

Barrier Island Restoration in Texas

The Texas Coastal Program partnered with other federal, state, and local agencies to leverage funding for crucial habitat restoration projects.



Proud volunteers pose in front of their dune planting on South Padre Island.

Barrier islands aren't just for beach vacations. All along the Texas coast, these sandy strips of land are the first line of defense against tropical storms and hurricanes – a common and destructive occurrence in the Gulf of Mexico. Without barrier islands to absorb the force of storms, many communities on the Texas mainland would be in much greater danger from wind, waves, and flooding. In addition to their protective function, barrier islands provide essential habitat for fish and wildlife. The shallow, sheltered bays and estuaries located behind barrier islands are one of the planet's richest aquatic environments. In Texas, these waters harbor a seafood industry that generates \$846 million in sales and supports over 14,000 jobs. However, dense coastal development and rising sea levels have caused significant coastal erosion and wetland loss on many Texas barrier islands, degrading the important functions they perform.

To strengthen the barrier islands' vital natural resources, the Texas Coastal Management Program (TCMP) partnered with other federal, state, and local agencies to leverage funding for habitat restoration projects at South Padre Island and Goose Island Marsh. On South Padre Island, the scenic beach shoreline erodes at a rate of up to 10 feet each year. Since 2012, TCMP has provided grants to the City of South Padre Island (City) to restore a healthy beach dune system through the planting of native grasses. Using the grant funds, the City organized a volunteer program to engage coastal residents in the dune planting process. The City has hosted 21 volunteer events, where a total of 1,791 participants installed 192,000 plants to stabilize nearly six acres of the island's dunes. This program protects beaches that support a thriving tourist economy, restores important habitat, and encourages coastal stewardship. At each planting event, volunteers are educated about the importance of dune restoration. "Having seen this program evolve over the last five years, I realize now we're not only doing restoration on the ground, we're educating our future beachgoers and decision-makers and that's going to have a bigger impact than anything else," said Reuben Trevino, South Padre Island Coastal Resources Manager.

Goose Island Marsh, a popular site for wildlife viewing and recreational fishing on Aransas Bay, lost 24 acres of coastal wetland to erosion between 1969 and 2002. At the time, less than half of the original marsh habitat remained. In 2005, TCMP partnered with the Texas Parks and Wildlife Department (TPWD) to develop a plan for restoring and stabilizing the Goose Island shoreline. By working together, TCMP and TPWD combined and leveraged their own funds to obtain additional grants from NOAA's National Marine Fisheries Service, the EPA Gulf of Mexico Program, the U.S. Fish and Wildlife Service, the non-profit Coastal Bend Bays and Estuaries Program, and several private donations.

The Goose Island restoration project was completed in three phases. In 2005, a 4,400-foot-long offshore rock breakwater was constructed to stabilize the island's southern shoreline. On-site material was used to outline a 24-acre marsh restoration site with levees. One year later, the restoration area was filled with dredged material from a nearby site to prepare for marsh plantings. TPWD staff, school groups, Boy Scouts, and other community volunteers successfully transplanted over 11,000 cordgrasses from other parts of the island. During the final phase, a boardwalk was constructed to provide public access to the restored marsh. The boardwalk includes interpretive signs that help visitors understand the values and functions of a healthy coastal ecosystem.