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Coffee Island Oyster Reefs



from **Engineering With Nature: An Atlas, Volume 1.**

by **US Army Engineer Research and Development Center**



Portersville Bay, Alabama, United States

At Coffee Island, The Nature Conservancy (TNC) used ReefBLK, Reef Balls, and bagged shell to create 1.02 miles of vertical oyster reef in an effort to restore eroding shorelines, to restore oysters along with their associated ecological benefits, and to create fishery-related jobs in Mobile County. This effort also created approximately 20 acres of seagrass and marsh habitat, protecting approximately 7,492 feet of shoreline, which has a total area of 3.44 acres. This project, completed in 2010, employed a robust monitoring program—and the results from this program are evidence of significant oyster settlement rates, substantial increases in juvenile finfish, and an overall reduction in erosion rates along the adjacent shorelines. Coffee Island is one of two implementation sites under the project “Coastal Alabama Economic Recovery and Ecological Restoration Project: Creating Jobs to Protect Shorelines, Restore Oyster Reefs and Enhance Fisheries Production,” funded through a National Oceanic and Atmospheric Administration American Recovery and Reinvestment Act grant.



Above and article cover: Aerial view of oyster reef breakwaters at Coffee Island.
(Photo by Joe Bay Aerials)

Producing Efficiencies

Unlike traditional shoreline protection methods of building vertical bulkheads and other hardened structures, creating oyster reefs using ReefBLK, Reef Balls, and bagged shell traps sediment and offers a more natural approach to shoreline protection that enhances critical habitats for many species of plants, fish, and invertebrates.

Using Natural Processes

Oyster reefs create natural breakwaters that reduce wave energies and help slow the rate of erosion. By constructing the hard substrate needed for oysters to settle and grow, this project promotes oyster reefs that will protect Coffee Island as well as create habitat for invertebrates and fish species— benefits that have not been achieved with traditional shoreline hardening.



Sandpipers foraging on Reef Balls.

(Photo by Mary Kate Brown, The Nature Conservancy)

Broadening Benefits

Unlike traditional hardened structures, living shorelines offer numerous benefits. This project has served as a barrier to waves and effectively slowed the erosion of Coffee Island; additionally, the project has also allowed the island to grow by trapping sediment behind the reef, creating salt marsh habitat. Oyster settlement has been rapid on the reefs, and hermit crabs, stone crabs, and oyster drills are abundant. The project also helped create local jobs for oystermen, shrimpers, and workers from the concrete industry and promoted healthy fisheries that can sustain livelihoods. This project employed 33 full-time workers and contributed to paychecks for 152 positions in the coastal Alabama community, with a total of 72,570 hours worked at the two implementation sites.



Oyster reef breakwater constructed from ReefBLK.

(Photo by Mary Kate Brown, The Nature Conservancy)

Promoting Collaboration

This project brought together officials from federal, state, and local governments; researchers from local universities; contractors from local businesses; and people from the local community who were hired to work on this project. The Nature Conservancy executed this project with funding from the National Oceanic and Atmospheric Administration (NOAA). This project increased public awareness of the kinds of environmental and socioeconomic benefits that restoration projects can contribute to an area.



Reef Balls form a breakwater.

(Photo by Mary Kate Brown, The Nature Conservancy)



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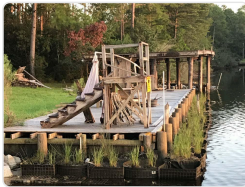
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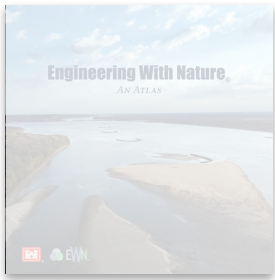


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