



Coffee Island oyster restoration project more successful than designers imagined

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By **Ben Raines, Press-Register**

Coffee Island, which has been slowly disappearing for decades, has quit shrinking.

In fact, there are signs that the island, located just south of Bayou La Batre in the Mississippi Sound, is starting to grow larger.

Credit goes to a "living shoreline" experiment dreamt up by the Nature Conservancy and funded by the National Oceanic and Atmospheric Administration. Using a federal stimulus fund grant in 2010, the groups constructed a series of oyster reefs around the southeast side of the island in an effort to combat erosion of the marsh.

As it happened, the Nature Conservancy began dumping 300 dump truck loads worth of oyster shells and 225-pound concrete balls into the water surrounding the island about two weeks before the Deepwater Horizon oil rig exploded and set off the BP oil spill.

The goal was to recreate a natural system of oyster reefs that encircled much of Coffee Island long ago, reefs that served to break up waves as they washed ashore.



A crew deposits rock rubble along an area of Mobile Bay shoreline near Weeks Bay

As those historic reefs disappeared, due to harvest by man and other factors, the island was subjected to the full onslaught of waves in the Mississippi Sound, which routinely top two feet. Each year, those waves whittled about 10 feet from the shoreline, all the way around the long and skinny island. Satellite images show the island was several hundred feet wider in 1990 than it is today.



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A newly constructed living shoreline reef breaks waves well out from the existing, and quickly eroding, shoreline along Mobile Bay, south of the mouth of Weeks Bay. The Nature Conservancy's reef project is part of the effort to create 100 miles of oyster reefs and 1000 acres of new marsh around Mobile Bay. (Courtesy of Robert Costantini/The Nature Conservancy)

known as the Swift Track. The rock was then covered with a layer of oyster shells. Over time, the reef, which is in water slightly less than three feet deep, will be covered in live oysters. The heavily eroded shoreline behind the oyster reefs should begin to grow, protecting the rare maritime forest. (Courtesy of Eric Lowe/Alabama Nature Partners)

As the oil began to drift across the Gulf in 2010, the newly completed, 1.5-mile-long reef on Coffee Island served as the inspiration for the much larger **100/1000 project, which aims to build 100 miles of oyster reefs and 1000 acres of marsh around Mobile Bay.**

The Press-Register returned to Coffee Island on Thursday morning as a thunderstorm gathered over nearby Grand Bay and a rainbow arced across a darkened sky. It was the **newspaper's first visit** since the Nature Conservancy kicked off the project shortly before the oil spill started.

The changes were easy to see.

The oyster shell and concrete reef balls had been placed about 90 feet offshore of the island, an attempt to help restore the shoreline to its position in the year 2000. At the time, the water between the reefs and the shore was nearly three feet deep. Today, it is about shin deep, thanks to a huge amount of sediment trapped behind the reefs. New marsh, primarily spartina grass, is beginning to grow in the sediment, evidence that the island is expanding.

The reefs have about 200 new oysters growing on them per square yard, according to surveys by biologists, a number that rivals or even exceeds natural oyster reefs. A control area on Coffee Island, where no reefs were erected, has no oysters growing in front of it and the marsh continues to recede.

But on the new reefs, hermit crabs, stone crabs and oyster drills were abundant, crawling and sliding across the new oysters. Many of those oysters are just months old, growing from natural spat that set in April and May.

"It's working exactly like it is supposed to. The sediment is getting trapped behind the reefs. And you can see the way the reefs are breaking up the wave energy. Look how much calmer it is behind the reefs, how the waves are getting knocked down," said Jeff DeQuattro, who supervised the Coffee Island project for the Nature Conservancy.

Rising up to where they just break the water's surface at high tide, the reefs have effectively stopped the erosion on Coffee Island, DeQuattro said.

"You can stand on the bottom behind the reefs now. It's firmed up nicely," he said, drawing a comparison between the soft mud that surrounded the island before the reefs were re-established.



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DeQuattro said the project has been much more successful than he expected it to be. That suggests the rest of the 100 miles to be built for the 100/1000 project will have a big impact on Mobile Bay, he said.

Jeff DeQuattro, with the Nature Conservancy, surveys the oyster reef breakwaters ringing the shoreline of Coffee Island. Established in April of 2010, a few weeks before the Deepwater Horizon oil spill began, the reefs served as the inspiration of the 100/1000 plan to restore Mobile Bay's oyster reefs. DeQuattro said there are now 200 oysters per square meter of reef, and the structures are swarming with crabs, fish and birds. (Ben Raines/Press-Register)

"We're building a reef and it takes time. With oysters, you don't just dump some shell and there you go, you have a reef. Creatures have to inhabit the nooks and crannies, crabs and fish. And they're here. And oysters are growing," DeQuattro said. "We've got all these little clumps of oysters here now. A lot of them are more than year old. We've got birds feeding on top of the reefs all the time, or even just hanging out on them. There is so much more life here now."

He said a century of heavy harvest of Mobile Bay's oysters had taken a toll on the system

"We know we've lost at least 80 percent of the bay's oyster reefs. Probably more," DeQuattro said. "Some of it was due to the harvest, and then there was a lot of mining of the bay's oysters for road-building. We're starting to re-create some of that oyster habitat we've lost. That will be good for the entire system."

Additional reefs are under construction south of the mouth of Weeks Bay and along the Fort Morgan peninsula, DeQuattro said. The Nature Conservancy has obtained permits to build reefs around the rest of Coffee Island and has plans for reefs around Point Clear and near the Fairhope Pier.

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