



January 2025

## Triangle Tree Island Breakwater Construction Complete

Upper Laguna Madre, TX – Just six miles south of the John F. Kennedy Causeway lies a rookery island known as Triangle Tree, part of a vital network of rookeries along the Texas Gulf Coast. Not unlike other rookeries in the area, Triangle Tree has been impacted by intense amounts of erosion from relative sea level rise and wind driven wave energy that is working to diminish its footprint. The need for intervention to keep this island in a productive state grew, and the protection project was proposed to CBBEP's Habitat and Living Resources Implementation Team and chosen to be included in our 2020 Annual Workplan. After spending years in the permitting and engineering phases, this project moved to construction in the fall of 2024.



The Laguna Madre is truly a natural wonder of the world, a vast hyper saline lagoon responsible for supporting an incredible amount of flora and fauna that also generates an estimated 400 million dollars from tourism and recreation each year. Immense underwater meadows of sea grass beds sprinkled with sand pockets stretch for miles, establishing a foundation for the ecosystem by providing nursery habitat for baitfish and smaller organisms, feeding grounds for sportfish, and foraging opportunities for shorebirds and colonial waterbirds. This unique ecosystem remains in a delicate balance between natural inputs and human impacts to maintain its viability. This relationship can be illustrated by the rookery islands that line the Gulf Intercoastal Water Way (GIWW).

Though not all rookery islands are created equally or utilized in the same way, a great deal of them along the Texas coast were formed during the dredging of the GIWW in the early 1900s. To connect a trade route between the growing port communities along the Gulf Coast, a 12-foot channel dredged nearly 1,300 miles from the southern tip of Texas to Florida. As the dredge work progressed, the material that was being removed to widen and deepen the channel was placed along the edge of the channel, creating large mounds of sediment that would become the foundation for the rookery islands of the future. Over time, vegetation has made its way onto the spits of mud, sand, and shell where the resilient species cling to life and provide valuable habitat. Once barren, many of the islands are now a key piece of the ecosystem and are teeming with life.

Shrubby varieties like granenjo, mesquite, and even the invasive salt cedar, offer natural nesting platforms for colonial waterbirds that often opt for the room with a view when choosing a nesting site. Some portions of the material pulled from the bottom to create the channel also contained harder substrate like oyster shell that you can still see along the shorelines and bluffs of the islands today. You can often spot large colonies of shorebirds, such as a wide variety of terns, gulls, plovers, and Red Knots loafing, foraging, and nesting at different times of the year. As part CBBEP's Coastal Bird Program's habitat management, these islands are a focal point of their conservation efforts. Each year they plant hundreds of 2-year old granenjo and mesquite plugs from the Coastal Bend into the Rio Grande Valley, manage predation threats from the islands, and remove various invasive species to support more successful nesting seasons.

From the genesis of these islands, their battle with the eroding forces of mother nature began. Separated from the Gulf by the stretch of barrier islands and shallow water bays leaves them largely unprotected from impacts of wind driven erosion and storm surges. Satellite imagery illustrates just how much their footprints have been reduced over time. This is where the rock breakwater structure comes into play.



Several rookery islands around the Coastal Bend benefit from the strategic construction of breakwater structures, and Triangle Tree is the next one to be added to the list with construction wrapping up in Mid-



January of 2025. This structure is designed in a U-shape, with an opening to the south and a small gap for marine passage behind the breakwater on the northern shoreline. Using large rock riprap placed on top of geotextile material for stability, this project will offer over 1,000 feet of protection to the island and those who rely on it. As impacts of erosion continue to impact habitat along the entire coast, efforts to protect these areas will continue to move forward. A nearby rookery known as Tern Island is also set to receive a breakwater of its own later in 2025.

The Coastal Bend Bays & Estuaries Program is a non-profit organization dedicated to protecting and restoring bays and estuaries in the 12-county region of Texas Coastal Bend. CBBEP is partially funded by the Texas Commission on Environmental Quality and the U.S. Environmental Protection Agency. For more information about the Coastal Bend Bays & Estuaries Program, contact Quinn Hendrick, 361-336-0305 or [qhendrick@cbbep.org](mailto:qhendrick@cbbep.org). Published in May 2023.

[www.cbbep.org](http://www.cbbep.org) - [www.facebook.com/CBBEP](https://www.facebook.com/CBBEP)

