Living Shorelines Stewardship Initiative

For purposes of this initiative, "Living shoreline treatment" is:

A shoreline management practice that provides erosion control benefits; protects, restores or enhances natural shoreline habitat; and maintains coastal processes through the strategic placement of plants, stone, sand fill and other structural and organic materials.

On-going funding for management of the LSSI comes from The Keith Campbell Foundation for the Environment. Partners and supporters of the LSSI include:

The Chesapeake Bay Foundation

University of Maryland Center for Environmental Studies

Virginia Institute of Marine Science

Maryland Department of Natural Resources

U.S. Fish and Wildlife Service Chesapeake Bay Field Office

Longwood University Foundation

Coastal Design and Construction

Flood Brothers Marine Consultants

South River Federation

Chesapeake Bay Trust; and

Chesapeake Bay Environmental Center.

The Living Shorelines Stewardship Initiative (LSSI) is a collaborative project that is supported by several public and private entities.

- The overall goal of the LSSI is to improve water quality and enhance habitat for living resources in the Chesapeake Bay through the shoreline management efforts of individual waterfront property owners.
- Key strategies to reaching the goal include: using science to drive appropriate types and locations for "living shorelines" treatments; and facilitating the institutionalization of living shorelines approaches through contractors and shoreline management policy makers.
- The ultimate desired outcome is to have: "Maryland and Virginia shorefront property owners routinely consider and frequently choose living shoreline alternatives as their preferred shoreline management treatment".

"Living shoreline" treatments can be used to reduce sediment and nutrients by stabilizing shorelines primarily in low and medium wave energy areas and to establish vital habitats that help sustain or enhance a variety of plant communities, beach strand habitat and living resources found at the water's edge. These naturalized shoreline treatments emphasize the use of techniques such as:

- marsh plantings
- supplementary beach nourishment
- low profile breakwaters and sills
- small artificial island systems; and
- strategically placed structural and organic materials (e.g. biologs, oyster reefs etc.)

The purpose of these treatments is to restore or protect critically important habitat for living resources by facilitating natural coastal processes such as sediment trapping and nutrient reduction; wave attenuation; free movement of sands, sediment and gravel in the littoral zone and detritus cycling.

The Case for Living Shorelines

Most residents and visitors to the Chesapeake Bay are familiar with the expansive and inspiring scenes of the Chesapeake's fringe marshes.

Many of these individuals understand the importance estuarine wetland systems have in maintaining a healthy Bay. At the same time scientists are warning us about the coming widespread loss of these wetlands from the steady onslaught of sea level rise, damage from invasive and nuisance species and the relentless hardening of our shorelines. Recently, attention is being paid to the concept of making more widespread use of "living shorelines" at the land - water interface.

Many shorefront landowners are unaware of these techniques and would prefer a natural shoreline to hardened shorelines such as stone revetments or bulkheads. These private shorefront property owners collectively control the majority of Maryland and Virginia's shoreline and thus, represent a significant opportunity to improve the water quality and habitat of the Chesapeake and Coastal Bays. For this reason, a Living Shorelines Stewardship Initiative has been initiated.

Benefits to Property Owners Include:

- Reduced costs (in many situations) over traditional shoreline stabilization techniques;
- Creating a more habitat friendly shoreline that will help improve local water quality and enhance wildlife; and
- Providing opportunities for enhanced property values as more waterfront home buyers are educated about the amenity features of living shorelines, such as, improved water access and aesthetics.

Components of the LSSI

The LSSI represents a specific approach to achieve a property owner-based contribution toward improving water quality and living resource habitat in the Bay.

The Campbell Foundation funded Living Shorelines Stewardship Initiative represents a 3 to 5 year commitment involving collaborative partnerships between private and public organizations to complete specific activities that will contribute to reaching the goal.

Achieving the outcome of "property owners routinely considering and frequently selecting appropriate living shorelines treatments" involves two primary efforts: 1) technical documentation of living shoreline practices and 2) an educational outreach campaign. The focus of the campaign is to provide scientific and basic technical information about living shorelines installation techniques, associated costs, risks, ecological and other benefits. Key messages and materials have been developed for waterfront property owners. Educational outreach presentations to groups such as realtor and homebuilder associations; watershed organizations; and homeowner associations have also occurred throughout the region.

Facilitating the institutionalization of living shorelines approaches through contractors and shoreline management policy makers will require specific science and technically driven activities. These activities include:

1. field assessments of living shoreline projects that document physical and biological changes and future implications associated with various treatment types;
2. strategic selection of sites to demonstrate different living shoreline treatment techniques in a variety of geographic locations;
3. development of design guidelines and location criteria to help institutionalize effective treatment practices; and
4. training of professional contractors to expand business opportunities and acquaint them with living shoreline construction techniques.

The LSSI Components:

1. *Project Management & Oversight -*

The Campbell Foundation for the Environment has committed grant support for a project manager and other entities to provide continuity for the duration of the project and overall coordination to ensure that each component of the LSSI results in a cohesive series of end products that achieve results.

LSSI Technical Committee members in the field.

2. *Strategic Demonstrations of Living Shoreline Treatment Types –*

To demonstrate and interpret living shoreline practices that hold strong promise for successful, widespread application, the LSSI will participate in a select number of demonstration projects. A goal of 5 project sites has been identified. The demonstrations will be funded primarily through competitive grant programs.

Four projects have been completed:

1) An innovative stone bulkhead naturalization project, in cooperation with the U.S. Fish and Wildlife Service and the Girl Scouts at Camp Whippoorwill in Maryland;

2) A timber bulkhead naturalization project on the South River of Maryland in cooperation with the Chesapeake Bay Foundation and South River Federation;

3) Hull Springs Farm and Lower Machodoc Creek living shorelines framework and demonstration plantings in cooperation with the Longwood University Foundation and several other partners in Virginia. Narrow fringe marsh plantings on existing substrate have been completed and an innovative sill structure and fringe marsh creation project has been designed and will be constructed in 2007.

A Spartina alterniflora test plot planted at South River Farm Park.

4) A virtual and on-site interpretive tour in cooperation with Jefferson Patterson Park and Museum in Maryland. This site contains several different erosion control techniques.

3. *Field Assessments -*

Horn Point researcher, Dr. Court Stevenson, conducting a marsh assessment.

Field surveys and assessments investigating the physical and biological responses of past and emerging living shoreline treatments are needed to better understanding how variations in treatment type designs, maintenance & other factors affect structural integrity, coastal processes, biological and water quality factors.

Three separate assessment projects funded by the Chesapeake Bay Trust, the Campbell Foundation and Maryland Department of Natural Resources have been completed. A variety of living shoreline treatments in 8 different locations have been assessed in Maryland by the University of Maryland Center for Estuarine Science, Horn Point Laboratory and Burke Environmental Associates.

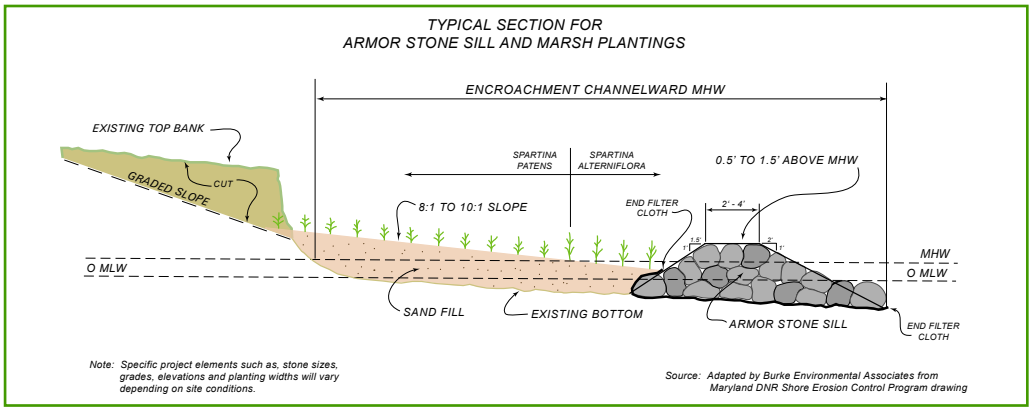
In Virginia, VIMS researchers were funded by the Campbell Foundation to conduct a similar field assessment of a representative number of living shorelines projects. Their assessment examined the effectiveness of marsh toe revetments and sill structures in reducing shoreline erosion and their effects on the shoreline environment.

4. *Design Guidelines and Location Criteria –*

The development of general design guidelines and site location criteria is needed to help property owners, regulators, contractors and other professionals understand what treatment types are most appropriate for particular shoreline environments.

A National Fish and Wildlife Foundation grant to The Chesapeake Bay Foundation to develop a Living Shoreline and Estuarine Restoration Framework for the South River of Maryland was made in 2004. The project will develop, among other deliverables, suggested alternatives and guidelines which support the recommended treatment types. It is hoped that the approach will be transferable to other major tributary systems in the Chesapeake Bay.

VIMS researchers have received NOAA grant funds to develop a comprehensive rationale for the expanded use of living shorelines for tidal shoreline protection in Virginia. The project seeks to define a series of metrics to classify shorelines suitable for "soft shoreline control". VIMS field assessment work, recently funded by the Campbell Foundation, would be incorporated into a broad array of data needed to develop the VIMS classification framework.



Rob Schnabel, restoration expert with the Chesapeake Bay Foundation, discusses design elements of a living shorelines project.

5. Contractor Training -

The acceptance, understanding and support of living shorelines techniques are needed within the contractor community to provide on-the-ground results to property owners. Few contractors are routinely involved with living shorelines approaches and more trained providers may be needed to fulfill the potential demand generated by a successful advocacy campaign.

An initial effort has been completed which developed training workshops that address: a) the living shoreline concept; b) securing permits and local approvals for projects; c) design elements and guidelines.

VIMS sponsored a training workshop aimed at contractors and others that highlighted different types of living shorelines techniques and their ecological value.

A number of organizations who are working to advance living shoreline treatments held a marine contractor workshop in Maryland, during the Spring of 2005. Entities participating in the workshop included: Chesapeake Bay Foundation; Chesapeake Bay Environmental Center; Maryland Department of Natural Resources; and Burke Environmental Associates.

6. Outreach Presentations -

Sponsoring organizations are being sought to host and participate in educational and training sessions relating to the LSSI. The intent is to execute a broad scale, face-to-face campaign that shares important and motivating information designed to prompt shoreline owners into taking action by installing appropriate living shoreline treatments. The LSSI manager is available for on-site group presentations.

Living Shoreline site on the South river managed by Anne Arundel County.

For more information about the Living Shorelines Stewardship Initiative and how you can participate contact the Campbell Foundation's LSSI project manager:

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