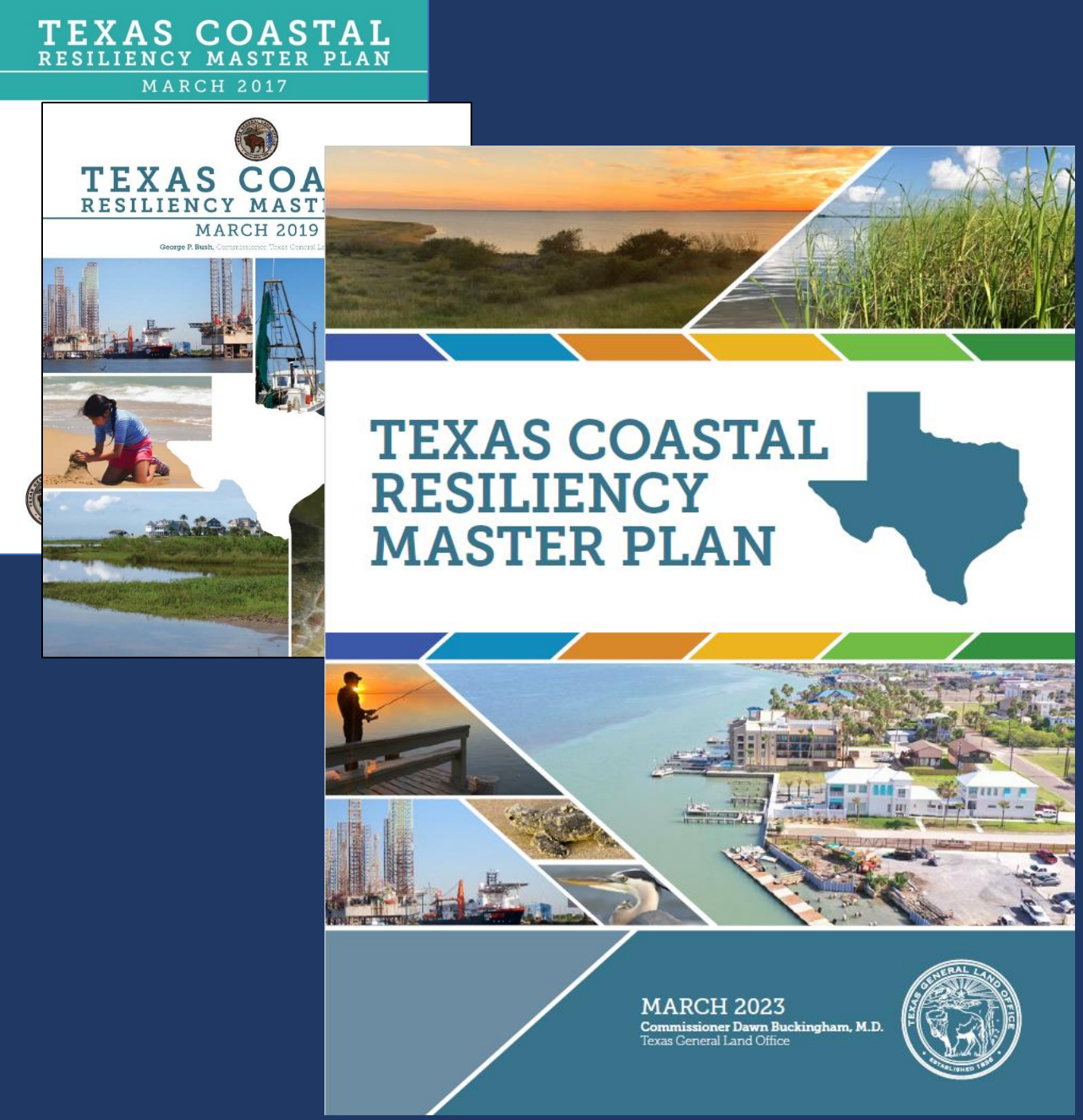
The Texas Coastal Resiliency Master Plan

SAME Resiliency Workshop
April 14, 2025
Houston, Texas

David Green, Senior Deputy Director
Coastal Protection



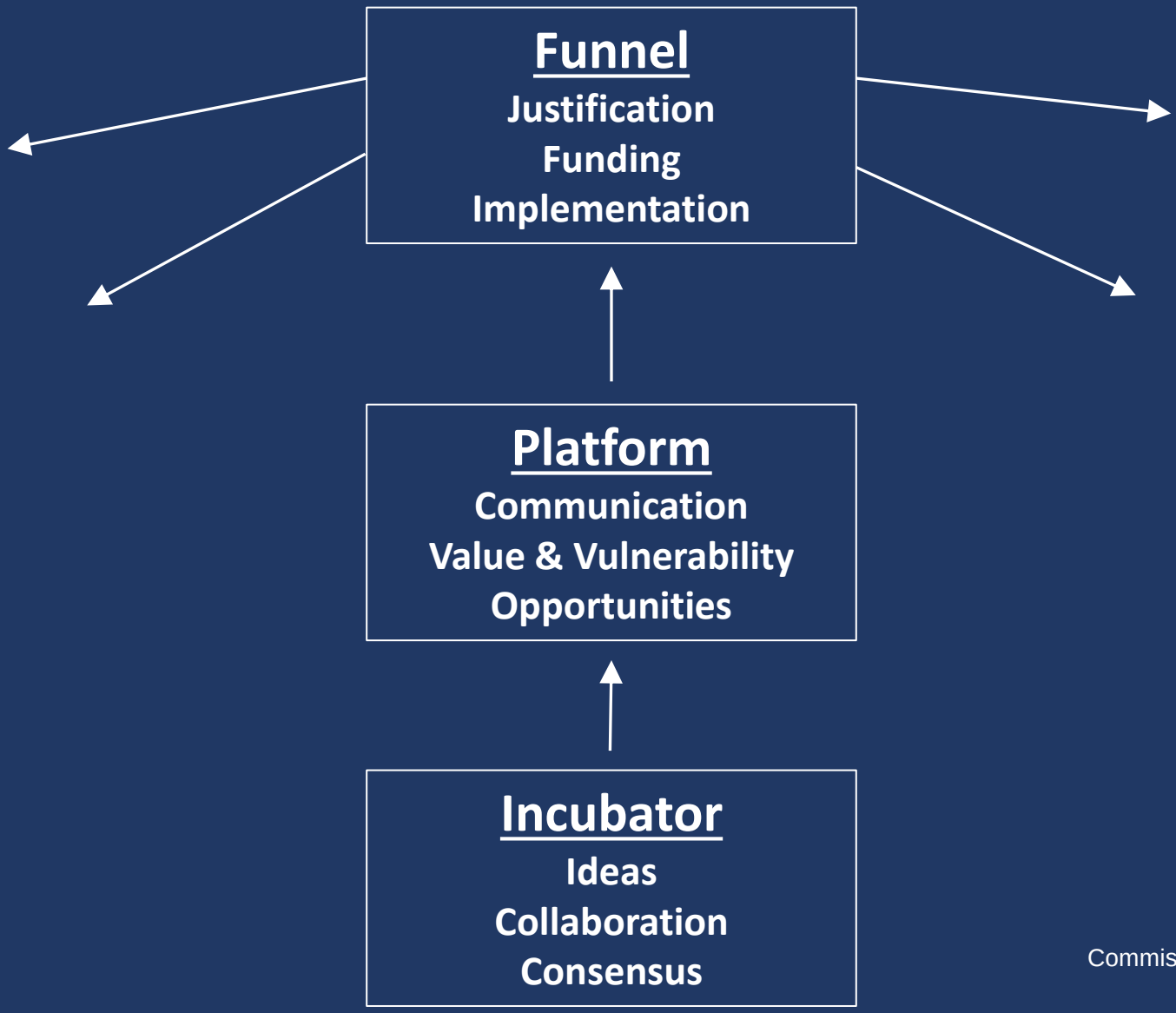
Goals and Objectives

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



Role of this Plan

What this Plan is

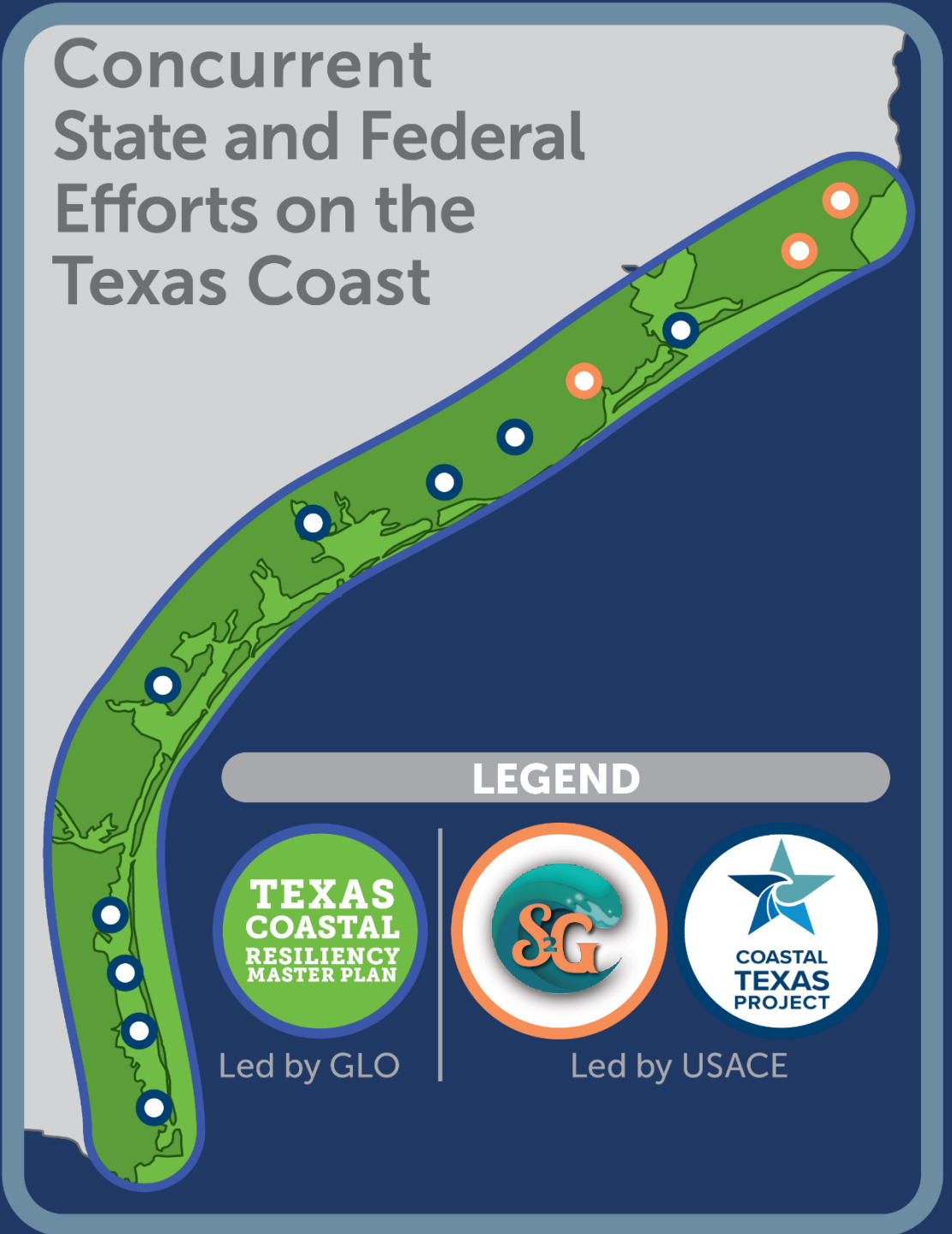
- A list of high-priority coastal resiliency initiatives and projects
- A snapshot of the needs of the state for coastal resiliency at the time of publication
- An opportunity for the GLO to align coastal resiliency priorities with feedback from stakeholders, coastal experts, and other public agencies

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)

Sabine to Galveston CSRM Program

- Orange County
- Jefferson County
- Freeport – Brazoria County

Regional Flood Planning

- GLO River Basin Flood Studies
- TWDB Regional Flood Planning Groups
- TDEM State Hazard Mitigation Plan

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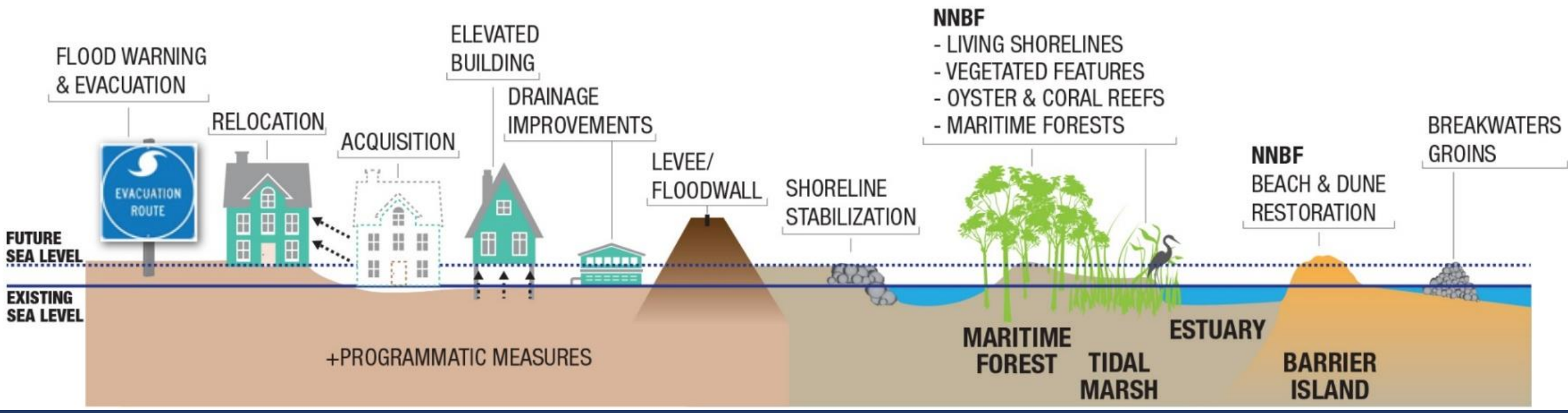
Multiple Lines of Defense



source: USACE

Value

Ecosystem Services – vital for economic security…

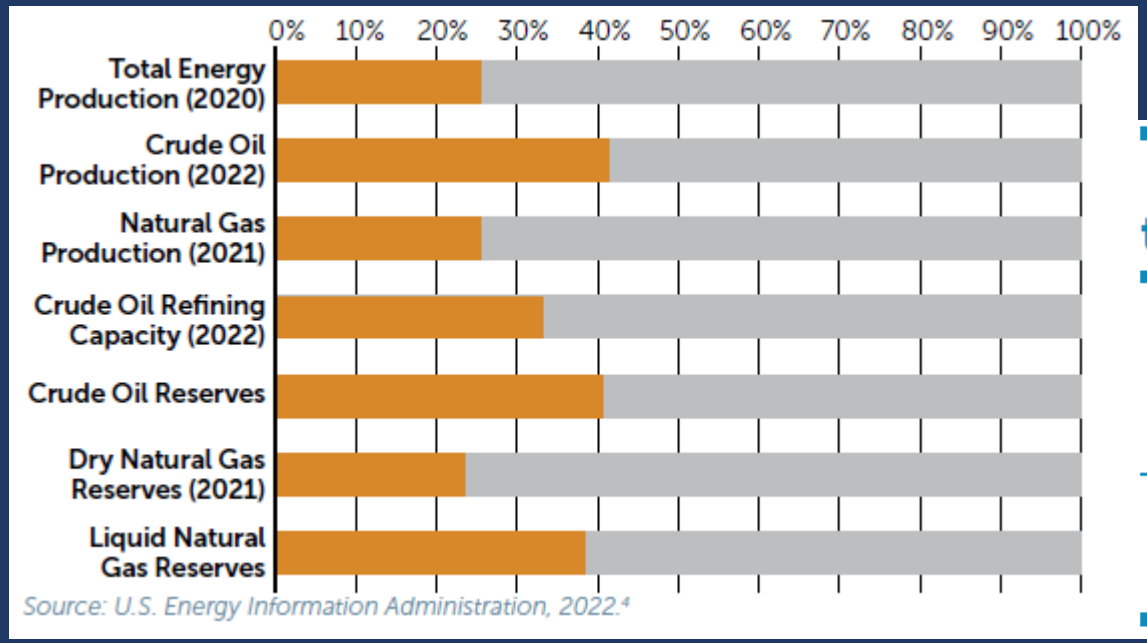
- Regulating: flood storage, erosion abatement, water quality
- Supporting: habitats and fisheries
- Cultural: aesthetics, sense of place, recreation, tourism
- Provisioning: supplies and nourishment for society

Value

- Critical Infrastructure
- Economic Assets
- National Security

Region	Annual Wages	No. of Jobs	Businesses	Avg. Wage/Employee
1	$23.3 billion	382,844	16,251	$61,000
2	$624 million	10,741	700	$58,200
3	$1.4 billion	32,039	1,725	$42,600
4	$358 million	15,744	946	$22,800

Source: Bureau of Labor Statistics, 2022.[2]



Source: U.S. Energy Information Administration, 2022.[4]

The Value of the Texas Coast

33% of the nation's total refining capacity

33% of U.S. Tonnage Export Value

$195 M of seafood production

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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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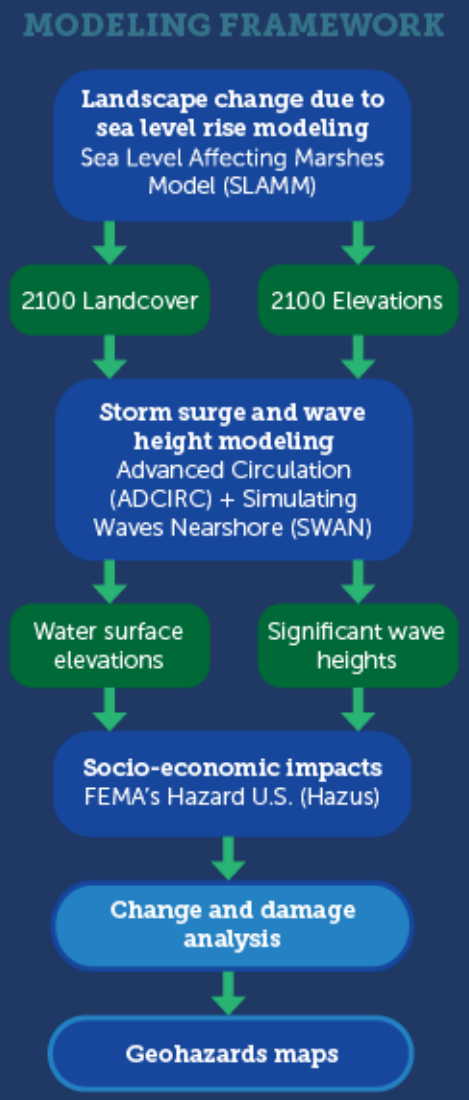
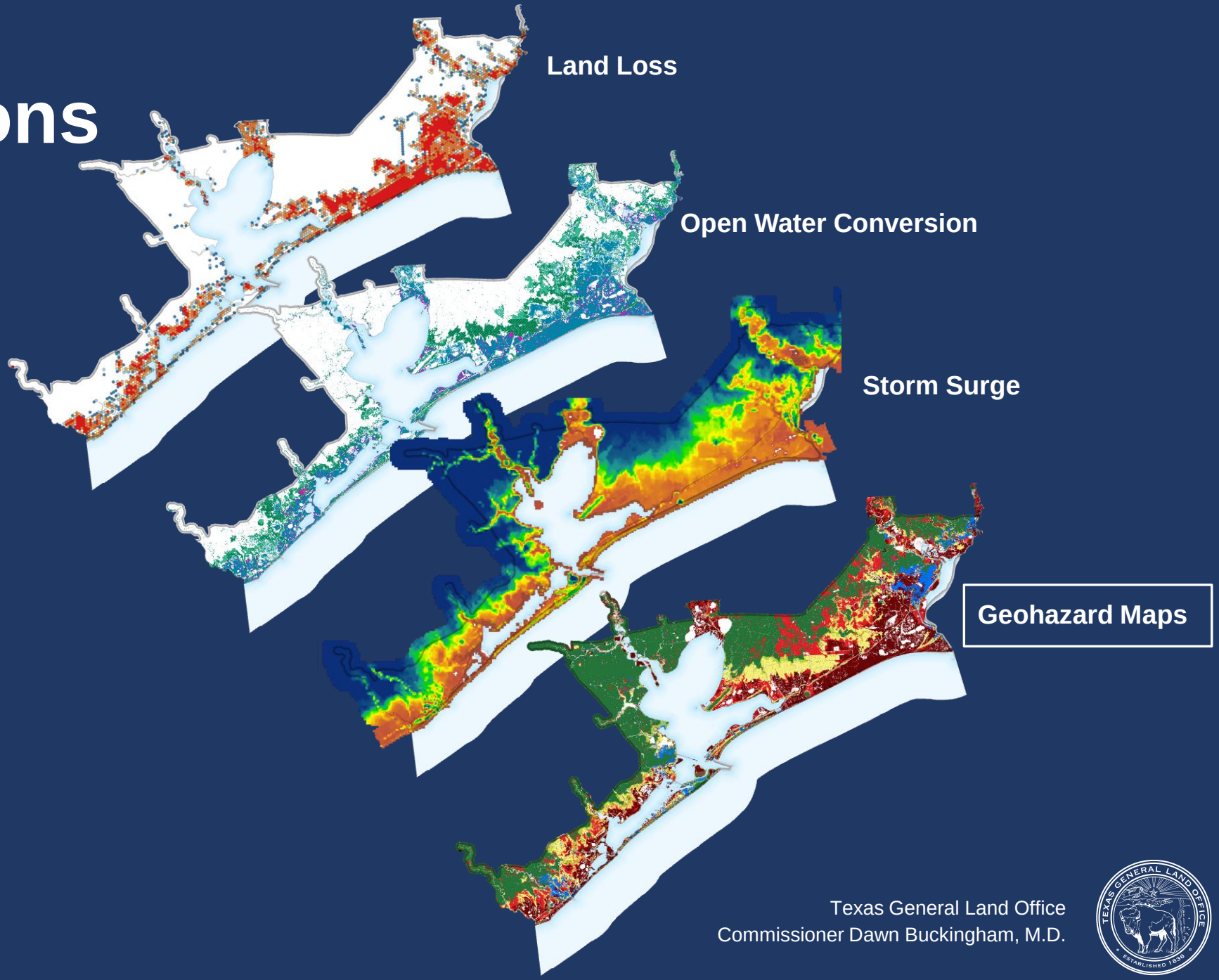
Modeling Future Conditions





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Stakeholder Input

Technical Advisory Committee (TAC)

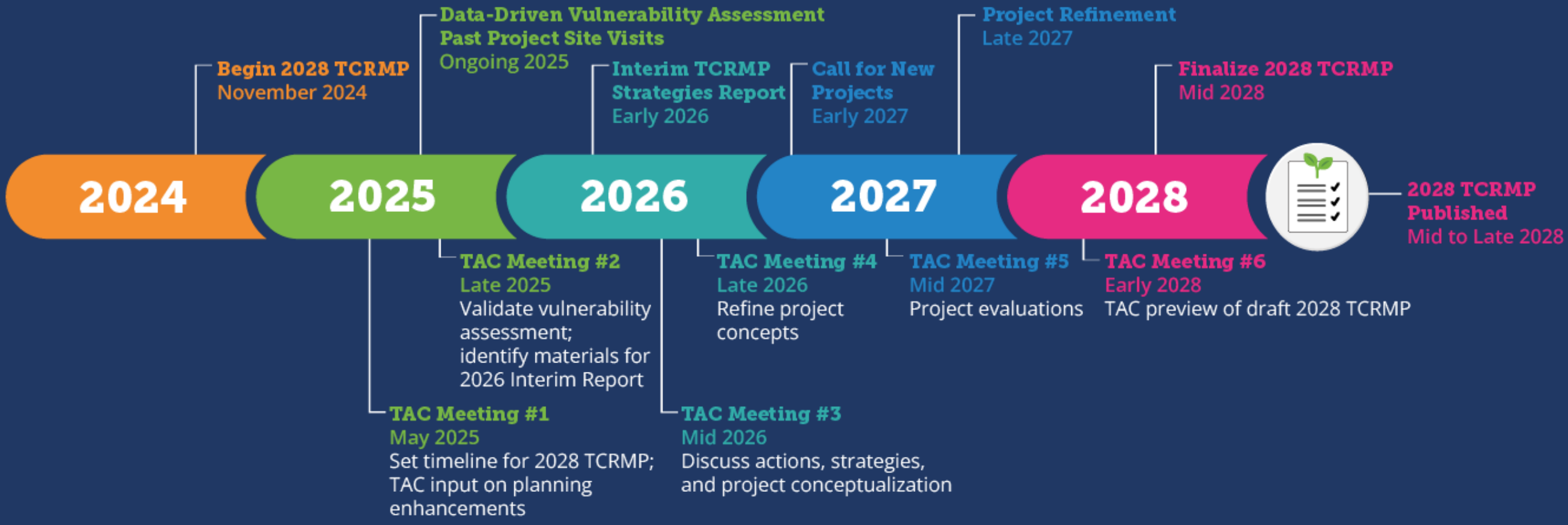
Local Governments and Community Leaders

- 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

2028 Plan Timeline



Team Tasks and Enhancements

Project Funding and Implementation:

- Assisting Tier 1 project partners with *external* funding applications through data analysis and narrative
- Advancing and supporting conceptual projects

Data Driven Enhancements:

- Leveraging recent landscape change and storm surge modeling
- Creating data driven vulnerability assessment methodology

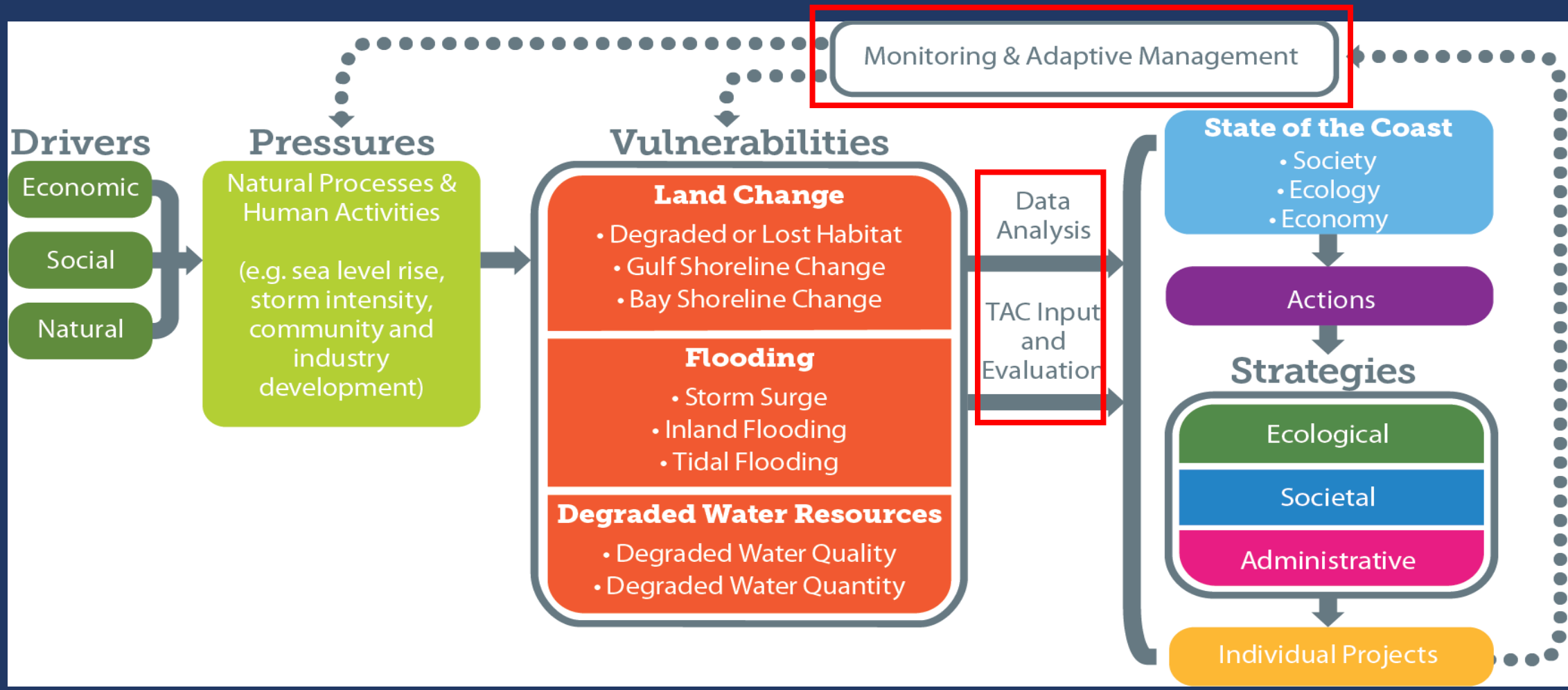
Refining and Expanding Modeling:

- Determining timing and nature of potential landscape change impacts
- Identifying areas of interest and potential hazard development zones

Regional Resilience Planning:

- Utilizing data driven planning enhancements to inform project conceptualization
- Facilitating stakeholder input to evaluate highest priority projects

Coastal Resiliency Framework



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

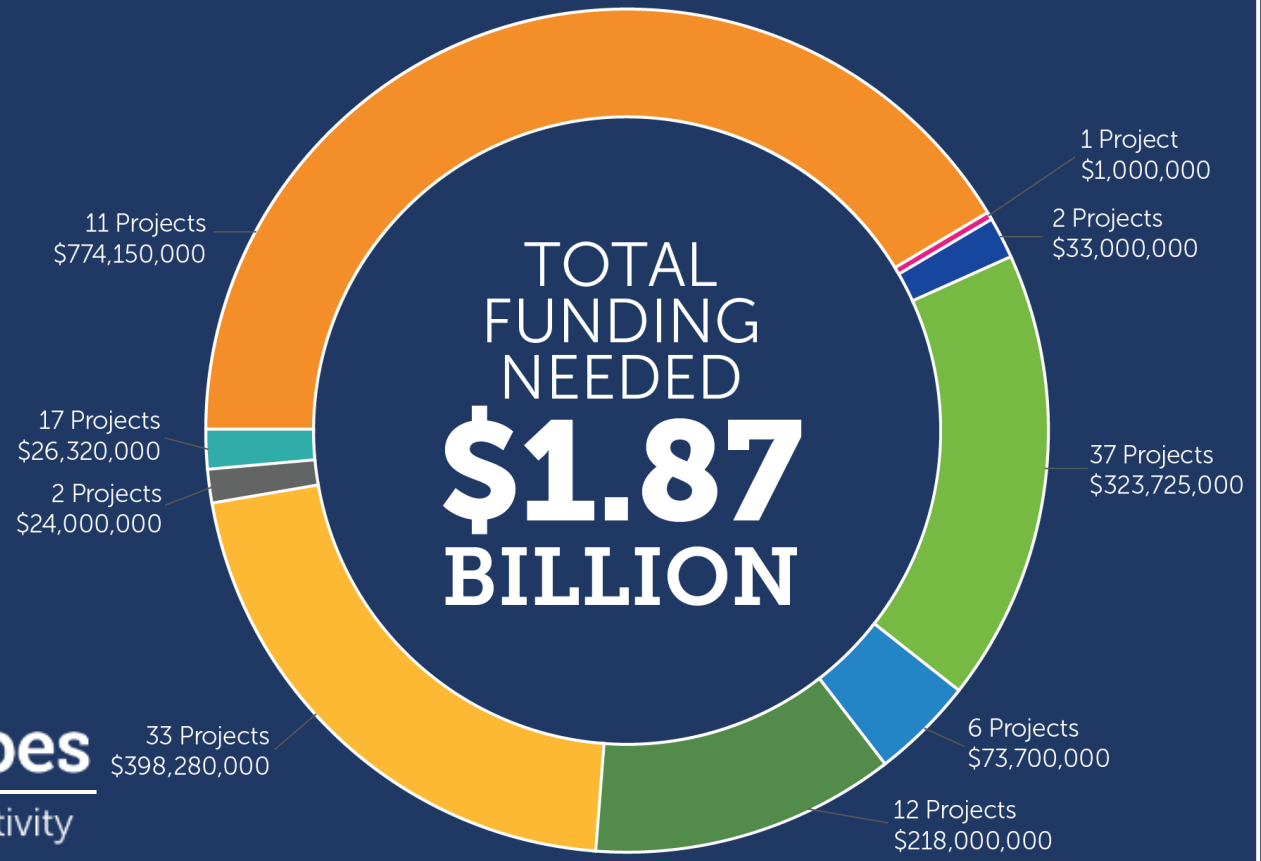
Gulf shoreline erosion occurs across the island at a regional scale, impacting County and City beaches, leading to potential damage to the environment, private property, and public infrastructure while hindering economic development. The Gulf shoreline erosion rate along much of the island averages between 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



Project Types

- Hydrologic Connectivity
- Beach Nourishment
- Shoreline Stabilization
- Habitat Creation and Restoration
- Land Acquisition
- Flood Risk Reduction
- Community Infrastructure
- Structure/Debris Removal
- Studies, Policies, and Programs

GLO Program Funding:

CEPRA

- ***$54 Million last biennium

CMP

- $2 Million annually

Gulf of Mexico Energy Security Act (GOMESA)

- $46 Million FY 2019 to GLO
- $76 Million FY 2020
- $54 Million FY 2021
- $55 Million FY 2022
- $76 Million FY 2023
- $76 Million FY 2024

Community Development Block Grant – Mitigation Fund

- $20 Million Coastal Resilience Program

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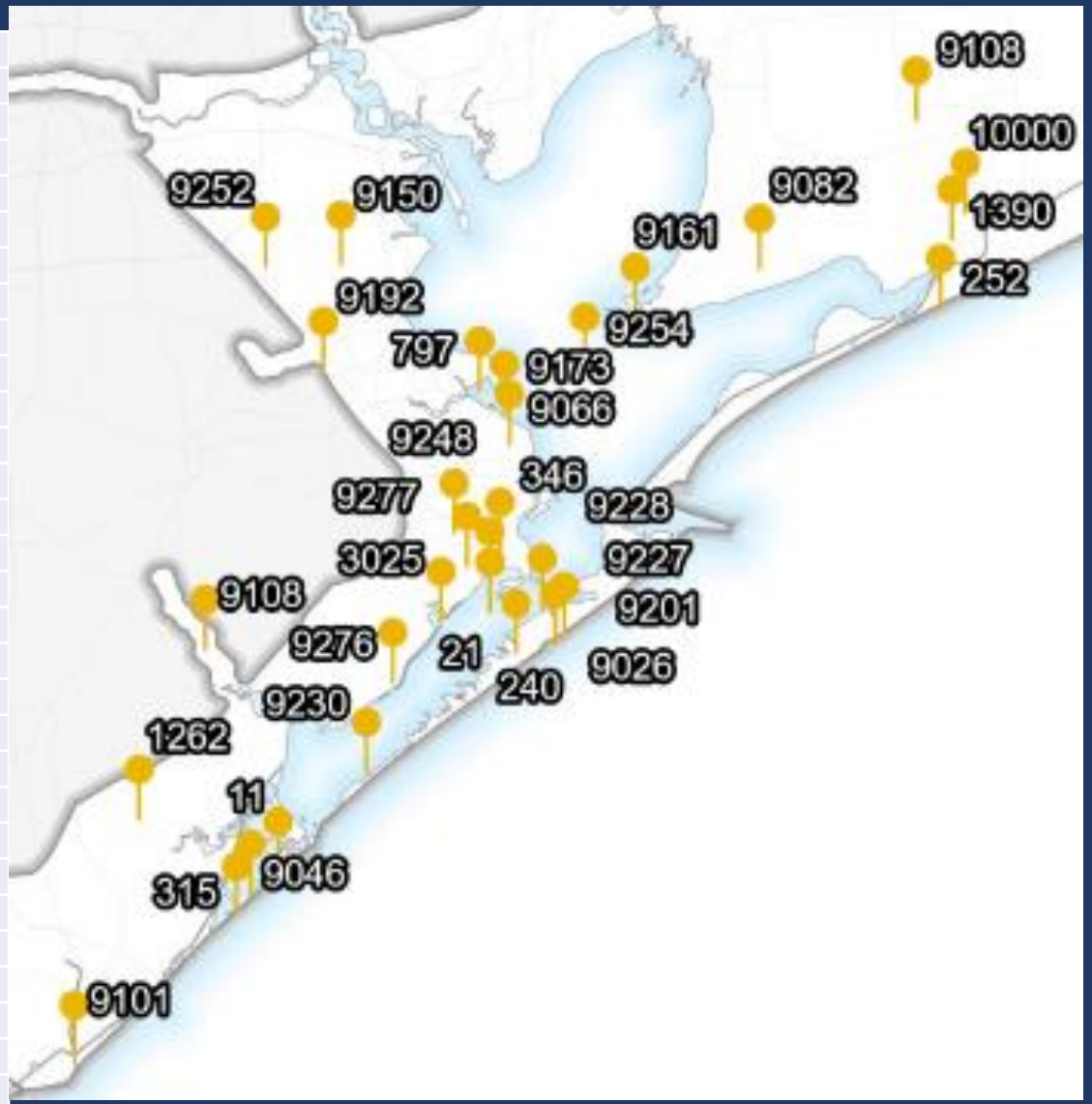
Chambers/Galveston/Harris/Brazoria counties projects

10000	Anahuac NWR Conservation and Restoration
1390	Anahuac NWR East Unit Beneficial Use
1262	Bastrop Bayou Marsh Acquisition
9230	Bay Harbor Island Stabilization
252	Bolivar Peninsula Beach and Dune Restoration
9101	Brazos River and San Bernard River Restoration Strategy and Management Plan
9276	Chocolate Bay Preserve Shoreline Protection and Marsh Restoration
240	Coastal Heritage Preserve
797	Dickinson Bay Rookery Island Restoration – Phase 3
9066	Dollar Bay Wetland Protection, Restoration, and Acquisition
9108	East and West Galveston Bay Watershed, Wetland, and Habitat Conservation
9161	East Bay Living Shorelines and Wetland Restoration
9046	Follet's Island Conservation Initiative
315	Follet's Island Nourishment and Erosion Control
21	Galveston Bay Rookery Island Restoration
9201	Galveston Island Nourishment and Stabilization
9026	Galveston Island West of Seawall to 13 Mile Road Beach Nourishment - Phase 1
9254	Going to Scale: Expanding Oyster Restoration in Galveston Bay
3025	Greens Lake Shoreline Protection and Wetland Restoration - Phase 2
9248	Highland Bayou Shoreline and Marsh Restoration Project
9252	Houston Parks and Recreation Department's Riparian Restoration Initiative
9228	Jones Bay Oystercatcher Habitat Restoration
9192	Lower Clear Creek and Dickinson Bayou Watershed Flood Risk Reduction Program
11	Management of the Christmas Bay System
9150	Middle Armand Bayou Protection Project
9082	Moody NWR Conservation and Restoration
346	O'Quinn I-45 Estuary Shoreline Protection and Marsh Restoration
9277	Pierce Marsh Wetland Restoration and Shoreline Protection
9257	Southeast Texas Flood Coordination Study - Regional Flood Sensor System
9173	Texas City Levee Erosion Control and Marsh Restoration
9227	West Bay Living Shorelines at Sweetwater Preserve and Maggie's Cove
4	San Bernard NWR Shoreline Protection
9216	Texas Coastal Prairie Initiative



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2023 Tier 1 Project Status Updates

Since the issuance of the 2023 Plan…

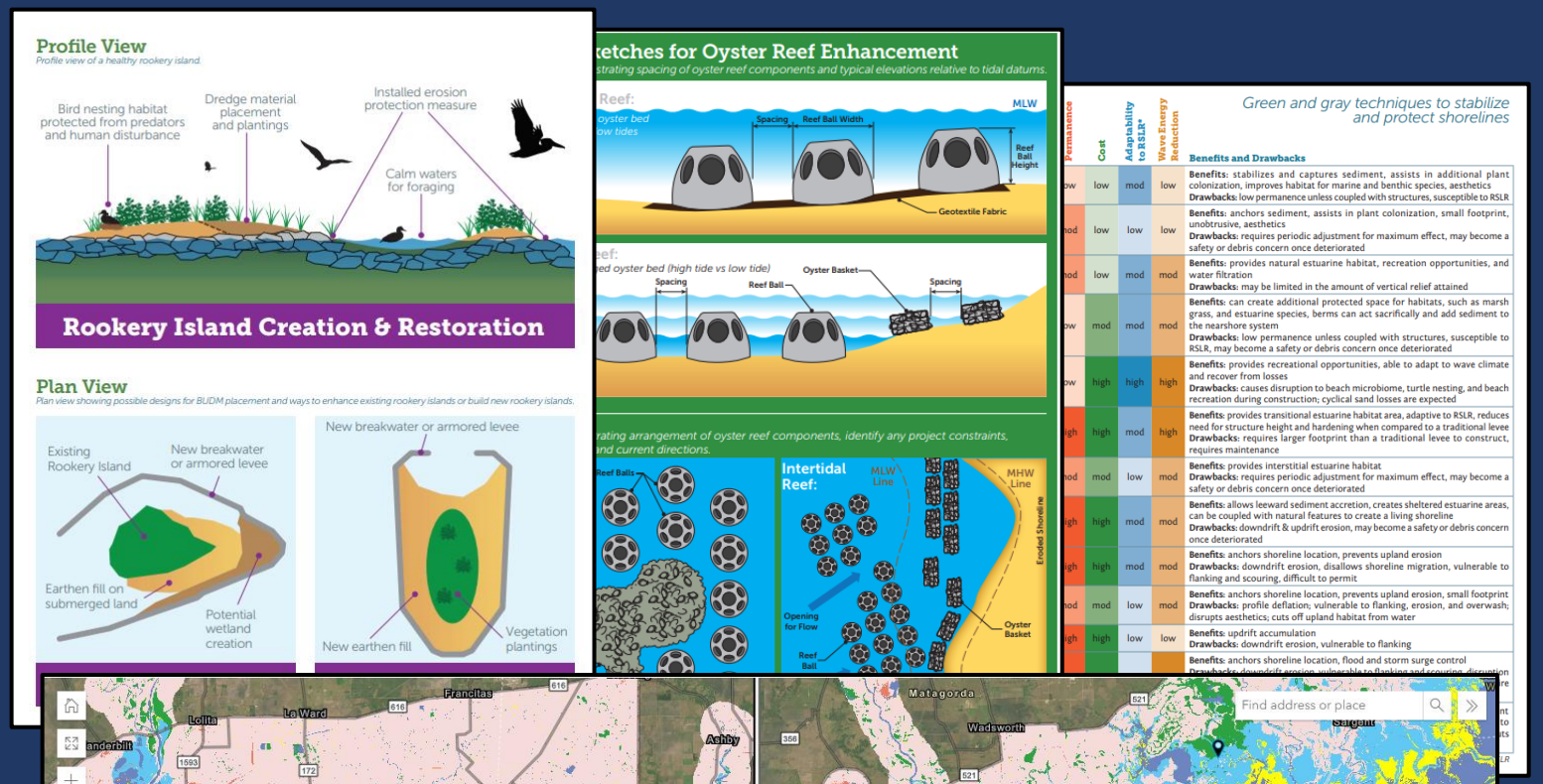
18 conceptual projects ⟶ E&D, monitoring, permitting

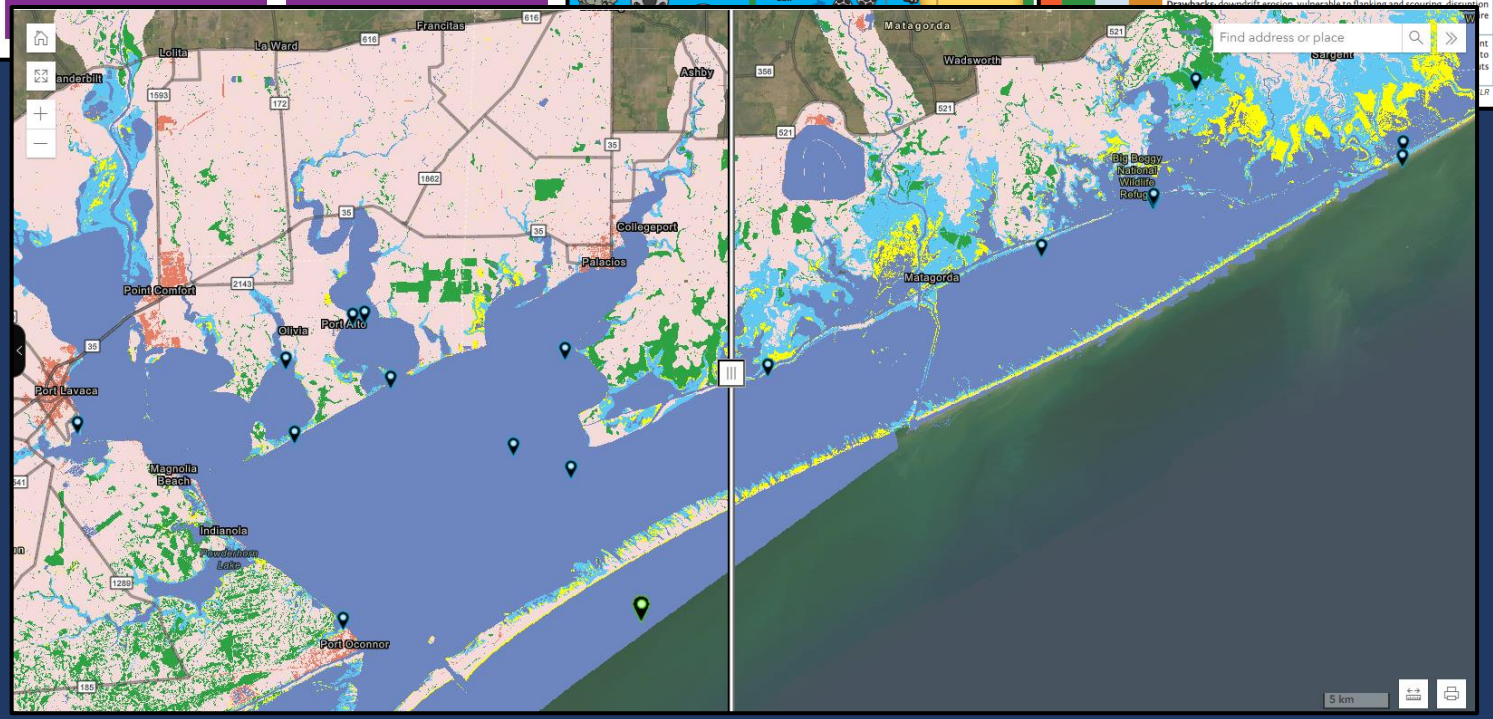
14 ongoing/E&D projects ⟶ permitting, permitted, shovel ready

2 land acquisition pending ⟶ acquisition complete

- ✓ 12 projects in permitting
- ✓ 13 shovel ready projects
- ✓ 4 projects completed

Communication





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

www.glo.texas.gov/crmp

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Thank you!

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