Coastal Erosion Planning & Response Act

A Report to the 89th Legislature













Texas General Land Office
Commissioner Dawn Buckingham, M.D.

A Message from the Commissioner

Honorable Members of the 89th Texas Legislature,

I am pleased to submit the 2024 - 2025 Coastal Erosion Planning and Response Act (CEPRA) Biennial Report. This report covers current CEPRA Cycle 13 projects and projects completed since the preceding legislative session.

The Texas General Land Office (GLO) is tasked with stewarding 367 miles of gulf shoreline, 3,300 miles of bay shoreline, 18 coastal counties, two peninsulas and six barrier islands along the Texas coast. We embrace this responsibility with the highest level of commitment. The projects showcased in this report underscore the important work the CEPRA program does in maintaining Texas' gulf, barrier island, and bay systems. These features are critical components for ensuring a strong and resilient Texas coastal ecosystem and economy. Whether it is a natural hazard or economic fluctuation that alter how a coastal system operates, CEPRA projects help local communities and industry be more resilient to and recover from continuous coastal change. These projects act as the first line of defense from hurricanes, tropical storms, and high tides, while enhancing recreational, fishing, and hunting opportunities. CEPRA projects also ensure protection of billions of dollars in coastal infrastructure and the energy, chemical, and tourism industries.

The 88th Texas Legislature appropriated $66,706,828 to the GLO to administer CEPRA Cycle 13 projects. CEPRA funds are leveraged against $147 million in partner match from federal and local sources, including Gulf of Mexico Energy Security Act (GOMESA) money. This results in CEPRA funding 39 new Cycle 13 projects that will have immense positive impacts on the coast. I am also proud to report that, in the last biennium, CEPRA completed 15 construction projects of which 13 were listed as Tier 1 Texas Coastal Resiliency Master Plan projects. These projects collectively constructed over 29 miles of erosion protection structures in Texas bays, around bird islands, along the Gulf Intercoastal Waterway and at gulf beaches.

CEPRA's legislative allocations, coupled with annual GOMESA funds and leveraged with partner match, is allowing CEPRA to make big, bold impacts on the Texas coast and implement crucially needed projects. As someone who lived on the Texas coast for more than a decade, I am constantly amazed at what the CEPRA program accomplishes. I look forward to our continued partnership in protecting the security and economy of the Texas coast.

CEPRA Legislative reports can be downloaded at: https://www.glo.texas.gov/open-government/reports-and-publications. For additional information or to request hard copies of this report, please contact Julie McEntire at 512-475-0216 or by email at Julie.mcentire@glo.texas.gov.



Texas Land Commissioner
Dawn Buckingham, M.D.

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List of Acronyms

ACBM
Articulated Concrete Block Mat

BEG
University of Texas Bureau of Economic Geology

BMMP
Beach Monitoring and Maintenance Plan

BOEM
Bureau of Ocean Energy Management

BUDM
Beneficial Use of Dredged Materials

CAP
Continuing Authorities Program

CBBEP
Coastal Bend Bays and Estuaries Program

CEPRA
Coastal Erosion and Planning Response Act

CMP
Coastal Management Program

CY
Cubic yards

DU
Ducks Unlimited

FEMA
Federal Emergency Management Agency

GBF
Galveston Bay Foundation

GCPD
Gulf Coastal Protection District

GOMESA
Gulf of Mexico Energy Security Act

GIWW
Gulf Intracoastal Waterway

GLO
General Land Office

LF
Linear Feet

NFWF
National Fish and Wildlife Foundation

NGO
Non-Governmental Organization

NRC
Natural Resources Code

NRDA
Natural Resources Damage Assessment

NWR
National Wildlife Refuge

PCCA
Port of Corpus Christi Authority

RESTORE
Resources and Ecosystems Sustainability, Tourism Opportunities, and Revived Economies of the Gulf States Act of 2012

SMP
Sediment Management Plan

SPI
South Padre Island

TCRMP
Texas Coastal Resiliency Master Plan

TEES
Texas A&M University Engineering Experiment Station

TPWD
Texas Parks and Wildlife Department

TNC
The Nature Conservancy

USACE
United States Army Corps of Engineers

USFWS
United States Fish and Wildlife Service

WCS
Water Control Structure

WMA
Wildlife Management Area

WRDA
Water Resources Development Act

Introduction

Texas has 367 miles of gulf-facing shoreline, approximately 3,300 miles of bay shoreline, and some of the highest erosion rates in the country. On average, four feet of land is lost each year with some locations losing more than 62 feet per year. To combat land loss and protect the economies and natural resources of Texas' coastal communities, the Coastal Erosion Planning and Response Act (CEPRA) was enacted on September 1, 1999, by the 76th Texas Legislature.

The Texas General Land Office's (GLO) Coastal Resources Division, per Texas Natural Resource Code (NRC) §33.606, administers the CEPRA program with the goal of reducing erosion-related impacts. The program also implements coastal projects, remediation and planning to support erosion reduction, and monitors the rate of shoreline change. Under CEPRA, the GLO implements actions through collaboration and match funding partnerships with federal, state, and local governments, navigation districts, non-profit organizations, and other potential project partners. Actions include beach nourishment, shoreline stabilization, habitat protection, dune restoration, beneficial use, erosion investigations, demonstration projects, structure relocation, and debris removal.

This report provides an overview of recently completed CEPRA projects, highlights current projects, examines areas with high rates of erosion concern, discusses funding measures, and provides a calculated economic and natural resource benefit analysis that demonstrates how the CEPRA program benefits the state's economy. This report is produced in accordance with Texas NRC §33.608.

Critical Erosion Areas and Impacts

The GLO's Rules for Management of the Beach/Dune System (31 Texas Administrative Code §15.2 [32]) define an eroding area as a portion of the shoreline experiencing a historical erosion rate of greater than two feet per year based on data published by the University of Texas Bureau of Economic Geology (BEG) (Jeffrey Paine T. , 2019).

Eighty percent of the Texas shoreline is classified as critically eroding with a rate of shoreline retreat greater than two feet per year. The distribution and extent of erosion is illustrated in Figure 1. The highest erosion rates occur along the upper and lower Texas coasts, from Matagorda County northward and southward along South Padre Island in Willacy and Cameron counties (Table 1). On average, 235 acres, or the equivalent of 178 football fields, is lost each year within the state's bays, estuaries, and navigation channels.



Figure 1. Erosion rates along the Texas shoreline 1950s-2019 (Jeffrey Paine T. , 2019).

The Texas Natural Resources Code §33.601 defines coastal erosion as:

"The loss of land, marshes, wetlands, beaches, or other coastal features within the coastal zone because of the actions of wind, waves, tides, storm surges, subsidence, or other forces."

Section 33.601(4) of the Natural Resources Code defines a coastal erosion area as:

"A coastal area that is experiencing an historical erosion rate, according to the most recently published data of the BEG."

Coastal erosion is a a threat to:

- Public health, safety, or welfare
- Public beach use or access
- Traffic safety
- Ports, roads, and industrial infrastructure
- Public property or infrastructure
- Private, commercial, and residential property
- General recreation
- Fish or wildlife habitat
- Any area of regional or national importance

Miles of Eroding Shoreline on the Texas Coast*

Area	Total Coastal Miles	Total Eroding Miles	Percent Eroding Shoreline
1-Sabine Pass to Bolivar Roads (Galveston County)	59	48	81%
2-Bolivar Roads to San Luis Pass (Galveston Island)	29	14	48%
3-San Luis Pass to Old Colorado River	63	46	72%
4-Old Colorado River to Aransas Pass	84	45	54%
5-Aransas Pass to Padre Island National Seashore	27	11	41%
6-Padre Island National Seashore to Mansfield Cut	64	29	46%
7-Mansfeild Cut to Rio Grande River/US Border	41	32	79%
Total	**367**	**225**	**61%**

**As determined from average Gulf-facing shoreline erosion rates greater than 2ft/yr measured over the past 70 years by the University of Texas Bureau of Economic Geology.*

Coastal erosion causes property loss, decreases property value, and negatively impacts tourism opportunities in local communities. It also results in critical habitat loss to the beaches, dunes and wetlands that protect coastal communities from storm and hurricane impacts and long-term erosive forces. With Texas being the nation's top state for water-based commerce, representing over 82.8 billion in annual economic value, (US Army Corps of Engineers Galveston District, 2021) it is also critical that economic resources such as the Gulf Intracoastal Waterway (GIWW), ship channels, ports, petrochemical facilities, road infrastructure, and commercial businesses are protected from erosion impacts (Texas General Land Office, 2023). The CEPRA program aims to fund coastal erosion response projects that will reduce threats to natural and manmade systems and aid in understanding the processes driving coastal erosion.

CEPRA Processes

Since CEPRA's inception, the program has administered 13 funding cycles. Each cycle consists of a two-year period that coincides with the Legislative biennium. The current CEPRA cycle, Cycle 13, is funding 31 coastal erosion response projects.

The CEPRA program administers the following types of coastal projects:

- Evaluating erosion response methods
- Beach nourishment and dune restoration (Figure 2)
- Beneficial Use of Dredged Material (BUDM) on beaches and marshes
- Habitat restoration of coastal wetlands, bird islands, and benthic habitats (Figure 3)
- Shoreline protection using hard and soft techniques (Figure 4)
- Structure removal assistance and debris removal (Figure 5)
- Maintaining a robust Beach Monitoring and Maintenance Plan (BMMP) for engineered beaches (Figure 6)
- Scientific studies to collect data in support of the program
- Supporting projects that promote sound coastal stewardship

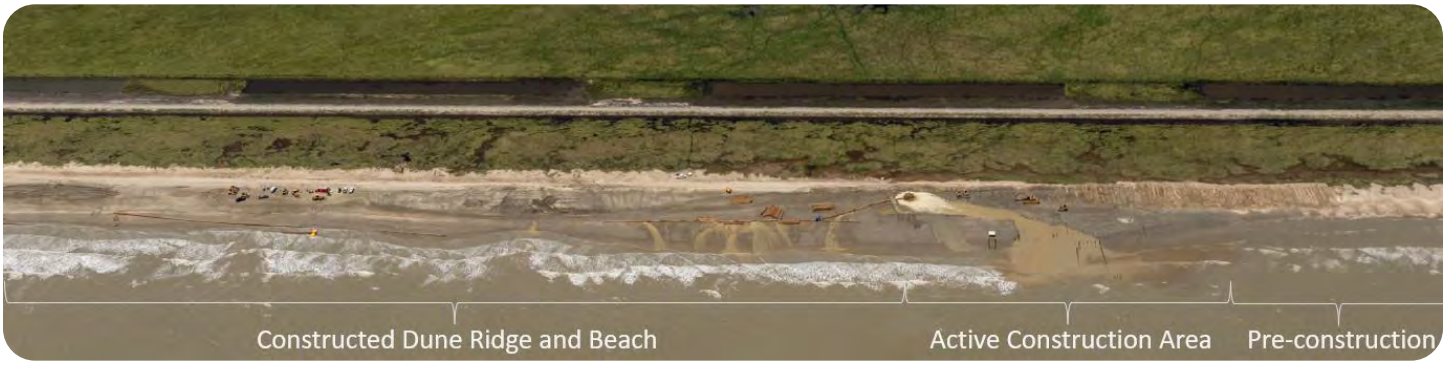


Figure 2. *CEPRA Beach and Dune Restoration Project at McFaddin Beach*

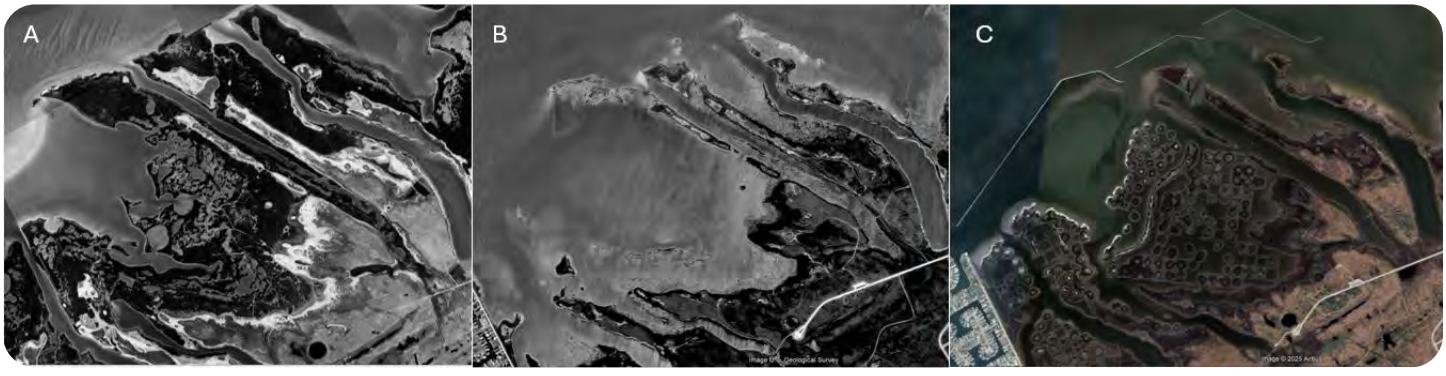


Figure 3. *CEPRA Wetland Restoration Project on Galveston Island. A. Marsh in 1954. B. Degraded marsh in 1995. C. Restored marsh in 2025.*

CEPRA Processes



Figure 4. *CEPRA Shoreline Protection Project at Nueces Delta Protection and Restoration*



Figure 5. *CEPRA Structure Relocation at Surfside. A. The structure before removal on the public beach easement. B. The pad-site after the structure is removed. C. The structure moved to a new location.*



Figure 6. *CEPRA Engineered Beach and Beach Monitoring Maintenance Plan (BMMP) at Sylvan Beach*

The CEPRA program partners with other state and local governments and the federal government, as well as non-profit organizations to develop and fund coastal erosion response projects. Under CEPRA, beach nourishment projects require a minimum 25% partner match funding, and other coastal erosion response projects require a minimum 40% partner match funding, per the Texas NRC §33.603(e). Funding appropriated within the biennium must be encumbered and spent on projects within that biennium unless funding for a particular project is given "carryover" authority by the Legislature. Historically, "carryover" authority is given to projects leading to or involving construction that are not expected to be complete within that biennium.

CEPRA Program Case Studies

Gulf and Bay Long-Term

The value of the CEPRA program is evident in every successful project implemented. The cepra program began implementing gulf-facing erosion control and prevention projects on galveston island in 2000. The long-term benefits of CEPRA projects in this area can be seen in figure 7. Shoreline Changes Rates at Galveston Island (Paine, 2019). Rates greater than 2 ft/yr are shown in light orange and orange. Stable and accreting areas are shown in yellow and green.

shows the long-term versus short-term shoreline change rates in the Galveston area, illustrating how erosion rates have decreased dramatically due to CEPRA beach nourishment projects implemented by partnerships between the CEPRA program, local entities, and the United States Army Corps of Engineers (USACE). The figure on the left shows erosion rates from 1950-2019; most evident are the hot colors (yellows, oranges, reds) that cover the majority of Galveston Island. These hot colors show erosion rates ranging from -2ft/yr to ~-11 ft/yr. On the right, the figure shows that, over 19 years, CEPRA projects, like the Babe's Beach Nourishment that covered 7,000 linear feet of beach from 61st Street to the 91st Street Pier and the Historic Seawall Nourishment that added 19,000 linear feet of sand to the beach in front of the seawall, have improved the stability of the shoreline in the Galveston area with areas of accretion now observed.

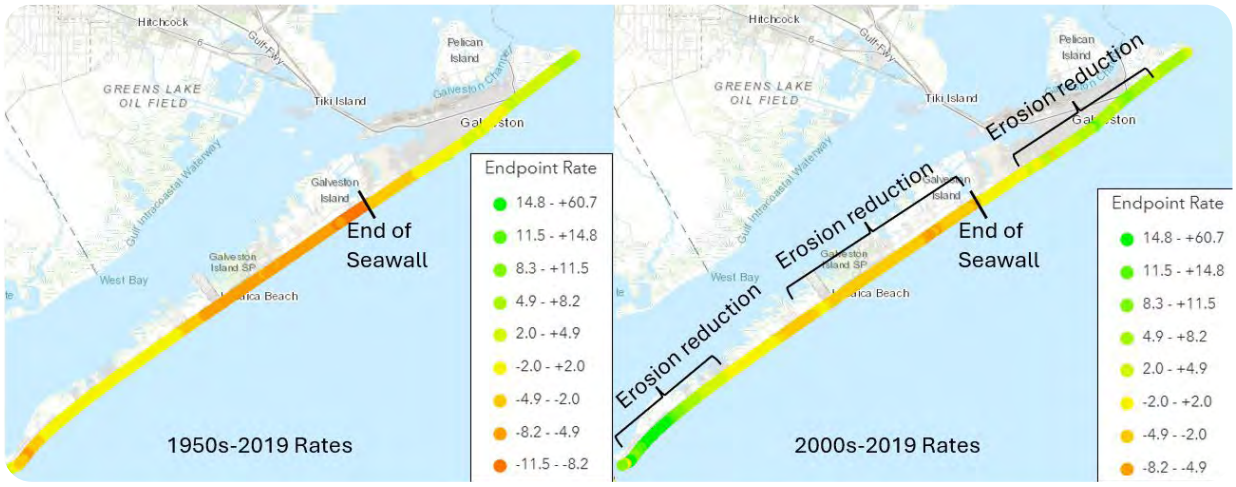


Figure 7. *Shoreline Changes Rates at Galveston Island (Paine, 2019). Rates greater than 2 ft/yr are shown in light orange and orange. Stable and accreting areas are shown in yellow and green.*

In bay systems, CEPRA projects have restored a multitude of wetland, tidal, rookery, and oyster habitats crucial for fisheries, birding, and tourism industries. In partnership with the Coastal Bend Bays and Estuaries Program (CBBEP), the CEPRA "Nueces Bay Bird Rookery Island Restoration" project provided funding to protect, enhance, and restore eroded bird rookery island habitats in Nueces Bay. This project restored five (5) rookery islands in March 2020. By nesting season of 2021, CBBEP reported nests and breeding pairs of birds had increased on each restored island for a total improvement of 600%.



Figure 8. *Nueces Bay Rookery Island Habitat Restoration.*

These are just a few examples that demonstrate the large-scale and long-lasting CEPRA project impacts.

Continuing Authorities Program (CAP) 204 West Galveston Island Beach Nourishment

The current CEPRA Cycle 13 will include several projects that enhance critical partnerships to increase efficiency and resiliency efforts. During the CAP 204 West Galveston Island Beach Nourishment project, the CEPRA program will partner with the City of Galveston and the USACE's Section 204 CAP to complete beach nourishment on West Galveston Island. The project will cover the non-federal cost share for the incremental cost of BUDM to nourish approximately 10,209 linear feet (LF) of land near Bermuda Beach, just west of Sunny Beach. Approximately 800,000 cubic yards (CY) of beach quality sand will be placed within the project area providing much-needed benefits to the island in the form of economic and infrastructure protection (Figure 9).

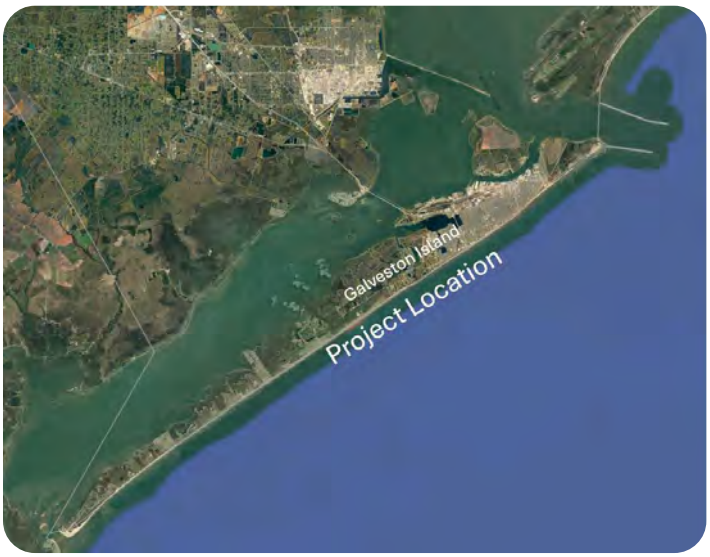


Figure 9. *Cap 204 Project Location along Bermuda Beach.*

Adaptive Management Work at McFaddin Beach Nourishment Project, Jefferson and Chambers Counties

The McFaddin National Wildlife Refuge (NWR) Beach and Dune Restoration Project Phase II, completed in November 2024, was the largest beach nourishment project in Texas to date. This project (Figure 10) consisted of two years of dune and beach restoration along 14.5 miles of extremely degraded and remote shoreline in Chambers and Jefferson counties. The project, which will protect over 139,000 acres of continuous estuarine marsh, faced and overcame numerous challenges that delayed completion. During the 2024 tropical storm season, the site was affected by storms and hurricanes that impacted the recently placed dune ridge. The project team evaluated and employed unique adaptive management techniques to ensure the project's success.



Figure 10. *CEPRA Adaptive Management Work at McFaddin NWR*

While the project was designed to enhance the natural sand system and replenish the site after storms, the project was impacted by several storm events during construction and adaptive management techniques were needed. National Fish and Wildlife Foundation (NFWF) provided adaptive management funds to regrade the impacted dune ridge by utilizing the over washed dune material, and sand fence placement along the dune ridge. This low-cost adaptive management strategy has proven effective and will allow the GLO to efficiently monitor and implement future dune stabilization post-storm.

Sargent Beach, Sargent TX

The Sargent Beach Shoreline Stabilization Phase 1 BUDM project is an adaptively-managed pilot project aimed at stabilizing the Gulf shoreline along Sargent Beach and the Matagorda Peninsula. The project will also protect the adjacent GIWW from erosional breaching. This will be accomplished by constructing an angled rock terminal groin adjacent to Mitchell's Cut at the far west end of Sargent Beach along with five (5) nearshore rock breakwaters. Upon completion of the stabilization measures, beach-quality material from USACE maintenance dredging of the Colorado River mouth and adjacent basin will be used to renourish the beach beginning at the terminal groin and continuing north. These efforts will help maintain area resiliency, mitigate risk, and strengthen efforts to protect and enhance the

coastal ecosystem, habitat, and infrastructure along Sargent Beach while restoring the beach for recreational use. The existing engineering design for stabilization measures and a more limited beach nourishment cell completed under this CEPRA project will be solicited, along with the beneficial use beach nourishment component, as a single, larger federal project by the USACE.



Figure 11. *Mitchell's Cut Area.*

Restoration Partnerships

To keep up with erosional forces and build more resilient projects, the CEPRA program consistently seeks to leverage funds outside of partner match for additional project support. New funding sources leveraged for CEPRA Cycle 13 projects were from the Natural Resources Damage Assessment Deepwater Horizon Texas Implementation Group (NRDA), the Department of the Interior's Bureau of Ocean Energy Management (BOEM), and the USACE (in-kind dredging). Funds previously leveraged from NFWF, the United States Fish and Wildlife Service (USFWS), and the Resources and Ecosystems Sustainability, Tourism Opportunities, and Revived Economies of the Gulf States Act of 2012 (RESTORE) continued this biennium.

These restoration partnerships are important driving forces needed for effective, large-scale habitat restoration These partnerships dedicated a total of $4,185,000.00 in funds to Cycle 13 projects. Table 2 describes the funding from each source for Cycle 13 projects. Details for each project are provided in the CEPRA Cycle 13 Project Descriptions section of this report.

FUNDING PARTNERSHIP	FUNDING AMOUNT	CEPRA PROJECT NAME
NRDA	$260,000	Dressing Point Island and Shoreline Restoration
BOEM	$3,500,000	Upper Texas Geotech Survey Lower Texas OCS Geophysical Survey Multi-Use Conflict Framework
GULF COAST PROTECTION DISTRICT (GCPD)	$300,000	Region 1 Geotechnical Survey
NFWF	$125,000	McFaddin Adaptive Management Funds

Table 2. Restoration Partnerships Funding for Cycle 13 Projects

Long-Term Planning and Coordination

The GLO's Coastal Protection Department has multiple initiatives within the Coastal Resources and Coastal Field Operations Divisions that conduct long-term planning and coordination internally and externally to increase resiliency efforts along the coast. The CEPRA program works closely with the other Coastal Protection programs to further coastal restoration and resiliency efforts and achieve large-scale impacts along the Texas coast.

CEPRA and the Texas Coastal Resiliency Master Plan

The GLO Coastal Field Operations Division's Planning Group heads the Texas Coastal Resiliency Master Plan (TCRMP). The TCRMP is an ongoing, long-term, iterative coastwide planning effort aimed at protecting and promoting a resilient Texas coast that supports a strong economy and healthy environment for all who utilize coastal resources and infrastructure. The TCRMP identifies key actions and projects, referred to as Tier 1 projects, needed to address coastal resilience. The CEPRA program prioritizes eligible Tier 1 projects from the TCRMP and dedicates GOMESA funds in place of partner-required match to implement them. The CEPRA program is currently overseeing 57 TCRMP Tier 1 projects, with 19 awarded in the current Cycle 13 funding biennium.

CEPRA and the Sediment Management Plan

Within the GLO Coastal Resources Division, the Texas Coastal Management Program (CMP) works with the CEPRA program to implement and develop the Texas Sediment Management Plan (SMP). The SMP will identify sediment needs, available resources, and data gaps; create guidance to develop borrow areas; permit borrow and placement areas; inventory and allocate sediment resources; monitor sediment resources, budgets, and transport; and develop or modify policies to protect and responsibly use sediment resources. The GLO will also create, modify, and coordinate policies for sediment resources to aid coastal resiliency and restoration projects. These efforts are critical to successful and timely implementation of almost all CEPRA projects.

Using Cycle 13 funding, the CEPRA program completed geophysical surveys on state-owned submerged lands and submerged federal tracts in the lower Texas coast. Geotechnical coring surveys were also completed offshore on both state and federally submerged lands in the upper Texas coast to confirm truth previously identified potential sediment resource features. Continuation of ongoing sediment transport studies is also a key priority in Cycle 13.

Additionally, the Texas A&M University Engineering Experiment Station (TEES) and HR Wallingford are collaborating to collect real-time hydrodynamic and sediment transport field data in the nearshore of Galveston Island to help quantify previous regional sediment transport modeling from Cycle 12. The CEPRA program continues to update and restructure the Texas Sediment Geodatabase to create story maps and visual layers to better aid coastal planners with the sediment characteristics of the state.

As development of the SMP progresses, it is anticipated that the CEPRA program will play a key role in gathering data and informing decisions. Currently, the CMP and CEPRA program are overseeing a study that will synthesize data to better prepare the Coastal Erosion Response Plan. This Plan is used to create priority areas for the program to focus on based on metrics set by the Texas Land Commissioner and Texas NRC. Successful implementation of the state-wide SMP will reinforce healthy Texas beaches and restore coastal habitats to provide a critical defense against storm surge.

CEPRA and the Coastal Texas Project

The Coastal Texas Project is a joint project between the USACE, and non-federal project sponsors the Gulf Coast Protection Division (GCPD) and the GLO. The Coastal Texas Project includes a combination of coastal storm risk management and ecosystem restoration projects that function as a system to reduce the risk of coastal storm surge damages to coastal communities and vitally important industries, and to restore degraded coastal ecosystems. The CEPRA program is currently implementing GCPD identified ecosystem restoration projects to earn non-federal credit.

As the Coastal Texas Project moves forward, CEPRA funds will be used in partnerships to implement erosion response actions identified in the Coastal Texas Study (US Army Corps of Engineers Galveston District, 2021). Long term planning and internal and external coordination is crucial to restoration and resiliency initiatives. To meet the restoration and resiliency goals, the CEPRA program will continue multi-programmatic cooperation and will continue to form functional partnerships to create valuable change along the Texas shorelines.

CEPRA and BUDM

The GLO oversees small and large-scale beach nourishment projects through partnerships with the USACE, port authorities, and local communities. For BUDM projects, the sediment utilized to renourish beaches or restore mashes is dredged from USACE-managed or port authority-managed navigation channels. Use of this material would not be possible without continued coordination between these entities. Nourishing these beaches provides increased tourism opportunities valued by local economies. In Cycle 13, the CEPRA program funded three BUDM projects; two on South Padre Island (SPI) and one on Galveston Island.

CEPRA and FEMA

GLO-engineered beaches are maintained through a Beach Monitoring and Maintenance Plan (BMMP) that ensures these beaches qualify for repair when damaged during a tropical storm. The Federal Emergency Management Agency (FEMA) reimburses repair costs up to between 75% to 90%, leaving the CEPRA program and project partners to cover the remaining non-federal cost-share. Cycle 13 funded two FEMA-qualified reimbursement projects at Indianola Beach and Jamaica Beach. Cycle 13 also funded the ongoing BMMP program to monitor engineered beaches.

CEPRA Program Financial Status

The rapidly eroding Texas coastline requires constant action to protect economic and natural resources critical to coastal resiliency, local economies, and coastal community quality of life. Each biennium the CEPRA program receives new applications for needed projects along the Texas coast, however, due to funding limitations, not all projects receive support during the biennium. The need for erosion response funding will likely continue to increase as coastal communities undertake projects identified in the TCRMP and potentially begin projects recommended in the Coastal Texas Project. The CEPRA program is able to implement these needed projects, but the project needs far exceed the funding available for protecting the Texas coast. Fortunately, several efforts to secure more permanent funding have been successful.

CEPRA HOTEL TAX

To continue to efficiently implement coastal restoration projects, the GLO sought to receive a dedicated funding source from the 86th Texas Legislature. The 86th Legislature passed a law that directs 2% of coastal counties' state hotel occupancy tax, "Hot Tax", revenue to the CEPRA account as a dedicated funding source. This critical funding became available to the CEPRA program during the 2022 - 2023 biennium. Dedication of this funding source represents "permanent" funding that can be consistently relied upon for future CEPRA projects and will increase the CEPRA program's ability to implement projects.

GOMESA Funding

Gulf of Mexico Energy Security Act (GOMESA) funds come from leasing revenues shared between the Gulf-producing states. GOMESA Phase II caps fund sharing between all Gulf-producing states at $500 million per fiscal year through year 2055, with 50% going directly to Gulf states and their political subdivisions. This creates an opportunity for the states and their political subdivisions impacted by oil and gas development in the Gulf to implement needed coastal restoration efforts.

GOMESA funds are dispersed to the GLO annually and are allocated through CMP (25%), CEPRA (55%), and Restoration Management programs (20%). During this biennium, the CEPRA program received $82,843,634 in GOMESA funding. The CEPRA program uses the GOMESA funds to complete the construction phase of Tier 1 TCRMP projects. The 25-40% CEPRA match requirement is often a difficult stipulation for coastal communities to meet. The CEPRA program recognizes the importance of community involvement and the need to ensure all coastal communities can take part in restoration efforts enhancing local resiliency. To facilitate this, the CEPRA program rules and guidance were amended to allow state GOMESA funds to be used as CEPRA projects' partner match for construction. This allows for project implementation in rural communities and coastwide protection of Texas resources.

Status of the CEPRA Account

In the 88th Legislature, $11,078,770 in CEPRA 13 funds were appropriated and $55,628,058 in CEPRA 13 Hot Tax funds were dedicated for implementation of projects and studies. Cycle 13 covers the period from September 1, 2023, to August 31, 2025, and any new projects will be described in detail in the Cycle 13 Project Descriptions section below. Cycle 13 funding was provided for 15 on-going projects and 30 new projects. CEPRA program funds totaling $66,717,836 were leveraged against $24,672,047 in partner match and $123,697,656 in GOMESA funding (Table 3). Including on-going projects, $214,309,287 was allocated for the Cycle 13 biennium. It should be noted that three projects, the Sargent Beach Stabilization project (1709), the Bolivar Peninsula Beach and Dune Restoration project (1690) and the Village of Surfside Beach Groin and Nourishment project (1644), account for over $118,000,000 in allocated Cycle 13 and GOMESA funding.

	Number of Projects Funded	CEPRA Funds	HOT Tax	CEPRA Match Funding	Total Budget for Cycle
6 (FY10-11)	28	$15,907,639		$68,914,538	$84,822,177
7 (FY12-13)	26	$17,394,456		$41,972,295	$59,366,751
8 (FY14-15)	21	$17,038,734		$27,349,977	$44,388,711
9 (FY16-17)	18	$14,920,538		$11,462,267	$26,382,805
10 (FY18-19)	32	$14,271,940		$133,115,582	$147,387,522
11 (FY20-21)	31	$12,846,668		$113,080,887	$125,927,555
12 (FY22-23)	31	$13,898,981		$85,587,134	$99,486,115
13 (FY23-25)	30	$11,078,770	$55,628,058	$147,602,459	$214,309,287

Table 3. *Summary of CEPRA Funding Allocations by Cycle*

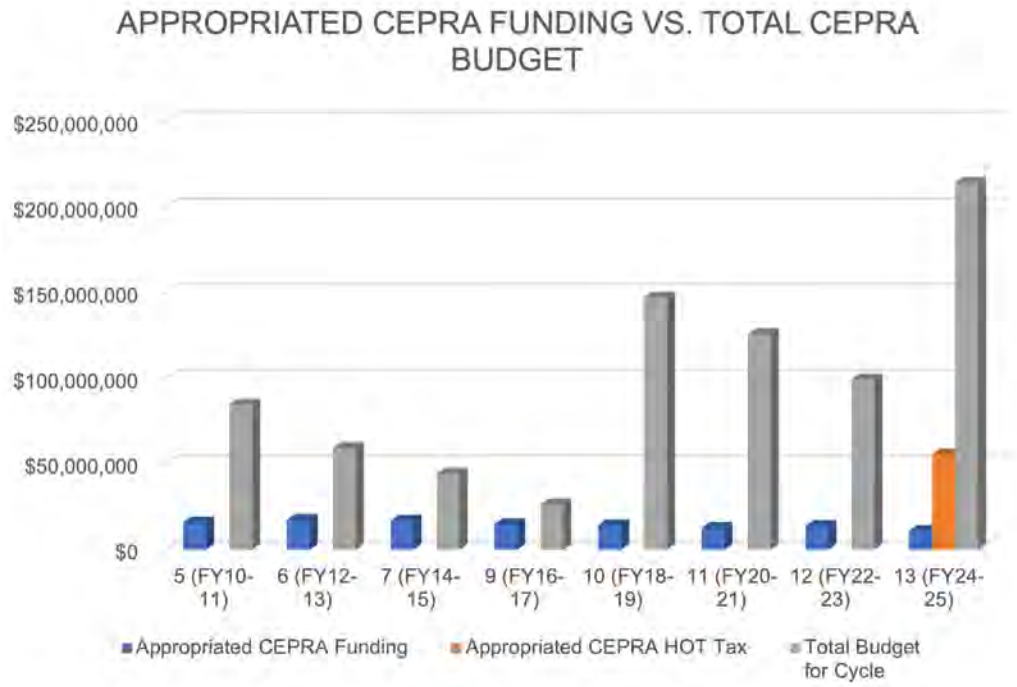


Figure 12. *CEPRA Funding vs. Total Budget by Cycle*

CEPRA Projects Completed During the Biennium

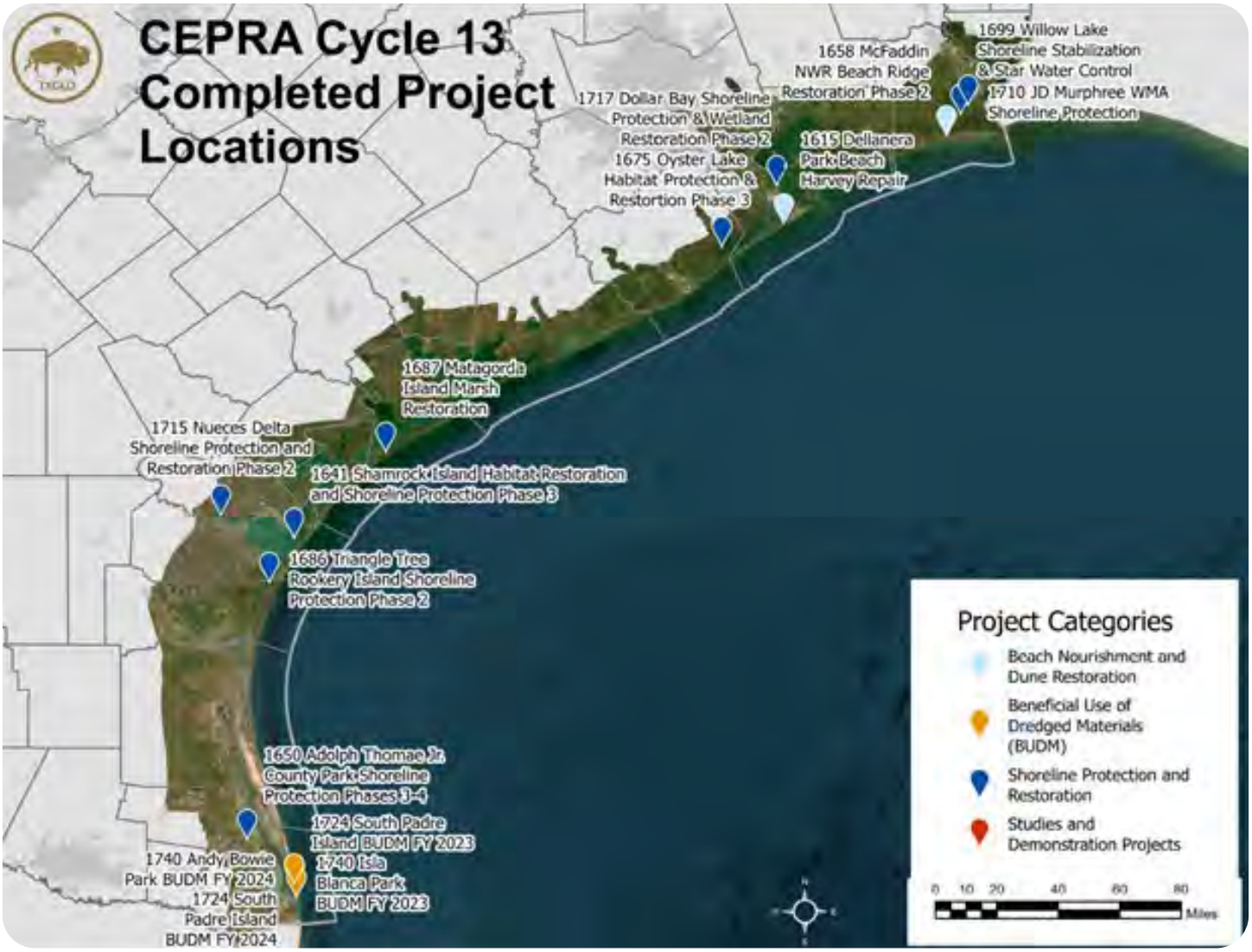


Figure 13. *Projects completed during the Cycle 13 biennium*

Since the last CEPRA Legislative Report, the program completed fifteen (15) construction projects of which thirteen (13) were Tier 1 TCRMP projects. The projects collectively constructed over 29 miles of erosion protection measures along the state's shorelines with over 13 miles of shoreline protection along bay shorelines, the shorelines of GIWW, or bird island shorelines, and 16.50 miles of beach and dune enhancement. The following provides a synopsis of the completed projects.

No.1615 Dellanera Park Beach Nourishment Harvey Repair FEMA Project

County: Galveston
Partner(s): Galveston Park Board
Engineer: HDR Engineering, Inc.
Contractor: Apollo Environmental Strategies, Inc.
Completion Date: 3-21-2023
Protection Linear Feet (LF): 2,100 LF
Volume Placed: 118,668 cubic yards (CY)
Nourishment Template: 56.5 CY/LF
TCRMP Project: Yes

Budget:
$448,711 CEPRA Cycle 9,11,12
$5,892,358 Match
FEMA Coverage: 5,916,443
TOTAL- $6,573,826
Construction Data:
Contractor Cost: $6,437,396
Construction Method: Truck haul
Cost/ LN FT: $3,065
Cost/CY: $54.2

Project Description: This FEMA project nourished approximately 2,100 LF of Dellanera Park Beach, immediately west of the Galveston Seawall, to repair damage from Hurricane Harvey (August 2017) to a previously constructed (2015) beach nourishment. The project was constructed through a partnership between the Galveston Park Board as the local sponsor and GLO as the lead project partner contributing the non-federal cost share with funds from the CEPRA program and GOMESA. The project utilized Texas International Terminals as the upland sediment source.



Figure 14. *Dellanera Beach Nourishment*

No.1641 Shamrock Island Habitat Restoration and Shoreline Protection Phase 3

County: Nueces
Partner(s): The Nature Conservancy
Engineer: Coast & Harbor Engineering
Contractor: Viking Dredging
Completion Date: 1-31-2025
Restored acreage with sand fill: 2.70 acres
Protection LF: 462 LF
TCRMP Project: Yes
Budget:
$202,806 CEPRA Cycle 10
$452,600 CEPRA Cycle 13
$26,682 CEPRA 13 HOT TAX
$1,626,938 Match
TOTAL- $2,309,026
Construction Data:
Contractor Cost: $2,060,530
Construction Method: Hydraulic Dredging
Cost/Acre= $351,059
Shoreline Protection Cost/LF=$2,291
Breach Fill Cost/CY= $233
Feeder Mound Cost/CY=$28.98

Project Description: Shamrock Island, located on the backside of Mustang Island, is an important bird rookery and has been instrumental in recovering brown pelican numbers in Texas. This partner-led project is phase 3 of a phased shoreline protection initiative to remediate post-Harvey damage along the north and south breach areas on the western side of the island. The breach areas were filled with 2,200 CY of material dredged from an adjacent offshore borrow area, restoring ~0.70 acres of beach/shoreline habitat. Approximately 462 LF of Natrx concrete formed shoreline protection structures were placed along the restored shorelines to increase resiliency. A two-acre offshore feeder berm was also placed with 15,000 CY of material from the offshore borrow area that will slowly provide additional material to the shoreline of this highly dynamic bird rookery island.



Figure 14. *Dellanera Beach Nourishment*

No.1650 Adolph Thomae Shoreline Protection Phase 3-4

County: Cameron
Partner(s): Cameron County
Engineer: Coast & Harbor Engineering
Contractor: Shirley & Sons Construction Co., Inc.
Completion Date: 11-07-2022
Protection LT: 1,660 LF
TCRMP Project: Yes

Budget:
$1,229,619 CEPRA Cycle 10, 11
$710,139 Match
TOTAL- $2,009,664
Construction Data:
Construction Method: Gravity Wall, Articulated Concrete Block Mat (ACBM) Revetment, Habitat Bench, Backfill, Seeding
Contractor Cost: $1,609,721
Shoreline Protection Cost/LF=$970

Project Description: Adolph Thomae Park is the primary public access point to the Arroyo Colorado, a location that attracts over 60,000 visitors annually. The park supports eco-tourism, fishing and provides lodging for campers visiting the Arroyo Colorado and the Laguna Atascosa Wildlife Refuge. This GLO-led project constructed two gravity walls (West Gravity Wall 560 LF, East Gravity Wall 299 LF), two habitat benches (West Habitat Bench Area 235 LF, East Habitat Bench Area 258 LF), and two ACBM revetments (West ACBM Revetment 206 LF, East ACBM Revetment 102 LF), totaling 1,660 LF of shoreline protection structures. The project also involved backfill of material and seeding of the areas to promote stabilization and resiliency.



Figure 16. *Adolph Thomae Shoreline Protection Ph 3-4*

No.1658 McFaddin Beach and Dune Restoration Phase 2

County: Chambers and Jefferson
Partner(s): United States Fish & Wildlife Service, McFaddin National Wildlife Refuge, Jefferson County, NFWF, NRDA Tx TIG, RESTORE, Texas Commission on Environmental Quality
Beach Nourishment and Debris Removal Project:
Engineer: HDR Engineering, Inc. (Design)
APTIM Environmental (Borrow Area)
Contractor: Weeks Marine, Inc
Completion Date: 9-19-2024
Beach Nourishment LF: 76,454 LF
Total Beach Fill Volume: 3,191,155 CY
Fill Segment #1 Beach Nourishment Template: 38-48 CY/LF

Sediment Source: McFaddin Offshore Borrow Area
TCRMP Project: Yes
Budget:
CEPRA: $4,268,049
GOMESA: $34,294,669
Surface Damage Funds: $1,000,000
Non-GLO: $67,001,821.00
Total: $112,921,840
Construction Data:
Construction Method: Hydraulic Dredging (Cutterhead)
Contractor Cost: $102,349,489
Cost/LF= $1,338
Cost/CY=$32.07

Project Description: Located in Chambers and Jefferson counties, the McFaddin NWR shoreline has been severely degraded from continuous tropical storm activity that depleted the onshore and offshore sand system. Directly landward of the shoreline, the Salt Bayou ecosystem, contains the largest estuarine marsh complex in Texas and is subject to frequent inundation by seawater and permanent alteration into open water. The project restored the dune ridge and beach along 14.5 miles of shoreline in two segments, Fill Segment #1 and Fill Segment #2. Debris removal was also needed due to remnants of derelict oil and gas infrastructure from the earliest days of development in the 1900s. This project serves as the largest beach nourishment the state of Texas has completed to date, and utilized all three types of DWH funds as well as various other funds to complete.



Figure 17. *McFaddin NWR Beach Nourishment and Debris Removal.*

Planting and Emergency Services Work:
Contractor: RES, LLC.
Completion Date: 2-4-2025
Planting LF: 89,549 LF
Total Plants: 158,350
Dune Remediation Dozer Work: 9,800 LF
Sand Fencing Installation: 9,800 LF

Budget:
GOMESA funds $610,000
NFWF Adaptive Management Funds: $125,000
Total: 735,000
Construction Data:
Construction Method: Dozer/Pedestrian
Planting Cost/Plant: $3.85
Dozer Work Cost/LF: $12.75

Project Description: The planting phase of the McFaddin project involved planting native plant species into the restored dune ridge along Fill Segment #1 and Fill Segment #2. Work included planting, and monitoring of the planting success at 10 days and a 80-100 day period. Plugs were planted in eight rows at five foot spacing and consisted of Bitter panicum, Marsh hay cordgrass, Beach Morning Glory, Sea Purslane, and Sea Oats. Emergency work consisted of 9,800 LF of dirt work in Fill Segment #2 to push up washed over material back into the dune ridge that was displaced during the 2024 Tropical Storm season and procure and place up to 8,900 LF of sand fencing.



Figure 18. *McFaddin NWR Dune Restoration Planting and Emergency Services Work*

No.1675 Oyster Lake Shoreline Protection Phase 3

County: Brazoria
Partner(s): Galveston Bay Foundation
Engineer: Ducks Unlimited
Contractor: Apollo Environmental Strategies, Inc.
Completion Date: 11-24-2024
Protection LF: 7,032 LF
TCRMP Project: Yes

Budget:
$60,000 CEPRA Cycle 11
$4,500,000 GOMESA
$44,653 Match
TOTAL- $2,309,026
Construction Data:
Construction Method: Offshore Breakwaters, Mechanical Placement
Contractor Cost: $4,591,250
Shoreline Protection Cost/LF=$653

Project Description: This partner-led project placed 7,032 LF of offshore riprap breakwater along the shoreline between Oyster Lake and West Bay. The shoreline protection structure will curb erosion of the Brazoria National Wildlife Refuge and allow the fringe marsh to reestablish naturally.

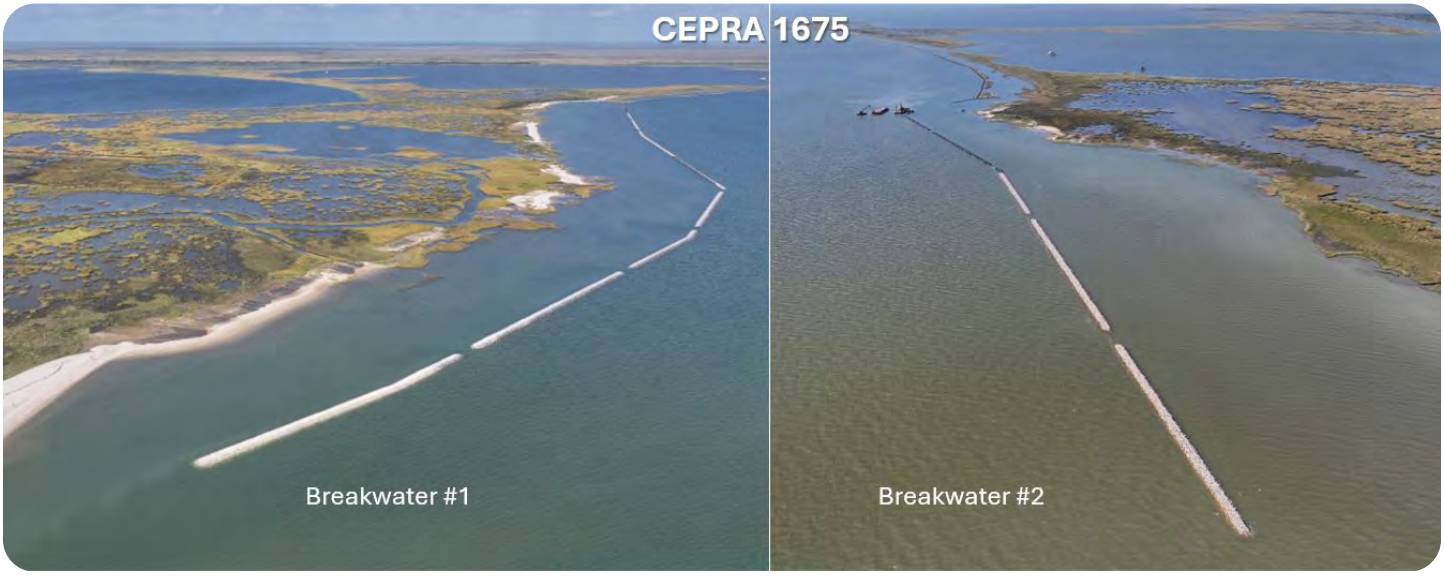


Figure 19. *Oyster Lake Shoreline Protection*

No.1686 Triangle Tree Rookery Island Shoreline Protection

County: Nueces
Partner(s): Coastal Bend Bays & Estuaries Program
Engineer: HDR Engineering, Inc.
Contractor: Apollo Environmental Strategies, Inc.
Completion Date: 1-10-2025
Protection LF: 1,129 LF
TCRMP Project: Yes

Budget:
$36,000 CEPRA Cycle 11
$1,889,885 GOMESA
$37,395 Match
TOTAL- $1,963,280
Construction Data:
Construction Method: Mechanical placement
Contractor Cost: $1,774,250
Shoreline Protection Cost/LF=$1,572

Project Description: This partner-led project constructed 1,129 LF of riprap breakwater around Triangle Tree Rookery Island, a two-acre island in the upper Laguna Madre immediately south of Corpus Christi. This island provides a critical connection point between southern nesting sites and the northern limit of the Laguna Madre. It is adjacent to productive foraging grounds in Nighthawk Bay and the bay side of Padre Island. Severe erosion has damaged the island's shoreline and decreased available nesting habitat. It is anticipated that with a protected, more stable island, more nesting birds will utilize the site.



Figure 20. *Triangle Tree Rookery Island Shoreline Protection*

No.1687 Matagorda Island Shoreline Protection and Levee Repair

County: Matagorda
Partner(s): Coastal Bend Bays & Estuaries Program
Engineer: HDR Engineering, Inc.
Contractor: Lester Contracting, Inc.
Completion Date: 8-01-2024
Protection LF: 1,550 LF
TCRMP Project: No

Budget:
2,000,000 CEPRA Cycle 10
$423,011 GOMESA
$26,682 CEPRA 13 HOT TAX
$2,214,095 Match
TOTAL- $4,637,106
Construction Data:
Construction Method: Mechanical placement, truck haul, and debris removal
Contractor Cost: $4,485,500
Shoreline Protection Cost/LF=$2,894

Project Description: This partner-led project repaired levees and water control structures along 820 LF in the Matagorda Island Aransas National Wildlife Refuge. These repairs were necessary to restore infrastructure damaged by Hurricane Harvey. These wetlands are critical habitat for the Whooping Crane. The project sourced material from uplands at the project site.



Figure 21. *Matagorda Island Shoreline Protection and Levee Repair*

No.1699 Willow Lake Shoreline Protection, and Star Lake Levee Restoration, and Water Control Structure Repair

County: Jefferson
Partner(s): Ducks Unlimited
Engineer: Ducks Unlimited
Contractor: Luhr Crosby, LLC. (breakwaters), Patriot Construction (Water Control Structure (WCS) and Levee Repair), and Gulf Inland Contractors, Inc. (Star Lake WCS)
Completion Date: 12-24-2024
Protection LF: 48,347 LF breakwater
WCS and ACBM: 328 ln ft
TCRMP Project: Yes

Budget:
$5,000 CEPRA Cycle 11
$8,788,997 GOMESA
$16,036,942 Match
TOTAL- $2,309,026
Construction Data:
Construction Method: Mechanical placement Breakwaters
Contractor Cost: $15,220,235
Shoreline Protection Cost/LF=$314
WCS Repair
Contractor Cost: $961,412
Shoreline Protection Cost/LF=$2,931

Project Description: This partner-led project involved repairing a WCS at Star Lake, restoring White's and Perkins' levees, and constructing 71,483 LF of rock breakwater along the GIWW within the McFaddin NWR. This project will prevent emergent wetland and coastal prairie loss due to erosion along the GIWW. The GIWW has increased in width from the original dredged width of 150' to over 500' in some sections of this reach. Stabilizing the banks of the GIWW will prevent further erosion and loss of emergent loss and upland prairie and will provide for the re-establishment of emergent marsh. The new WCS at Star Lake will provide for regulation of freshwater/saltwater salinity regimes that promote and maintain emergent wetland vegetation that provides a buffer for storm surge and flooding.

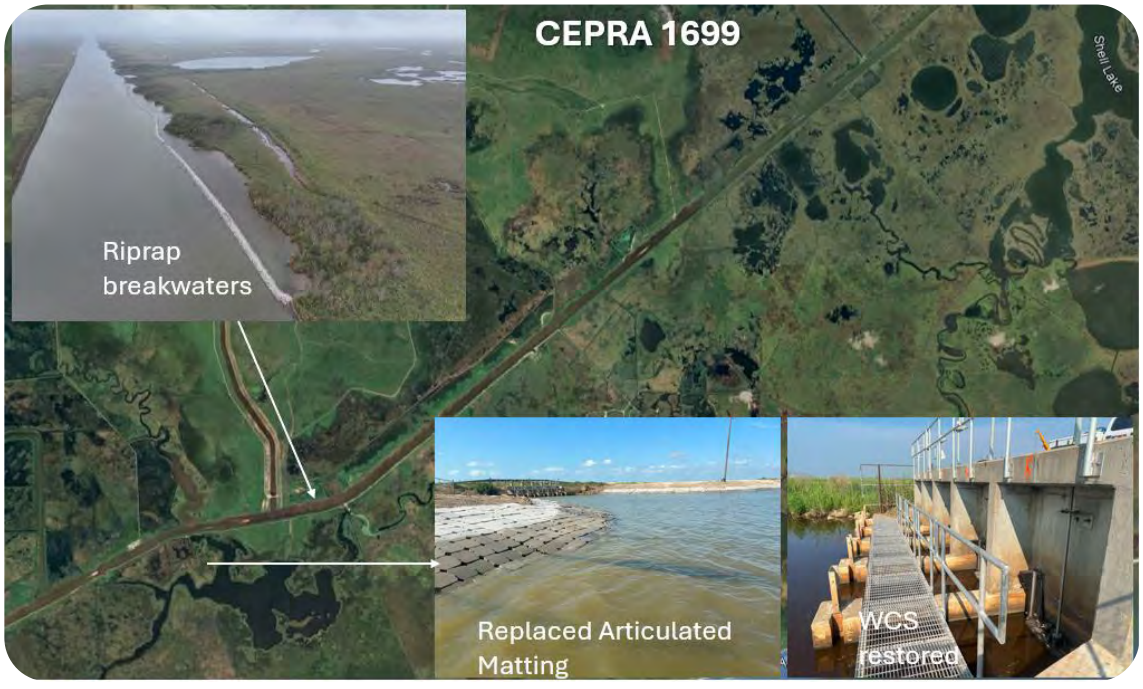


Figure 22. *Willow Lake breakwaters and Star Lake WCS and articulated matting.*

No.1710 JD Murphree WMA Shoreline Protection

Partner(s): Ducks Unlimited (DU), Texas Parks and Wildlife Department
Engineer: Ducks Unlimited
Contractor: Patriot Construction and Industrial, LLC.
Completion Date: 12-29-2023
Protection LF: 2,615 LF
TCRMP Project: Yes

Budget:
$451,012 CEPRA Cycle 12
$456,973 Match
TOTAL- $926,115
Construction Data:
Construction Method: Mechanical placement
Contractor Cost: $856,169
Shoreline Protection Cost/LF=$327

Project Description: The J.D. Murphree Wildlife Management Area (WMA) Shoreline Protection project constructed 2,615 LF of rock breakwaters along the northern boundary of the Salt Bayou Unit adjacent to the GIWW. The breakwaters reduce wave energy, prevent shoreline erosion, promote the accretion of sediment, enhance marsh vegetation growth, and provide habitat for oysters and other marine organisms. This partner-led project was done in collaboration with DU and the manager of the WMA, Texas Parks and Wildlife Department (TPWD).



Figure 23. *Breakwater along JD Murphree WMA.*

No.1715 Nueces Delta Shoreline Protection Phase 2

County: Nueces
Partner(s): Coastal Bend Bays & Estuaries Program
Engineer: Anchor QEA, LLC.
Contractor: Apollo Environmental Strategies, LLC.
Completion Date: 11-16-2023
Protection LF: 3,600 LF
TCRMP Project: No

Budget:
$5,000 CEPRA Cycle 12
$1,953,031 GOMESA
$3,036,969 Match
TOTAL- $4,995,000
Construction Data:
Construction Method: Mechanical placement
Contractor Cost: $4,332,894
Shoreline Protection Cost/LF=$1,204

Project Description: This partner-led project constructed 3,600 LF of rock breakwaters along the Nueces Bay Delta shoreline to protect 650 acres of marsh habitat. This marsh is abundant with estuarine species that support important commercial and recreational fisheries and numerous bird species.



Figure 24. *Nueces Bay Delta Shoreline Protection.*

No.1717 Dollar Bay Shoreline Protection Phase 2

County: Galveston
Partner(s): The Galveston Bay Foundation
Engineer: Coast & Harbor Engineering
Contractor: Apollo Environmental Strategies, Inc.
Completion Date: 6-15-2024
Protection LF: 2,669 LF
TCRMP Project: Yes

Budget:
$53,500 CEPRA Cycle 12
$2,513,660 GOMESA
CEPRA Waiver for Match
TOTAL- $2,567,160
Construction Data:
Construction Method: Mechanical placement
Contractor Cost: $2,404,750
Shoreline Protection Cost/LF=$901

Project Description: This partner-led project constructed five nearshore rock breakwaters with a collective length of 2,669 LF along two sections of the eroding south Dollar Bay shoreline. A follow-on living shoreline component outside the construction scope of this project, consisting of smooth cordgrass, is to be planted in the spring of 2025 between the breakwaters. The plantings will work with the breakwaters to help restore up to five acres of intertidal marsh complex and protect approximately 85 acres of upland coastal habitat. The project is expected to restore, enhance, and protect the foraging and nursery habitats of many bird species as well as environmentally and economically crucial estuarine species such as penaeid shrimp, red drum, and blue crab. The breakwaters will provide substrate on which oyster spat can attach and develop, benefiting Galveston Bay's oyster population. The project will also restore and enhance the foraging and wintering habitat of several coastal-dependent bird species.



Figure 25. *Dollar Bay Shoreline Protection Phase 2.*

No.1724 South Padre Island and No. 1740 Isla Blanca Park BUDM FY 2023

County: Cameron
Partner(s): City of South Padre Island, Cameron County, United States Army Corps of Engineers
Engineer: USACE
Contractor: Weeks Marine, Inc.
Completion Date: 7.2023
Total Beach Fill Volume SPI: 238,699 CY
Protection Linear Footage: 2,400 ft
Fill Segment #1 Beach Nourishment Template: 100 CY/LN FT
Total Beach Fill Volume Isla Blanca: 62,615 CY
Protection Linear Footage: 1,500 ft
Fill Segment #1 Beach Nourishment Template: 42 CY/LN FT

TCRMP Projects: Yes
Budget:
$1,259,322 CEPRA Cycle 12
$839,548 Match
$7,217,750 USACE In-Kind
TOTAL- $9,316,620
Construction Data:
Construction Method: Hydraulic dredging, Hopper dredge
Contractor Cost: $9,316,620
Incremental Cost: $2,098,870
Cost/LN FT= $538
Cost/CY=$7

Project Description: This GLO-led CEPRA Cycle 12 project is a continuation of the ongoing beach nourishment initiative using BUDM from the jetty and entrance channel sections in conjunction with USACE federal maintenance dredging of the Brazos Island Harbor entrance and jetty channel segments, and Brazos Santiago Pass. For the State FY2023 event, an estimated 238,699 CYs of beach-quality dredge material was placed on the beach within the corporate limits of SPI. This work was completed in July 2023 and performed in conjunction with BUDM placement at the adjacent Isla Blanca Park beach (CEPRA Project No.1740) which also placed 62,615 CY along the shoreline in Cameron County. The Brazos Island Harbor portion of the Brownsville ship channel is the borrow area for the SPI placement project, and the Brazos Santiago Pass is the borrow area for the Isla Blanca placement project.



Figure 26. *SPI and Isla Blanca Park BUDM. SPI placement shown here.*

No.1724 South Padre Island and No. 1740 Andy Bowie Park BUDM FY 2024

County: Cameron
Partner(s): City of South Padre Island, United States Army Corps of Engineers, Cameron County
Engineer: USACE
Contractor: Great Lakes Dredge and Dock
Completion Date: 11.2024
Beach Fill Volume SPI: 156,750 CY
Protection Linear Footage: 3,250 ft
Template: 48 CY/LN FT
Beach Fill Volume Isla Blanca: 52,255 CY
Protection Linear Footage: 1,290 ft
Template: 41 CY/LN FT
TCRMP Projects: Yes

Budget:
$1,230,856 CEPRA Cycle 13
$555,379 Match SPI
$265,600 Match Cameron County
$5,626,500 USACE In-Kind
TOTAL- $7,677,926
Construction Data:
Construction Method: Hydraulic dredging, Hopper dredge
Contractor Cost: $7,677,926
Incremental Cost: $2,051,426
Cost/LN FT= $451
Cost/CY=$9.81

Project Description: This GLO-led CEPRA Cycle 13 project is a continuation of the ongoing beach nourishment initiative using BUDM from the jetty and entrance channel sections in conjunction with USACE maintenance dredging events of the Brazos Island Harbor entrance and jetty channel segments. For the State FY2024 event, an estimated 156,750 CY of beach-quality dredge material was placed on the beach within the corporate limits of the City of SPI. This work was completed in November 2024 and performed in conjunction with BUDM placement at the adjacent Andy Bowie Park beach (CEPRA Project No.1740 FY 2024). This project scope also included the 2024 annual beach monitoring surveys, data analysis and reporting. Each year, responsibility to arrange for the survey and bear the cost of data collection, analysis and reporting alternates between the GLO and City of SPI. For 2024, this responsibility and cost was borne by the City of SPI. The Brazos Island Harbor portion of the Brownsville ship channel is the borrow area for the project.



Figure 27. *SPI and Andy Bowie Park BUDM. Andy Bowie Park placement shown here.*

Analyzing these completed projects provides critical data for better understanding construction markets and evaluating funding needs for future phases. Shoreline Protection projects ranged from $314-$2,931/LF. These costs fluctuate due to project size, breakwater template, and construction contract type. The average cost per LF ($/LF) for shoreline protection projects completed during this biennium is $1,300. Habitat Restoration projects ranged from $29-$233/LF, with an average of $131/LF. Beach Nourishment projects ranged from $1,338-$3,065/LF, with fluctuations in cost due to construction methodology (truck haul vs. Hydraulic dredge), with an average of $2,201/LF. Most notably, BUDM projects offered the most cost effective manner of cooperative partnerships with these projects ranging from $451-$538/LF with an average cost of $495/LF. This is due to the cost of dredging the maintenance channels being borne by the USACE allowing the GLO and partners to only pay the incremental cost of the sand placement on the beaches.

Economic and Natural Resource Benefits of the CEPRA Program

The Texas Legislature requires the GLO report the economic and natural resource benefits derived from CEPRA construction projects every biennium. To help the GLO meet its reporting requirements, the CEPRA program employed INTERA, an environmental and water resource consulting firm, to undertake an economic cost/benefit study of recently completed CEPRA projects. This study provided an overview of the economic and natural resource benefits derived from nine (9) projects constructed during Cycle 13. While the analyzed projects have CEPRA funding histories that precede Cycle 13, the study considers the project components (cost and benefits) that occurred during Cycle 13. These beach restoration, shoreline protection, and natural resources projects include:

#1615: Dellanera Park Beach Harvey Repair

#1650: Adolph Thomae Jr. Park Shoreline Protection Phases 3-4

#1658:
McFaddin NWR Beach Ridge Restoration Phase II

#1699: Willow Lake Shoreline Stabilization & Star Lake Water Control Structure at McFaddin National Wildlife Refuge

#1710: JD Murphree WMA Shoreline Protection

#1715: Nueces Delta Shoreline Protection and Restoration Phase 2

#1717: Dollar Bay Shoreline Protection & Wetland Restoration Phase 2

#1724: South Padre Island Beach Nourishment w/BUDM State FY 2023 event

#1740: Isla Blanca Park Beach Nourishment w/BUDM State FY 2023 event

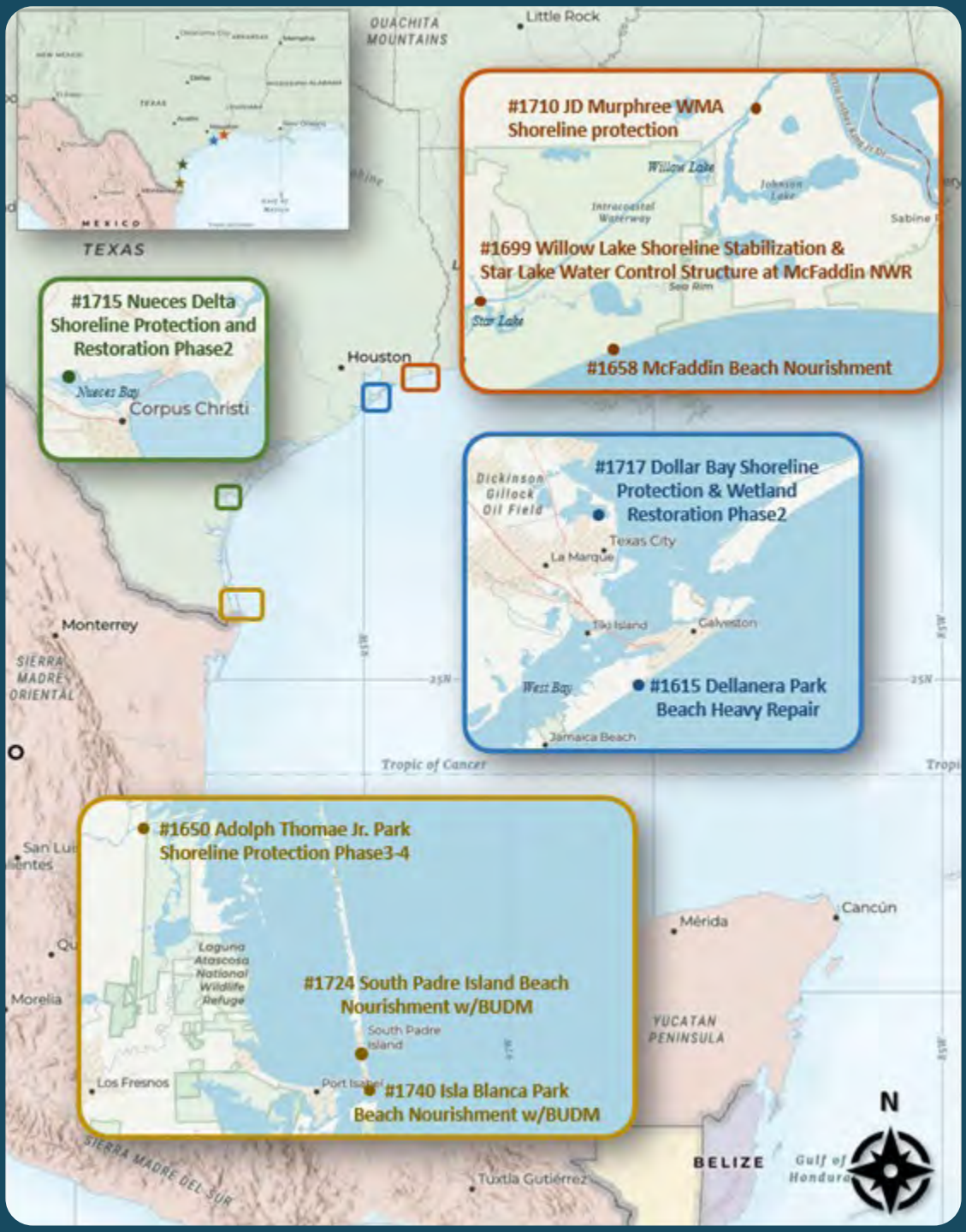


Figure 28. *Projects' Location Map (Courtesy of Intera-GEC)*

Table 4 presents a summary of the assessed projects. When viewing the projects as a group, the table shows that the state of Texas receives an average of $17.3 in economic and financial benefits for every dollar of state funding allocated to these nine (9) projects. The benefit cost calculations applied a discount rate of 5.32%, based on an average of 20- to 30-year corporate bond rates existing at the time of study initiation, to convert benefits and costs occurring at different points in time to comparable equivalent values known as discounted present worth. Table 4 also converts the discounted present worth of benefits and costs to equivalent values at the beginning of 2024 to allow for adding the benefits and costs of the different projects to develop an overall benefit-to-cost ratio.

Like previous CEPRA economic studies, the present study examined similar project benefits (those associated with aesthetics, carbon sequestration, habitat, non-Texas appropriated project funding, out-of-state visitor spending, pollution abatement, recreation, storm surge protection), calculated benefits over time based on a project's durability (generally 1 to 20 years), and adopted a Texas accounting stance such that funding from outside Texas represents a financial benefit to the state as money contributes to the Texas economy.

Notably, leveraging of non-Texas funding plays a substantial role in the economic benefit calculations for many of these projects. Projects were leveraged with funds from the following:

- **McFaddin Beach Nourishment** - NFWF, NRDA, USFWS, RESTORE Act, GOMESA
- **Dollar Bay Shoreline Protection & Wetland Restoration Phase 2** – GOMESA
- **Nueces Delta Shoreline Protection and Restoration Phase 2** – NFWF, GOMESA
- **Willow Lake Shoreline Stabilization** – USFWS
- **Dellanera Park Beach Harvey Repair** – FEMA, GOMESA
- **South Padre Island Beach Nourishment and Isla Blanca Park Beach Nourishment** - BUDM projects with cost savings from a partnership with the USACE for the BUDM from maintenance dredging of the shipping channel.

CEPRA Project	County	Project Year[1]	Discounted Present Worth, Beginning of Project Year		Discounted Present Worth, Beginning of 2022[3]		Benefit to Cost (B/C) Ratio
			Cost[2]	Benefits	Cost	Benefits	
#1615: Dellanera Park Beach Harvey Repair	Galveston	2022	$897,566	$8,965,646	$995,607	$9,944,966	10.0
#1650: Adolph Thomae Jr. Park Shoreline Protection Phases 3-4	Cameron	2023	$1,890,122	$2,159,656	$1,990,676	$2,274,550	1.1
#1658: McFaddin NWR Beach Ridge Restoration Phase II	Jefferson	2022	$5,818,454	$265,784,865	$6,454,005	$294,816,610	45.7
#1699: Willow Lake Shoreline Stabilization & Star Lake Water Control Structure at McFaddin National Wildlife Refuge	Jefferson	2023	$8,895,531	$68,047,494	$9,368,773	$71,667,621	7.6
#1710: JD Murphree WMA Shoreline Protection	Jefferson	2023	$426,800	$794,898	$449,506	$837,186	1.9
#1715: Nueces Delta Shoreline Protection and Restoration Phase 2	Nueces	2023	$4,872	$9,534,208	$5,131	$10,041,428	1956.9
#1717: Dollar Bay Shoreline Protection & Wetland Restoration Phase 2	Galveston	2024	$51,674	$3,637,824	$51,674	$3,637,824	70.4
#1724: South Padre Island Beach Nourishment with BUDM FY2023 Event	Cameron	2023	$2,583,420	$2,044,042	$2,720,858	$2,152,785	0.8
#1740: Isla Blanca Park Beach Nourishment with BUDM FY2023 Event	Cameron	2023	$779,533	$108,242	$821,004	$114,000	0.1
				Total[4]	**$22,857,235**	**$395,486,970**	**17.3**

Notes:

1Project Year represents the year construction costs were incurred, upon commencement of construction.
2Texas portion only; dollar values reflect present worth equivalents at the beginning of Project Year.
3Dollar values reflect present worth equivalents at the beginning of 2024 with a 5.32% discount rate.
4Total B/C Ratio represents the total discounted benefits divided by the total discounted cost of all nine projects combined ($395,486,970 / $22,857,235 = 17.3).
5Project benefitted from GOMESA funding which does not require a state/local funding match, allowing the CEPRA Program to execute the critical restoration project.
6B/C Ratio represent the short-term performance of the individual project and is not representative of the longer-term cumulative benefits of the BUDM program.

Table 4. *Benefit to Cost Ratio of Nine Completed CEPRA Projects*

CEPRA Cycle 13 Project Descriptions

This section describes CEPRA Cycle 13 projects (Table 5). In Cycle 13, there were 29 approved GLO and partner-led projects comprised of beach nourishment, BUDM, shoreline protection, habitat restoration, studies, and demonstration projects of which 21 are TCRMP Tier 1 projects (Figure 29). New projects in Cycle 13 funds totaled $20,785,162 with $8,693,001 in partner match and 31,991,053 in GOMESA funds for a total budget of $61,469,216.

CEPRA CYCLE 13 NEW PROJECTS **DENOTES TCRMP TIER 1 STATUS	
BUDM PROJECTS (5)	
1781	*Boggy Cut GIWW Stabilization*
1782	*Padre Island National Seashore Beach Nourishment***
1784	*Lighthouse Beach Shoreline Protection and Beach Nourishment*
1724	*South Padre Island BUDM FY 2024***
1740	*Andy Bowie Park BUDM FY 2024***
BEACH NOURISHMENT (BN) AND DUNE RESTORATION PROJECTS (2)	
1692	*West Galveston Seawall to 13 Mile Rd Beach Nourishment***
1759	*SPI Dune Restoration***
SHORELINE PROTECTION AND HABITAT RESTORATION PROJECTS (15)	
1650	*Adolph Thomae Jr. Park Shoreline Protection Phase 5***
1716	*Swan Point Shoreline Restoration*
1718	*Newcomb Marsh Wetland Protection and Shoreline Stabilization***
1730	*Boggy Bayou Nature Park Shoreline Protection and Restoration Phase 2***
1757	*Corpus Christi Bay Bluff Shoreline Protection*
1772	*O'Quinn I-45 Estuary Shoreline Protection and Marsh Restoration***
1773	*Port Aransas Nature Preserve Restoration***
1776	*Port Aransas Nature Preserve Shoreline Stabilization***
1779	*Laguna Madre Rookery Island Alternatives Analysis and Feasibility Study*
1783	*Harbor of Refuge Shoreline Protection***
1786	*Benny's Shack Island Restoration and Shoreline Protection Ph 2***
1788	*Aransas Bay Bird Rookery Island Habitat Restoration and Shoreline Protection "Deadman Island"***
1789	*Dana Cove Marsh Restoration and Shoreline Protection*
1791	*Dressing Point Island and Shoreline Restoration*
1792	*Magnolia Beach CAP Section 206***
STUDIES AND DEMONSTRATION PROJECTS (7)	
1743	*GLO Beach Monitoring & Maintenance Plan (BMMP)***
1756.1	*Region 4 GLO Geophysical Survey***
1756.2	*Region 1 GLO Geotechnical Survey***
1756.3	*Lower Texas OCS Geophysical Survey***
1756.4	*Upper Texas OCS Geotechnical Survey***
1770	*Nearshore Circulation and Sediment Dynamics of the Upper Texas Gulf Coast***
1793	*CEPRA Economic Study*

Table 5. *List of CEPRA 13 Projects.*

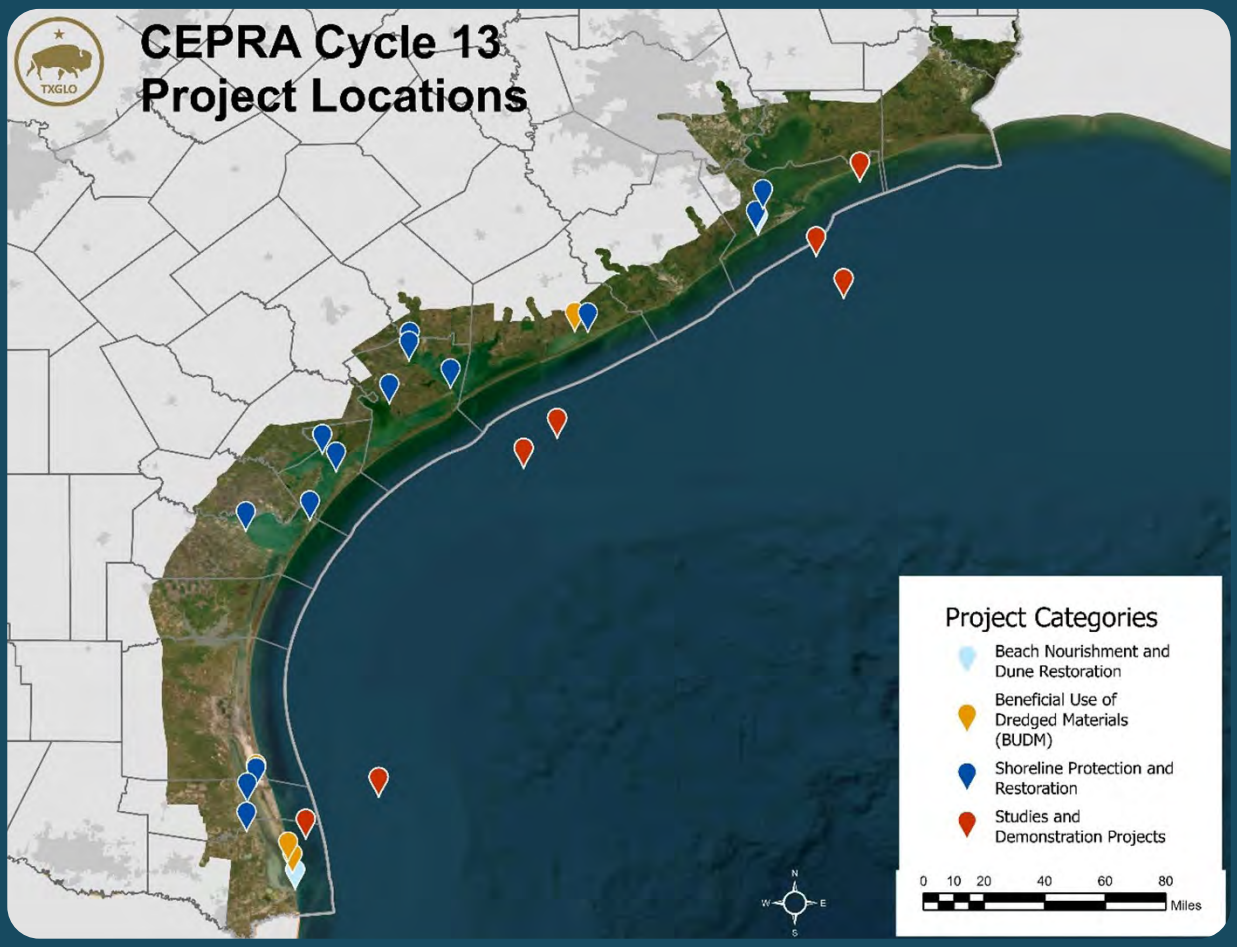


Figure 29. *Location of all CEPRA Cycle 13 Projects*

BUDM

Through partnerships with local communities and the USACE or Navigation Districts, the GLO continuously seeks opportunities to utilize material dredged from navigation channels to beneficially use in beach and dune nourishment or marsh restoration. Cycle 13 funded five (5) BUDM projects (Figure 30). CEPRA 1740 Andy Bowie Park BUDM FY 2024 and CEPRA 1724 SPI BUDM FY 2024 were presented in CEPRA Projects Completed During the Biennium

Beach Nourishment and Dune Restoration

Through USACE-permitted borrow sources, the GLO oversees small- and large-scale beach nourishment and dune restoration projects to facilitate beach and dune habitat restoration on Gulf and Bay beaches. GLO-engineered beaches are maintained through a BMMP which actively ensures beaches maintain their engineered fill template above the 50% threshold to ensure reimbursement eligibility by FEMA in the event damage by tropical storm. Cycle 13 funded two (2) beach nourishment and dune restoration projects (Figure 30).

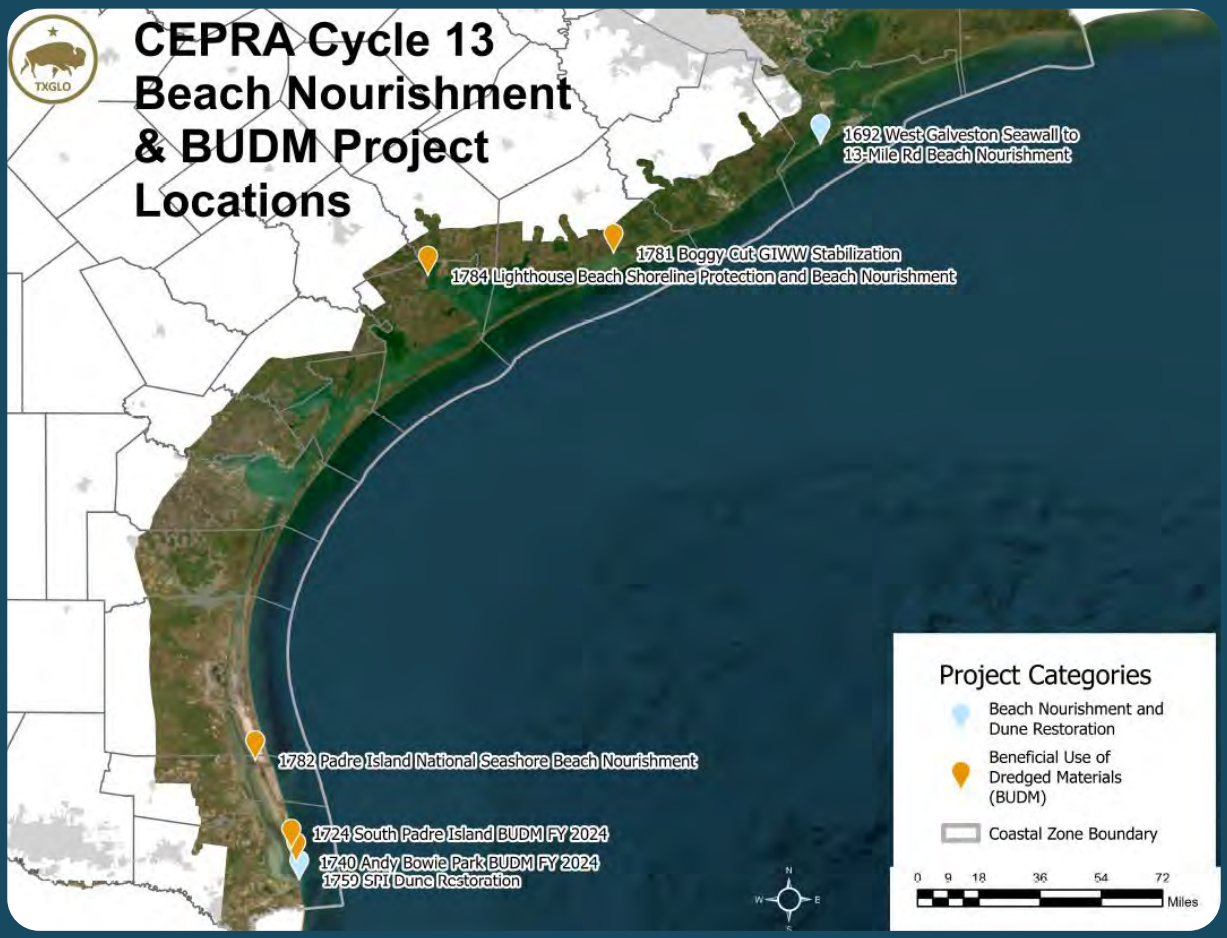


Figure 30. *BUDM and BN projects in Cycle 13.*

1692 West Galveston Seawall to 13-Mile Rd Beach Nourishment

Partner(s): Park Board of Trustees of the City of Galveston
Phase: Construction
Location: Galveston County
Budget: $23,505,000
CEPRA Share: $5,000
GOMESA Share: $23,500,000
Type: GLO-Led



Figure 31. *Typical West Galveston Beach before nourishment.*

Project Description: Follow-up construction phase to the previous Cycle 11-12 engineering design phase of the project. The project aims to renourish approximately 28,680 LF of Gulf-facing shoreline from the west extent of the Dellanera RV Park to the west bollard line at the 13-Mile Road beach access point, West Galveston Island. The project area is adjacent to some of the most populous beachfront subdivisions, and includes 14 public beach access points, which make up about 29% of the total beachfront access points on Galveston Island. The construction under this phase of the project will increase reactional benefits for citizens and visitors, help restore habitat for native and transient species, safeguard the primary evacuation route for west Galveston residents and visitors and mitigate down drift erosion on west Galveston Island. The engineering design phase is still underway; construction will likely commence in late 2025.

1759 SPI Dune Restoration

Partner(s): City of South Padre Island
Phase: Construction
Location: Cameron County
Budget: $600,000
CEPRA Share: $360,000
GOMESA Share: $0
Type: Partner-Led



Figure 32. *Conceptual Site Plan for Dune planting at South Padre Island*

Project Description: This is an ongoing resiliency project for the City of SPI. The city has enhanced the growth of the dune field by planting native Texas coastal vegetation and capturing wind-driven sand.

1781 Boggy Cut GIWW Stabilization

Partner(s): Matagorda Bay Foundation
Phase: Engineering and Design
Location: Matagorda County
Budget: $500,000
CEPRA Share: $300,000
GOMESA Share: $0
Type: GLO-Led



Figure 33. *Boggy Cut.*

Project Description: This project is to mitigate erosion and ecology restoration on the islands separating the East Matagorda Bay and the GIWW. This project is in phase 1, starting from the 30% of the Coastal Texas Study and engineering a final design which will include breakwaters, marsh creation, island restoration and oyster reefs on the bayside of the GIWW. This project is part of the Texas Coastal Study, M-8.

1782 Padre Island National Seashore Beach Nourishment

Partner(s): Willacy County Navigation District
Phase: Engineering and Design
Location: Padre Island Natural Seashore, Willacy County
Budget: $353,797
CEPRA Share: $265,347
GOMESA Share: $0
Type: GLO-Led



Figure 34. *Padre Island National Seashore.*

Project Description: Padre Island National Seashore supports the largest nesting population of endangered Kemp's ridley sea turtles in the U.S. This critical nesting habitat is being lost at an average rate of 12.5 feet per year (1950's – 2019). The project is one of the environmental restoration measures identified as part of the Coastal Texas Feasibility Study. Dredge material will be sourced from the Entrance Channel up through Mile 6 of the Port Mansfield Ship Channel, approximately stations -4+000 to 16+000. Preliminary analysis shows approximately 300,000 CY of annual shoaling in this section of the channel, which would result in a 2-year dredge cycle of 600,000 CY. This phase of the project is to provide a 100% design for the current cycle of USACE BUDM dredging cycle and for future beach nourishments.

1784 Lighthouse Beach Shoreline Protection and Beach Nourishment

Partner(s): City of Port Lavaca
Phase: Feasibility Study
Location: Calhoun County
Budget: $175,000
CEPRA Share: $105,000
GOMESA Share: $0
Type: GLO-Led

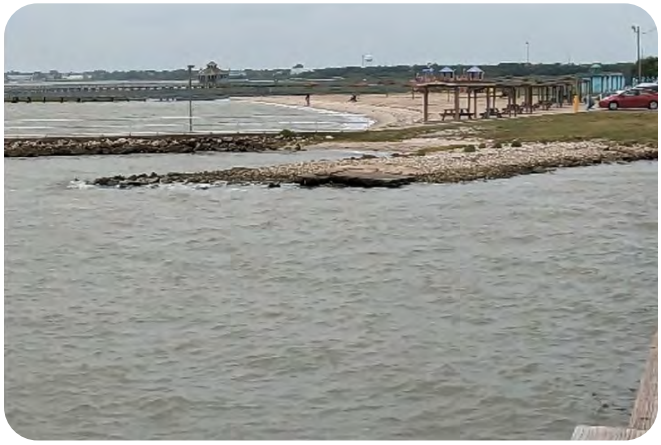


Figure 35. *Lighthouse Beach Project Area.*

Project Description: A feasibility study is being conducted to determine the optimal solutions to combat erosion at Lighthouse Beach in Calhoun County. There is the potential to use locally dredged material to supplement the beach nourishment.

Shoreline Protection and Habitat Restoration

Shoreline protection projects range from "hard" structures like revetments, riprap, breakwaters, and bulkheads to green "soft" techniques like living shorelines, marsh planting, and earthen structures. Many projects combine a hard protective structure with some form of marsh restoration. Marsh and habitat restoration components may also involve restoring oyster reefs, rookery islands, wetlands, or ecosystem hydro-connectivity. Cycle 13 includes 15 shoreline protection and habitat restoration projects (Figure 36).

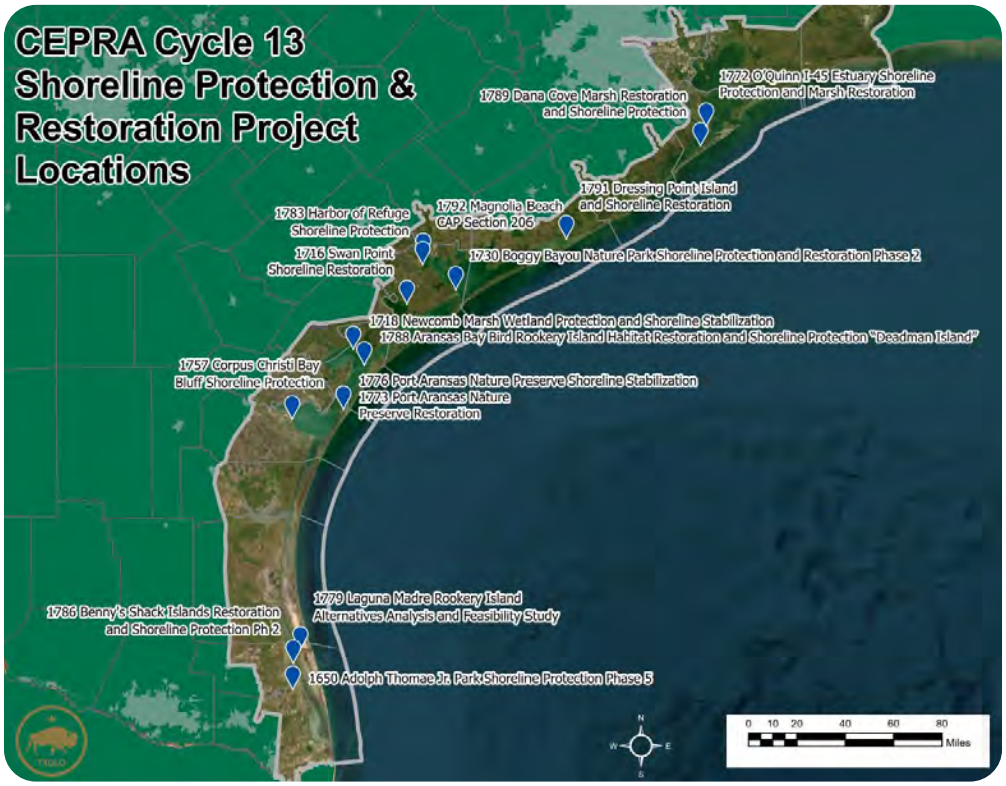


Figure 36. *Shoreline Protection and Habitat Restoration Projects in Cycle 13.*

1650 Adolph Thomae Jr. Park Shoreline Protection Phase 5

Partner(s): Camerson County Parks Department
Phase: Construction
Location: Cameron County
Budget: $5,055,200
CEPRA Share: $88,200
GOMESA Share: $4,908,200
Type: GLO-Led



Figure 37. *Before and after construction of shoreline protection at Adolph Thomae Jr. Park in Cameron County.*

Project Description: Phase 5 of a phased shoreline protection initiative to stabilize the bank of the Arroyo Colorado cutoff channel adjacent to Adolph Thomae Jr. County Park, where over time, the shoreline bank has eroded approximately 16 to 18 feet inland. Phase 5, the final phase of the project, will stabilize a final unprotected 2,940 LF of eroding shoreline by completing the engineering design for and construction of a living shoreline (habitat bench) and a rip rap breakwater that was permitted during Phase 3 of the project. The living shoreline will consist of a vegetated slope stabilization habitat bench that will be constructed along 2,740 LF of shoreline, while the breakwater stone rip rap breakwater will be constructed parallel to the shoreline in the nearshore zone along 200 LF of shoreline.

1716 Swan Point Shoreline Restoration

Partner(s): Calhoun County
Phase: Engineering and design, permitting
Location: Calhoun County
Budget: $521,940
CEPRA Share: $165,000
GOMESA Share: $0
Type: GLO-Led



Figure 38. *Swan Point Shoreline.*

Project Description: This Phase 2 continuing project will advance the engineering design and permitting for the marsh restoration template at the historic Swan Point marsh complex adjacent to Bill Sanders Memorial Park. The marsh will be expanded from 0.2 acres to 6.2 acres utilizing dredge material and protected with breakwater structures.

1718 Newcomb Marsh Wetland Protection and Shoreline Stabilization

Partner(s): Texas Parks and Wildlife
Phase: Engineering and design, permitting
Location: Aransas County
Budget: $601,207
CEPRA Share: $192,000
GOMESA Share: $31,207
Type: GLO-Led



Figure 39. *Newcomb Marsh shoreline.*

Project Description: This Phase 2 continuing project will advance the engineering design and permitting for a 3,000 LF shoreline protection structure along the Newcomb Point southern marsh shoreline.

1728 Shoreline and Wetlands Protection at Cohn Preserve

Partner(s): The Nature Conservancy
Phase: Engineering and design, permitting, construction
Location: Nueces Cunty
Budget: $779,250
CEPRA Share: $480,750
GOMESA Share: $0
Type: GLO-Led



Figure 40. *Cohn Preserve Shoreline.*

Project Description: This continuing project will protect the Francine Cohn Preserve shoreline and ecologically important lagoons on the bay side of Mustang Island from further breaching by building a 1,700 LF shoreline protection structure.

1729 Mad Island Shoreline Protection and Ecosystem Restoration

Partner(s): The Nature Conservancy
Phase: Engineering and design, permitting, construction
Location: Matagorda County
Budget: $7,090,284
CEPRA Share: $280,578
GOMESA Share: $6,509,975
Type: Partner-Led



Figure 41. *Mad Island Shoreline.*

Project Description: This Phase 2 continuing project will construct 1.8 miles of breakwater along the Mad Island Marsh Preserve and fund the engineering design and permitting for an additional 0.5 mile shoreline protection structure along the western side of the Preserve.

1730 Boggy Bayou Nature Park Shoreline Protection and Restoration Phase 2

Partner(s): Calhoun County
Phase: Permitting
Location: Boggy Nature Park, Calhoun County
Budget: $644,793
CEPRA Share: $398,875
GOMESA Share: $0
Type: GLO-Led



Figure 42. *Boggy Bayou Shoreline.*

Project Description: Boggy Bayou Nature Park is located on the western shoreline of Matagorda Bay in Calhoun County, north of Port O'Connor, TX. This county park is open daily to the public. Visitors enjoy outdoor recreational activities such as fishing, bird watching, kayaking and hiking. The park shoreline is approximately 3,700 feet long. Long-term analysis of the shoreline indicates the erosion rate is as high as 12 feet per year, particularly closer to the main inlet. Phase 2 funding is needed to determine the best alternative, obtain required permits and prepare construction documentation. If no actions are taken, the observed erosion can lead to loss of county owned property, widening of the inlet, degradation of the marsh ecosystem and reduction of recreational area.

1757 Corpus Christi Bay Bluff Shoreline Protection

Partner(s): City of Corpus Christi
Phase: Alternatives Analysis
Location: Nueces County
Budget: $2,095,000
CEPRA Share: $1,275,000
GOMESA Share: $0
Type: GLO-Led

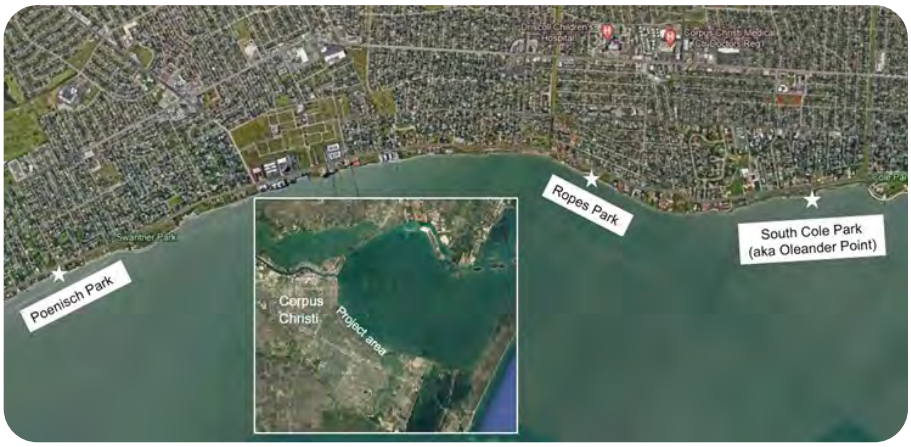


Figure 43. *Project Locations.*

Project Description: The goal of this project is to stabilize highly-eroding urban shorelines and unconsolidated bluffs at three public parks- Poenisch, Ropes and South Cole, along Corpus Christi Bay. The parks have experienced severe long-term erosion that has worsened with recent tropical storms. The project scope includes site characterization, data collection and alternative analysis for each park.

1772 O'Quinn I-45 Estuary Shoreline Protection and Marsh Restoration

Partner(s): Scenic Galveston, Inc.
Phase: Engineering and Design
Location: O'Quinn Marsh, Galveston County
Budget: $350,000
CEPRA Share: $350,000
GOMESA Share: $0
Type: Partner-Led



Figure 44. *Project Location.*

Project Description: The O'Quinn I-45 Estuary Corridor is an intertidal marsh located near the I-45 Causeway, southeast of Bayou Vista, and is part of the greater Virginia Point Preserve complex. The project area includes approximately 1.6+ miles of bay shoreline protection near its junction with Jones Bay and 300-400 acres of potential estuarine wetland restoration, building upon and complementing previous restoration work by Scenic Galveston and partners in the Preserve complex. This project is for project design, including site analysis, site survey, alternatives analysis, soils analysis and other engineering efforts toward a shovel-ready project for future construction funding.

1773 Port Aransas Nature Preserve Restoration

Partner(s): City of Port Aransas
Phase: Permitting & Engineering Design
Location: Port Aransas
Budget: $600,000
CEPRA Share: $360,000
GOMESA Share: $0
Type: GLO-Led



Figure 45. *Project Area.*

Project Description: Follow-up engineering design finalization and construction phase to the previous Cycle 11-12 phase of the project, which consisted of data collection, modeling, and the preliminary engineering design and permitting of an identified preferred solution to address the reduction and mitigation of erosion along a 5,700 foot long section of Magnolia Beach shoreline adjacent to Lavaca Bay. The bay shoreline at this location has retreated approximately 5 to 10 feet per year between 2004 and 2019 and more rapidly from 2020 onward. This phase of the project will construct three rock groins, including a headland groin, which will form two beach cells, into which will be placed beach fill material to create two pocket beach areas. The groins will minimize wave energy reaching the shoreline reducing erosion from waves and longshore currents at the park and the beach fill will provide additional beach area allowing for greater recreational use by the public.

1776 Port Aransas Nature Preserve Shoreline Stabilization

Partner(s): City of Port Aransas
Phase: Permitting & Engineering Design
Location: Port Aransas
Budget: $750,000
CEPRA Share: $300,000
GOMESA Share: $0
Type: GLO-Led



Figure 46. *Bulkhead.*

Project Description: Data collection, engineering design and permitting phase of a submerged rock revetment erosion solution which would be constructed during a later phase of the project on the seaward (channel-ward) side of the 4,700 foot-long existing concrete bulkhead along the Corpus Christi Ship Channel adjacent to the City of Port Aransas, in the vicinity of the Port Aransas Nature Preserve. This submerged rock revetment has been identified as a preferred solution as a preventative measure to mitigate longitudinal scour of the channel bed along the bulkhead foundation due to navigation along the ship channel. Some sections of the bulkhead's vertical concrete panels appear to have experienced foundational undermining because of this scour, which has led to vertical subsidence of sections of the bulkhead. If left unchecked, this condition could lead to a potential collapse of sections of the bulkhead. The submerged rock revetment will support the structure from blowout and the rock will also serve to capture sediment along the base of the seaward side of the bulkhead (where the water is deeper) and greatly aid in stopping scour.

1779 Laguna Madre Rookery Island Alternatives Analysis and Feasibility Study

Partner(s): Willacy County Navigation District
Phase: Alternatives Analysis, Early Planning Phase: A/A
Location: Willacy County
Budget: $448,357
CEPRA Share: $269,014.20
GOMESA Share: $0
Type: GLO-Led



Figure 47. *Study Area.*

Project Description: This is an alternatives analysis and feasibility study focusing on dredging of the Mansfield Ship Channel back-barrier island portion to restore bird island rookeries. Analyses will be very pointed towards finding ways to design around natural resources like sea grasses which are omnipresent in the area and present difficulties during the permitting phase.

1783 Harbor of Refuge Shoreline Protection

Partner(s): City of Port Lavaca
Phase: Design and Engineering
Location: Calhoun County
Budget: $688,000
CEPRA Share: $412,800
GOMESA Share: $0
Type: GLO-Led



Figure 48. *Project shoreline.*

Project Description: This project is to reduce erosion, stabilize the existing shoreline, and create additional wetlands at the Harbor Refuge in Calhoun County as part of the TCRMP. This first phase of the project is to determine alternative analysis and design the shoreline protection.

1786 Benny's Shack Island Restoration and Protection Phase 2

Partner(s): Coastal Bend Bays and Estuaries
Phase: Final Design, Construction
Location: Willacy County
Budget: $6,260,000
CEPRA Share: $6,200,000
GOMESA Share: $0
Type: Partner-Led



Figure 49. *Benny's Shack Rookery Island.*

Project Description: This project will restore Benny's Shack rookery island by utilizing fill and constructing a protective revetment, expanding the island an additional 2.9 acres of nesting habitat.

1788 Aransas Bay Bird Rookery Island Habitat Restoration and Shoreline Protection "Deadman Island"

Partner(s): Coastal Bend Bays & Estuaries Program
Phase: Construction Phase
Location: Aransas County
Budget: $3,075,412
CEPRA Share: $1,845,247
GOMESA Share: $0
Type: Partner-Led



Figure 50. *Deadman Rookery Island.*

Project Description: This project that will restore upwards of three acres on Deadman Island using sand fill, rock riprap, and an offshore riprap reef. Deadman Island is an important bird rookery in the Aransas Bay system and supports nesting habitat for colonial waterbirds like pelicans, egrets, skimmers, and terns.

1789 Dana Cove Marsh Restoration and Pirate's Cove Shoreline Protection

Partner(s): TPWD; Pirate's Cove HOA
Phase: Alternatives Analysis
Location: Galveston County
Budget: $2,213,170
CEPRA Share: $2,051,860
GOMESA Share: $0
Type: GLO-Led



Figure 51. *Project Area.*

Project Description: This project that will restore upwards of twenty acres of marsh behind a newly emplaced breakwater in Dana Cove and create additional shoreline protection along an adjacent shoreline to protect eroding wetlands. The marsh restoration and shoreline protection will enhance critical wetlands that are crucial foraging and nesting habitat in west Galveston Bay.

1791 Dressing Point Island and Shoreline Restoration

Partner(s): Ducks Unlimited
Phase: Construction
Location: Dressing Point, Matagorda County
Budget: $8,520,123
CEPRA Share: $5,000
GOMESA Share: $5,000,000
Type: Partner-Led



Figure 52. *Rookery Island.*

Project Description: Dressing Point Island is a small natural island located in the eastern end of East Matagorda Bay in Matagorda County, Texas. The project area also includes an emergent shell hash reef that is immediately adjacent to the southwest. The island serves as an important bird rookery island in East Matagorda Bay and the upper coast of Texas. The project includes the construction of a breakwater system to protect Dressing Point from additional erosion and the increase of the island's elevation to increase its resilience to future erosion.

1792 Magnolia Beach CAP Section 206

Partner(s): Calhoun County
Phase: Design and Engineering
Location: Calhoun County
Budget: $1,300,000
CEPRA Share: $600,000
GOMESA Share: $0
Type: Partner-Led



Figure 53. *A/A Study Area.*

Project Description: This partner-led project is conducting an ecosystem restoration feasibility study with the USACE under Section 206 of the Water Resources Development Act of 1996 to examine the potential for restoration of a large complex of salt marshes in the Magnolia-Indianola area.

Studies or Demonstration Projects

The GLO funds various studies to assess the status of erosion on the coast, evaluate processes for erosion mitigation, and study methods for increasing coastal resiliency. Cycle 13 includes seven (7) study or demonstration projects (Figure 54). CEPRA 1793 is presented in Economic and Natural Resource Benefits of the CEPRA Program.

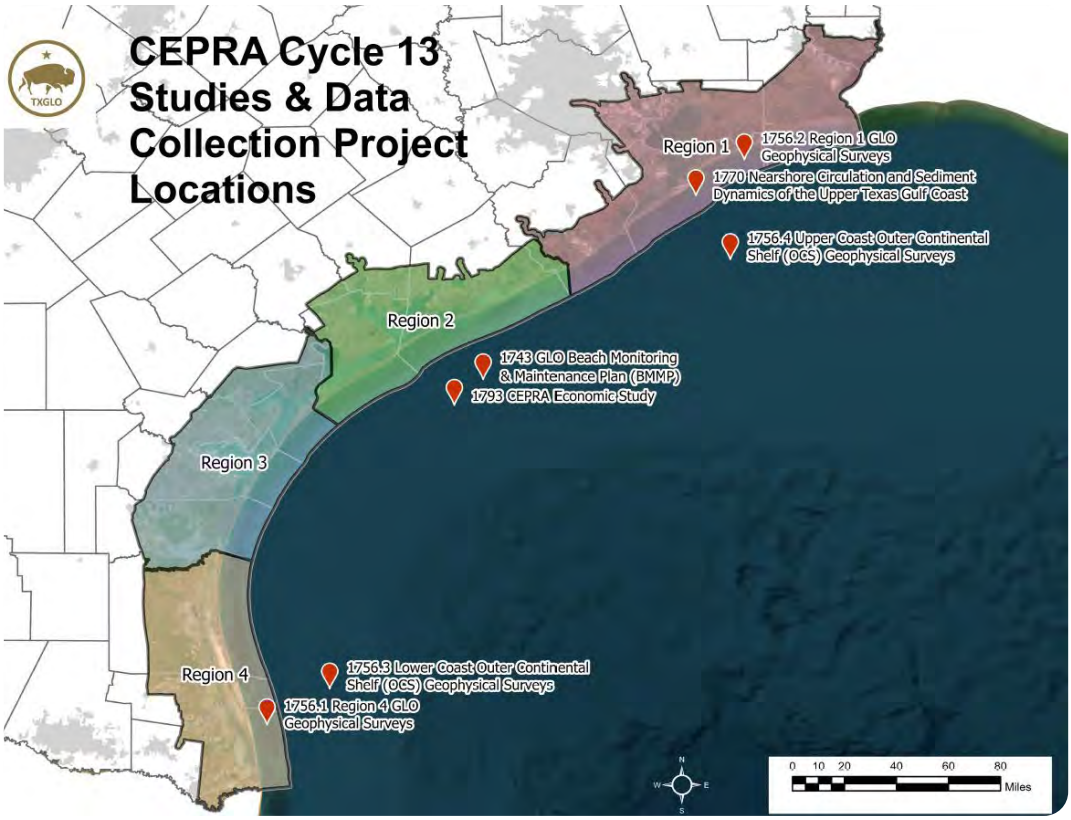


Figure 54. *Cycle 13 Studies and Data collection projects.*

1743 GLO Beach Monitoring & Maintenance Plan (BMMP)

Partner(s): None, Internal GLO Study
Phase: Study
Location: Total Texas Coast
Budget: $348,326
CEPRA Share: $348,326
GOMESA Share: $0
Type: GLO-Led



Figure 55. *Tropical Storm Alberto piling up sand on Texas Beach*

Project Description: This project is an ongoing partnership between the GLO and the Conrad Blucher Institute at Texas A&M University-Corpus Christi to conduct beach profile surveys of CEPRA engineered beaches and to provide a summary report with recommendations for possible maintenance re-nourishment. The BMMP and associated ongoing monitoring is required for these CEPRA beach sites to remain eligible for FEMA Public Assistance to address repairs in the event these sites are impacted by future tropical storm events significant enough to warrant a federal disaster declaration that triggers FEMA Public Assistance eligibility.

No.1756.1 Region 4 GLO Geophysical Surveys
No.1756.3 Lower Texas OCS Geophysical Surveys

Partner(s): BOEM, Internal Study
Phase: Data Collection, Desktop Study, Reporting
Location: Region 4, Lower Texas Coast OCS
Budget: $3,214,318
CEPRA Share: $0
GOMESA Share: $1,500,000
Type: GLO-Led

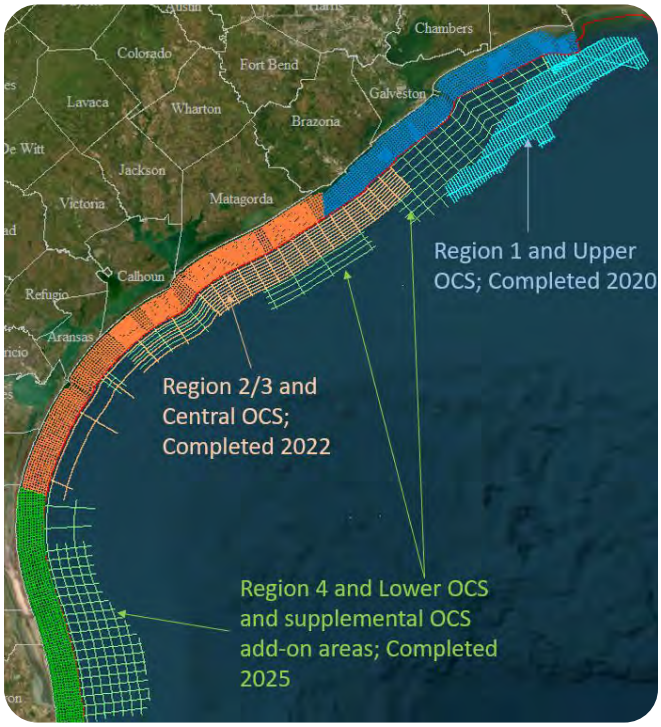


Figure 56. *Geophysical survey lines and survey areas in GLO and OCS waters*

Project Description: This is a GLO-contracted study with APTIM Environmental and Infrastructure. This study is completing two reconnaissance-level geophysical surveys to collect data offshore Texas Coastal Resiliency Plan Region 4 and Outer Continental Shelf (OCS) areas in Lower Texas and Data Gap areas found in the OCS in Upper Texas. The study includes a desktop study, data collection, data interpretation, vibracore planning, and final reporting for potential sediment resource areas located on submerged lands. This completed a combined effort with the BOEM to map offshore Texas, in state-owned and federally-owned waters, for potential sediment resources. Over 11,300 nautical miles of data collection have been completed to date.

No.1756.2 Region 1 GLO Geotechnical Surveys
No.1756.4 Upper Texas OCS Geotechnical Surveys

Partner(s): BOEM, Internal GLO Study
Phase: Data Collection, Desktop Study, Reporting
Location: Region 1, Upper Texas Coast OCS
Budget: $2,837,264
CEPRA Share: $0
GOMESA Share: $1,000,000
Type: GLO-Led

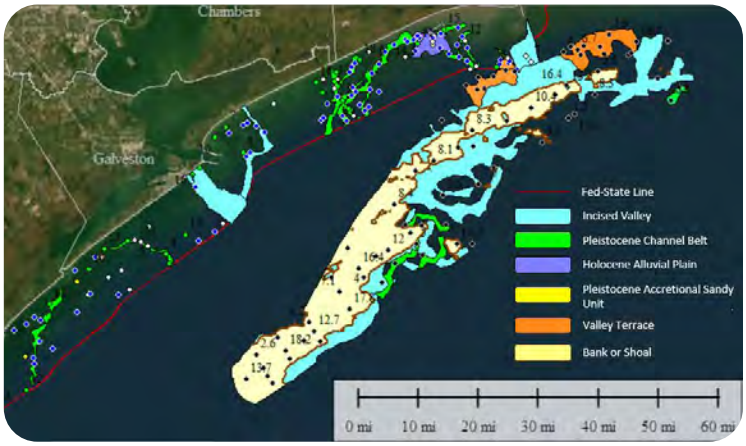


Figure 57. *Potential Sediment resources with Feet of sand found.*

Project Description: This is a GLO-contracted study with APTIM Environmental and Infrastructure. This study completed two reconnaissance-level geotechnical surveys to collect vibracores in potential sediment resource areas offshore state and federal waters in Region 1 and Upper OCS Texas to ground truth the sediment quality and quantity. Efforts include core collection, core interpretation, coordination between the agencies, developing a system to identify priority areas for design-level surveys, and final reporting efforts.

No.1756.2 Region 1 GLO Geotechnical Surveys
No.1756.4 Upper Texas OCS Geotechnical Surveys

Partner(s): Texas A&M University/ Texas A&M Engineering Experiment Station and HR Wallingford
Phase: Study
Location: Galveston County
Budget: $191,253
CEPRA Share: $191,552
GOMESA Share:
Type: GLO-Led

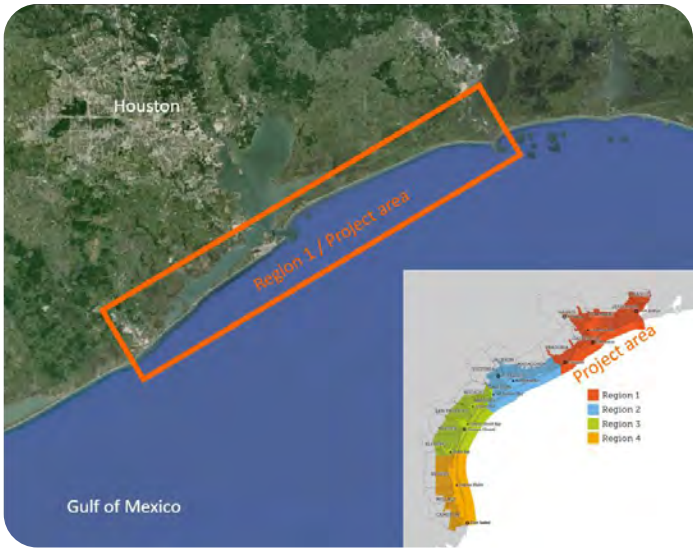


Figure 58. *Map of Project area.*

Project Description: For this study, Texas A&M University / TEES and HR Wallingford (HRW), are collaborating to collect hydrodynamic and sediment transport field data in the nearshore zone of Galveston Island to help quantify the cross-shore distribution of sediment transport, its seasonality, and its contribution to regional sediment budgets. The field studies also seek to validate modeling work completed for CEPRA 1703 (Cycle 12), Longshore Transport Study, Regions 1 and 4.

Moving Forward into Cycle 14

The CEPRA program provides significant benefits to Texas coastal residents and ecosystems through successful implementation of beach nourishment and dune restoration, shoreline protection, marsh and habitat restoration, and associated studies. Texas relies on water-based commerce and commercial resources. These resources are at risk from erosive forces, and the CEPRA program's role in protecting land and infrastructure is critical to support economics and ecosystem services. For the Cycle 13 biennium, the CEPRA program implemented vital projects along the Texas coastline and will continue to do so through ongoing funding and partnerships.

Moving into Cycle 14, the CEPRA program will use the dedicated "Hot Tax" and GOMESA funding to help effectively address erosive forces along Texas shorelines. The number of and costs for CEPRA projects will likely continue to increase as construction markets continue to fluctuate. During Cycle 13, twenty (20) applications were selected as alternative projects due to on-going funding limitations.

During the month of March, the CEPRA program's project managers, along with CMP, hosted four workshops in South Padre Island, Port Aransas, Port Lavaca, and League City to meet with current, past, and potential partners. During the workshops, 177 coastal constituents participated and discussed potential projects with the CEPRA team. The CEPRA project managers will reach out to further engage these potential project partners about completing effective and competitive applications based on CEPRA criteria.

Works Cited

Jeffrey Paine, T. C. (2021). *Texas Gulf Shoreline Movement and Beach-Foredune Elevations and Volumes to 2019.* Retrieved from The Texas Shoreline Change Project

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