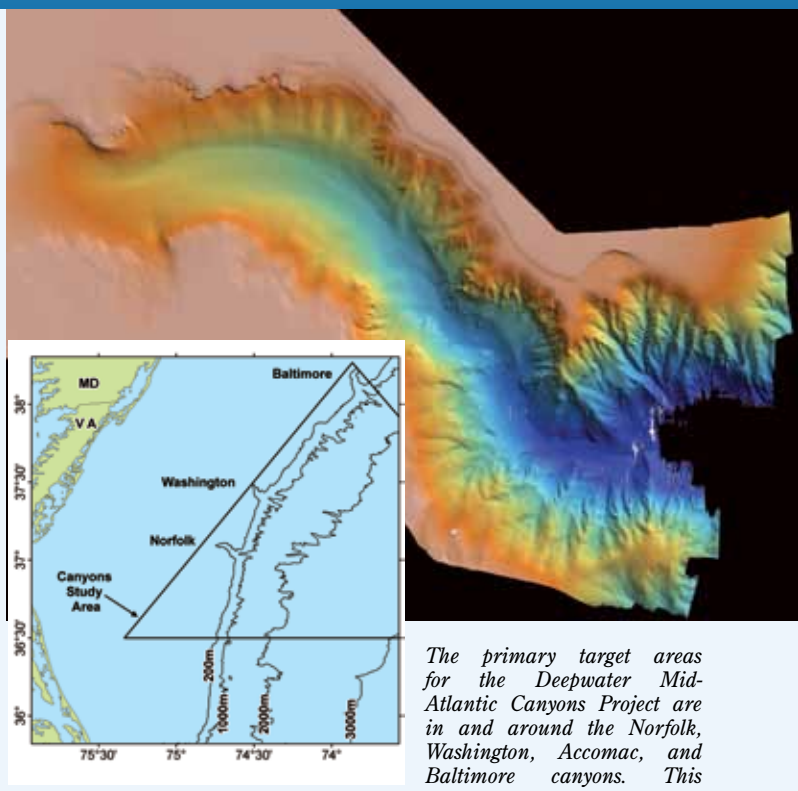
### Canyons

About 50 miles off the coast of Virginia the flat, coastal "shelf" drops away to form the continental "slope" which then levels off to the deep sea floor. The vertical slopes are cut into hundreds of canyons with exposed rock and consolidated mud providing hard surfaces to which organisms can attach (unlike the sandy surface of the shallow shelf and deep sea floor). Corals and other sessile sea life adhere to these canyon walls creating a rich habitat for fish and invertebrates (tilefish, hake, lobster, red crab) and other sea life. The canyons are favorite fishing grounds for humans and whales. New technologies, such as multi-beam sonar, are making it easier and less expensive to explore and map our canyons. In May 2012, NOAA invited the MARCO states to help prioritize which mid-Atlantic canyons NOAA's ship, the *Okeanos Explorer*, would map. The research cruise departed from Norfolk and ended in Rhode Island (see oceanexplorer.noaa.gov/okeanos/explorations/acumen12). In October, this ship went out again to collect more data off Virginia's coast.

In summer and fall of 2012, NOAA's ship the *Nancy Foster* spent 43 days exploring the canyons and shipwrecks off the Delmarva with funding from NOAA and the Bureau of Ocean Energy Management (see http://deepwatercanyons.wordpress.com/). Drs. Steve Ross and Sandra Brooke, lead researchers abroad the *Nancy Foster*, will go out again in 2013. This Atlantic Deepwater Canyon Project is a four year effort involving several federal agencies, universities, NGO's and European collaborators. Some key findings so far include a methane cold seep, vast fields of bubblegum coral, first records of colonies of a reef building coral called *Lopehelia pertusa*, large stands of other deep sea corals, catshark spawning areas on coral and shipwrecks, and documentation of extensive fishing impacts on shipwrecks and coral habitats.



*Bubblegum coral is found in Norfolk Canyon. Image courtesy of Deepwater Canyons 2012 Expedition, NOAA-OER/BOEM.*




*The primary target areas for the Deepwater Mid-Atlantic Canyons Project are in and around the Norfolk, Washington, Accomac, and Baltimore canyons. This multibeam sonar image of Norfolk canyon helps illustrate its steep slopes and deep crevices. Image courtesy SW Ross, UNC-Welmington.*

### Cold Water Corals

Cold water corals in the Mid-Atlantic are not only associated with canyons. They are known to occur across the continental slope and shelf. There are many different types of corals; the stony corals that can build massive reefs, tree corals that can be thousands of years old and small hydrozoan colonies that can be locally very abundant. These are all associated with hard grounds, but sea-pens are also cold water corals and can form dense aggregations in soft sediment. Dredging and other activities over time may have eliminated many cold water corals but some remain. The MARCO Ocean Data Portal has a map of coral observations; however these are only points where observations were made – not complete surveys of the shelf and slope. One way to get a better handle on where corals may be located is to predict their presence based on bottom type, temperature, food sources and other parameters corals are known to require. NOAA's Biogeography Branch is doing just that and a predictive model for corals will soon be available on the MARCO Portal. Data collected during research cruises will help to ground-truth and refine these models.

*A Humpback whale breaching off Virginia Beach. Image courtesy of the Virginia Aquarium and Marine Science Center.*

## Whales

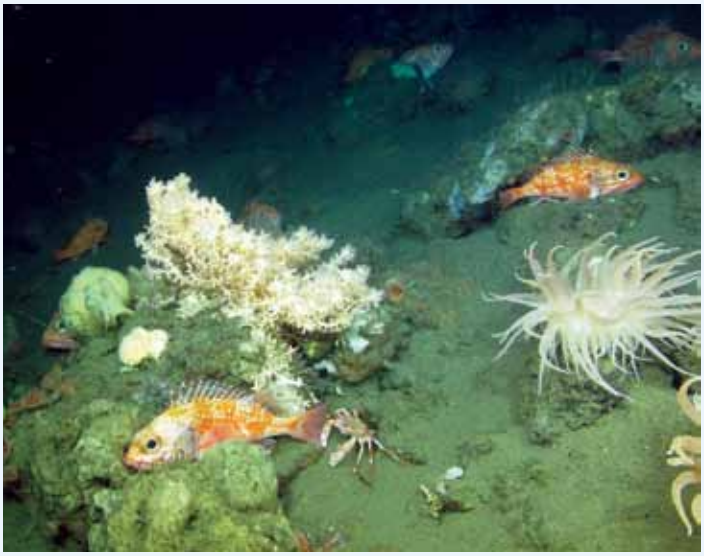
Humans have long been fascinated by whales, but unfortunately, until recently that fascination centered on hunting them for their, meat, bones, oil and baleen. Populations of many species of whales are dangerously low and it is still critical that, as we plan for new and expanded ocean uses, we find ways to protect the migration corridors and food supplies of whales. Whale-watching is fast becoming a lucrative, sustainable new industry in Virginia as evidenced by the excitement of humpback whale watching off Virginia Beach last winter.

In an effort to better understand whale activity off Virginia's coast, the Virginia CZM Program teamed with the Virginia Aquarium and through a national competition for NOAA funds secured a $180,000 grant to conduct whale surveys beginning in October 2012. Spatial data collected will be added to the MARCO Ocean Data Portal. However, whales may vary from year to year in terms of the places they use. One year of data is not optimal for long-term planning so a second year of NOAA funding for 2013 is being requested.

*The red phalarope, Phalaropus fulicaria, is often found with whales and even picks parasites off their backs. In fact, whalers called red phalaropes "bowhead birds" because they were often seen with baleen whales. They spend up to 11 months of the year far out at sea. Image by Dave Pereksta, BOEM.*

## Seabirds

NOAA's Biogeography Branch is also creating a map of seabird distribution in the Mid-Atlantic based on bird observations and environmental data. Models are developed for single species of seabirds and for species groups and then combined to produce "hotspot" maps. The work is completed for the waters off New York and is expected to be done for the entire mid-Atlantic by early 2013.



*(photo left) Black belly rosefish huddle against the canyon wall. (photo right) A venus flytrap anemone on the lip of a small ridge with numerous other small animals including anemones, sponges, hydroids and a tiny bubblegum coral. Images courtesy of Deepwater Canyons 2012 Expedition, NOAA-OER/BOEM.*

# Shoreline Management

## The Changing Face of Shoreline Management

*By Shep Moon, Virginia CZM*

The passage of Senate Bill 964 by the 2011 Virginia General Assembly should result in changes to the "face" of shoreline management in Tidewater Virginia. The stabilization techniques currently proposed by property-owners are often based more on what a neighbor has installed or what a particular contractor has recommended, rather than what is best suited for a particular shoreline condition. While the overall shoreline management framework will be similar, Senator Ralph Northam's bill (SB 964) shifts the focus to a more proactive approach, with localities adopting Comprehensive Coastal Resource Management Plans (CCRMPs) as components of their local comprehensive plan updates starting in 2013. This should provide landowners, contractors and local wetland boards with a common source for official recommendations on stabilization techniques for shoreline reaches throughout their communities.

The CCRMPs will draw information from a number of resources, including shoreline inventories developed with a substantial investment from the Virginia CZM Program over the years. The Program's current Section 309 Shoreline Strategy includes funding for 8 new Inventories over a five-year period. Once adopted by localities, the new CCRMPs should emphasize the Commonwealth's preference for living shorelines and provide a common "playbook" that can help reduce the need for regulatory review. The end result should be more stabilization projects that are well suited to the characteristics of the shoreline and that minimize impacts to coastal habitats and water quality. In developing the CCRMPs, VIMS will also consider forecasts of the condition of shorelines with respect to projected sea-level rise.

Senate Bill 964 also requires VMRC, in cooperation with the Department of Conservation and Recreation and with technical assistance from VIMS, to develop a general permit to encourage the use of this technique and to develop integrated guidance for the management of tidal shoreline systems. The Virginia CZM Program provided a grant to VIMS to support VMRC as it considers how to best meet these requirements. VIMS has researched shoreline management policies from other states and drafted permit language for VMRC's review.

The Virginia CZM Program is also providing support for 13 new or expanded evolution studies and ten new shoreline plans over a five-year period. These documents provide additional information and recommendations on shoreline management to complement the CCRMPs. See the graphics on the next page for a description of each of these CZM-funded shoreline management products.

Taken together, these actions should result in positive changes in how Virginia manages its shoreline resources. Over time, as more and more living shoreline techniques are used, the visible "face" of the developed shoreline should change from a hardscape of rock and wood that artificially divides land from water, to a more natural shoreline that appeals to fish, wildlife, property-owners and coastal resource managers alike.

### ...and the Familiar Faces

While change is occurring on the policy side, many of the human "faces of shoreline management" have remained more constant. A number of Virginia CZM Program partners have been deeply involved in Virginia's shoreline management efforts for years with the support of Virginia CZM Program funds.

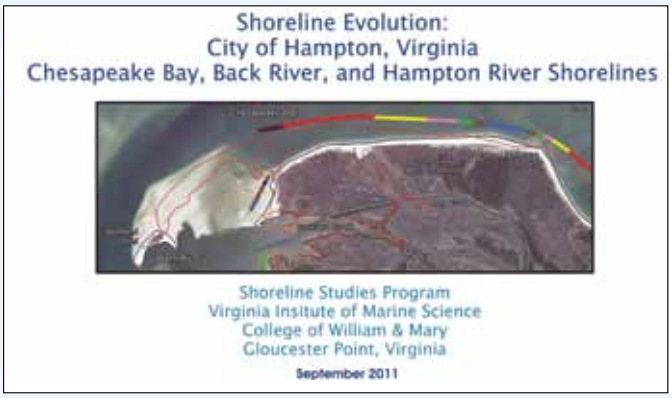
*Pam Mason, Virginia Institute of Marine Science, 22 years*

*Marcia Berman, Virginia Institute of Marine Science, 23 years*

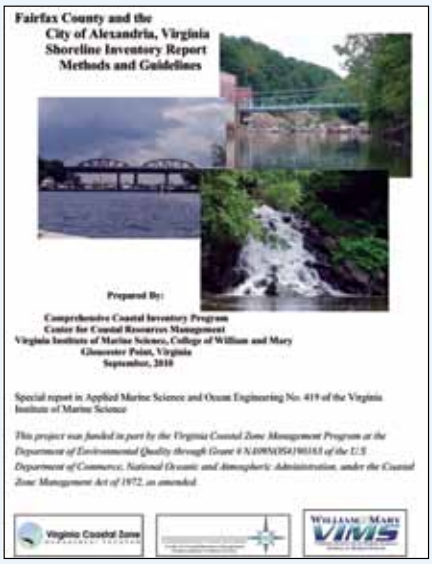
*Scott Hardaway, Virginia Institute of Marine Science, 33 years*

*Tony Watkinson, Virginia Marine Resources Commission, 28 years*

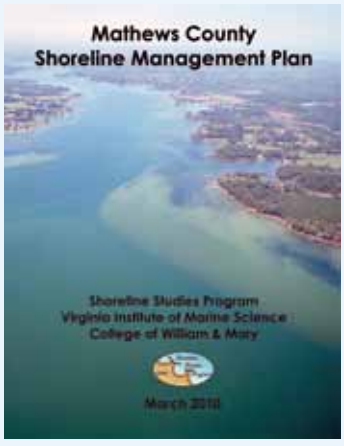
*Images courtesy of VIMS and VMRC*




*Shoreline evolution is the change in the shore zone through time due to winds, waves, tides and currents.* Locality-based Shoreline Evolution Reports, *developed by the Shoreline Studies Program at VIMS, use a series of photographs, often starting in 1937, to show how shorelines have eroded, or accreted, over time. The reports can also be used to evaluate land use changes along the shoreline over the years. To view all available shoreline evolution reports go to: http://web.vims.edu/physical/research/shoreline/Publications-Evolution.htm*




Shoreline Inventory Reports, *formerly known as Shoreline Situation Reports, are an important resource for local and state planners and regulators. The data collected, including shoreline characteristics and land use, enhance their ability to make decisions regarding coastal construction, land use planning, and implementation of environmental legislation. The data collected for the inventory support the development of a number of essential management tools including spatial models and shoreline management plans. To view all available shoreline inventory reports, go to: http://ccrm.vims.edu/gis_data_maps/shoreline_inventories/index.html*




A Shoreline Management Plan *is a guidance document for local governments that recommends strategies for managing tidal shoreline conditions. Local governments can use the plans in multiple ways, but the intended use is to provide the basis for county policy on shoreline management and to serve as reference manual for local wetlands boards. To view all available shoreline management plans, go to: http://ccrm.vims.edu/*

## Shoreline Documents with Dates of Completion*

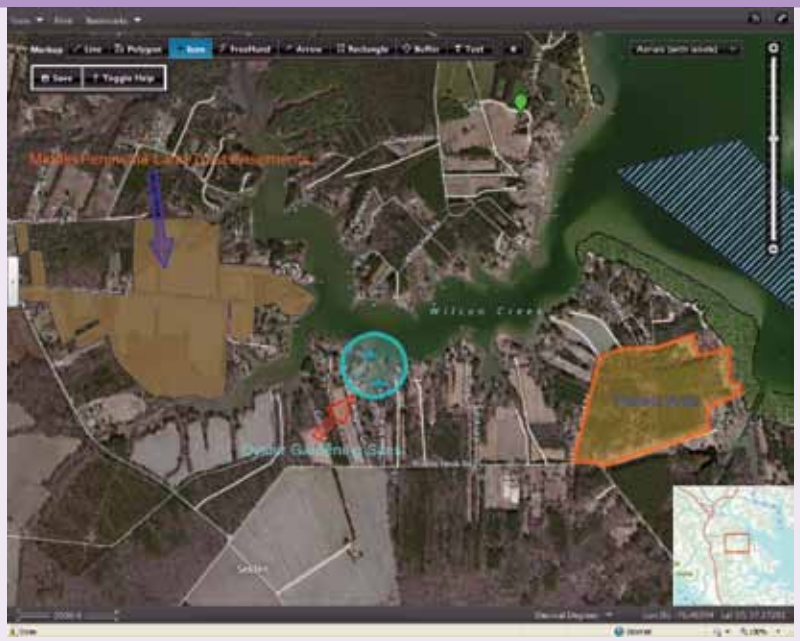
| County/City | Inventory | Evolution Report | Shoreline Plan |
|---|---|---|---|
| Accomack | 2002 | 2006 (2015) | |
| Caroline | 2004 | | |
| Charles City | 2013 | 2013 | |
| Chesterfield | 2016 | | |
| City of Chesapeake | | 2008 | |
| City of Newport News | 2009 | 2010 | |
| City of Norfolk | 2002 | 2005 (2016) | |
| City of Portsmouth | | 2008 | 2010 |
| City of Richmond | 2004 | 2011 | |
| City of Virginia Beach | 2012 | 2012 | 2012 |
| Essex | 2001 | 2016 | 2016 |
| Fairfax | 2010 | 2014 | 2014 |
| Gloucester | 2008 | 2010 | 2016 |
| Hampton | | 2011 | 2011 |
| Hanover | | | |
| Henrico | 2012 | | |
| Isle Of Wight | 2016 | 2010 | |
| James City | 2014 | 2010 | 2015 |
| King and Queen | 2000 | 2016 | |
| King George | 2008 | 2012 | |
| King William | 2000 | 2016 | |
| Lancaster | 2001 | 2012 | |
| Mathews | 2009 | 2005 | 2010 |
| Middlesex | 2000 | | 2012 |
| New Kent | 2008 | | |
| Northampton | 2011 | 2004 (2013) | |
| Northumberland | 2002 | 2006 (2014) | |
| Poquoson | | 2001 | 2010 |
| Prince George | 2014 | 2014 | 2014 |
| Prince William | 2010 | 2012 | |
| Spotsylvania | | | |
| Stafford | 2006 | 2015 | 2015 |
| City of Suffolk | 2013 | 2010 | 2013 |
| Surry | | 2011 | |
| Westmoreland | 2007 | 2012 | 2012 |
| York | 2009 | 2010 | 2013 |

**Dates shown in blue indicate anticipated completion dates based on the funding schedule included in the Virginia CZM Program's Section 309 Shoreline Strategy. Evolution Reports with a second date shown in (blue) indicate that an expanded report is scheduled to be completed that includes tributary shorelines not included in the original report.*

# Coastal Mapping

## Check Out the New Version of Coastal GEMS!

*By Nick Meade, Virginia CZM*

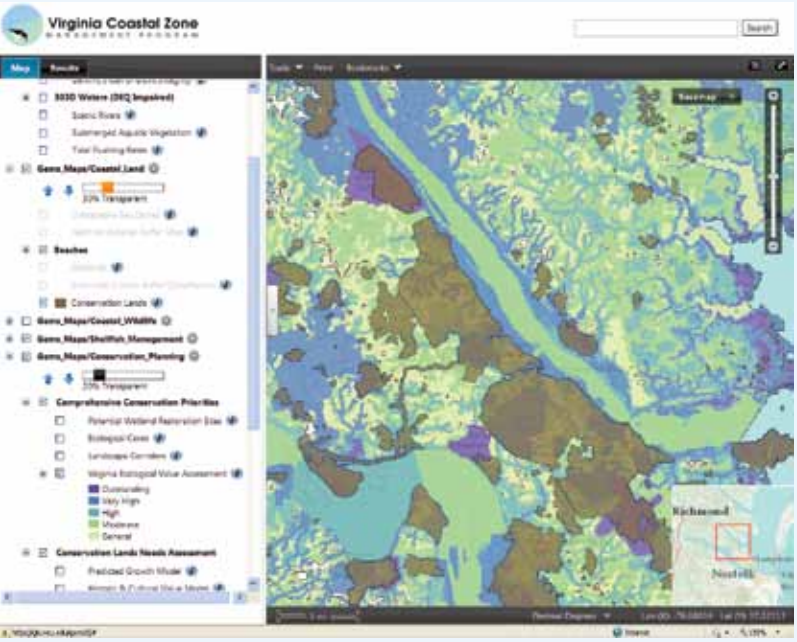


*Use mark up tools to create your own custom maps.*

About six years ago, the Virginia CZM Program teamed up with VCU's Center for Environmental Studies (CES) to create a comprehensive new coastal data resource for its partners and the public called Coastal GEMS. The basic concept driving the project was that providing better access to coastal information would result in better planning and decision making in the coastal zone.

At that time, online mapping applications were becoming popular, but they typically only highlighted a few specific datasets from one organization and some of the user interfaces were far from intuitive. Coastal GEMS got ahead of the curve by leveraging some of the latest technologies from several software platforms and pulling together data from local, state, and federal agencies, non-profit organizations and academic institutions and fusing them all into one easy to use, data portal. Being able to view and interact with all of this data in one place allows users to see the big picture and helps to reveal vital connections between blue and green infrastructure.

Over the past few years, resource managers have started to realize the effectiveness of online data portals like Coastal GEMS and new web mapping technologies have emerged that make it possible for these portals to be developed into robust decision support tools. Last fall VA CZM partnered again with VCU CES to utilize these new technologies in the development of Coastal GEMS version 3.




*View multiple layers simultaneously by adjusting transparency.*

### More Features!

In the last version of Coastal GEMS cartographic options were somewhat limited: so, as the application grew to include over sixty layers, it became difficult to symbolize each dataset in a unique way. Built with ESRI's ArcGIS Server 10.0, Version 3 has a much richer array of cartographic options to choose from. This means that it will be easier to symbolize each data layer in a distinctive way so that Coastal GEMS can continue to grow.

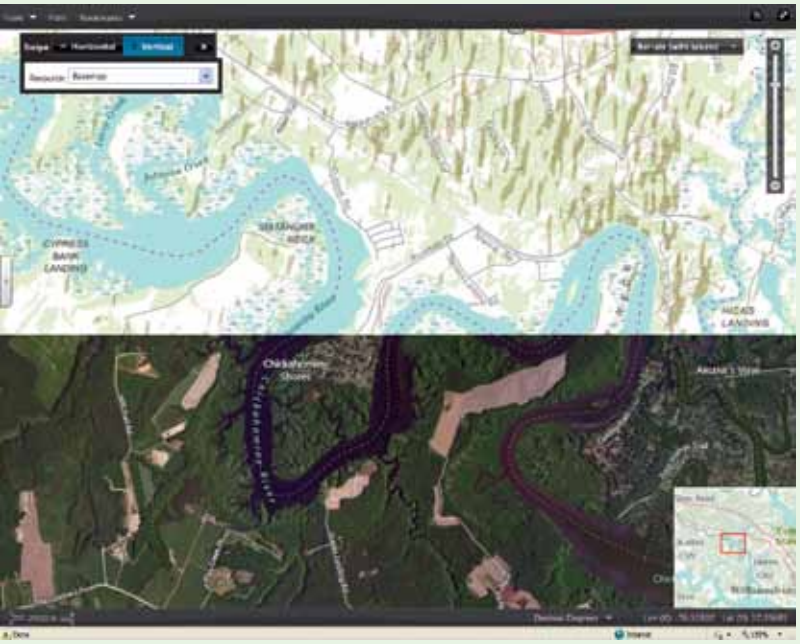
Coastal GEMS Version 3 also has new basemaps available including road maps, aerial imagery, national geographic world map, ESRI's ocean basemap and more. This will provide a superior background for whichever data layers are turned on.

The main function of Coastal GEMS is to display data on an interactive map. Version 3 provides options to get a better view of that map with the capability to resize or completely hide the layer list and even maximize the map to fill your entire browser window.

In addition, Version 3 allows users to adjust data transparency and move groups of data above or below each other on the map to get a better view of the data and the basemaps underneath.

*"… yesterday during an oil spill drill with the Coast Guard and Colonial Pipeline, I had the opportunity to see first-hand the power and utility of the GEMS 3 mapping program. After participating in two previous drills, where natural resource participants had to scramble and pull information from multiple sources, the GEMS program had virtually all the information in one place for the environmental team to recommend quick, precise and significant resource protection measures immediately. GEMS is truly an amazing new tool."*

*Glen Askins, VA Department of Game & Inland Fisheries*



*Interactively compare basemap data with the swipe tool.*

## More Tools!

To complement those new basemaps Coastal GEMS Version 3 has a swipe tool so that you can more easily compare between two different basemaps. Users can pick any two of the available basemaps and use the mouse to swipe either vertically or horizontally across the map, peeling back one of the basemap layers to reveal another underneath.

Of all the new features and tools in Coastal GEMS Version 3, perhaps the most eagerly anticipated are the new mark up tools (*see screenshot at top of page 10*). These tools allow users, whether GIS expert or novice, to create truly custom maps by adding text, drawing lines and shapes, adding icons and symbols, and even buffering specific points.

Just like the previous version, Coastal GEMS Version 3 includes tools for users to export and print their maps but in addition, Version 3 allows users to set custom export areas, choose from various image file formats, and of course any mark up added will be included on the exported map layouts.

*Explore Coastal GEMS on your mobile device.*

## More Accessibility!

Coastal GEMS is all about making Coastal data and information more accessible to everyone, so we didn't want there to be any unnecessary hurdles between the application and its potential users.

Version 3 was built using HTML 5 so it's compatible with all popular web browsers and it's not necessary to download and install any plug-ins to use the application. Whether you are using a work computer with limited web browser options and no administrator rights, or if you just have a favorite web browser that you prefer to use, Coastal GEMS will work for you.

It's no secret that the use of mobile computing platforms is steadily increasing so we are very excited that Version 3 is compatible with mobile devices. The application was designed to be easily explored from your iPad or any other web enabled mobile device.

**Tell us what you think of the new version of Coastal GEMS! Visit www.coastalgems.org**

# Working Waterfronts

## Where Land, Water and Livelihood Connect

*By Beth Polak, Virginia CZM*

Since the early 1600s, the bounty of Virginia's coastal waters has sustained a rich culture of seafood harvest and cultivation. Toward the middle of the twentieth century, the Chesapeake Bay is said to have supported up to 9,000 full-time watermen.

But today, with Virginia's waterfronts accommodating competing demands, the historical working waterfront is seriously challenged to stay alive. Fishermen, oystermen, crabbers and clammers not only face the issue of increasing fishing effort, but they also face increasing limitations on access to the waterfront itself. The impact is felt not only by fishermen, but also by boat builders, marina operators, seafood processors, recreation organizations and many other support services and businesses.

According to Tommy Leggett, owner of Chessie Seafood and Aquafarms in Wicomico, past declines in Virginia shellfish harvests have led to shifts in use of the waterfront, leaving many seafood operators with little choice but to sell their waterfront property. In most cases, these sites supported a number of commercial fishing and shellfish operations. With recent shifts in use from commercial fishing, recreational boating and support services to private residential development such as condominiums and private marinas, the market value of many waterfront areas has shot way out of reach for small business owners.

"Watermen can't afford waterfront property," Leggett said. "By and large most watermen depend on public docks or seafood establishments to tie up [their boats] and offload catch."

For this reason, the Virginia CZM Program is working with the Middle Peninsula Chesapeake Bay Public Access Authority to improve existing infrastructure at Perrin Wharf to help accommodate small-scale fishermen as well as support other water-based users who need access to the Perrin River.

At a much larger scale, the Virginia CZM Program has partnered with VIMS – Sea Grant Marine Advisory Service to begin developing public policy designed to protect and enhance Virginia's working waterfronts. The first step in this process began with an exercise across the coastal zone, among regions with a tradition of commercial fishing and other water dependent activities, to derive their own definition of a working waterfront. Specifically, Accomack-Northampton, Hampton Roads, Middle Peninsula and Northern Neck planning districts started with the model definition developed by proposed legislation at the national level. The Keep America's Waterfronts Working Act of 2011, defines a working waterfront as:

*Middle Peninsula waterman caring for the tools of his trade. Image courtesy of the Middle Peninsula Planning District Commission.*

"*The term "working waterfront" means real property (including support structures over and adjacent to the water or inland property engaged in significant water-related activities) that provides access to coastal waters or that supports commercial fishing, recreational fishing, businesses, boat building, shipping and rail yards, aquaculture, national defense, public safety, marine research, offshore energy production, or other water-related commercial, industrial, and recreational business.*"

Some PDCs adopted this definition while others tailored it to capture additional details of their region. Another step in the policy development process has been to conduct an inventory of existing working waterfront sites within these planning districts.

Tom Murray, Director of Marine Advisory Services at VIMS and project lead, said, "The inventories graphically depict the truly water dependent small businesses that provide critical access to natural resource based industries and occupations. With such an inventory laying out the working waterfronts landscape, the particularly special pieces of working waterfront may then be identified and considered for protection as coastlines continue to face redevelopment pressures."

The inventories are capturing precise location (including digital maps and photos), specialized support services, unique site features and in some cases planning effort toward future transfer of site ownership.

Next March, the third national working waterfronts symposium will be held in Tacoma Washington. Norfolk, Virginia hosted the first national symposium in 2007 and in 2010 the event was held in Portland, Maine. Virginia will follow the 2013 symposium with a localized summit in late April, featuring issues faced by rural working waterfront communities. The Virginia summit will serve as a platform for stakeholders to become directly involved in clarifying the issues and developing strategic steps forward.

Don McCann, owner of Tranquil Waters Marine Services, emphasized the need to be prepared as the economy begins to recover. "If this area wants to grow, you've got to look to the water as part of the equation for economic development," he said. Decisions will need to be made about the use of the waterfront, McCann explained. "One of those [decisions] is the degree to which you preserve the working waterfronts tradition so that watermen, who are emblematic of what the bay is about, can continue in their chosen profession."


*Boat builder handcrafting a deadrise on Middle Peninsula. Image courtesy of the Middle Peninsula Planning District Commission.*

*Fishermen off loading at Guinea Landing in Gloucester County. Located near Gloucester Point, the Guinea area has historically been the center of the seafood industry in the county. It still remains the cultural core of the community. The watermen are known locally as "Guineamen." Image by Larry Chowning.*

*Diners enjoying seafood at York River Yacht Haven Marina on Sarah Creek on the Middle Peninsula. Waterfront dining is an important part of a vibrant coastal community. Image courtesy of the Middle Peninsula PDC.*

# Public Access

## Outdoor Survey Says...

*By Beth Polak, Virginia CZM*

Hiking trails, water access and natural areas top the wish list in the 2011 Virginia Outdoor Demand Survey. Sixty-eight percent of households surveyed in Virginia last year said they believe hiking and walking trails are most needed for recreation. Fishing, swimming and beach access were a close second at 60 percent, with natural areas not far behind at 55 percent. Seventy-three percent of respondents also said they think the state should spend public funds to acquire land to prevent the loss of natural areas and open spaces.

Outdoor recreation needs were surveyed last year to inform the process that is now updating the Virginia Outdoors Plan (VOP), set to be final early next year. The plan will serve as the 10th statewide comprehensive outdoor recreation plan, guiding both public and private sectors in meeting the state's conservation, outdoor recreation and open space needs.

"The Virginia Outdoors Plan serves as the guide for increasing and enhancing outdoor recreation opportunities for all Virginians, as well as our many visitors and tourists," said Danette Poole, Department of Conservation and Recreation (DCR) Director of Planning and Recreation Resources. "In the 2011 Virginia Outdoors Survey, citizens continued to rank public access to Virginia's waterways, along with trails, as the most needed recreational facilities in the Commonwealth. Virginia's coastal areas provide a wealth of opportunities for enhancing recreational access and enjoyment of Virginia's waterways, beaches, and natural areas."

To help meet the need for increased coastal access, the Virginia CZM Program is funding multiple public access enhancement projects. On Chapel Island in the City of Richmond, the Virginia CZM Program is funding the creation of a James River canoe/kayak launch, improvements to an existing one-mile trail, and new interpretive signs. Rich in historical significance, Chapel Island was possibly a first landing site for Captains John Smith and Christopher Newport in 1607, and the site of the Trigg ship building company in 1898. The island's proximity to the city and the James River offers local residents easy access to a wealth of recreational opportunities.

In the coming year, the Virginia CZM Program will fund enhancements to two additional public access sites in the Hampton Roads area as well as on the Eastern Shore. Hampton Roads projects include canoe/kayak access to the Nansemond River where there are presently no other direct access sites; and rehabilitation of a boat ramp and restoration of habitat on the Lafayette River. On the Eastern Shore, the CZM program is funding a project to the Accomack-Northampton PDC to establish and coordinate an Eastern Shore Water Trails Association which would work to develop a plan for integration of camping platforms along the Seaside Water Trail. Working through the association would integrate critical stakeholder input in assessing seaside water trail needs.

*Providing children an opportunity to explore the environment makes for a more meaningful learning experience. Image by Gail Brown.*

This approach aligns closely with the recreation planning philosophy of Chris Clifford, Chair of Park Partners Gloucester and President of Riverworks, Inc. "I tend to believe that the future of parks

*Sweetwater Chickee camping platform in Everglades National Park*
*Image by Doug Cameron - http://capt-doug.blogspot.com/2010/12/google-earth-tracks-of-he-wilderness.html.*

and recreation lies in partnerships between citizen groups and the public sector," Clifford commented to DCR Planning and Recreation staff. "Go through your dreams list, and try to match up citizen groups with outdoor recreation targets. Do educational sessions with local county leaders on how partnerships can be set up to get the dreams built. I would think that a politician trying to budget limited funds into quality of life improvements would be tickled to learn of alternative ways of getting things done that don't necessarily spend tax dollars; or at least spend less tax dollars."

## Chapel Island: A Collaborators' Dream Come True

*The Chapel Island project is a premier example of public-private partnership. The Virginia CZM Program, Richmond Regional PDC, the City of Richmond, Friends of James River Park, and Timmons consulting firm are working together to make the project happen. Friends of James River Park, a volunteer, non-profit organization, has committed $5,000 from their general fund and 200 hours of volunteer labor from their membership to ensure project completion. Timmons consulting provided engineering services, including technical drawings and wetlands delineations for the project at no cost.*


*(top right) Chapel Island project concept map. Just across the canal from Great Shiplock Park, the Chapel Island site nicely links to the Virginia Capital Trail head in Richmond.*

*(photo left) Remnant of the historic Trigg Shipyard.*

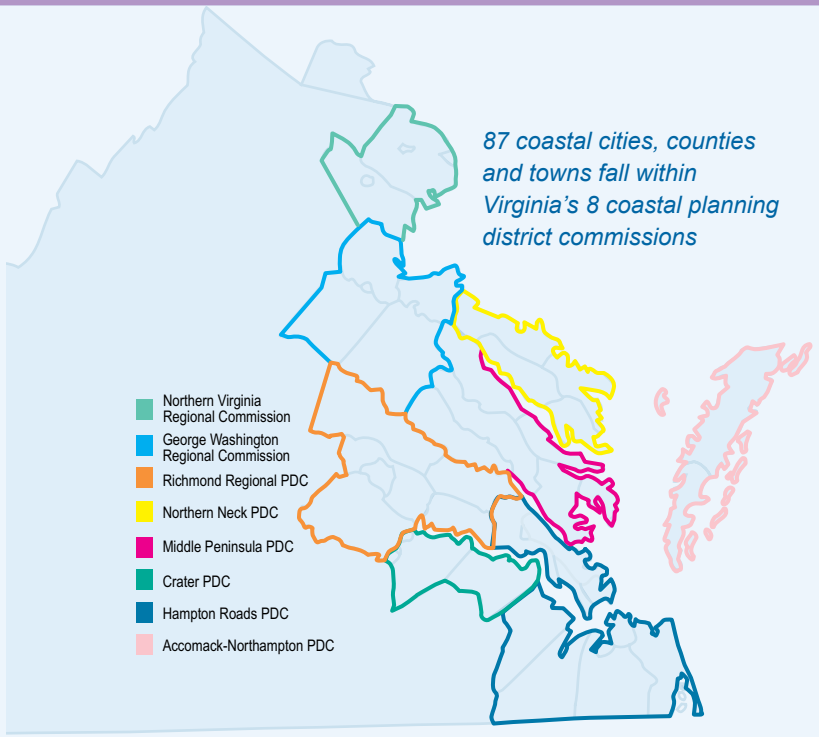
*(photo right) Trigg Cove - site for future, Virginia CZM Program funded, canoe-kayak launch.*

*All Images courtesy of RRPDC.*

## Virginia Outdoors Plan Process at a Glance

- The VOP addresses outdoor recreation and land protection needs; and provides guidance for land protection undertaken through the Virginia Land Conservation Foundation.
- DCR's Planning and Recreation Resources division leads the VOP update process.
- 42 public meetings with 480 participants were held across the state from December 2011 through March 2012.
- Comments from over 120 citizens were received and seven additional meetings held for special interest groups.
- VOP technical advisory group met several times to address economics and tourism, health and outdoor recreation, land conservation, scenic resources and trails.
- Next steps - a webinar to test the VOP's new electronic format and interactive mapping to enable updates on a continuous basis versus the standard five-year interval.

# Coastal Communities




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.

As part of these 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.

## Sea Level Rise In Hampton Roads:

### Listening to the Public, Promoting Coastal Resiliency

*By Ben McFarlane, Hampton Roads PDC*

Since 2008, the **Hampton Roads Planning District Commission** has worked with the Virginia Coastal Zone Management Program to study the potential impacts of sea level rise on the Hampton Roads region. Hampton Roads is particularly vulnerable to sea level rise, which will worsen existing flooding issues. Promoting coastal resiliency can help reduce the region's vulnerability to hazards and help the region adapt to sea level. A major component of the sea level rise project is educating local government staff, elected officials, and the public on the issue and possible courses of action. Given both the politically sensitive nature of the topic and already present flooding issues, effectively educating and engaging the general public is critical to making the region more resilient.

HRPDC's public engagement efforts consist of three strategies. The first is to educate the public on Hampton Roads' coastal hazards issues through presentations to various public groups. Occasionally, these groups are affiliated with local governments, but many are non-governmental organizations or university classes interested in the issue. Over the last three-plus years HRPDC staff has met with Old Dominion University classes, Virginia Beach Vision, the Hampton Waterway Management Plan Steering Committee, the Sierra Club (York River Group), and members of the Unitarian Church of Norfolk.

*Image by Skip Stiles, Wetlands Watch.*

The second strategy is HRPDC's engagement of the public through partnerships with other organizations. For the past two years, HRPDC has worked with the University of Virginia's

# Public Forum Draws Record Crowd

*By Curt Smith, Accomack-Northampton PDC*

On June 13, 2012 the **Accomack-Northampton Planning District Commission**, in partnership with the UVA Institute for Environmental Negotiation, hosted the Eastern Shore's first public forum to address the causes and effects of sea level rise and various options for dealing with the potential hazards. The recently formed Eastern Shore Climate Adaptation Working Group directed the development of the workshop to address the threat that sea level rise poses to the natural and built environment and local resource-based industries. The workshop aimed to raise awareness amongst local residents' and elected officials' and gain insights from participants who are experiencing, first hand, the effects of coastal flooding and rising sea levels.

Approximately 200 attendees were surveyed throughout the workshop using electronic and written methods. The surveys provided real-time results to a variety of questions regarding sea level trends questions that gauged levels of concern and understanding, observed changes experienced, and desired actions for mitigation.

Key outcomes from the surveys were:

- Approximately 70% felt they were fairly well to very well informed about the causes and consequences of sea level rise;
- 91% thought that sea level rise will affect people living on the coast within the next 25 years;
- 69% were at least somewhat worried about sea level rise affecting the Eastern Shore;
- 60% thought that sea level rise has already started to affect people living on the coast; and
- 63% felt either not very well or not at all informed about the ways to address sea level rise and
- only 10% felt very well informed about the ways to address sea level rise.

*Curt Smith of Accomack-Northampton PDC addresses a record crowd of 200 people at the Eastern Shore Community College eager to learn about the causes and effects of sea level rise. Image by Nick Meade, Virginia CZM Program.*

For survey questions related to mitigation strategies, overall, the most participants felt most strongly that Education and Outreach is the most effective strategy and should be a high priority for local governments. And, a majority of participants saw Restoration and Protection of Natural Systems as both effective and an important priority. Participants were less sure about the effectiveness of Shoreline Management, but still feel it should be a priority. Participants were even less sure about the effectiveness of Groundwater Management, but similarly viewed it as a high priority. Lastly, the greatest dichotomy surfaced for Local Adaptation Planning. Participants had the least certainty of its effectiveness, but also gave it one of the highest priorities.

The workshop successfully kicked-off a public dialogue that concluded with an overwhelming outcry for more public educational opportunities and local government involvement to address sea level rise. The A-NPDC will continue to coordinate the Climate Adaptation Working Group using its Virginia CZM Technical Assistance grant to develop additional educational workshops and planning tools to assist local governments.

*...Engaging the Public continued*

Institute for Environmental Negotiation, Wetlands Watch, and the City of Virginia Beach to engage Virginia Beach residents about flooding and sea level rise. The first year culminated in a series of four listening sessions in March 2011 that were attended by over 120 residents and featured presentations, facilitated discussions, and a participatory mapping exercise that gave residents the opportunity to show organizers and city staff where they had seen or experienced the impacts of flooding. The second year resulted in a stakeholder focus group that learned about and discussed several potential policies to address flooding and sea level rise.

The third strategy is shifting communication of HRPDC's technical reports, which have been written principally for local governments, to materials such as brochures or handouts that clearly summarize the project's findings. These materials, to be made available through HRPDC's website, will reinforce the other components of HRPDC's public engagement program and will help make HRPDC's coastal planning efforts more accessible to the general public.

## Regional Green Infrastructure Plan

*By Kevin Byrnes, George Washington Regional Commission*

In FY 2008, the **George Washington Regional Commission (GWRC)** initiated the development of a regional green infrastructure plan with funding support from Virginia's CZM Program. GWRC anticipated future Chesapeake Bay TMDL goals could place greater importance on the preservation of existing tree canopy, the reforestation of bare riparian areas along Bay tributaries and slowing (or even reversing) the growth of impervious areas. The Plan defines "green infrastructure" for the Region, discusses conservation initiatives for maintaining the Region's quality of life, and addresses water quality goals.

In Year 1, GWRC consulted with local government planning staff to review and re-rank the Virginia Conservation Lands Needs Assessment (VCLNA) GIS data for ecological integrity and identified high priority ecological corridors. GWRC staff met regularly with local government environmental planning and/or public works staff, environmental NGO representatives and citizens to discuss the high priority resources and value of green infrastructure.

In Year 2, GWRC staff analyzed satellite imagery to identify trends in loss of tree canopy and growth of impervious surface area resulting from rapid population growth. The findings of this study, which focused between 1996 -2009, were shared with the same committee to discuss how they would support the Green Infrastructure Plan.

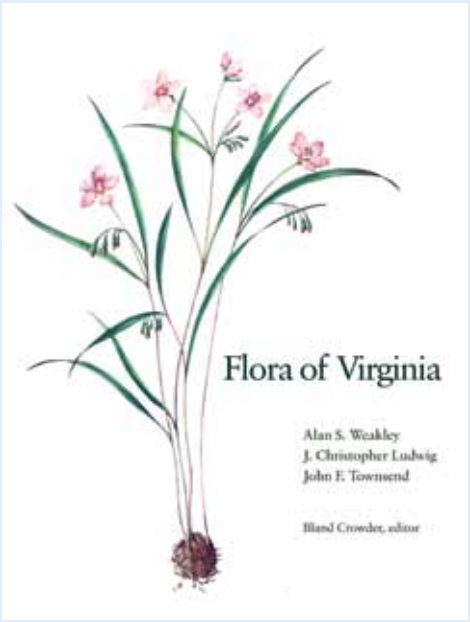
In Year 3, the region's high value eco-core areas and corridors, along with other environmentally-sensitive areas (e.g. wetlands, floodplains, conservation easements, etc.), served as the basis for a "green print" land use scenario. Along with other land use scenarios, GWRC used an online survey to collect public opinion on preferred future scenarios. The regional "green print" scenario was slightly favored over the "jobs/housing balance" scenario and even more so than the "business as usual" scenario.

A final regional Green Infrastructure Plan was provided to localities to guide local implementation response to Chesapeake Bay TMDLs as well as adoption of Virginia's new stormwater management regulations and to advance local compliance with Chesapeake Bay Preservation Act requirements. GWRC staff presented the Green Infrastructure Plan to several local Planning Commissions and to the Spotsylvania County "Committee of 500", a group that advocates "smart growth," sustainability and good government principles.

The advantages of green infrastructure management practices, which may offer less costly attainment of the TMDL goals than conventional non-point pollution controls, need to be communicated to the public. GWRC hopes to see voluntary local integration of the regional Green Infrastructure Plan to help achieve Chesapeake Bay TMDL goals.

*Mattaponi River. Image by David Nunnally.*

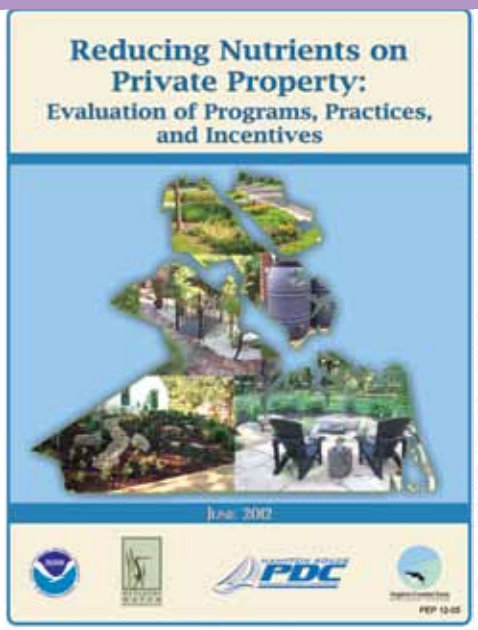
## New Virginia Flora Published!

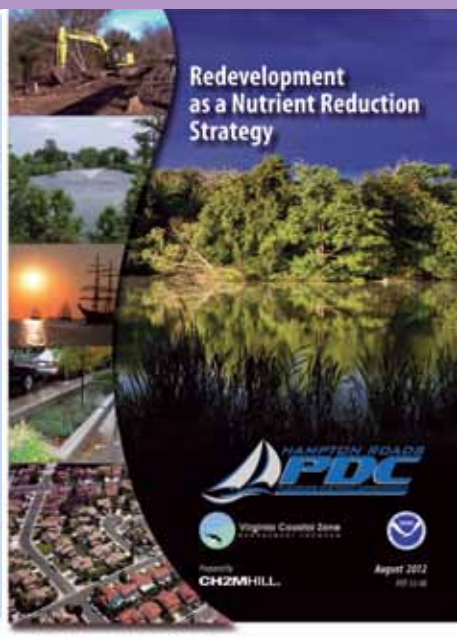



The Flora of Virginia, the first flora for our state since 1762, has just been published by the BRIT Press, the publications arm of the Botanical Research Institute of Texas. To do justice to the commonwealth's plant life required 1,600 pages, and some 3,160 species, native and naturalized, are keyed and described. Of those, 1,400 are illustrated with pen-and-inks commissioned for the work. Special chapters are included on the history of botanical exploration in Virginia and on the roles of geology and topography on our plant life from the Atlantic Ocean to the Appalachian Plateau. The manual was conceived with the Standards of Learning for science in mind. For ordering information, please visit floraofvirginia.org, the home page of the Flora of Virginia Project.

# Helping Localities Address Bay TMDL Requirements

*By Shep Moon, Virginia CZM Program*




In response to the Chesapeake Bay total maximum daily load (TMDL) requirements of the federal Clean Water Act, Virginia has submitted watershed implementation plans to the Environmental Protection Agency and is now working to develop more localized strategies to meet TMDL goals and milestone commitments. Developing these strategies to meet the EPA-mandated "pollution diet" will require extensive input from coastal localities and planning district commissions, and implementation will require expansion of existing local nonpoint source water quality protection programs using new and innovative approaches.

The Virginia CZM Program has a long history of involvement in local water quality protection efforts, including significant support for implementation of the Coastal Nonpoint Program and the Chesapeake Bay Preservation Act. Current CZM-supported water quality efforts include projects by two coastal planning district commissions (PDCs) to help localities develop workable, cost-effective TMDL pollution reduction strategies to help meet the 2025 restoration goals.

A 2011 PDC competitive grant from the Virginia CZM Program has allowed the **Hampton Roads Planning District Commission (HRPDC)** to evaluate two promising local government TMDL strategies: (1) redevelopment of existing properties and (2) the voluntary installation of water quality best management practices (BMPs) on private property.

While required storm water management BMPs for new development will not count towards the Chesapeake Bay TMDL, BMPs associated with redevelopment of older developed areas can be counted because of reductions in existing pollutants. HRPDC's contractor, CH2MHill, has evaluated the potential for redevelopment as a nutrient removal strategy in the Hampton Roads area, as well as the cost effectiveness of these measures. Based on their analysis, the HRPDC report *Redevelopment as a Nutrient Reduction Strategy*, concludes that there is a significant potential to reduce pollutants as redevelopment occurs, and recommends that localities include redevelopment activities in their TMDL strategies. It also makes a series of recommendations to help localities get TMDL credit for these redevelopment activities.

As part of the same grant, the HRPDC also addressed the potential for new, voluntary BMPs on private property. Conservation landscaping practices on private property have long been promoted by environmental advocacy groups and local governments as a voluntary means of reducing pollution. A report from Wetlands Watch commissioned by HRPDC evaluated opportunities for coordinating these efforts in a way that would result in quantifiable pollutant reductions that could be counted toward TMDL goals.

The Virginia CZM Program's 2010 Section 309 Strategy also recognized the importance of helping localities with the TMDL requirements. Through projects identified in the Strategy, the HRPDC has evaluated TMDL requirements for urban and suburban localities, while the **Middle Peninsula Planning District Commission (MPPDC)** has focused on options for more rural communities.

The HRPDC project included an assessment of the potential impacts of the TMDL requirements and the new state storm water management regulations on development and local land use policies and regulations. As part of this effort, the HRPDC evaluated local comprehensive plans, site development regulations and other local ordinances for pilot localities in the region. The HRPDC has also evaluated various development and redevelopment scenarios in an effort to improve local capabilities for modeling development impacts in the region.

The work of the MPPDC focuses more on issues relevant to rural coastal localities, including identifying unintended consequences of potential strategies for meeting the TMDL requirements. The MPPDC has evaluated the potential impacts of local and regional nutrient trading programs, as well as the effects on land valuation of changes to the state septic regulations. The MPPDC has also investigated the potential for developing a new septic enforcement model and the creation of regional sanitary sewer districts.

Together these projects demonstrate cost-effective options for meeting localities' Bay TMDL requirements for a range of local situations. These requirements will likely be the focus of local water quality protection efforts for some time, and the Virginia CZM Program will continue to support localities' efforts to meet them.

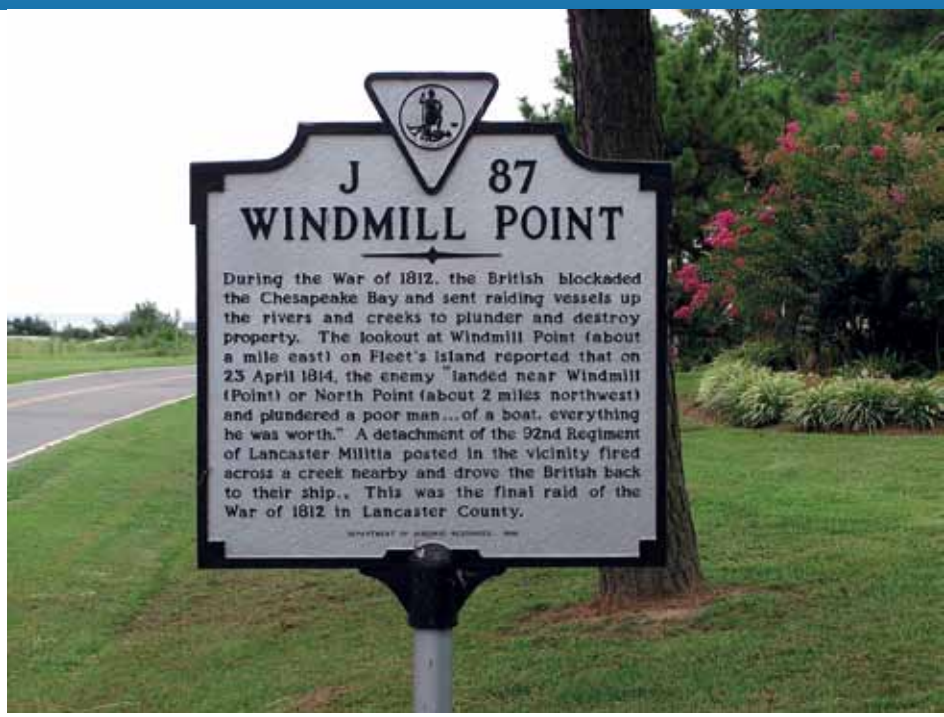
# Maritime History

## America's Second War of Independence

*By Shep Moon, Virginia CZM Program*

Although it is often referred to as "America's forgotten war," the War of 1812 was one of the most significant events in the maritime history of Virginia's Coastal Zone. The three-year war's bicentennial provides an opportunity to recall Virginia's role in the conflict, and reflect on the changes it brought about.

The United States somewhat reluctantly declared war on Great Britain on June 18, 1812, largely in response to the effects of 20 years of war between Britain and France. British maritime policies, such as forced recruitment of American sailors into the British navy and trade restrictions, were ongoing frustrations. Americans also felt that westward expansion was being hampered by Indian warfare incited by the British.




*Historic marker J-87 "Windmill Point". Image courtesy of Virginia Department of Transportation and Virginia Department of Historic Resources.*

Some of the more well known events of the war outside of Virginia included numerous failed attempts by the U.S. to invade Canada, the burning of the White House and U.S. Capitol building in Washington, the Battle of New Orleans, and the British bombardment of Baltimore's Fort McHenry, which inspired Francis Scott Key to write the "Star-Spangled Banner".

But Virginia saw its share of conflict with 73 armed encounters, mostly along coastal waters. The Chesapeake Bay was a prime target for the British because it provided a pathway to the American capitol of Washington, as well as the shipbuilding and industrial center of Baltimore. The region experienced more British raids than any other part of the U.S.

The 2008 Virginia General Assembly created the Virginia Bicentennial of the American War of 1812 Commission in order to commemorate and boost public awareness of Virginia's significant role in the war. The Virginia Department of Historic Resources, a partner agency of the Virginia CZM Program, has worked with the Commission to approve 13 new historical markers to commemorate people, places and events associated with the war. The markers describe a range of topics including British attacks on towns in coastal localities such as Northumberland, Westmoreland and Essex counties and the cities of Norfolk and Virginia Beach. The new markers, when combined with the numerous existing markers related to the War of 1812 across the Coastal Zone, remind us of the War's importance and lasting impact.

Several coastal Virginia communities played particularly important roles in the war. At Craney Island, in Portsmouth, 700 American militiamen were able to repulse an attack by 3700 Redcoats in one of the few clear American victories of the war. The victory kept Portsmouth and the Gosport Navy Yard (now the Norfolk Naval Yard) from falling into British hands.

Tangier Island was the site of Fort Albion, Britain's principal base of operations for the Bay region and a training camp for ex slaves to serve in the Colonial Marines. The Marines, along with other British troops, fought Virginia militia in numerous battles along the Eastern Shore and Northern Neck. They raided and burned waterfront towns, plantations, taverns and ships along Virginia's tributaries almost at will. The Fort also served as the launching point for the British attack on Baltimore.

The war was a transformative event for the United States, a nation barely 30 years old and still struggling with its identity. It helped to unify the states and demonstrated the need for a professional military and a national system of roads. For Virginia's coastal communities, the loss of life and property during the war affected the region for decades.

*Visit the Virginia Department of Historic Resources Highway Marker web page for more information -*
www.dhr.virginia.gov/hiway_markers/hwmarker_info.htm

# CZMA Turns 40!

## NOAA Partners Celebrate CZMA

In June 2012, the Virginia CZM Program and the Chesapeake Bay National Estuarine Research Reserve co-hosted an event to celebrate the 40th anniversary of the federal Coastal Zone Management Act (CZMA). The event highlighted how funding through the CZMA has enabled the programs to make significant contributions toward improving coastal water quality in Virginia.

*Willy Reay, CBNERRVA Director, describes water quality monitoring efforts in coastal waters supported by the CZMA. Image by Virginia Witmer, Virginia CZM Program.*

The York River served as a backdrop as Virginia CZM and CBNERRS staff and their stakeholder partners briefed NOAA officials and other dignitaries about program accomplishments to-date:

- **restore habitats**, such as riparian buffers, eelgrass beds and oyster reefs, along the coast and in coastal waters;
- **promote "Living Shorelines,"** an innovative approach to controlling shoreline erosion and trapping nutrients to enhance habitats and water quality;
- **monitor water quality** to support river and bay assessments; increase understanding of the aquatic environment; and, ensure tax dollars are well spent.
- **educate and engage citizens** in behaviors that enhance and protect coastal resources, and; provide training and tools to support decision-makers in protecting coastal water quality and resources.

The Coastal States Organization and the National Estuarine Research Reserve Association helped organize this event and several others across the nation to celebrate the 40th anniversary of the CZMA and all the improvements to our coast the act has made possible.


*Sally Yozell, Director of Policy, and Senior Advisor to the Undersecretary of Commerce for Oceans and Atmosphere and Tommy Kellum of Kellum Seafood in Weems, discuss oyster restoration efforts in Virginia. Image by Virginia Witmer, Virginia CZM Program.*

*Teta Kain of Friends of the Dragon Run speaks to former Secretary Tayloe Murphy during the CZMA celebration. Secretary Murphy spoke at the event about the history of Virginia's water quality protection efforts including the creation of the Chesapeake Bay Preservation Act and the CZM Coastal Nonpoint Program. Image by Virginia Witmer, Virginia CZM Program.*

Read more about the accomplishments in the series of fact sheets produced by the Virginia CZM Program on the web at www.deq.virginia.gov/Programs/CoastalZoneManagement/DescriptionBoundary/Goals/Accomplishments.aspx.

Visit the NOAA National Ocean Service, Office of Ocean and Coastal Resource Management, CZMA 40th Anniversary web page - http://coastalmanagement.noaa.gov/about/czma40.html

- View a detailed CZMA timeline
- Download the CZMA 40th Anniversary History
- View a CZMA 40th Anniversary Video
- Read the Coastal Management Act

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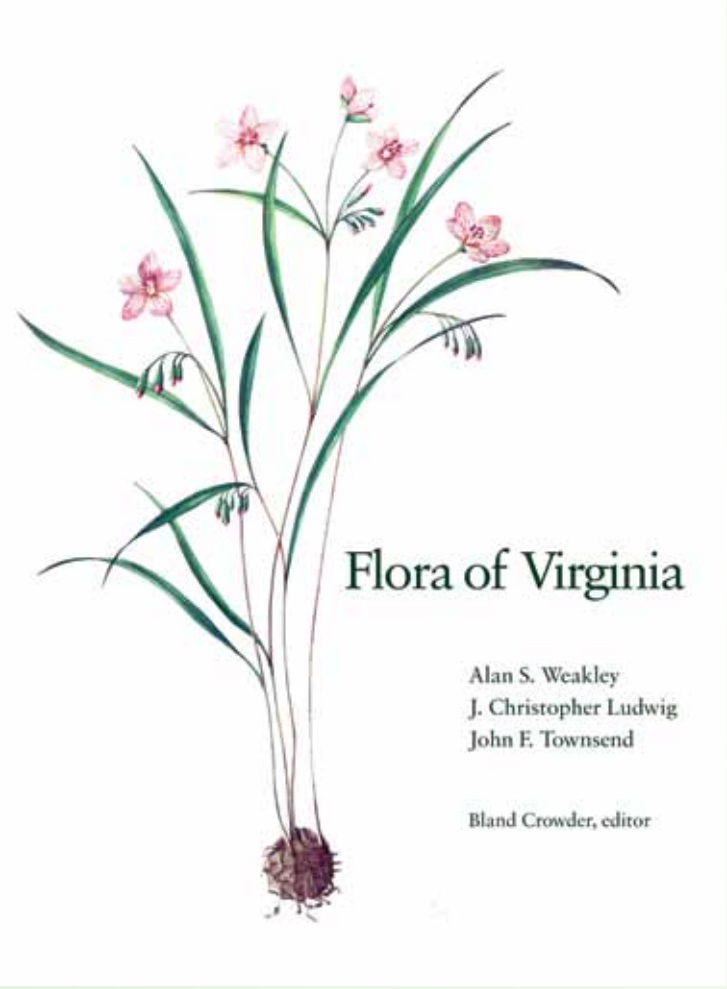


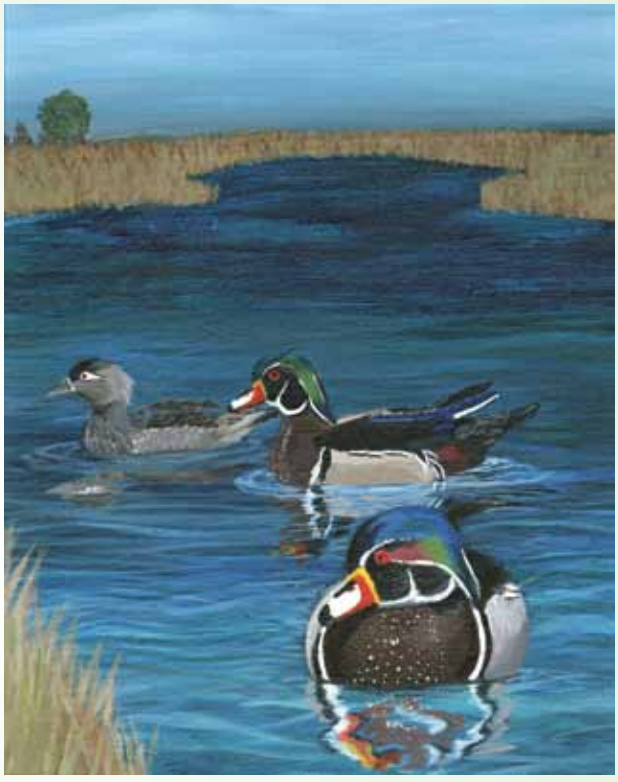

*(image above) "Wood Ducks" by Hartley Pruitt, Nandua High School –winner of the 2012 Eastern Shore of Virginia Birding and Wildlife Festival Poster Contest. For fall 2013 festival information bookmark www.esvafestivals.org.*

*(image left) Cover of the new Flora of Virginia. For ordering information, see page 18.*