



Wooden stakes and rock sills are key elements of the living shoreline created in Old Saybrook. Photo: Judy Benson

Old Saybrook community faced its climate reality with a cutting-edge project

By Judy Benson

These days, there's a lot of talk about resilience—the capacity not just to bounce back from extreme events, but to anticipate and grow stronger in spite of them.

It's something we need more of, these discussions often assert, as individuals and as a society.

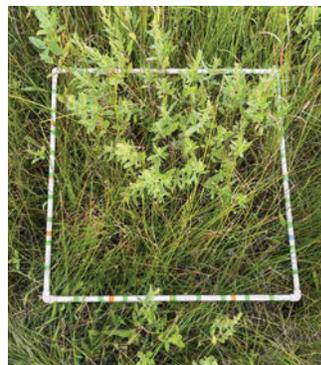
In the context of coastal communities challenged by rising seas and intensifying storms, such conversations often turn to the concept of living shorelines.

“There are a number of communities looking at them,” said Andrew Fisk, who helped guide the completion of a living shoreline project in Old Saybrook.

Generally, a living shoreline is a type of landscape engineering project that attempts to recreate or enhance natural features such as dunes, boulder shelves and sediment traps to protect marshes, beaches and beach communities from flooding, erosion and loss of key habitats as sea level rises with climate change. As the name connotes, these are *living* projects intended to incorporate native plants, shifting tides and evolving marsh habitats.

“People are looking around to get inspiration to do these projects,” said Madeline Kollegger, a restoration scientist and UConn doctoral student who's been monitoring the Old Saybrook site since the bulldozers and backhoes left two years ago. “But they're few and far between in Connecticut.”

Living shorelines are considered more ecologically minded alternatives to traditional shore-hardening with concrete sea walls, groins, jetties and the like. Instead of creating rigid barriers between the terrestrial and aquatic environments, living shorelines allow for a more natural transition between the water-land interface. Elements can include beach grass planting, oyster reef seeding and strategic placement of logs and rocks of various sizes. At the Old Saybrook site, it also includes biodegradable netting anchored with wooden stakes at the tidal edge to support young marsh grasses, and a series of stone sills offshore to soften incoming waves.



“We need to socialize these concepts,” he said. “We want to do more of these projects, and do them more efficiently.”

Fisk is now the northeast regional director of American Rivers, a nonprofit environmental organization. When he became involved in the Old Saybrook project, he was the executive director

A transect of one of the areas being monitored by Madeline Kollegger contains *Spartina* grass and marsh elder. Photo: Madeline Kollegger

This may sound simple on the surface. But as the saying goes, the devil is in the details. In the case of living shorelines, the details of a particular site are just the beginning of the challenges. There's engineering, permitting, community buy-in, funding and the dynamic nature of the shoreline, for starters.

“Every site along the Connecticut shoreline is different,” said Juliana Barrett, CT Sea Grant's coastal habitat specialist. “A living shoreline needs to be built to the specifics of the site.”

Barrett knows well the intricacies of creating a living shoreline, thanks to her years of involvement with a host of other land-use experts and local residents at the Old Saybrook site, which is near the mouth of the Connecticut River. Encompassing roughly four acres of salt marsh, tidal creek, dunes and beach, this living shoreline is a bellwether of sorts, serving as one of the few places along the Connecticut coast where this oft-touted approach to resilience-minded landscaping actually exists. Land-use professionals and students visit often.

“One of the things this project reinforces is that these projects are complicated and require a lot of patience bringing the community and residents and funders and regulators along,” said Fisk.

Living shorelines, he said, along with dam removals and stream and streambank restoration (known as riparian buffers) are important techniques being advanced for environmental restoration that also protects homes, roads and other human infrastructure. The more people know about tangible examples like the Old Saybrook project, the better, he said.

Top: Marsh grasses have started to grow since the living shoreline project was completed. Photo: Madeline Kollegger

Center: Madeline Kollegger checks on the biodegradable netting placed to support marsh grass at the living shoreline site. Photo: Judy Benson

Bottom: A backhoe used during the construction phase of the project in 2020 moves rocks to create a series of sills offshore to break wave action. Photo: Judy Benson



‘...it's important...that we learn from these projects.’

of the Connecticut River Conservancy. It was the first living shoreline project for that organization, he noted, but it fit perfectly with the group's mission of partnering with local groups on restoration work that benefits the river and sets a positive example for others to follow.

pride in what was accomplished: a beach, marsh and tidal creek improved for wildlife and people alike.

“There's nothing negative about looking at it,” she said. “We've heard no objections.”

Is it working to protect the homes from flooding and preserve the marsh? So far, Davis and others said, the answer is yes. But there's one important caveat—the area has not been tested by a strong hurricane since the construction was complete.

“It's wait and see,” Davis said.

Patience, said Kollegger, who is tracking the plant growth and the overall habitat of the living shoreline as part of state permit requirements, is essential for any group that wants to embark on a living shoreline project. There is a long lead time in the planning, permitting and fundraising. After the construction phase, beach grass and marsh plants take years to get fully established. Several seasons of storms and tidal peaks must pass before the watery landscape can be considered settled, she said.

“The words success and failure are often not used for restoration projects,” she said. “What we're looking for is not the status quo. It's trying to do something thoughtfully that's better than doing nothing.”

Harry Yamalis, environmental analyst with the state Department of Energy and Environmental Protection (DEEP), said that other than the Old Saybrook project, there are only two living shorelines in Connecticut. One on private property in Westport has several features in common with the Old Saybrook site. The other living shoreline, at Stratford Point, is very different. It uses reef balls—hollow concrete spheres that temper wave action while permitting oyster seed to settle and establish new colonies.

Many groups have explored the idea of creating a living shoreline, he said, only to give up or opt for less complex traditional erosion control measures instead.

“I've had a lot of ideas thrown at me that fizzle out,” he said.

Still, DEEP is encouraging living shorelines along the coast, and is hoping to build two itself. One would be at Hammonasset Beach State Park in Madison and the other at Seaside State Park in Waterford, Yamalis said. Educational signs would be installed at both to explain living shorelines to the public.

“It's very important if we want to have more of these, that people learn from these projects,” he said.



Jack Matthias, right, coastal resilience associate with Audubon Connecticut, shows an area at Hammonasset Beach State Park in Madison where a living shoreline project is proposed to restore it as piping plover nesting habitat. With him are Owen Placido and Sarah Schechter of Connecticut Sea Grant. Photo: Judy Benson

“We came in to do the grant administration, found additional funding and managed bidding for the project,” he said. From the design work to permitting to paying for excavation, stone placement and dune construction, the total cost exceeded \$1 million, he noted, and was far more complex than the volunteer-run land trust that first conceived of the project could have managed alone.

The idea originated at least a decade ago at the grassroots level with the Lynde Point Land Trust, which protects the area's marshes and other conservation lands. Flooding from tidal breaches during Superstorm Sandy and Hurricane Irene left residents feeling vulnerable and looking for solutions.

Ethel Davis, president of the land trust, said the living shoreline was the latest in a series of projects her group has undertaken to protect and restore the natural marsh and Crab Creek, a tidal waterway that had been moved about 100 years ago. As part of the living shoreline project, a portion of the creek was relocated closer to its original path, restoring flow to a tidal pond that would be blocked by sediment after severe storms.

Looking out from the shoreline where the rock sills, netting and stakes were placed two years ago, Davis shows obvious

