

Morehead City's barrier island is shrinking. Can oysters and concrete pyramids save it?

WUNC | By **Celeste Gracia**

Published June 20, 2024 at 7:34 AM EDT



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Recently installed wave attenuation devices ring off the coast of Morehead City, North Carolina, on May 13, 2024. Sugarloaf Island has long acted as a barrier for the Morehead City waterfront, but over time it has begun to erode due partly to increased boat traffic. Now, a major restoration project is underway to help protect and rebuild the island.

A row of local restaurants, shops and boat docks adorn Morehead City's waterfront. About two city blocks offshore lies Sugarloaf Island, a small, human-made barrier island that protects the downtown district from storm surges.

Over the past few decades, the island has eroded naturally by about the length of a football field. Now, a \$6.6 million project is underway to restore the island.

"If Sugarloaf goes away, we won't have the Morehead City waterfront," said Jerry Jones, the town's mayor. "All those hurricane winds (and) southwest winds would just batter our ... waterfront. So we need to protect that ... natural barrier out there to protect the economy of downtown Morehead City."

The project involves several partner organizations, including the North Carolina Coastal Federation, East Carolina University, and Florida-based Sea and Shoreline.

The state-funded project focuses on installing two main restoration tools around the small island: wave attenuation devices, known as WADs, and oyster reefs.

Looking to the past: the history of Sugarloaf Island



Madeline Gray / For WUNC

Mayor Jerry Jones sits in his office in Morehead City, North Carolina, on May 13, 2024. Jones has been mayor of the town since 1999 and spent his childhood playing on Sugarloaf Island.

Morehead City is a small fishing town in eastern North Carolina, with a population of under 10,000. The town is located next to Beaufort and serves as a gateway to beaches along the Crystal Coast.

The town purchased the island in the early 2000s for about \$900,000, according to Jones. It's since been preserved as a natural, recreational space and holds a lot of sentimental value for the local community.

Sugarloaf Island was created in the 1930s, around the time the Intracoastal Waterway was being built, according to Jones. The land is comprised of sand and sediment that was dug out during the construction of the Waterway.

But over time, the island has shrunk.

Restoring Sugarloaf with concrete devices



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Zac Thomas, with Sea & Shoreline, works to place wave attenuation devices into the water off of Morehead City, North Carolina. <https://www.whqr.org/2024-06-20/sugarloaf-island-morehead-city-oysters-wave-attenuation-devices>

As part of the ongoing restoration project, crews are installing pyramid-shaped WADs around the island. The devices are approximately 7 feet high and weigh 7,500 pounds. Their base is 9 feet wide, and each side contains six smaller triangular shaped windows.

The WADs prevent erosion by breaking up waves, so rough waters hit them instead of hitting the shores of Sugarloaf, according to Tina Harris, a pre-construction manager

with Sea and Shoreline.

"[The WADs] have been proven to be very effective at diffusing wave energy ... and that's what will preserve the island," Harris said. "There's visible difference from one side of the devices to the other side. It's astounding."

The WADs will also accumulate sand to rebuild land and provide fish and oyster habitat.

As of mid-May, Harris said her crew was more than halfway done with installing the WADs around Sugarloaf. In total, there will be up to 1,200 devices that will stay in place forever.

"They become part of the ecosystem. They can be moved, but then ... you're removing habitat, and there's consequences of that as well," Harris said.

This project is the first time WADs are being used in North Carolina.

WADs are also in place in at least two different parts of Florida. Harris' company, Sea and Shoreline, is [installing WADs in Titusville](#), outside of Orlando, for another restoration project. Plus, the Florida Department of Transportation [installed WADs in St. Petersburg](#) last year.

Oyster reefs: 'They function as a speed bump'



Creating oyster habitat is another key part of this restoration process. This will be done with the use of oyster catcher reefs, a type of artificial reef, according to Lexia Weaver, the director of the federation's Living Shoreline Program.

"The material [of the reef] is coconut fiber and natural mesh coated in concrete. When put in the water at the right height [and] water depth, it accretes oysters," Weaver said. "It's a great substrate for oysters to attach to and grow."

The main purpose of creating oyster reefs is to help reduce erosion on Sugarloaf.

"They function as a speed bump. As the reef develops, they block the wave energy," Weaver said. "So the waves come in, and that wave energy is attenuated, or dispersed, and so it slows it down. And that's how it prevents erosion."

The oyster catcher reefs installed at Sugarloaf were created and deployed by [Sandbar Oyster Company](#), a Morehead City based company.

Oysters will also help provide even more habitat for fish and filter water. Weaver adds that one oyster can filter up to 30 gallons of water a day.

Sea & Shoreline's Harris said she's already starting to see results.

"There's visible growth [of oysters]. You can see where they're starting to adhere [to the WADs]," Harris said. "It does not take much time for oysters to start to attach and that habitat to start to develop."

Preserving Sugarloaf for future generations



Madeline Gray / For WUNC

Sugarloaf Island off the coast of Morehead City, North Carolina on May 13, 2024.

Project managers estimate all the WADs around Sugarloaf should be installed by the end of July, barring any weather interruptions. Once in place, researchers at East Carolina University will monitor the island over the next three years for oyster growth and sediment accumulation.

The project's success will be measured by focusing on growth over time, according to Weaver.

"We are buying ... at least 50 years of time for that downtown waterfront to be protected," she said. "And if we do nothing, that island is going to go away."

This project could serve as a model for other coastal communities with inland waters in North Carolina. However, WADs are not designed to be used in any ocean-facing coastal communities, like the Outer Banks.

For Morehead City Mayor Jerry Jones, this project is also about preserving history for the future.

"Sugarloaf will not be as large as it was at one time, but it'll be more stable than it ever has been with this restoration project," Jones said. "I want to preserve Morehead City to the best of my ability for the future generations ... and I really think this is one step towards that."



Celeste Gracia

Celeste Gracia covers the environment for WUNC. She has been at the station since September 2019 and started off as morning producer.

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