

## Living Shorelines Benefit You By:

- Reducing bank erosion and property loss to you or your neighbor
- Providing an attractive natural appearance
- Creating recreational use areas
- Improving marine habitat & spawning areas
- Allowing affordable construction costs
- Improving water quality and clarity



Medium energy eroding marsh before (above) and after living shoreline treatment (below).  
Photos of Hermitage Site by Walt Priest



Offset (above) and straight gaps (below) maintain connections to shoreline habitat and open water.



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## Remember:

Any action on a single shoreline has the potential to impact adjacent shorelines.

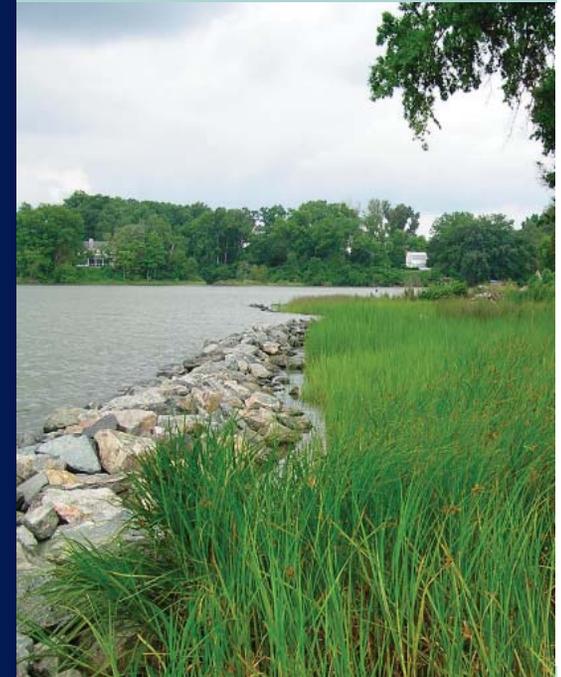
Shoreline alterations should be avoided where they are not really necessary. When erosion along a shoreline has the potential to result in significant loss of property and upland improvement, then the consideration of shoreline erosion protection activities may be appropriate.

Preserving, creating or enhancing natural systems such as marshes, beaches and dunes is always the preferred approach to shoreline erosion protection.

*“Preserving our coasts one shoreline at a time”*

# Living Shorelines

*An approach to shoreline management and erosion issues that is better for the environment and property owners*



For more information:  
[www.vims.edu/ccrm/outreach/living\\_shorelines](http://www.vims.edu/ccrm/outreach/living_shorelines)

Have a question about your living shoreline?  
Email: [CCRMinfo@vims.edu](mailto:CCRMinfo@vims.edu)

**Visit our Website:**  
[www.vims.edu/ccrm/outreach/living\\_shorelines](http://www.vims.edu/ccrm/outreach/living_shorelines)

# Living Shorelines Overview



## What Are Living Shorelines?

A “living shoreline treatment” is a shoreline management practice that addresses erosion in lower energy situations by providing for long-term protection, restoration or enhancement of vegetated shoreline habitats. This is accomplished through the strategic placement of plants, stone, sand fill and other structural and organic materials.

## Concern

Virginia has nearly 5,000 miles of shoreline, marshes, beaches, and tidal mudflats which provide habitat for a wide variety of plants and animals.

These marshes and wetlands are threatened due to relative sea level rise caused by climate change, coastal subsidence (or sinking) and manmade impacts.

In Virginia, an average of 16 to 18 miles of new shoreline structures were permitted each year from 2000 to 2007.

Armoring the shorelines with bulkheads or seawalls threatens landscapes, public access, recreational opportunities, natural habitats, water quality, and contributes to erosion of adjacent shorelines. These factors could reduce the number of fish, crabs, and birds that depend on coastal habitats.

## Services

Living shorelines provide valuable ecological services. These services include water quality improvement, aquatic habitat, tidal water exchange, sediment movement, plant community transitions, and improved groundwater flow. Some treatments preserve wetlands by allowing their gradual landward retreat as sea levels rise.

Living shoreline treatments maintain natural processes and connections between riparian, intertidal and aquatic areas.



## Design

Several design options (see below) exist for living shorelines depending upon your site characteristics.

Non-structural design options are most suitable in very low energy settings where upland riparian and marsh vegetation can be emphasized. Existing tidal marshes or beaches, low banks with few trees and very minor boat wake activity indicate suitable site conditions for non-structural design options.

Where wave energy and erosion conditions prevent the use of non-structural methods, structures can be used to support planted or natural tidal marshes and sand beaches.

A combination of options may also be appropriate, such as bank grading with a planted marsh.

## Site Specs

Several site characteristics can be used to evaluate the potential success of a living shoreline. These characteristics include:

- Fetch or distance across open water of 3 miles or less
- Low bank height and no strong tidal currents
- Location of shoreline in relation to prevailing winds
- Existing marsh, submerged aquatic vegetation, or trees and shrubs near the project site
- Minimal erosion and wave activity
- Shallow water depth near the shoreline
- Abundant sunlight

Managing shoreline erosion is a complex subject. Always seek professional guidance for the design of your project.

For image galleries of design alternatives, please visit [www.vims.edu/ccrm/outreach/living\\_shorelines/design](http://www.vims.edu/ccrm/outreach/living_shorelines/design)

See story maps of resilient living shorelines in Virginia and beyond [www.adaptva.com/info/adaptations.html](http://www.adaptva.com/info/adaptations.html)

## Non-Structural Options

Shoreline Vegetation Management, Beach Nourishment & Dune Restoration, Tidal Marsh Enhancement, Tidal Marsh Creation, Bank Grading, and Fiber Logs.

## Structural Options

Marsh Toe Revetment, Marsh Sill, Marsh with Groins, Offshore Breakwater System, and Oyster Reef.