



# Making the Texas Coast More Resilient:

Threading the needle between restoration, infrastructure, and resilience

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# Outline

- Gulf restoration and recovery after Deepwater Horizon
- Coastal resilience planning efforts in Texas
- New direction after Hurricane Harvey
- Infrastructure/nature-based solutions & community equity
- The funding landscape

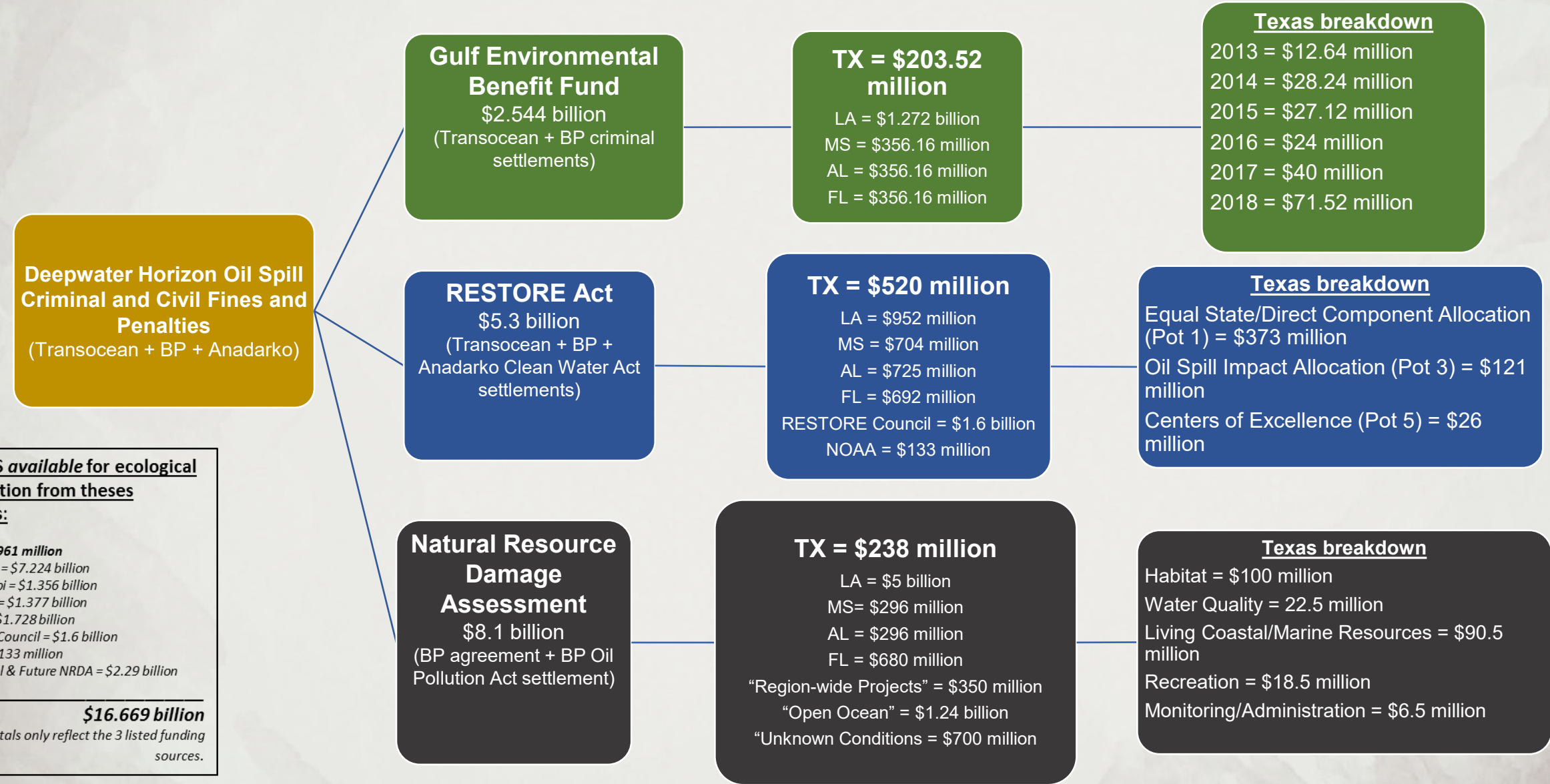


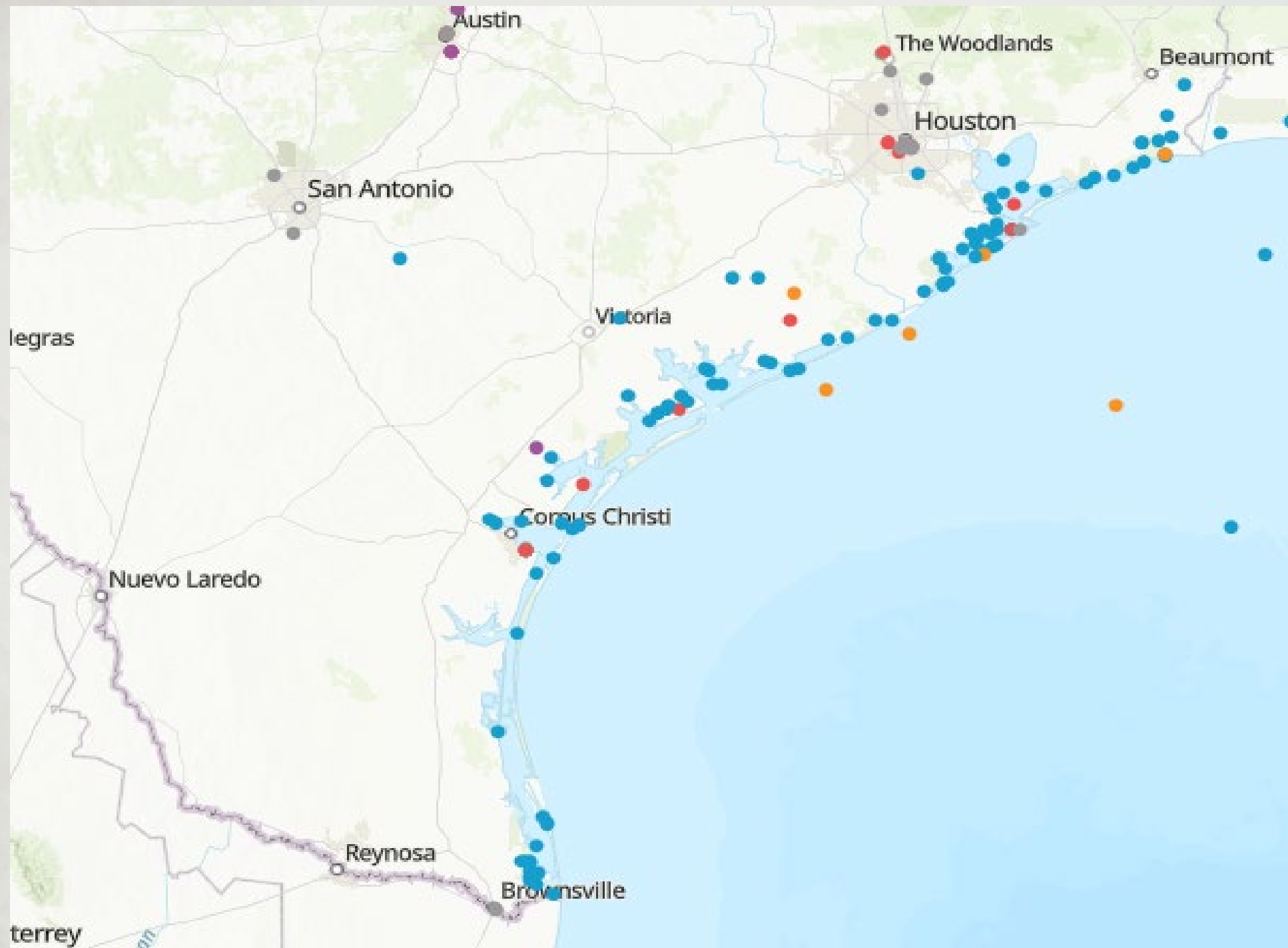
# Gulf Restoration & Recovery After 2010 Deepwater Horizon Oil Spill

**JUMP START OF COMPREHENSIVE COASTAL PLANNING IN  
TEXAS**



# Restoration Funds in the Gulf Region After the 2010 Deepwater Horizon Oil Spill







# Ongoing Coastal Planning Efforts

Texas Coastal Resiliency Master Plan (GLO)  
– 2017, 2019, next iteration in progress

Coastal Texas Protection & Restoration  
Feasibility Study (USACE & GLO)

RESTORE Council's Comprehensive Plan

Texas RESTORE Act Multi-year  
Implementation Plan + State Expenditure  
Plan



# Rethinking Project Efficacy

THE PURSUIT OF “THE MOST BANG FOR YOUR BUCK”



# Resiliency Co-benefits

Ecological



Economic



Cultural







## Land Acquisition/Conservation

Protect habitat for the benefit of particular species, AND:

- Improved water quality in bays and estuaries
- Reduced storm wave heights
- Multiple lines of defense
- Valued ecosystem services
- Enhance outdoor industry/economy
- Flood insurance discounts



## Restoring Freshwater Inflows to Bays/Estuaries

The restoration of freshwater inflows to coastal bays and estuaries will help improve the overall health and functioning of coastal wetlands and their ability to withstand the effects of future sea level rise, storms, and droughts.

- Protecting oysters and oyster reef habitat
- Benefits to blue crab population
- High productive commercial and recreational fisheries
- Maintain estuary health and salinity levels



# Broadening Our Understanding of Infrastructure

**THE PROTECTIVE VALUE OF NATURE & THE  
CENTERING OF COMMUNITY EQUITY**



# Growing Interest in Alternatives to Conventional Approaches

## Conventional “gray” infrastructure

- Costly
- Aging
- Increasingly unreliable



## Healthy natural ecosystems

- Cost-effective
- Adaptive to disturbances
- Co-benefits
- Shore up conventional infrastructure



# Natural and Nature-based Infrastructure

## Natural Defenses for Coastal Hazards

### Coastal habitat restoration

- Coastal wetlands, beaches and dunes, coral and oyster reefs



### Living shorelines

- Vegetation only, combined vegetation and structural



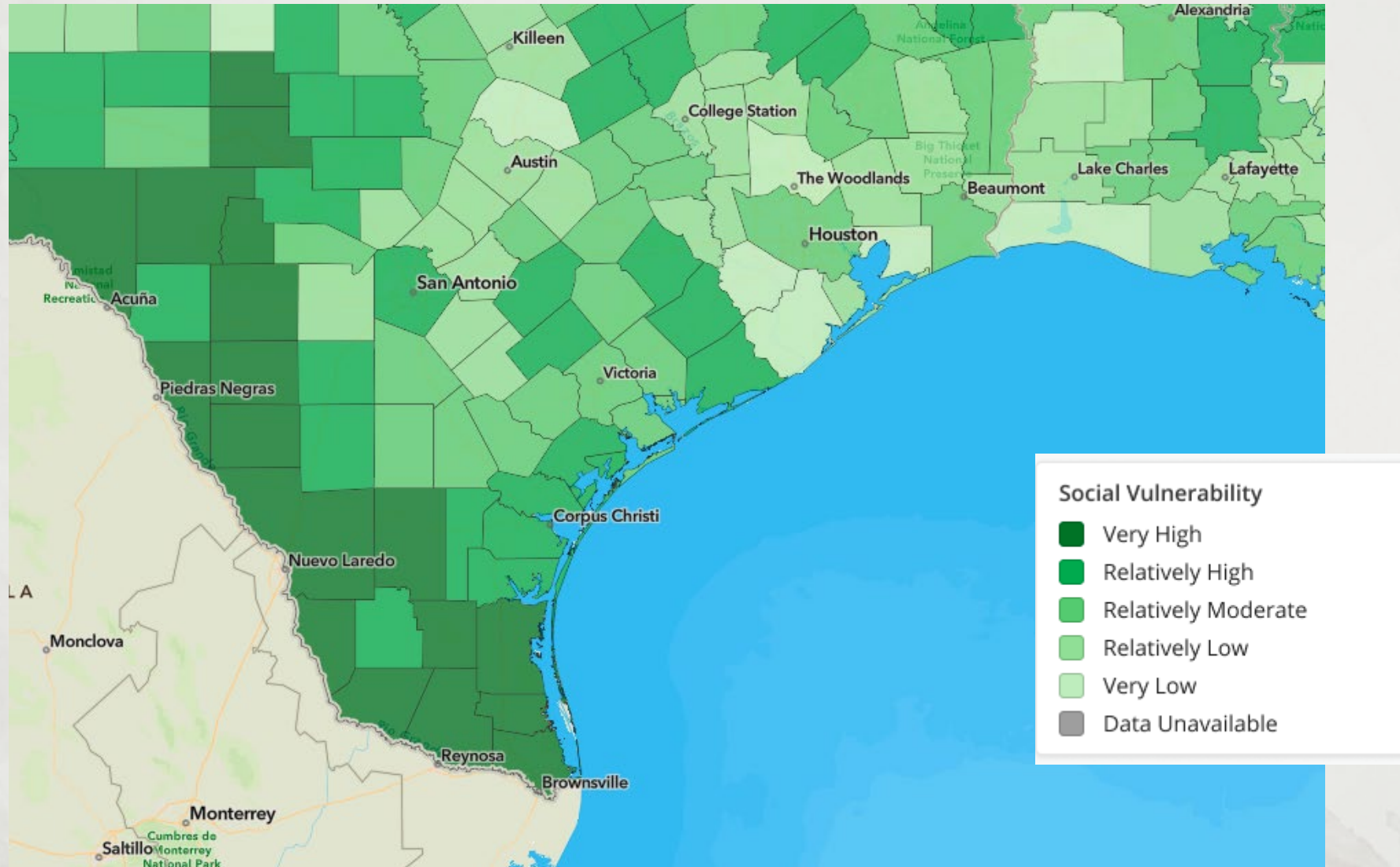
### Protecting coastal areas from development

- Open space protection, voluntary buyouts





# Centering Equity





# Myriad Funding Programs

Also see:

- Deepwater Horizon-related funding streams
- Community Development Block Grant – Mitigation program
- Matagorda Bay Mitigation Trust
- Incoming infrastructure funds – Clean Water and Drinking Water SRFs

	Name	Funding Agency	Brief Description
Federal	Community-Based Restoration Program	NOAA	Wetlands, coral reef restoration, and bivalve shellfish habitat restoration
	National Coastal Resilience Fund	NOAA	Living shoreline, floodplain-habitat restoration design, marsh and wetland habitat restoration
	Hazard Mitigation Assistance	DHS - FEMA	Drought and flood risk reduction projects, such as aquifer storage and recovery, floodplain and stream restoration
	Building Resilient Infrastructure and Communities (BRIC) grant program	FEMA	Hazard mitigation planning, conventional and nature-based infrastructure, and research-oriented, proactive investment in community resilience
	Community Development Block Grant Disaster Recovery (CDBG-DR) grants	HUD	Disaster relief and recovery, infrastructure restoration and economic revitalization
	Section 319 Nonpoint Source Management Program	US EPA	Nature-based solutions demonstration projects related to water quality improvements
State	Gulf of Mexico Energy Security Act	BOEM/GLO	Coastal projects targeting the restoration of coastal damage from Hurricane's Ike and Harvey and enhancing resiliency of the Texas shoreline to prevent future threats
	Flood Infrastructure Fund (FIF)	TWDB	Flood control, flood mitigation, and drainage projects, including nature-based approaches
	Texas Coastal Management Program (CMP)	NOAA/GLO	Coastal natural hazards response, critical areas enhancement, and ecotourism development
	Coastal Erosion Planning and Response Act (CEPRA)	GLO	Coastal erosion response projects and related studies to reduce the effects of and to understand the processes of coastal erosion

# Final Thoughts

- ✓ We are on a strong path (plans are improving)
- ✓ Funding is flowing for the next decade, but a more certain and long-term source of funds is needed
- ✓ Slow acceptance of nature as infrastructure
- ✓ More public discourse on the future of our coast is needed
- ✓ Equitable processes and outcomes are musts





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