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# Sustainable Shorelines and Buffer Area Management Practices

## Option Description

Shoreline erosion is a significant issue facing Maryland's diverse coastal environment. Approximately 70% of Maryland's 7,700-mile shoreline is experiencing some degree of erosion, which will worsen as a result of increased rates of sea level rise, and increased frequency and/or intensity of coastal storms from climate change. Comprehensive shoreline management must be an integral part of any future erosion control planning effort, and should be aimed at striking a balance between protection against erosion and preserving natural shoreline processes and habitats. Natural shorelines are essential for maintaining and promoting important aquatic and terrestrial habitats, trapping sediment, and filtering pollution. Past efforts to mandate local shoreline erosion control plans under the Critical Areas law were unsuccessful due to a number of factors. An increased understanding of non-structural and structural erosion control alternatives at the practitioner level; new mapping resources, shoreline inventories and web enabled analytical tools are now sufficiently in place to facilitate such plans. Adopting a collaborative state-local approach to developing such plans will maximize the odds of success in designing and implementing a specific shoreline erosion control practice that achieves a balance between protecting land and minimizing disruption to the coastal environment.

This option recognizes the need for both planning and permitting level efforts. Modifications to the Tidal Wetlands and Critical Areas laws and/or regulations should be made to promote sustainable shoreline and buffer area management practices on public and private lands. These efforts should incorporate the following elements:

- A requirement for state and local governments to cooperatively develop comprehensive shore erosion management plans that determine and specify the type and location of shore protection practices based on their physical and hydrodynamic setting. Where conditions are appropriate, additional attention should be given to encourage the use of living shorelines as a means to manage a continuum of habitat and natural resource features that extend from shallow water habitats, beaches and wetlands to upland forested buffers.

- Amendments to State statutes and regulations to remedy jurisdictional gaps and conflicts between State and local governments within the 100-foot Critical Area buffer.

- A requirement for permit applicants to demonstrate that their preferred erosion control alternative is least disruptive to the shoreline and critical area buffer; and has the least potential to adversely affect natural resources subject to long term erosion. Current tidal

wetland regulations provide an order of preference for shore erosion control measures which progress from no action to the installation of soft and hard structures.

- A reorientation of DNR's Shoreline Conservation and Management Program (formerly the Shore Erosion Control Program) to promote the installation of innovative shore protection techniques that maximize habitat restoration and enhancement, and accommodate for projected SLR.

- A revision to current tidal wetland regulations enabling private land owners to rebuild storm damaged tidal marshes, including the placement of additional clean sandy fill, plants and temporary biodegradable structures to protect rebuilt areas. Currently, introducing clean sandy fill material requires a state permit, while simple planting of wetland species on existing substrate in the correct hydrologic and salinity regime does not. Repairs would be authorized only if conducted under guidelines issued by the Maryland Department of Environment.

- A requirement directing state agencies to jointly develop and maintain up-to-date guidelines that describe preferred shoreline and buffer management practices that will facilitate climate adaptive strategies for coastal environments subject to sea level rise, erosion and storm hazards. This is to include modifications to existing designs and/or the creation of new design and construction standards and protocols for shore erosion control structures – both new and retrofit, to accommodate projected SLR.

- A mechanism to update the Maryland Comprehensive Shoreline Inventory (CSI) to include type and quantity, location, and conditions of shore erosion control structures, on the order of every 5 years. This could be linked to the permitting process, to create a system for automatic entry and updates to the database for projects being proposed and implemented.

## Option Design

- **Targets:**

There are 4 key targets associated with this option, as outlined below:

- Implement recommended regulatory requirements for 100% of the area subject to tidal wetlands permitting authority.
- Work with an interdisciplinary team with expertise in wetlands, coastal processes, biology, restoration, and coastal erosion control design and engineering to modify and/or create new design and construction standards for erosion control structures and tidal shoreline habitat enhancement projects.
- Distribute modified/new design and construction standards to engineering, contractor, local governments, NGO's and property owner communities. Appropriate training will be developed for engineering and contracting outfits in order to transfer critical information about the design and installation of these innovative techniques.
- Development of a strategy for updating the Maryland Comprehensive Shoreline Inventory every 5 or 10 years.

- **Timing:** Adopt required regulatory changes by 2009; promulgate guidance manual and attendant training programs by 2010; have a strategy for updating CSI in place, with the first subsequent update by 2010; following CSI update, initiate shoreline management plans in 2011 with target completion date for plans by 2013.
- **Parties Involved:** Critical Areas Commission, Maryland Department of Environment, Maryland Department of Natural Resources.
- **Other:** Resource Conservation and Development agencies; local governments in the coastal zone; Board of Public Works, Wetlands Administrator; engineering, contracting, and property owner communities; Army Corps of Engineers and other federal resource management agencies; the Center for Coastal Resources Management (VIMS); and others.

## Implementation Mechanisms

Implementation of this option will include a combination of executive, legislative and programmatic actions. The first step is the regulatory amendments to Title 16 of the Environment Article (Wetlands and Riparian Rights Act) to remedy jurisdictional gaps between State and local governments within the 100-foot Critical Area buffer and revise permitting process; modifications to COMAR Title 27 "order of preference" for shoreline protection treatments; and the Annotated Code of Maryland's Natural Resources Article (§8-1001 through 8-1008) to reorient the Shoreline Conservation and Management Program (formerly the Shoreline and Erosion Control Program) at DNR. Second, updated design and construction standards and protocols for SEC structures – both new and retrofit, should be developed to accommodate projected SLR. These guidelines should be distributed to the engineering, construction, and property owner communities via state agencies, county planning offices, and Resource Conservation and Development agencies.

Additional programs that would support the implementation of this option could include professional development programs for contractors and permit reviewers to establish a quality control mechanism, revitalizing and expanding the financial assistance program through DNR's Shoreline Conservation and Management Program, and an outreach program for local governments and waterfront landowners.

## Related Policies/Programs in Place

A number of state and federal sponsored activities and programs are currently underway that relate to this option, including:

1. The *Shoreline Conservation and Management Program* (formerly the *Shore Erosion Control (SEC) Program)*, Department of Natural Resources, provides subsidies and technical assistance for non-structural projects to Maryland property owners in resolving shoreline erosion problems along the Chesapeake Bay and its tributaries.
2. The *Comprehensive Coastal Inventory (CCI) Program* through the Center for Coastal Resources Management at the Virginia Institute of Marine Science. This program has developed shoreline situation reports for the Maryland *Comprehensive Shoreline Inventory (CSI),* which include land use, bank conditions, and shoreline features (including erosion control structures). The inventory captures baseline shoreline

conditions throughout the tidal portions of Maryland's coastal counties. The CSI can be used as a state and local planning tool to inventory and assess coastal infrastructure vulnerable to sea level rise inundation or coastal flooding.

3. The Department of Natural Resources, various programs are conducting sea level rise and storm surge mapping.
4. The Department of Natural Resources Green and Blue Infrastructure Assessments.
5. Strategic Shore Erosion Assessment (SSEA). From 2000 – 2002, a NOAA Coastal Services Center Coastal Management Fellow worked with the Maryland Coastal Program to initiate the development of a comprehensive approach to shore erosion planning for Maryland. The Fellow was tasked with developing a protocol to create regional strategies to deal with shoreline erosion issues. The Fellow worked closely with two counties, Dorchester and St. Mary's, to identify an approach to balance the need to address risk from erosion, while also maintaining natural shoreline habitat.
6. *Erosion Vulnerability Assessment (EVA)*. The Maryland Coastal Program in conjunction with VIMS, the Corps of Engineers and MDE, is participating in the development of *EVA* as a component to the Chesapeake Bay Shore Erosion Control Feasibility Study and Master Plan. This assessment is designed to evaluate stretches of shoreline and prioritize these areas for erosion control activities. The outcomes of the project will include outreach material for marine contractors and homeowners, and a guide for potential shore erosion management activities for various government agencies.
7. *Living Shorelines Suitability Tool*. The Maryland Coastal Program and VIMS are creating a tool for Worcester County that identifies areas that are not suitable for living shoreline treatments, those that are suitable and those that may be suitable with design restrictions. This tool is slated for completion in September 2008.
8. The *Living Shorelines Stewardship Initiative (LSSI)* is a collaborative effort by various public and private entities to promote the use of "living shorelines" (i.e. vegetated buffers) to waterfront property owners.
9. The Maryland Coastal Program currently offers "living shorelines" outreach and education workshops for marine contractors and homeowners. Among other aspects, these courses focus on the designs, installations, and benefits of "living shorelines".

## Feasibility Issues

The 2008 Maryland General Assembly is currently considering 2 bills that will likely impact the suite of recommended actions identified under this policy option. The final outcome of their deliberations will yield significant insights regarding the feasibility of implementing the option as currently envisioned.

The first bill, HB 973 – The Living Shorelines Protection Act of 2008, directs any erosion control projects to consist of nonstructural shoreline stabilization measures that preserve the natural environment, such as marsh creation, wherever technologically and ecologically appropriate. This bill includes a rebuttable presumption that the property owner is responsible for demonstrating to the Maryland Department of the Environment's satisfaction that such nonstructural measures are not feasible.

The second bill, cross listed as HB1253/SB844 – The Chesapeake and Atlantic Coastal Bays Critical Area Protection Program - Administrative and Enforcement Provisions, is an Administration bill that makes several changes to the Chesapeake and Atlantic Coastal Bays

Critical Area Protection Program. In general, the changes provide greater authority to the Critical Area Commission; update the basic components of the program, including the Critical Area boundary; enhance buffer and water quality protection; coordinate new development more closely with Smart Growth principles and other environmental protection/planning processes; and strengthen enforcement and variance provisions.

An additional consideration in the feasibility of this recommendation includes a need to address professional development opportunities for the marine contracting industry. At present, there are limited marine contracting companies that are capable of designing and installing these innovative and nonstructural approaches to shoreline erosion control. Many companies have focused on structural erosion control techniques, such as rip-rap and bulkheads. To help ensure a smoother transition toward broader implementation of nonstructural and hybrid techniques, additional offerings of contractor training are a logical approach. The Department of Natural Resources and other participating partners, have conducted a limited number of training sessions to address this emerging need. However, more training is needed to transfer critical information about the design and installation of proven control practices that may also maintain or enhance coastal processes and habitats. Additional training will increase the likelihood of successful installations and boost property owner confidence in the benefits of increased state oversight.