

Living Shorelines

a natural solution

Shoreline Restoration, Lewes Ball Field

Background

A “Living Shoreline” is a method of bank stabilization that reinforces the shoreline to protect coastal properties from erosion, while also restoring and enhancing fish and wildlife habitat. Unlike bulkheads and revetments, Living Shorelines use natural materials to maintain existing connections between the shoreline and aquatic areas. A number of Living Shoreline materials and tactics are available, including coconut fiber logs, fiber matting, recycled shell, and native wetland vegetation. Living Shorelines have been built throughout coastal regions and are a popular option for bank stabilization because they protect property from erosion while attracting fish and shellfish, filtering stormwater, and absorbing wave energy during storms.

Lewes Ball Field Approach

This restoration site was constructed to address an undercut and deteriorating existing salt marsh shoreline. The site is exposed to low energy for the majority of the time with peaks of energy from boats launching from the boat ramp on the opposite shoreline. The site has low enough energy, so standard vegetated living shoreline tactics were selected. Shorelines subject to high wave energy may require marsh sills or offshore breakwaters but should only be used when necessary.

The slope of the eroding shoreline required two tiers of coconut fiber logs staked on top of each other to reach the optimal elevation for *Spartina* grass. The first round of coconut fiber matting and logs were positioned in the intertidal zone before being staked down and tied in place. Oyster shell bags were then arranged in front of the coir logs to further armor the shoreline and absorb wave energy. The next step was to allow sediment to fall out of the naturally turbid water into the cells created by the coconut fiber logs.

Example: Completed Shoreline project at the Heislerville Fish & Wildlife Management Area's Marina in New Jersey



May 2010

Coir materials installed, but prior to planting



June 2011

One year later plants established

Permitting

Authorization under the Statewide Activity Approval (SAA) for Shoreline Stabilization Projects is available for Living Shorelines in Delaware. For projects under 500 linear feet using native marsh vegetation this expedited permitting process costs half the price and is issued sooner than standard permits. A federal permit is also required, with the Lewes Ball Field project meeting the requirements to be permitted using Army Corps Nationwide Permit No. 27 for “Aquatic Habitat Restoration”. Permitting information can be found at: <http://de.gov/wetlandpermits>.

More Information



Delaware Department of Natural Resources and Environmental Control

Division of Watershed Stewardship
302-739-9939

<http://de.gov/delawarewetlands>



Partnership for the Delaware Estuary
302-655-4990

<http://www.delawareestuary.org/>



Delaware Center for the Inland Bays
302-226-8105

www.inlandbays.org

<http://www.delawareestuary.org/living-shorelines>

Status and Next Steps

This Living Shoreline project was installed on April 14-17, 2014. After 6 months enough sediment had built up inside the shoreline that the second tier of coconut fiber logs were installed on October 20, 2014. The second tier of logs will allow sediment to continue to accumulate and raise the elevation to the optimal growing elevation for Smooth Cordgrass. The site will be planted in March/April 2015 with Smooth Cordgrass. Spring planting will allow vegetation to take root throughout the growing season before winter storms.

Living Shorelines may need augmentation over the years. However, successful projects throughout the Mid-Atlantic have survived multiple hurricanes!

Costs

Below is a comprehensive list of materials used for the Living Shoreline site at the Lewes Ball Field and their associated costs. Like all shoreline restoration projects, costs can vary greatly depending on the extent of the project, whether sand fill is needed, and if additional structures are installed for higher energy sites.

Cost-Share Program: To aid landowners installing Living Shorelines on their property, the Sussex Conservation District and DNREC provide cost-share assistance for many living shoreline projects. Cost-share is paid at 50% of the actual project cost, up to \$5,000 for projects anywhere in DE. For additional information: <http://www.sussexconservation.org/programs/cost-share-program>.

ITEM	PRICE	NOTES	Quantity	Cost	per ft
Coir Logs	\$127.89	12' x 16" log	19 logs	\$2,429.91	\$28.93
Coir Mat	\$201.60	165 linear ft	2 roll	\$403.20	\$4.80
Twine	\$40.00	1 roll	1 roll	\$40.00	\$0.48
Spartina plugs	\$0.50	1 per sq ft	800 plugs	\$400.00	\$4.76
4' stakes	\$1.95	12 per log	228 stakes	\$444.60	\$5.29
Oyster shell	\$5.00	per linear ft	84ft	\$420.00	\$5.00
TOTAL=				\$4,137.71	\$49.26

Want more information?

Ask the Delaware Living Shoreline Committee

What: The Delaware Living Shoreline Committee is a voluntary group of state, private and non-profit professionals coordinating research, funding and opportunities for living shoreline projects in Delaware

When: The committee meets quarterly

Contact: For information or to attend a meeting call Danielle Kreeger at 302-655-4990 or Alison Rogerson at 32-739-9939

Pre-installation winter 2013



Installation spring 2014



Summer 2014



Installation Phase 2 fall 2014

