



Bethany Loop Canal

Living Shoreline and Wetland Restoration

Project Completed June 2015

This 'living shoreline' project is a demonstration of a design-alternative to hardened shoreline structures and aims to stabilize and restore 350 feet of eroding shoreline without bulk-heading, rip-rap or other hardened structures.

On a stormy day that demonstrated the forces of wind and water on the marsh edge, Project Manager Bob Collins stands on the eroded shoreline of the project site before work began.



Background

As communities have developed around the Bays, long stretches of shoreline have been hardened with stone rip-rap or bulkheads. While these methods can be effective in halting erosion, they take a big toll on bay life, such as loss of natural shoreline for horseshoe crab spawning. The Center for the Inland Bays (CIB) Living

Shoreline Initiative aims to turn the tide on this trend. Use of more natural alternatives for shoreline stabilization will provide more habitat for fish and wildlife and help rebuild tidal marshes lost to erosion and sea level rise. This is the first of five planned projects to be installed around the Inland Bays that will demonstrate living shoreline materials and techniques. Demonstration sites, like the Loop Canal project will provide opportunities for the public and marine contractors to see and learn about living shoreline alternatives to hardened shorelines such as riprap and bulkheads.

Project Objective

The project site is located on the Bethany Beach Loop Canal, just west of Route 1, behind the National Guard Training Center, at the south end of Salt Pond. The site can be seen in the aerial photo at the top of the page. Residents in the community seen on the left side of the photo were concerned about erosion on the narrow strip of land (at the center of the photo) that protects their community from wind-driven waves, and sought the help of the CIB.

The marsh edge on the northern side of the 'strip' was eroding due to waves driven by prevailing winds across Salt Pond (top photo at right). To halt erosion and begin to rebuild the marsh shoreline, an offshore breakwater made from logs was installed to dampen wave energy before the waves come ashore and a series of "cells" were constructed along the shoreline to trap sediment so that the marsh can rebuild (bottom photo at right). Over time, the restored marsh will be 'knitted together' with the roots of native salt marsh grasses that will grow on the restored shoreline.

Project Lead

Bob Collins, Project Manager
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Partners

- Town of Bethany Beach—Land Strip Committee
- Department of Natural Resources and Environmental Control (DNREC) Division of Parks and Recreation-Mosquito Control Section
- Delaware National Guard
- Design: Cardno, Inc.

Funding Partners

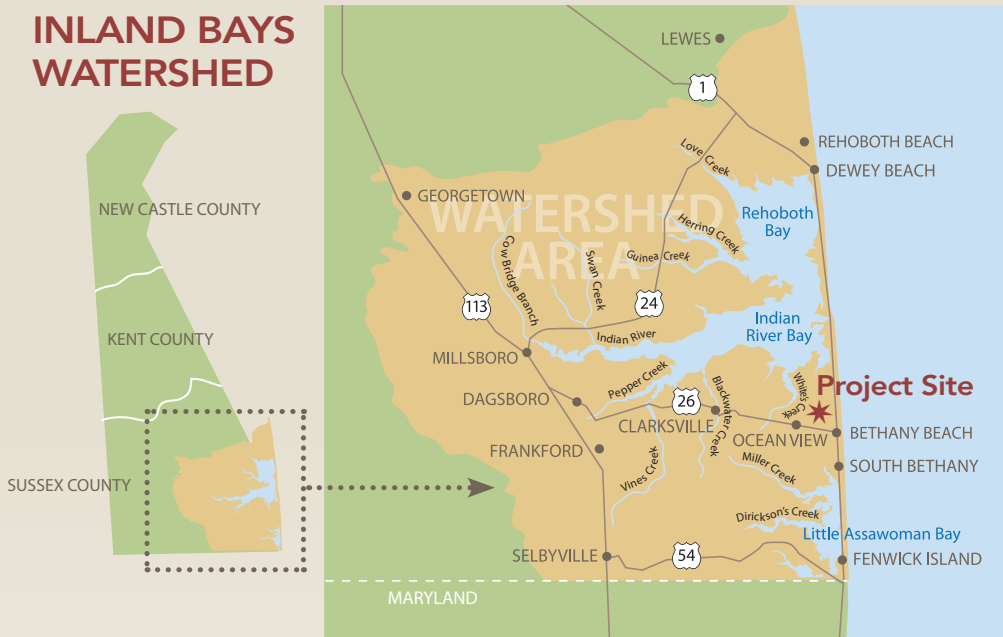
- Community Water Quality Improvement Grant
- US Environmental Protection Agency
- DNREC
- Town of Bethany Beach

And YOU—

CIB members who are on board with the Bays and make these projects possible.



INLAND BAYS WATERSHED



This project fulfills objectives outlined in the Comprehensive Conservation Management Plan (CCMP) for the Delaware Inland Bays-Managing Living Resources and Their Habitat

CCMP Action Plan Objectives

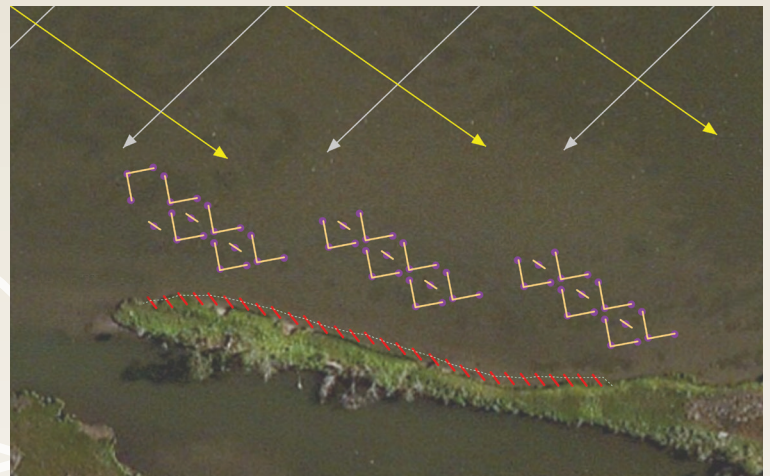
- Conduct living shoreline demonstration projects to train installation and maintenance contractors
- Demonstrate innovative living shoreline stabilization techniques utilizing bay grasses, shellfish, and other native biota where feasible.

Outputs and Outcomes

- 350 linear feet of shoreline protected
- Restoration of 0.4 acres of tidal wetlands.
- Nitrogen reduction \approx 225 pounds per year
- Phosphorus reduction \approx 60 pounds per year.

Interesting Facts

The natural materials used in this project provide habitat for fish and invertebrates which in turn provides food for water birds. The birds also will use the exposed wooden structures as perches.



To protect this strip of eroding shoreline from prevailing winds from the northwest and storm energy from the northeast, thirty-nine 20-foot logs were fastened to the bottom offshore to create a series of three 'breakwaters.' Along the shore, with help from CIB volunteers, a series of 'cells' were built of logs and coconut fiber bio-logs to capture sediment to re-build the marsh shoreline.



DELAWARE CENTER FOR THE INLAND BAYS

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The Delaware Center for the Inland Bays is a non-profit organization established in 1994 to preserve, protect and restore Delaware's Inland Bays--the water that flows into them, and the watershed around them. With its many partners, the CIB conducts public outreach and education, develops and implements restoration projects, encourages scientific inquiry and sponsors research.

To learn how you can get on board with the bays go to inlandbays.org.