



*Healthy Coasts, Healthy Communities:
Highlighting the Successes of the
Coastal Zone Management Act in Virginia*

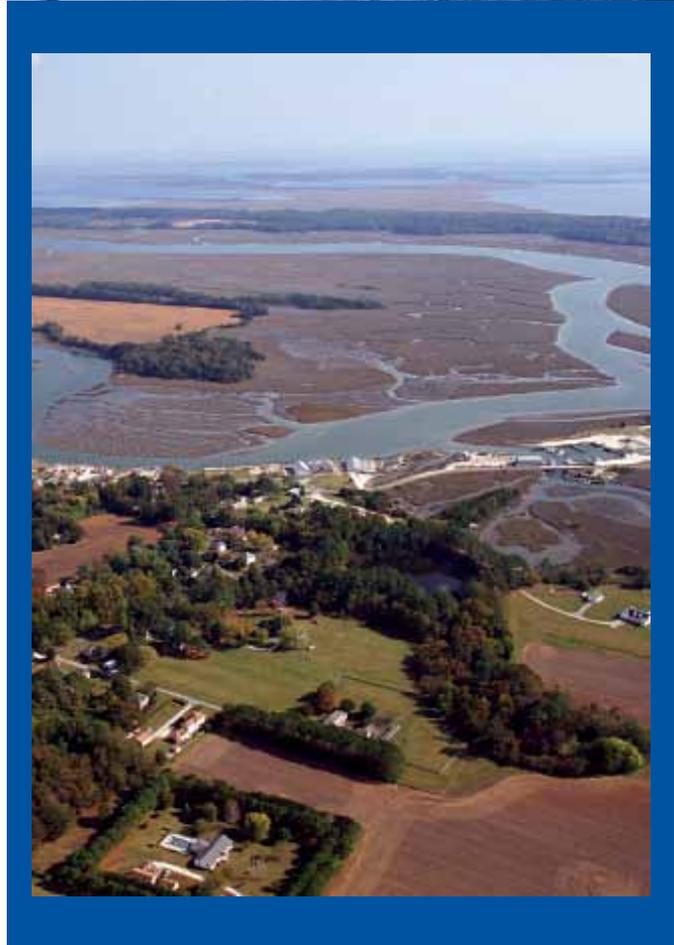


Hope Revived for a Seaside Treasure

Restoration success has brought new hope to the Eastern Shore through a public-private restoration partnership created by the Virginia Coastal Zone Management (CZM) Program in 2002 - the Virginia Seaside Heritage Program (VSHP). The VSHP focused on restoration of the aquatic resources of the barrier islands, bays, and salt marshes along the Atlantic coast of the Eastern Shore. This area holds tremendous potential to demonstrate appropriate management of economic development and habitat restoration within a rare and fragile ecosystem. The Virginia CZM Program and its partners have secured continuous funding (mostly from NOAA) for 10 years. Restoration efforts continue but the partners also are now working on management techniques and policies that will ensure appropriate uses and protect this global treasure through a Special Area Management Plan.

By fall of 2012, NOAA will have awarded nearly \$6 million in funding for marine restoration and management of Virginia's seaside bays. NOAA and its partners are bringing back eelgrass, bay scallops and oysters, protecting water quality for both wild and aquaculture fisheries, and stimulating the ecotourism industry.

One of the primary goals of the restoration has been to use our limited resources to catalyze nature's ability to heal itself. This is clearly happening on the seaside of Virginia's Eastern Shore, where 250 acres of eelgrass have now spread to almost 5,000 acres. Investments in habitat restoration like these will help protect the long-term economy of Virginia by stabilizing the natural resource on which many industries depend, from fishing to aquaculture to ecotourism. In fact experts estimate that within 10 years, bay scallops reintroduced into the area could grow to support a lucrative recreational fishery.





Seagrass Restoration Results

After a 1930's hurricane and a devastating disease, eelgrass disappeared from the seaside of the Eastern Shore, and with it bay scallops and other fish that depend on it as a protective nursery. But the Seaside Bays drain only about 300 square miles through at least eight openings to the Atlantic, which keeps water temperatures relatively cool, allowing for good eelgrass growth. Cooler water also retains more dissolved oxygen which is critical for finfish and shellfish.

So the Virginia Institute of Marine Science began planting test plots of eelgrass on the Seaside with NOAA funding from the Virginia CZM Program in 1998 to see whether it could be brought back. Based in part on the success of this effort, the Virginia CZM Program initiated a multi-partner Virginia Seaside Heritage Program (VSHP) in 2002. Between fall of 2002 and fall of 2008 about 200 acres of eelgrass seeds were planted by the Virginia Institute of Marine Science (VIMS). Through a NOAA Community Restoration grant, The Nature Conservancy (TNC) organized volunteers to collect reproductive shoots of eelgrass each spring, to protect them in tanks of circulating seawater over the summer, and then to scatter the seed overboard each fall.



TNC

Amazingly, by 2007 those 200 planted acres had spread to over 3,800 acres and by spring 2010 to almost 4,000 acres. In 2011 the Virginia CZM Program renewed its commitment to the effort and committed to several more years of funding to continue the eelgrass restoration work. By spring 2013 when the seed scattered in fall 2012 germinates and grows, there will likely be about 5,000 acres. The two dispersal strategies of eelgrass (floating flowering shoots transported out of the bed with viable seeds and seeds that float on the surface with an air bubble when released from the plant) have contributed to its rapid spread within the seaside bays of Virginia's Eastern Shore. As the eelgrass beds return, scientists have begun to notice an increase in biodiversity and fish abundance. The hope we all shared when we began this effort back in 2002, that bringing back the base of this ecosystem's food chain - the eelgrass - would revive the entire system, appears to be coming to fruition.



Oyster Restoration Results

Seaside oysters are a bit different from Chesapeake Bay oysters. They are saltier and often take on a more elongated shape. They also have found refuge in the hard to navigate small creeks that wind through the Seaside marshes. In 1998, Virginia CZM Program began providing NOAA grants to the Virginia Marine Resources Commission to construct oyster reefs on the Seaside. By summer of 2008, there were over 10 acres of Virginia CZM Program funded reefs and over 11 acres of reef constructed by TNC with funding from the NOAA Restoration Center, the Norfolk Foundation and the Virginia Aquatic Resources Trust Fund. A Virginia CZM Program funded inventory of oyster biomass completed by VIMS in December 2008 revealed 3.2 billion oysters on the Seaside, a number that far exceeded the 1.8 billion estimate for the Virginia portion of Chesapeake Bay.

Scallop Restoration Results

Perhaps in part due to the great success of the VSHP, NOAA awarded TNC, VIMS and MRC a two-year, \$2 million American Recovery and Reinvestment Act of 2009 “Stimulus Grant” to continue eelgrass, oyster and scallop restoration. VMRC had begun a few small scallop experiments under the VSHP, but this grant allowed VMRC, VIMS and TNC to undertake a much more concerted effort. So far, the bay scallops are doing well as VIMS has ramped up its onshore hatchery/nursery capacity. Bay scallops have been placed out in cages in the restored eelgrass beds to serve as spawning stock for the next generation and approximately 15,000 scallops have been released into the eelgrass beds, with more on their way through additional Virginia CZM Program grants to VIMS through 2014. But it will take several more years of effort to firmly establish this “ephemeral” species which has a short life span of only about two years.



Shellfish Aquaculture Results

To promote the sustainability of shellfish aquaculture, Virginia CZM Program funded VIMS and Virginia Sea Grant to develop a set of “Best Management Practices” that were endorsed by the shellfish growers. The practices include 30 items such as proper disposal of nets used to cover clams to protect them from predation, proper disposal of material cleaned from nets, assurance that motorized equipment is not leaking oil into the water, ensuring sediments are not overly disturbed during harvesting, and inspecting shellfish regularly for signs of disease. Removal of derelict clam netting (and crab pots used in harvesting wild crabs) was helped by the efforts of the Eastern Shorekeeper, also supported through the VSHP. Are shorebirds being affected by the large tracts of intertidal and shallow water clam farms on the Seaside?

After a year of studying abundance and distribution of shorebird prey in the mudflats with and without clam farming operations, VIMS concluded there was no observable negative effect on the birds. In fact many birds seemed to be eating organisms that were growing on the nets used to cover the clams – perhaps a mutual benefit to the shorebirds and growers.

Another benefit of these efforts is that the shellfish growers have re-formed a Shellfish Grower’s Association. Seaside SAMP efforts by Virginia CZM Program and its partners are also showing how wild shellfish harvests, shellfish cultivation and seagrass restoration could all be increased through changes to current regulatory boundaries.





Phragmites Control Results

Virginia CZM Program funding to its partner agency, the Virginia Department of Conservation and Recreation (DCR) allowed for Phragmites on the Seaside to be censused, mapped and removed. The largest patch was found on Wallops Island and covered 186 acres. About 2,000 acres of Phragmites were detected and mapped during each census, demonstrating that successful treatments and reductions are being offset by expansion of untreated patches and on-going establishment of new patches. From 2005 to 2008, over 4,630 acres of Phragmites were treated by DCR; however, areas where no control measures were taken showed annual increases of up to 17% in Phragmites cover. Clearly this will be a constant battle. Priority areas for control are those where rare bird habitat is most threatened since Phragmites-infested marshes become useless for many marsh-nesting birds.

Shorebird Restoration Results

The Seaside's barrier islands and marshes provide hemispherically important habitat for many rare and declining bird species. One reason for declines of beach nesting birds on the barrier islands is predation, particularly by foxes and raccoons. Red foxes are not native, but were brought over from England and while raccoons are native, their population has grown as humans have provided more food. Both pose a severe threat to the birds' eggs and chicks. The Museum of Natural History, with grants from Virginia CZM Program and help from The Nature Conservancy, was able to track the movements of these predators from mainland to islands and island to island through the use of radio collars. Once islands with minimal "traffic" were identified, the USDA began removing predators from those islands. Almost immediately the numbers of surviving chicks increased.



Several Virginia CZM Program grants to the Center for Conservation Biology have shown that Red knots and Whimbrels (*Numenius phaeopus, leff*) are relying quite heavily on the Seaside as a "rest stop" where they feed heartily before migrating long distances. One Whimbrel, outfitted with a satellite transmitter on her back, left the Seaside in May 2009 and flew more than 17,000 miles in less than a year. She went from the Seaside of Virginia to Hudson Bay, on to Alaska and then on to the Virgin Islands for the fall and winter and then returned to the Seaside. This bird, aptly named "Hope," was still wearing her transmitter as of fall 2012 and has continued on the same migration route, always stopping at the same spot on the Eastern Shore.

Ecotourism Results

The ecotourism potential of the Seaside is tremendous. Supporting its growth has been a focus of Virginia CZM Program, which funded a Seaside Water Trail, canoe/kayak floating docks, a Wildlife Observation Platform, interpretive signage and other amenities. One way to help make ecotourism sustainable is to have certified Ecotour guides leading trips. Virginia CZM Program funds to VIMS and the Eastern Shore Community College supported creation and delivery of an Ecotour Guide Certification Program. These classes resulted in 23 certified ecotour guides and 5 certified ecotour guide instructors. Providing public access and investing in the conservation of special coastal places go hand in hand. Virginia CZM Program funds also helped expand Kiptopeke State Park and create the Magothy Bay Natural Area Preserve. Tourism revenue in Northampton County increased 11.2% in 2011, the highest jump in revenue in the state.

Mapping Our Future Efforts

In addition to being a hemispherically important ecosystem, the Seaside of Virginia's Eastern Shore 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 these partner restoration successes, Virginia CZM Program is 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 public and private shellfishing and habitat restoration/protection occur) 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. More could be made of the space so that opportunities for more seafood production and more restoration are not wasted.

A Seaside Special Area Plan is the Virginia CZM Program's first foray into "marine spatial planning." Lessons learned through this effort will help with larger planning efforts in the Mid-Atlantic Ocean. The ocean uses will differ (e.g. shipping, military practice, offshore wind farms) but a new marine spatial planning process that allows citizens to help create greater efficiency, flexibility, productivity and sustainability for our marine ecosystems is on the horizon.





For more detail on the accomplishments of the Virginia Seaside Heritage Program and future restoration and marine spatial planning efforts:

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<http://www.deq.virginia.gov/Programs/CoastalZoneManagement/CZMIssuesInitiatives/VirginiaSeasideHeritageProgram.aspx>