The Texas Coastal Resiliency Master Plan

Lavaca Bay Foundation Monthly Meeting
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Port Lavaca, TX

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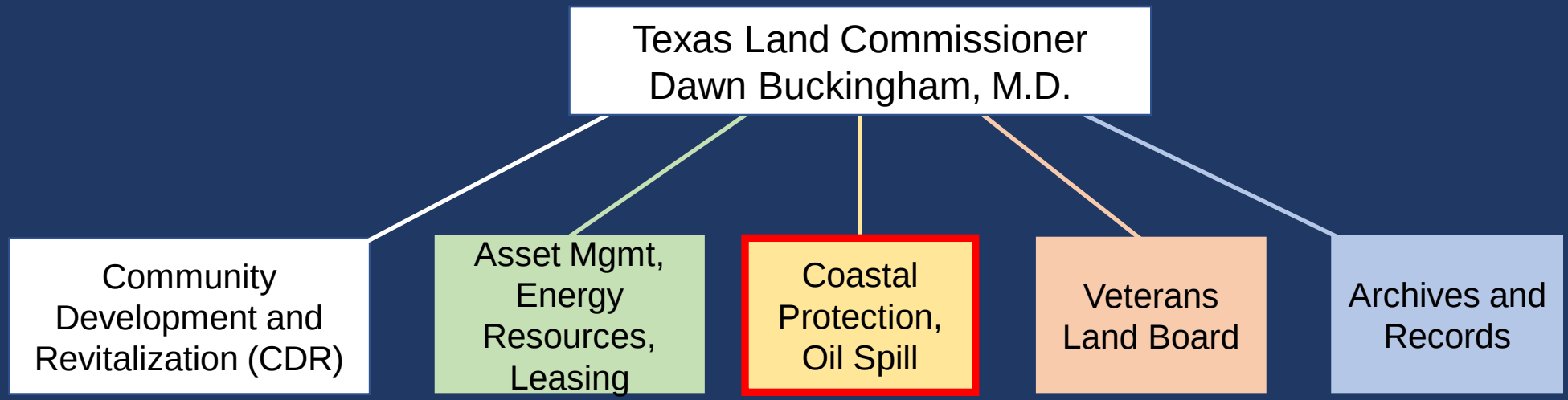
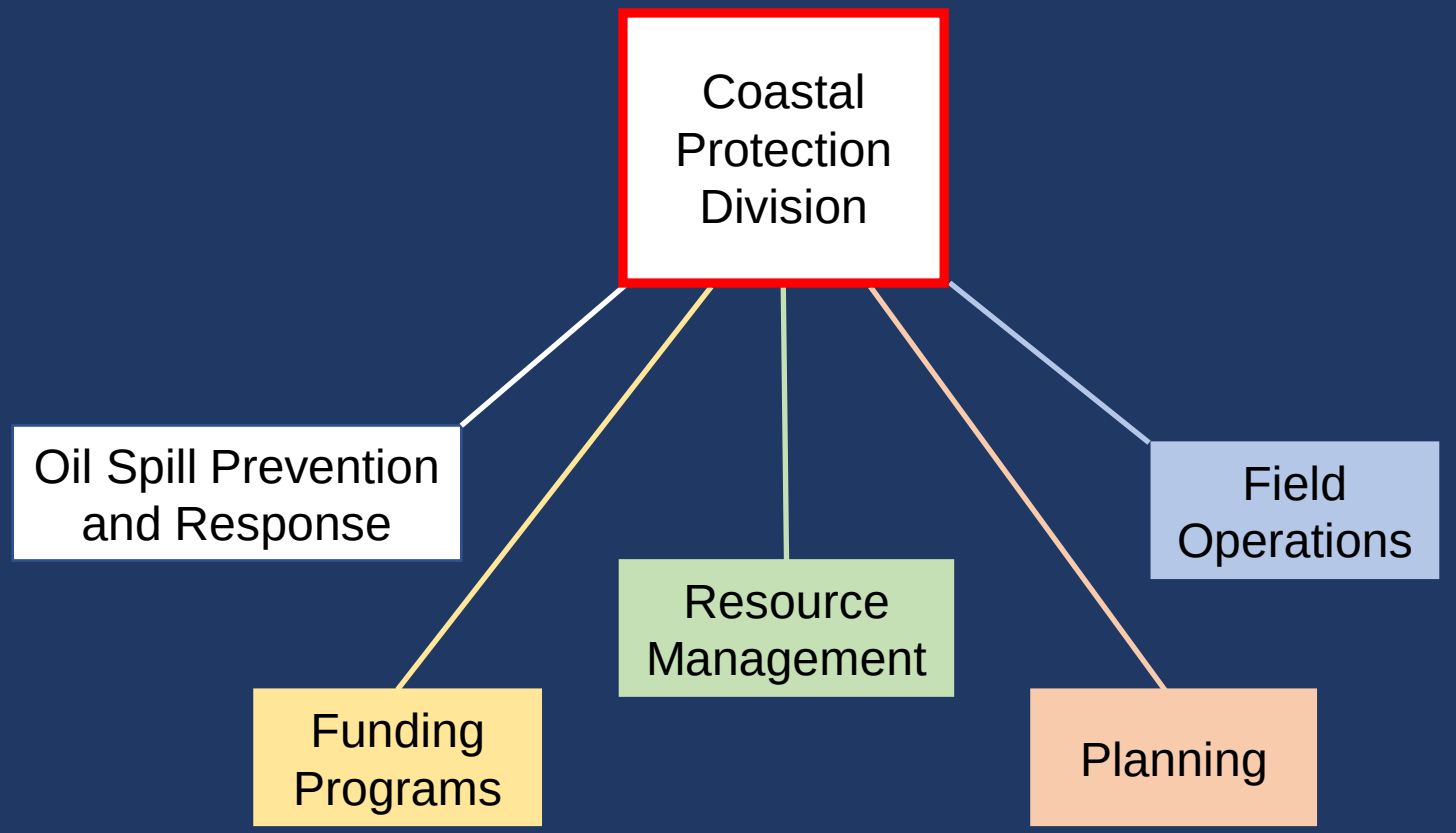
Texas General Land Office

Agency Mission

The Texas General Land Office primarily serves the schoolchildren, veterans, and the environment of Texas. The agency does so by preserving our history, maximizing state revenue through innovative administration, and through the prudent stewardship of state lands and natural resources.



GLO Coastal Protection



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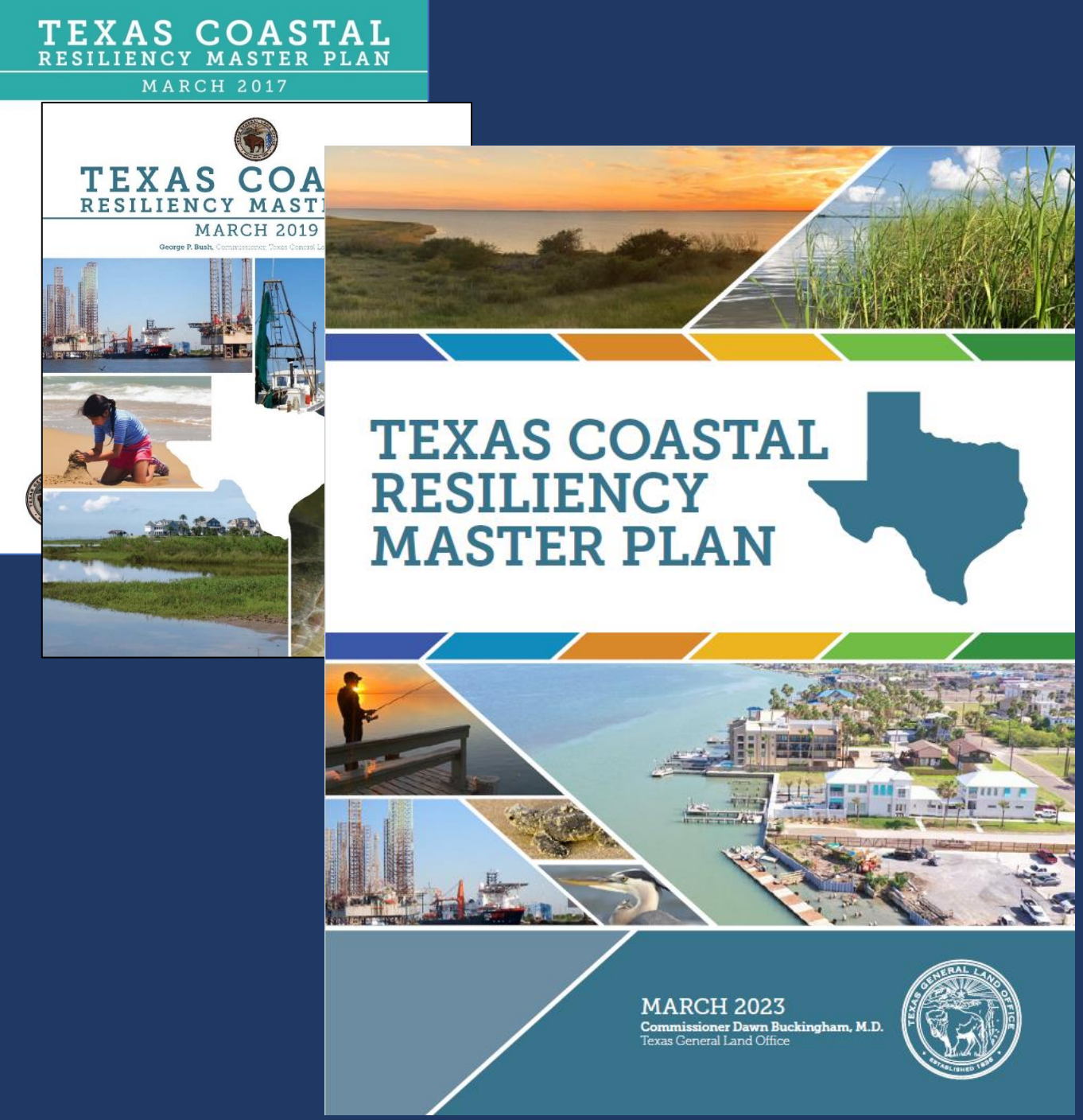
Need for a Plan

- Texas has 367 miles of Gulf beach shoreline (6th) and 3,359 miles of total shoreline (7th)

- The Bad News – Disasters
  - 2008 Hurricane Ike
  - 2010 Deepwater Horizon BP Oil Spill
  - 2017 Hurricane Harvey
  - 2020 Season (most named storms record of 30)

- The Good News – Funding
  - Help prioritize internal GLO funding decisions
  - Help inform external funding partners
  - Hotel Occupancy Tax to address coastal erosion
  - GOMESA

Bolivar Peninsula after Hurricane Ike
source: NWS



Goals and Objectives

1. Identify, select, and fund projects that address the coastal vulnerabilities to restore, enhance, and protect the Texas coast

2. Adapt priorities to accommodate changing conditions through future iterations

3. Communicate the environmental and economic value of the Texas coast to state and national audiences

Role of this Plan

What this Plan is

- A list of high-priority coastal resiliency initiatives and projects
- A snapshot of the needs of the state for coastal resiliency at the time of publication
- An opportunity for the GLO to align coastal resiliency priorities with feedback from stakeholders, coastal experts, and other public agencies

What this Plan is NOT

- An automatic funding mechanism

** Tier 1 projects are typically prioritized for GLO funding programs*

- A guarantee that projects will be funded or completed
- A completely comprehensive list of the coastal resiliency projects that are necessary coastwide

Complementary Planning

Coastal Texas Project

- Galveston Bay Storm Surge Barrier System
- South Padre Island Beach Project
- Coastwide Ecosystem Restoration (8 projects)

Regional Flood Planning

- GLO River Basin Flood Studies
- TWDB Regional Flood Planning Groups

Restoration Planning

- NRDA
- RESTORE
- NFWF

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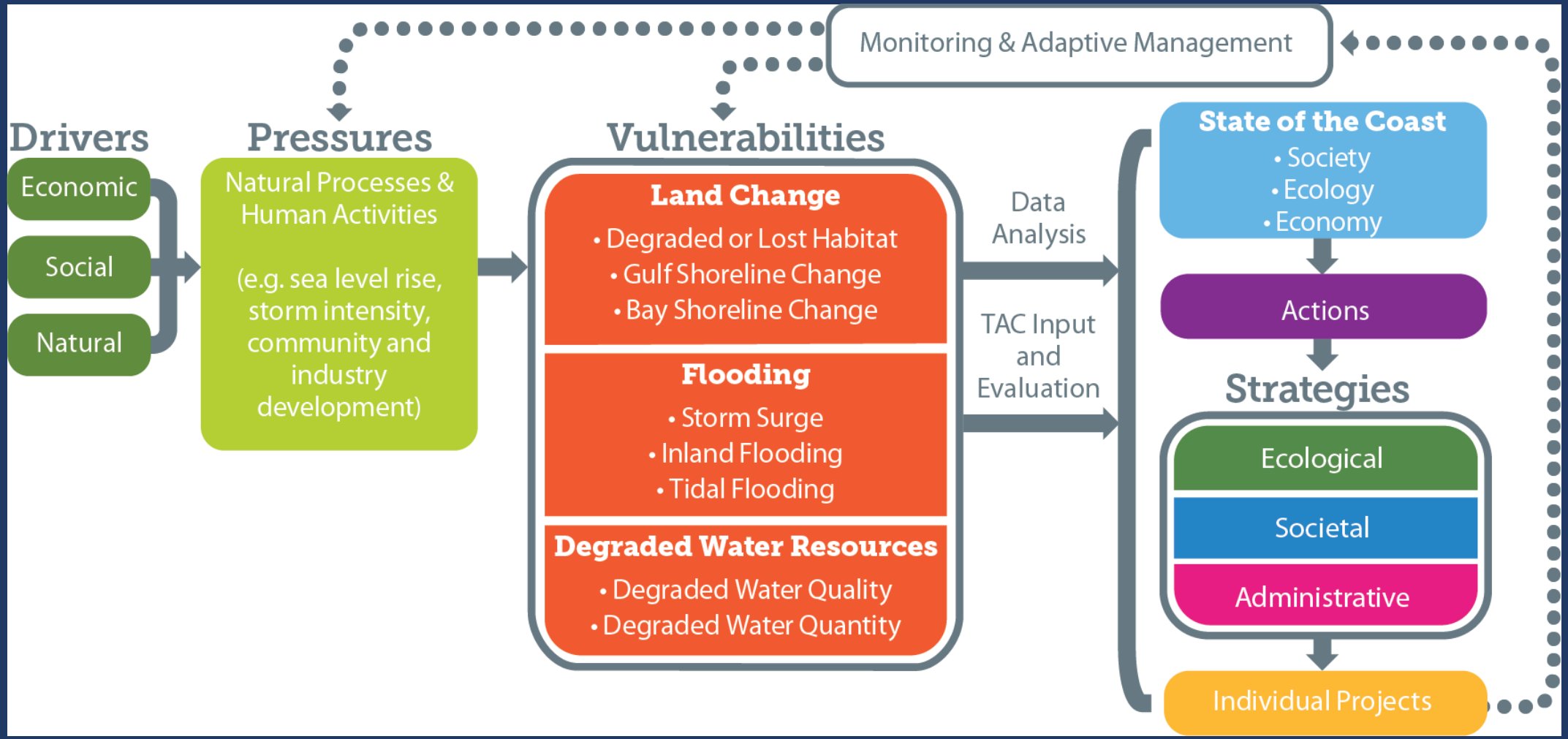
Coastal Resiliency Framework



Vulnerabilities

Land Change

Degraded or Lost Habitat

Gulf Shoreline Change

Bay Shoreline Change

Flooding

Inland Flooding

Storm Surge

Tidal Flooding

Degraded Water Resources

Degraded Water Quality

Degraded Water Quantity

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Stakeholder Input

Technical Advisory Committee (TAC)

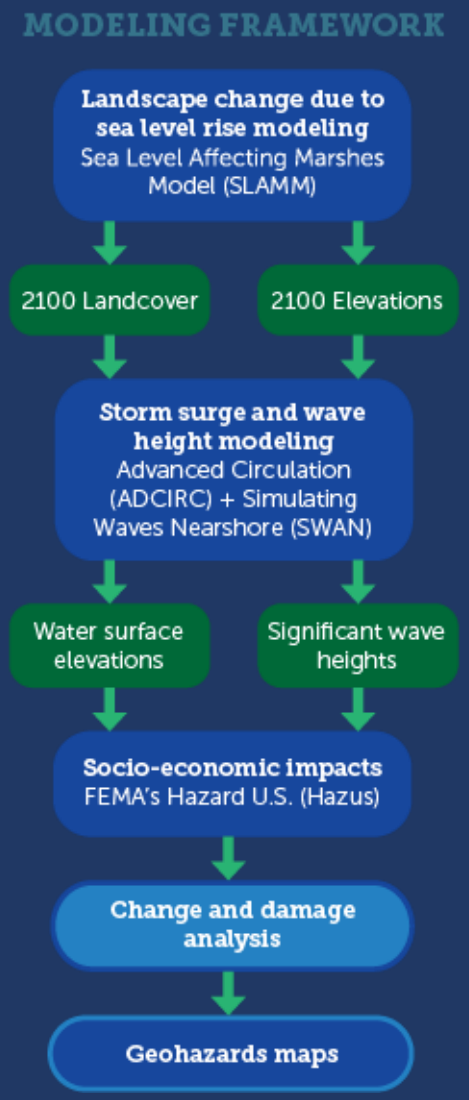
Local Governments and Community Leaders

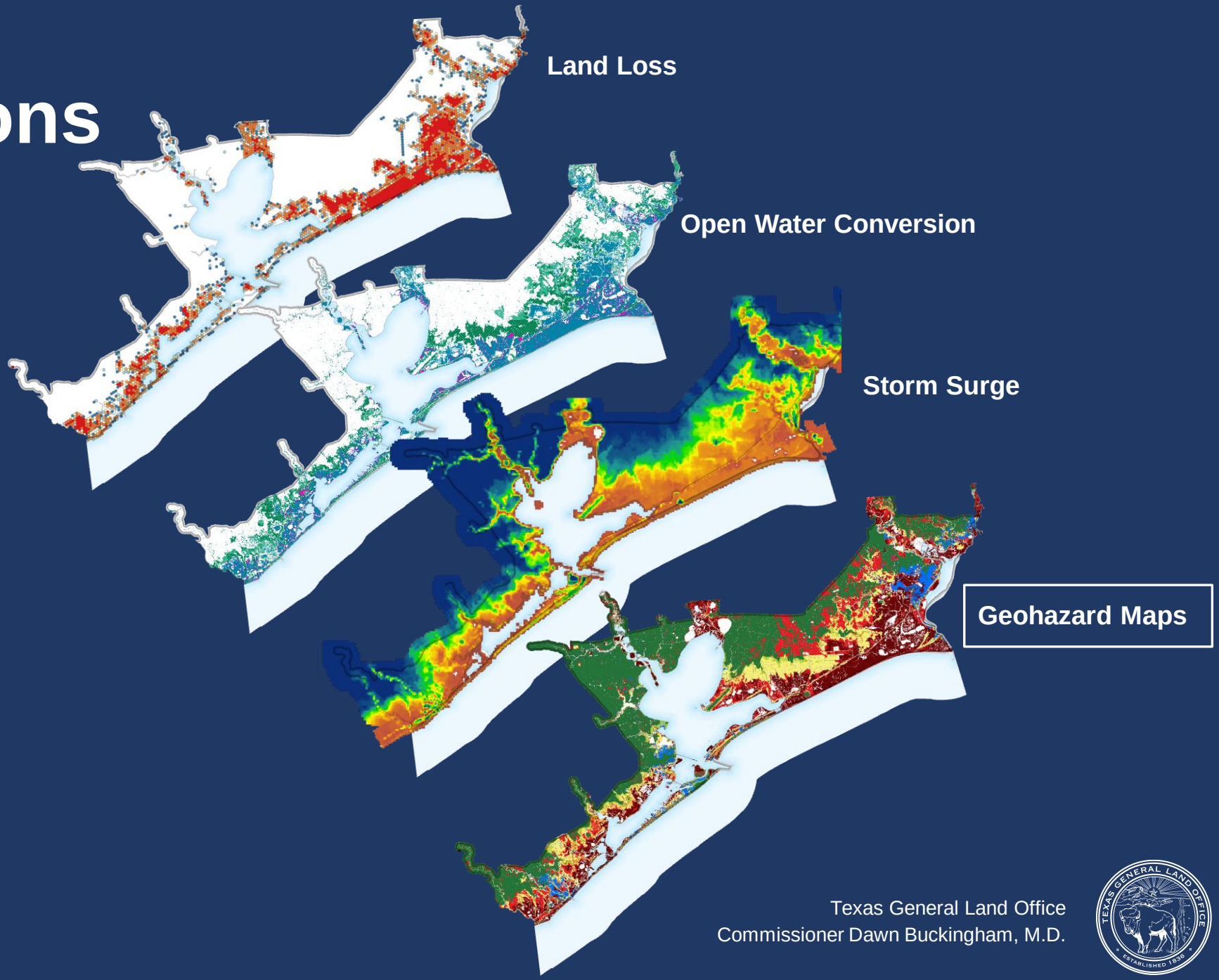
- Elected officials
- Local government staff
- Councils of government (COGs)
- Metropolitan Planning Organizations (MPOs)
- Other local and regional community leaders

Coastal Experts and Practitioners

- State agencies
- Federal agencies
- Universities
- Ports and navigation districts
- River authorities
- Non-profits
- Other technical partners

Modeling Future Conditions





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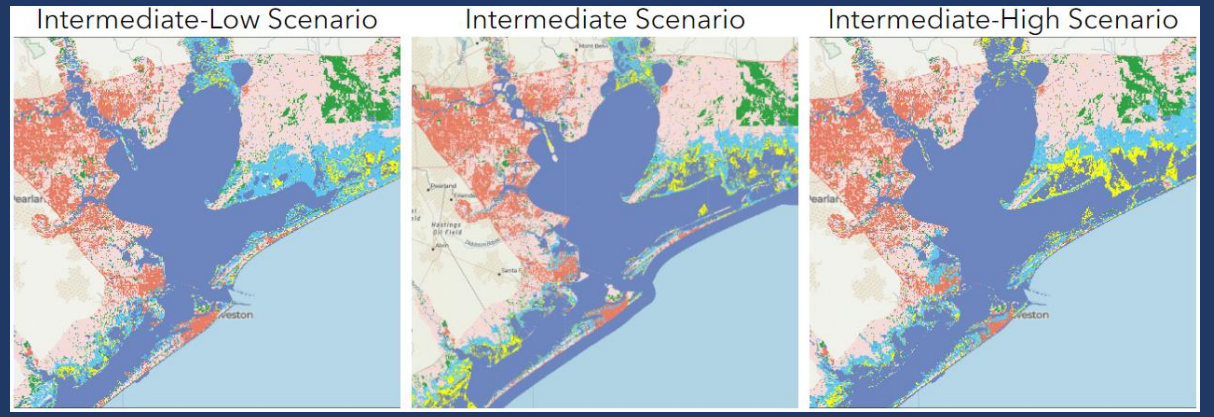
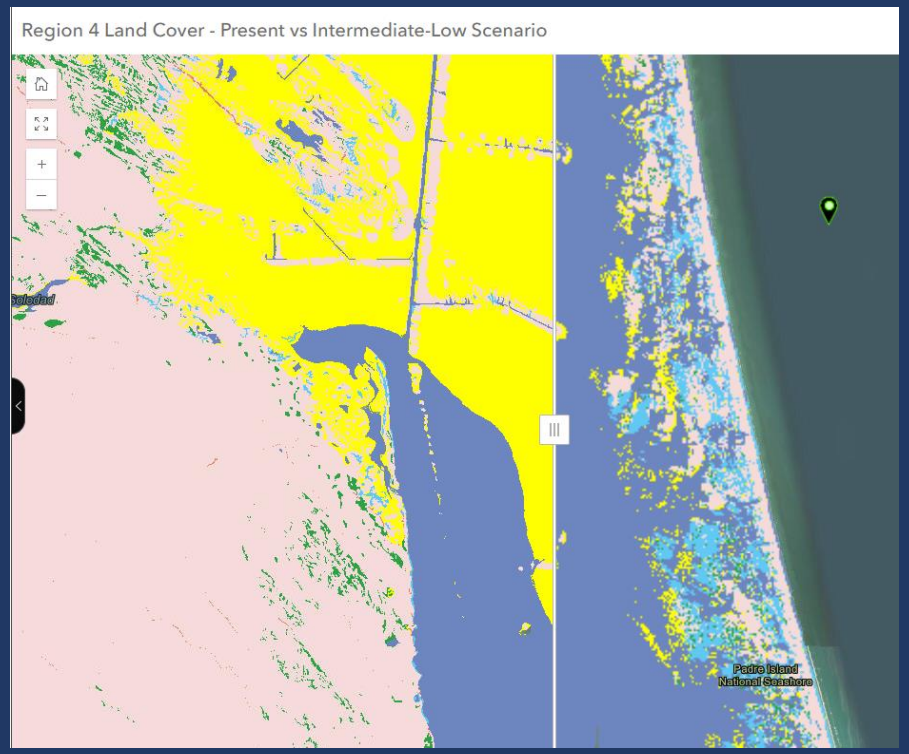
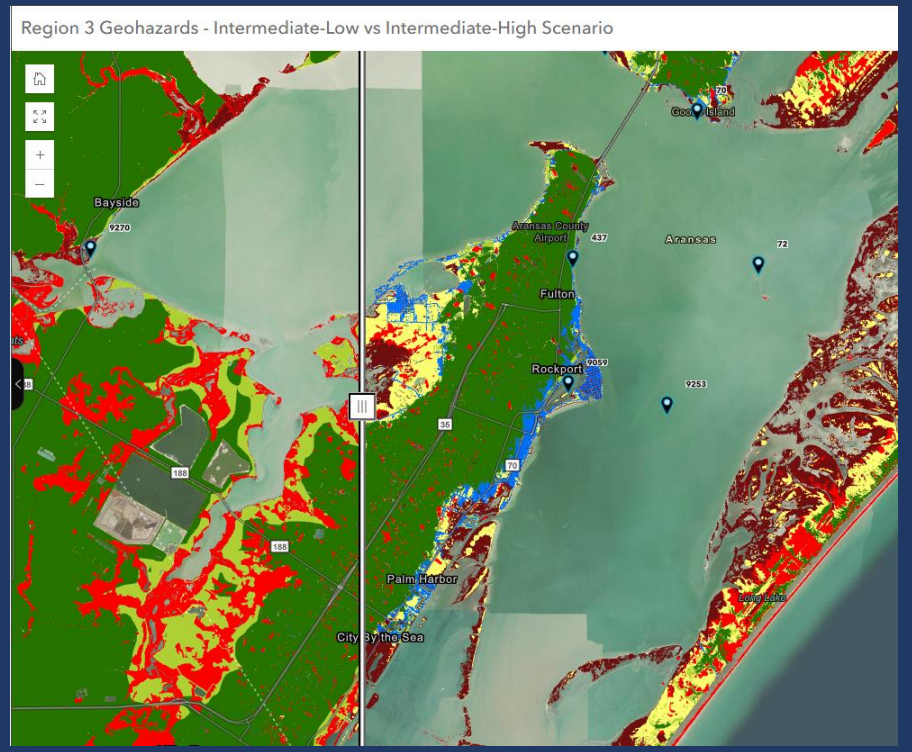
Modeling Data Viewer

- Choose SLR scenario
- Search by location
- Compare slide bar
- Landscape type
- Storm surge
- Geohazards
- Downloads tab
- Tier 1 projects







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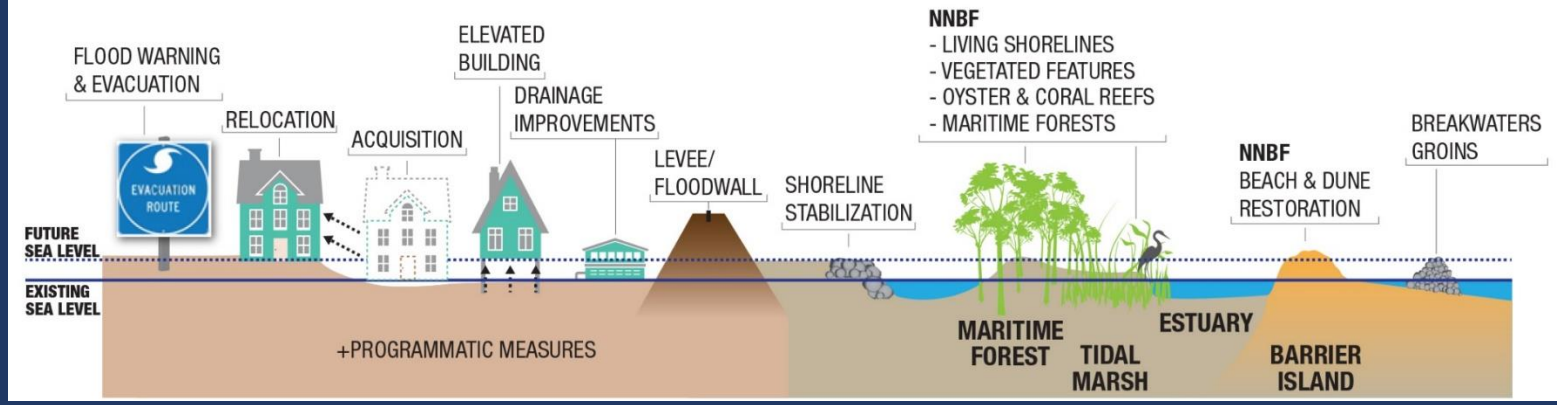
Project Types

Project Type	Project Subtypes
Nature-Based	
Hydrologic Connectivity	• Freshwater Inflow • Hydrologic Restoration
Habitat Creation & Restoration	• Estuarine Wetlands • Freshwater Wetlands • Oyster Reef • Barrier Islands • Coastal Uplands • Coastal Prairies • Rookery Islands • Dredge Placement Islands • Seagrasses • Tidal Flats • Fisheries
Beach Nourishment	• Bay • Gulf
Dune Restoration	• Dune
Shoreline Stabilization	• Living Shoreline • Breakwater • Misc. Wave Break • Seawall • Bulkhead • Revetment • Jetty • Groin
Land Acquisitions	• Acquisitions • Conservation Easements • Fee Simple
Infrastructure-Based	
Structure/ Debris Removal	• Structures on Public Easement • Abandoned Oil and Gas Wells • Abandoned Boats • Dock Pilings • Post Storm Cleanup
Public Access & Improvements	• ADA Accessibility • Walkovers • Piers, Boat Ramps
Flood Risk Reduction	• Levees • Flood Wall • Storm Surge Barrier
Community Infrastructure	• Drainage • Utilities • Roadway/Bridge Repair • Roadway/Bridge Elevation • Critical Facilities • Structure Raising
Plans, Policies, Programs & Studies	



source: USACE

Shoreline Stabilization	27%
Habitat Restoration	17%
Programmatic	16%
Land Acquisitions	10%
Rookery Islands	9%
Beach Nourishment	9%
Oyster Reef	5%
Hydrologic Connectivity	5%
Community Infrastructure	2%

2023 Tier 1 Projects

Project Information

- Ability to Address Vulnerabilities
- Description and Need
- Location
- Status
- Stakeholders
- Actions
- Project Types
- Potential Local Benefits

Project Cutsheets | Region 4 | Cameron County

South Padre Island Beach and Dune Management and Restoration *(145)*

Estimated Project Cost: $89,000,000

ABILITY TO ADDRESS VULNERABILITIES

Land Change | Flooding | Degraded Water Resources

LOCATION:
Gulf shoreline of the City of South Padre Island

STATUS:
Shovel Ready

STAKEHOLDERS:
- ***City of South Padre Island***
- Cameron County
- Texas General Land Office
- U.S. Army Corps of Engineers

ACTIONS:

PROJECT TYPE(S):
Beach Nourishment;
Dune Restoration

Project Description

The City of South Padre Island's beach and dune system is a widely recognized symbol of the South Texas coastline and has been partially preserved through the beneficial use of dredged material (BUDM) from the Brownsville Ship Channel since 1988 under a perpetual Memorandum of Agreement between the U.S. Army Corps of Engineers (USACE) Galveston District and the Texas General Land Office (GLO). This project would fund annual beach renourishment along the eroding shoreline. Additionally, annual beach monitoring surveying, analysis, and reporting are undertaken as part of the project. Whenever possible, the City of South Padre Island, as the permit holder, and Cameron County work alongside GLO and USACE to place BUDM on beaches when regular dredging at the channel occurs. The most recent onshore placement of material took place from May to July 2021 and included approximately 355,250 cubic yards. Three-quarters of the material (75%) was placed in Placement Area 5 within the northern City limits and one-quarter (25%) of the material was placed in Isla Blanca Park.

Project Need

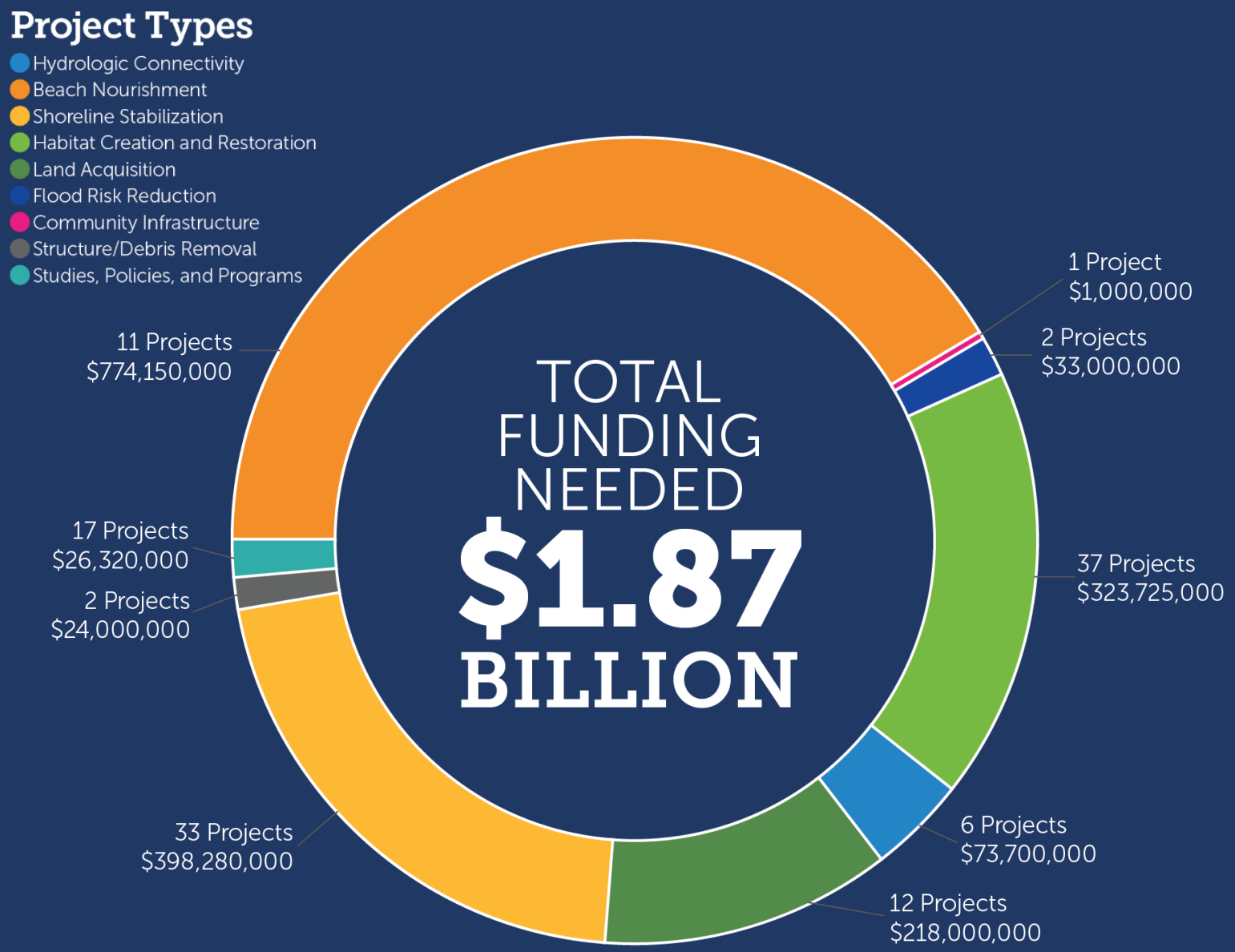
Gulf shoreline erosion occurs across the island at a regional scale, impacting County and City beaches, leading to potential damage to the environment, private property, and public infrastructure while hindering economic development. The Gulf shoreline erosion rate along much of the island averages between 10 to 15 ft/yr. The beaches and dunes are the primary defense against storm surge from tropical storms and hurricanes to islanders and bayfront communities on the mainland.

POTENTIAL LOCAL BENEFITS

160 Homes	1 Wetland Type
$41.1M Structure Damage (1% Storm)	
$723M Building Replacement Value	2 Critical Facilities
High Social Vulnerability	

For more information on cost estimates and project benefits calculations, see page 132 of the 2023 Texas Coastal Resiliency Master Plan.

Project Funding Needs



GLO Program Funding:

CEPRA

- ***$54 Million this biennium

CMP

- $3 Million annually Federal

Gulf of Mexico Energy Security Act (GOMESA)

- $46 Million FY 2019 to Texas
- $76 Million FY 2020
- $54 Million FY 2021
- $55 Million FY 2022
- $76 Million FY 2023

Community Development Block Grant – Mitigation Fund

- Coastal Resilience Program

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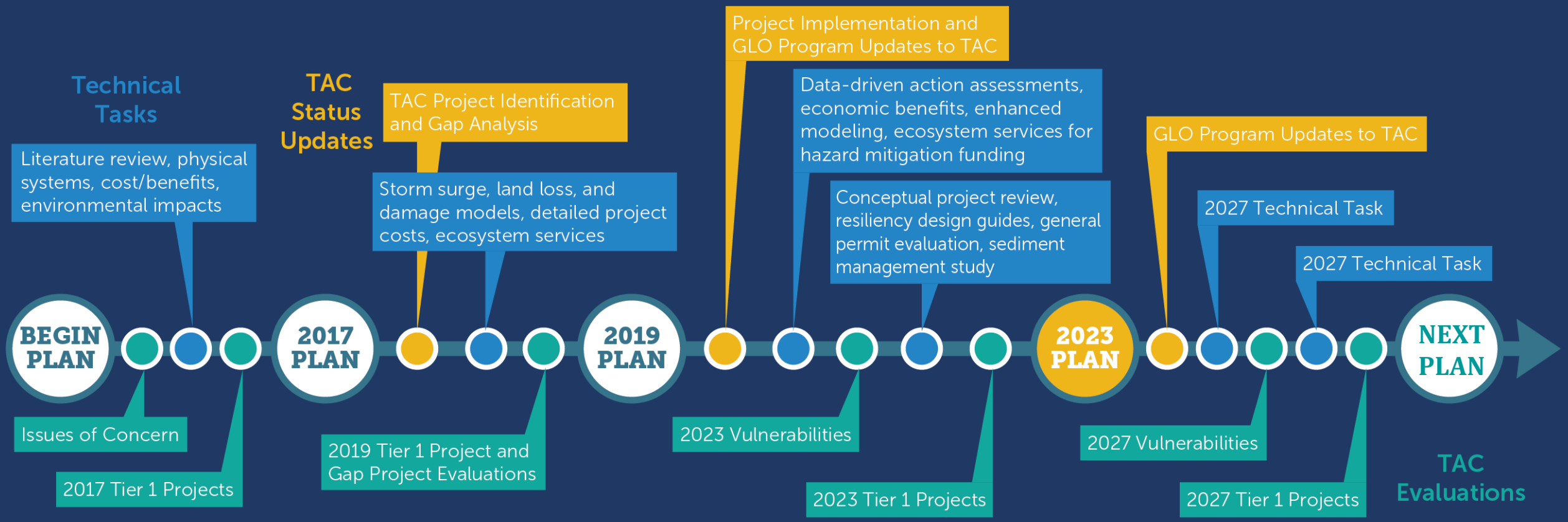
Ongoing, Iterative, Long-Term



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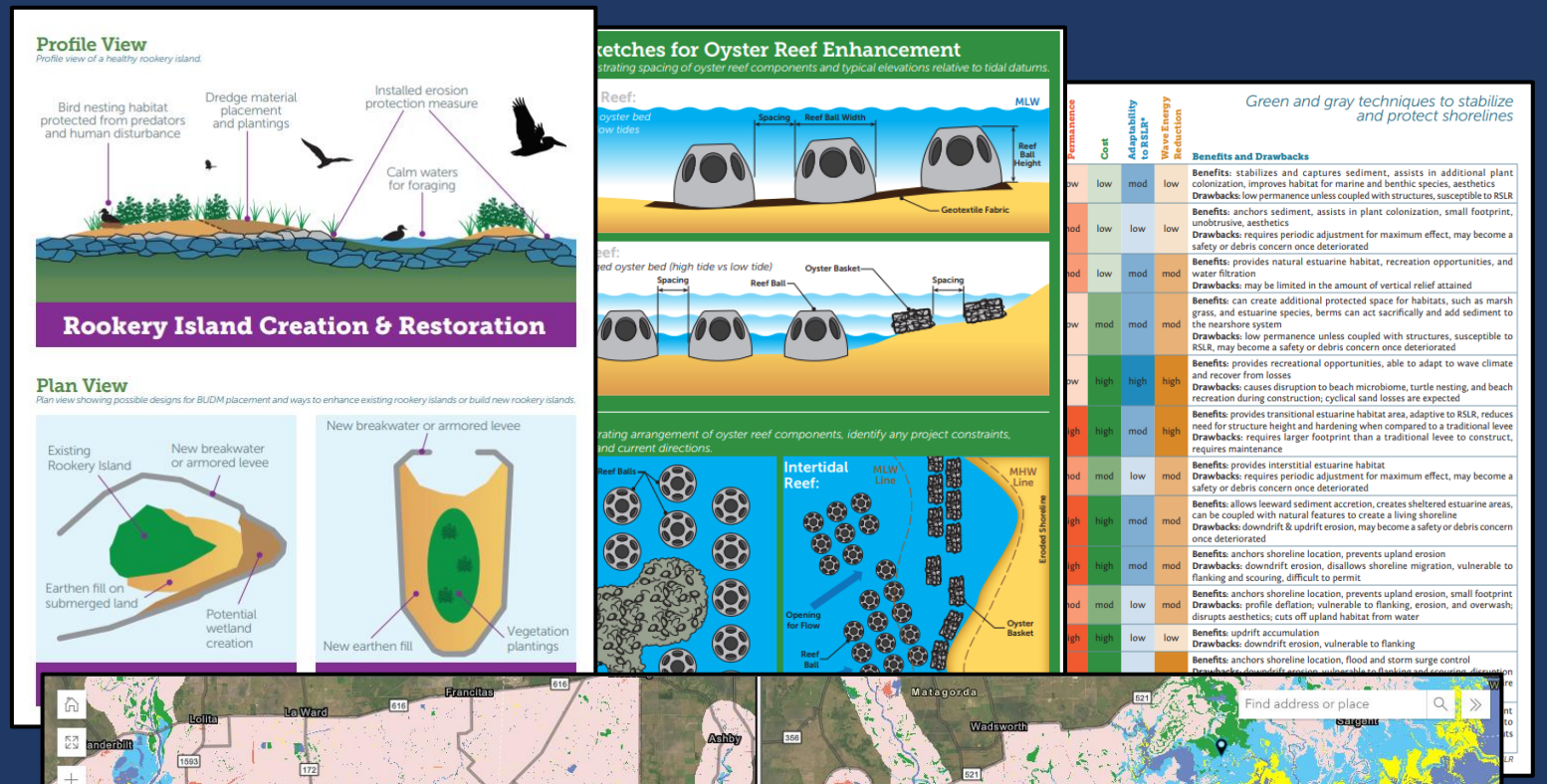
Communication



- All Plan Documents
- Story Map
- Modeling Data Viewer
- Resiliency Design Guides

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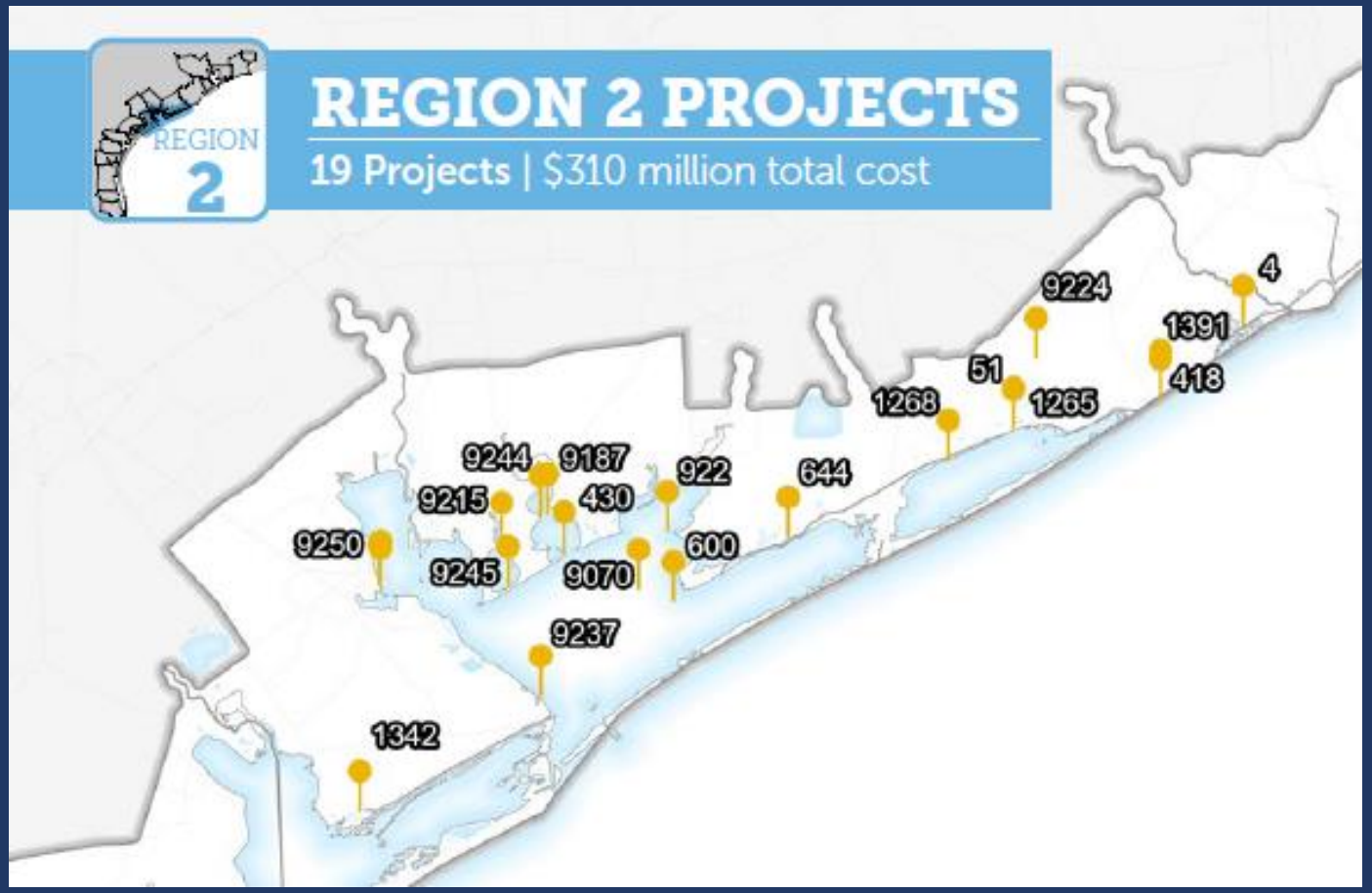
2023 Tier 1 Projects

Region 2

- 1265 Big Boggy Marsh Protection Project
- 1268 Bird Island Restoration and Creation of Gulf Cut Island Complex
- 51 Boggy Cut GIWW Stabilization
- 9237 Boggy Nature Park Shoreline Stabilization
- 9187 Carancahua Bay Community Reefing Project
- 430 Carancahua Bay Habitat Preservation and Enhancement
- 600 Half Moon Oyster Reef Restoration - Phase 3
- 9250 Harbor of Refuge Protection and Restoration
- 1342 Hydrologic Restoration of Welder Flats
- 9224 Lake Austin Coastal Prairie Conservation
- 644 Mad Island Marsh Preserve Shoreline Protection and Coastal Ecosystem Restoration - Phase 1
- 9070 Matagorda Bay Regional Inflow Study
- 922 Oliver Point Shoreline Protection and Reef Restoration
- 9244 Port Alto County Park Shoreline Protection and Restoration - Phase 2
- 4 San Bernard NWR Shoreline Protection
- 1391 San Bernard NWR Sargent Unit Beneficial Use
- 9245 Sand Point Peninsula Living Shoreline
- 418 Sargent Beach and Dune Restoration
- 9215 Shoreline Protection and Restoration at Olivia Haterius County Park



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Thank you!

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