

TERREBONNE BASIN BARRIER ISLAND & BEACH NOURISHMENT



Background Information

This project includes engineering, design, and construction of beach, dune, and marsh habitat within the Terrebonne Basin barrier island system with restoration work on West Belle Headland, Timbalier Island, and Trinity-East Island. The project created and/or nourished approximately 1,080 acres of barrier island habitat and 8.6 miles of beach using approximately 8.8 million cubic yards of sediment. Sand for the restoration was dredged from an offshore area known as Ship Shoal through a lease agreement with the Bureau of Ocean Energy Management (BOEM). The \$166 million project was funded through the National Fish and Wildlife Foundation's (NFWF) Gulf Environmental Benefit Fund utilizing fines and penalties from the Deepwater Horizon oil spill.

The restoration areas are located in Lafourche and Terrebonne Parishes, Louisiana and are part of the Terrebonne Basin. The Terrebonne Basin consists of four (4) contiguous water bodies, from west to east: Caillou Bay, Lake Pelto, Terrebonne Bay, and Timbalier Bay, which are separated from the open Gulf of Mexico by a series of barrier islands. Trinity-East and Timbalier Islands are located in the western central area of the Terrebonne Basin. West Belle Headland is located on the far eastern side of the Terrebonne Basin.

Purpose

The goal of the project is to reinforce the barrier islands to restore geomorphic and ecological form and function in order to: prevent breaching; protect and sustain unique foraging and nesting areas for threatened, endangered and protected migratory species; and protect critical infrastructure including Port Fourchon and Highway 1. Restoration of the Terrebonne Basin barrier islands provides a buffer to reduce the full force and effects of wave action, saltwater intrusion, storm surge and tidal currents on associated estuaries and wetlands.

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Restoration Strategy

Trinity-East Island

The template includes a 1,000-foot wide beach on the west end of the island, as well as filling of a historic canal on the east side of the island (California Canal). This portion of the project restored approximately 261 acres and 2.5 miles of beach habitat. It was completed in August 2021.

Timbalier Island

Restoration of Timbalier Island included a 1,000-foot wide beach on the eastern portion of the island for a total of approximately 252 acres and 2.6 miles of beach. Restoration was completed in June 2022.

West Belle Headland

The restoration of West Belle Headland was designed to build upon the original West Belle Pass Barrier Headland Restoration (TE-0052) project. A sand spit extending from the fill limits of the original TE-0052 was used as a platform to construct the recommended design template, following the natural shoreline geometry for alignment. The original restoration template included approximately 545 acres of beach, dune, and marsh components and 3.1 miles of beach.

West Belle Headland was heavily damaged during construction by Hurricane Zeta in October 2020. Prior to Hurricane Zeta's landfall, 487 acres of beach, dune, and marsh habitat and 2.5 miles of beach had been constructed. After the storm, the work plan was revised to construct a feeder beach near West Belle Pass, which included 80 acres and 1 mile of beach. The new feeder beach provides high quality nesting habitat, helps protect West Belle Pass from flanking, and provides a sediment source to nourish West Belle Headland. The feeder beach was completed in January 2022.



Timbalier Island