ADAPTIVE MANAGEMENT FOR SUCCESSFUL MARSH RESTORATION IN GALVESTON WEST BAY

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Galveston West Bay
Project Location
Gulf of Mexico
Galveston Entrance Channel
MARSH LOSS

- Relative sea level rise
- Land subsidence
- Lack of sediment supply
- Wave induced erosion
GALVESTON ISLAND STATE PARK
GISP: PHASE 1 RESTORATION

- Constructed in 1999
- Terrace grid
- Geotube breakwater
DELEHIDE COVE RESTORATION

- Constructed in 2003
- Hydraulically dredged marsh mounds
- Geotube breakwater
GISP: PHASE 2 RESTORATION

- Constructed in 2010
- Hydraulically dredged marsh mounds
- Some coalescing mounds
- Sand ridge breakwater
MARSH RESTORATION TECHNIQUES

- Create wide, gently sloped mounds from locally dredged material
- Overlap mounds to maximize plantable area
- Construct mounds to elevation suitable for marsh grass growth
- Construct rock breakwater to shelter restored marsh from wave impacts
BAYSIDE

- 12 marsh mounds
  - 35,000 cy of dredged material
- 3,800 feet of rock breakwater
  - Shelters new and existing marsh
- Created 14 acres of marsh complex

Construction
- NTP: August 8, 2016
- Construction Status: Completed November 15, 2016
- Construction Cost: $2,338,000
BAYSIDE BORROW AREA

Borrow Area

Marsh Restoration

~ 1 mile
GISP

- 85 marsh mounds
  - 328,000 cy of dredged material
- 5,415 feet of rock breakwater
  - Shelters new and existing marsh
- Created 70 acres of marsh complex

Construction
- NTP: August 8, 2016
- Construction Status: Ongoing
- Anticipated Completion: May 2017
- Construction Cost: $4,544,100
GISP BORROW AREA

Borrow Area

Marsh Restoration

~ 0.5 mile
PROJECT PARTNERS

- Galveston Island State Park
  - National Fish and Wildlife Foundation – Gulf Environmental Benefit Fund
  - NRG Energy, Inc.
  - Texas General Land Office
  - Texas Parks and Wildlife Department

- West Galveston Island Bayside
  - U.S. Fish and Wildlife Service – Coastal Impact Assistance Program
  - NRG Energy, Inc.
  - Texas Commission on Environment Quality – Galveston Bay Estuary Program
  - Texas General Land Office – Coastal Erosion Planning Response Act
  - Texas Parks and Wildlife Department