THE TEXAS COASTAL RESILIENCY MASTER PLAN

ASBPA Texas Chapter 2017 Symposium

Chris Levitz, AECOM & Elizabeth Vargas, GLO

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AGENDA

➢ Overview of the 2017 Plan
  ➢ Goals
  ➢ Framework
  ➢ Pressures and Issues of Concern
    • Resiliency Strategies

➢ The Path Forward
  ➢ Justify
  ➢ Advance
  ➢ Adapt
  ➢ Integrate
OVERVIEW OF THE 2017 PLAN

• Goals
• Framework
• Pressures and IOCs
• Resiliency Strategies
The GLO will use the Plan to direct its authority to restore, enhance and protect the Texas coast.

Maintain ongoing communication with the Technical Advisory Committee, resource agencies and stakeholders throughout Plan development and implementation to garner support for the Plan.

Develop an adaptable plan that accommodates changing coastal conditions and their impacts on the coastal environment and the infrastructure protected by this natural first line of defense.
RESILIENCY STRATEGY FRAMEWORK

Drivers
- Economic
- Social
- Natural

Pressures
- Natural Processes & Human Activities (e.g. sea level rise, storm intensity, over fishing, oil & gas development)

Issues of Concern
- Altered, Degraded or Lost Habitat
- Gulf Beach Erosion & Dune Degradation
- Bay Shoreline Erosion
- Existing & Future Coastal Storm Surge Damage
- Coastal Flood Damage
- Impact on Water Quality & Quantity
- Impact on Coastal Resources
- Abandoned or Derelict Vessels, Structures & Debris

Indicators
- Examples:
  - Trends in Losses of Habitat
  - Decrease in Freshwater Inflow
  - Expert Assessment

Current Condition
- Environmental Health
- Human Well-Being

Resiliency Strategies/Projects
- Restoration of Beaches & Dunes
- Bay Shoreline Stabilization & Estuarine Wetland Restoration
- Stabilizing the Texas GIWW
- Freshwater Wetlands & Coastal Uplands Conservation
- Delta & Lagoon Restoration
- Oyster Reef Creation & Restoration
- Rookery Island Creation & Restoration
- Plans, Policies & Programs
COASTAL PRESSURES AND ISSUES OF CONCERN

• Nature-Based Pressures
  – Tropical Storms, Hurricanes and Extreme Weather Events
  – Relative Sea Level Rise
  – Depletion of Freshwater Inflows
  – Sediment Deficits

• Built Environment Pressures
  – Infrastructure and Development
  – Industry Activity

- Altered, Degraded or Lost Habitat
- Gulf Beach Erosion & Dune Degradation
- Bay Shoreline Erosion
- Existing & Future Storm Surge Damage
- Coastal Flood Damage
- Impact on Water Quality & Quantity
- Impact on Coastal Resources
- Abandoned or Derelict Vessels, Structures, & Debris
ISSUE OF CONCERN MAP

Level of Concern

- Most Concern
- Least Concern

Altered, Degraded, or Lost Habitat
Gulf Beach Erosion and Dune Degradation

Level of Concern
- Most Concern
- Least Concern

Level Scale: 0, 30, 60 Miles
ISSUE OF CONCERN MAP

Coastal Flood Damage

Level of Concern
- Most Concern
- Least Concern

Map showing coastal flood damage with areas marked by different colors indicating levels of concern.
ISSUE OF CONCERN MAP

Impacts to Coastal Resources

Level of Concern
- Most Concern
- Least Concern

0 30 60 Miles

Regions:
- Sabine Lake
- Galveston Bay
- Matagorda Bay
- San Antonio Bay
- Aransas/Copano Bays
- Corpus Christi Bay
- Upper Laguna Madre
- Lower Laguna Madre
ISSUE OF CONCERN MAP

Abandoned or Derelict Vessels, Structures, or Debris

Level of Concern
- Red: Most Concern
- Blue: Least Concern

Miles
0 30 60

Sabine Lake
Galveston Bay
Matagorda Bay
San Antonio Bay
Aransas/Copano Bays
Corpus Christi Bay
Upper Laguna Madre
Lower Laguna Madre
RESILIENCY STRATEGIES

**Project Tiers**

**Tier 1 Projects**
- High TAC approval ratings (typically over 80 percent)
- High feasibility
- Benefits mitigate IOCs in projects subregion
- Most resilient and actionable project solutions recommended for the state

**Tier 2 Projects**
- Moderate TAC approval ratings (between 60 percent and 80 percent)
- Moderate feasibility projections
- Benefits address IOCs in project’s subregion
- May still effectively contribute to resiliency and viability of coastal zone

**Tier 3 Projects**
- Need further research and development in future iterations of the Plan or already captured under another, larger project

**Resiliency Strategies**
- Delta & Lagoon Restoration
- Restoration of Beaches & Dunes
- Rookery Island Creation & Restoration
- Stabilizing the Texas GIWW
- Freshwater Wetlands & Coastal Uplands Conservation
- Bay Shoreline Stabilization & Estuarine Wetland Restoration
- Plans, Policies & Programs
- Oyster Reef Creation & Restoration
RESILIENCY STRATEGIES OVERVIEW

Restoration of Beaches & Dunes

Effect of boats and barges on the Gulf Intracoastal Waterway

Before Stabilization
- Eroding marsh
- Wake

After Stabilization
- Stable marsh
- Shoreline armoring
- Wake

Stabilizing the Texas GIWW

Bay Shoreline Stabilization & Estuarine Wetland Restoration

Freshwater Wetlands & Coastal Uplands Conservation

- Wetlands
- Marsh grass planting to trap sediment and build marsh habitat
- Buffer constructed to dissipate wave energy and reduce erosion for marsh regeneration
- Calm shallow waters to provide aquatic habitat
- New marsh
- Eroded marsh shoreline

- Urban runoff
- Coastal Uplands
- Groundwater
- Collects and filters contaminants from stormwater
- Freshwater Wetlands
- Wildlife habitat
- Clean water
RESILIENCY STRATEGIES OVERVIEW

**Delta & Lagoon Restoration**
- **Before**
  - Decreased freshwater flow degrades habitats and water quality downstream.
- **After**
  - Improved freshwater flow increases habitat resiliency and water quality.

**Rookery Island Creation & Restoration**
- Bird nesting habitat protected from predators and human disturbance
- Dredge material placement and plantings
- Installed erosion protection measure
- Calm waters for foraging

**Oyster Reef Creation & Restoration**
- Before Restoration
- After Restoration
- 2 Years After Restoration
  - Oyster shell culth provides an anchor for juvenile oysters
  - Oyster reef recruitment
THE PATH FORWARD

- Justify
- Advance
- Adapt
- Integrate
Justify the value of coastal resiliency efforts to a range of audiences.

- Project Costs
- Benefits Assessments
  - Ecosystem Services
  - Project Life Cycles
  - Cost/Benefit Process
Advance

• Advance the Plan’s implementation and priority activities.
  – Enhance Resiliency Strategies
  – Introduce New Resiliency Strategies
  – Support GLO Policy
  – TAC Feedback

Credit: Coalition to Restore Coastal Louisiana
Adapt

- Adapt the Plan to future conditions.
  - Adaptive Management
  - Relative sea level rise, storm scenarios and interaction with strategy implementation
Integrate the Plan with ongoing studies and planning efforts.

- Synergies Can Leverage Large-Scale Results
- Complimentary Study Elements
- Avoid Duplication of Efforts
“Millions of Texans live and work along the coast and the time has come to get serious about investing in its protection. By working together, we will directly address ongoing threats to the Texas coast and ensure a safer, more protected region for future generations.”

George P. Bush,
Commissioner, Texas General Land Office
THANK YOU!

Chris Levitz
AECOM
Engineering Manager
Chris.Levitz@aecom.com

Elizabeth Vargas
Texas General Land Office
Project Manager
Elizabeth.Vargas@glo.texas.gov