

THIN-LAYER PLACEMENT PROJECT SHEET



Wetland Restoration at Pierce Marsh Preserve

August 2026

Location: Pierce Marsh, Texas

Type: Marsh Restoration

Area: 115 Acres

City: Hitchcock, Texas

County: Galveston County, Texas

Main Agencies: National Oceanic & Atmospheric Administration, US Army Corps of Engineers, Texas General Land Office, Ducks Unlimited, Galveston Bay Foundation

State/Province: Texas

Country: USA



Thin layer sediment placement site at Pierce Marsh Preserve to restore 115 acres of marsh habitat. Photo taken from NOAA Guld Spill restoration.

Background

Pierce Marsh is located within the Galveston Bay system along the upper Texas coast and is part of a highly productive estuarine complex that supports fisheries, migratory birds, and extensive *Spartina alterniflora* and *Spartina patens* marsh communities. Historically, this marsh platform has been sustained by a combination of riverine sediment inputs and periodic storm-driven deposition (Howard 2014). However, over the past several decades, the system has experienced increased rates of relative sea level rise driven by both eustatic increases and regional subsidence (Sharp and Germeat 1990; Younas et al. 2023), a well-documented issue along the Texas Gulf Coast.

As a result, Pierce Marsh has undergone widespread degradation characterized by marsh platform lowering, interior ponding, edge erosion, and conversion of vegetated marsh to open water (Howard 2014). Reduced sediment supply due to upstream damming and navigation channelization may contribute to the system's reduced capacity to naturally maintain elevation (Hohensinner et al. 2018). The thin layer placement (TLP) project at Pierce Marsh was implemented to beneficially use dredged material from nearby navigation channels, with the primary goals of increasing marsh elevation, restoring vegetative productivity, and improving resilience to ongoing sea level rise.

Project Description

The Pierce Marsh TLP project involved the hydraulic placement of dredged material over approximately 115 acres of degraded marsh platform. Sediment was sourced from maintenance dredging operations conducted by the U.S. Army Corps of Engineers within the Galveston Bay navigation system and delivered to the target site (NOAA 2024). Placement occurred in multiple phases between 2022 and 2024. Total sediment

volumes placed are estimated at approximately 280,000 cubic yards (NOAA 2024).

A comprehensive monitoring program was established to evaluate project performance, including measurements of surface elevation change and vegetation recovery. Ducks Unlimited will monitor sediment settlement, and the Galveston Bay Foundation will lead vegetation planting and monitoring efforts (NOAA 2024). Project implementation was supported through a partnership among the U.S. Army Corps of Engineers, state resource agencies, and regional stakeholders. This effort is part of a long-term plan to restore the Pierce Marsh system in its entirety.

Findings

This project is part of a multi-decade restoration effort at Pierce Marsh Preserve to elevate the marsh by one meter and reestablish native vegetation like smooth cordgrass. More information regarding the outcome of this effort can be found at: <https://www.gulfspillrestoration.noaa.gov/2024/05/dredged-material-placement-pierce-marsh-complete>.

References

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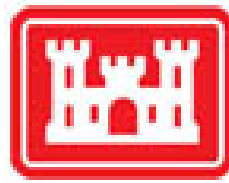
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Main Agencies:

Funding for this project has been provided by:



**National Atmospheric & Oceanic Administration
Texas General Land Office
U.S. Army Corps of Engineers – Galveston District**

Information on thin layer placement (TLP) case studies has been compiled as part of a DOTS/EWN project to provide a source of information, knowledge, and experience on TLP of sediment or dredged material in aquatic environments. The Thin Layer Placement Website and Map-Portal are funded by the US Army Engineer Research and Development Center (ERDC). POCs for the Thin Layer Placement Website and Map-Portal are:

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