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## **CBBEP Completes Restoration Project in Matagorda Island West Marsh**

A trip to Matagorda Island before autumn arrives warrants the extra effort to be on the water by sunrise, an attempt to beat both mosquitoes and the heat. With a quick cruise across Mesquite Bay from U.S Fish and Wildlife Service's (USFWS) Aransas National Wildlife Refuge (ANWR), you'll find yourself near the south end of the Island, known as the Matagorda Unit of ANWR. This 36-mile, sliver of land serves as a barrier between the Gulf of Mexico and the Texas bay systems and communities from Austwell to Port O'Connor. Like the other 6 barrier Islands along the Texas coastline, Matagorda Island has been weathering the impacts of relative sea level rise and coastal erosion, especially during tropical storm and hurricane events.



*Completed Matagorda West Marsh Levee Restoration*

This patchwork of vegetation and tidal flows requires a fine balance to maintain its functionality, relying on the baffling system of the marsh to control water and salinity levels within its bounds and beyond. When Hurricane Harvey made landfall in 2017, the intensity of the storm surge left a large impact on the island, rearranging dune systems along the Gulf, breaching levees, and collapsing culverts. This disorganization of waterways through the marsh has created a higher frequency of erosion as an increase of water flows through the marsh with every swing of the tide, taking valuable sediment with it.

The alteration of the landscape has impacts and implications above and below the water line. The vegetation that opts for a higher and drier vantage point above tide line, provides habitat that supports wintering whooping cranes, migratory birds, wild hogs, whitetail deer, and even diamondback terrapins. Underwater seagrass beds provide invaluable habitat for underwater species, but struggle to keep their foothold with deeper water levels blocking sunlight and their foundations relocated as sediment shifts. In addition to the natural impacts felt from the failed levees, a human component has been added to the list of consequences on the Island. "The failed culvert system's greatest impact was through the daily and sometimes multi-vessel access to a portion of the refuge set aside for wildlife purposes" says Refuge Manager Felipe Prieto. "When access is unrelenting, there is no safe-haven or refuge for wildlife and fisheries. Additionally, constant intrusion by the variety of watercraft causes rutting, scaring and channeling in areas is creating and exacerbating other marsh issues and concerns pertaining to habitat impacts, [which is] the greatest concern." states the long-time steward.



*Black Rail photo by Greg Lavaty*

Though the immediate need to restore the culvert washouts was clear, the situation at hand was a formidable task, and to be completed calls for determination, support, and a touch of luck. Simply mobilizing the equipment by barging front-end loaders, dump trucks, and other equipment across the bay necessitates favorable conditions that are not always abundant on the Texas coast. Though you may find a window that offers a clear passage to the island, contractors are also paying close attention to a different kind of calendar; one of the avian persuasion.

ANWR and Matagorda Island are used every year by the endangered whooping crane and threatened Black Rail. Both species are impacted largely by habitat loss caused by development, erosion, and sea level rise. They rely heavily on these coastal marshes throughout different times of year, during which all work on the island must halt and equipment removed to leave the winged travelers an undisturbed landscape.

After a post-Harvey survey was conducted by Coastal Bend engineering firm, HDR, USFWS, and CBBEP staff, it was determined that the elevation and integrity of the levees and culverts had been undermined during the storm. Culvert structures that once helped bridge spans of open water now stand as an island of their own.



*Destroyed Levee and Culvert Before Restoration*

Construction of the improved culverts and roads was complete in the summer of 2024 by Lester Contracting, LLC. Contractors worked closely alongside Refuge staff to ensure the construction was minimally invasive to the habitat and were able to recycle concrete from forgotten WWII airbase tarmacs on the Island to build the road base. By the time the equipment was on a barge back to Seadrift, 16 improved culverts were installed along the isolated roadway. The completion of this project marks another step towards resiliency on Matagorda Island, but not the last. Several additional projects related to erosion, sea-level rise, shoreline protection, habitat restoration and invasive species removal are currently in various stages of permitting and design. “The hope is to regain an area to serve in meeting our wildlife refuge purposes...” stated Prieto, “to continue to provide high quality and vital habitat for wildlife and fishery resources.”