NRDA CAILLOU LAKE HEADLANDS
RESTORATION
(aka Whiskey Island)

Presentation for:
Bureau of Ocean Energy Management, Marine Minerals Program
Gulf of Mexico Offshore Sand Management Working Group
November 29, 2018

Presented by:
Steve Dartez & Brad Miller

COASTAL ENGINEERING CONSULTANTS INC.
OUTLINE

• Project Introduction
• The Plan
• Executing the Plan
• What We Learned when the Plan does not go as Planned
Client – Construction Team

Client

Design Lead / Construction Administration

Construction Contractor

COASTAL ENGINEERING CONSULTANTS INC.

GREAT LAKES DREDGE & DOCK COMPANY
RIVER & HARBOR IMPROVEMENTS
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Project Facts

- Originally part of the four-island National Ecosystem Restoration Plan in LCA Terrebonne Basin Barrier Shoreline Feasibility Study: Whiskey Island recommended as first component of construction
- Project reformulated into Caillou Lake Headlands Restoration
- Construction Elements
  - Total Placed Fill: 10.06 MCY
  - Total Fill Dredged: 10.51 MCY
  - Project Length and Area: 23,700 ft / 954 acres
  - PROJECT DENSITY: 441 CY/ LF
- Construction began on October 03, 2016 and was completed on June 20, 2018.
Project Overview Map

- Raccoon Island
- Whiskey Island
- Trinity/East Island
- Restoration Area
- State/Federal Water Boundary
- Ship Shoal Block 88 Conveyance Corridor
- Gulf of Mexico
- Ship Shoal Block 88 Borrow Area

8.2 NM
GULF-SIDE BEACH WIDTH RANGE: 880 FT TO 1,340 FT
BEACH ELEVATION: +4.2 FT NAVD88
DUNE CREST WIDTH: 100.0 FT
DUNE ELEVATION: +6.4 FT NAVD88
MARSH PLATFORM WIDTH: 880 FT TO 1,320 FT
MARSH PLATFORM ELEVATION: +2.4 FT NAVD88

AERIAL IMAGE FROM AERO-DATA, CORP., MAY 28, 2018

LEGEND

- BEACH FILL CREST ALIGNMENT
- DUNE FILL CREST ALIGNMENT
- BEACH SEPARATION DIKE ALIGNMENT
- BEACH / MARSH INTERFACE ALIGNMENT
- MARSH CONTAINMENT DIKE ALIGNMENT
- MARSH FILL CREST ALIGNMENT
- ACCESS CHANNEL ALIGNMENT
- PROBABLE PIPELINES
Borrow Area

LEGEND

- BATHYMETRIC CONTOUR (2012)
- BORROW AREA LIMITS
- DREDGE CUT ELEVATION CHANGE (TOE OF CUT)
- ALLOWABLE ANCHORAGE AREA
- SHIP SHOAL BLOCK 88 CONVEYANCE CORRIDOR
- CONVEYANCE CORRIDOR ALTERNATE SPUR
- AVOIDANCE AREA (2012)
- VIBRACORE (2005)
Borrow Area

LEGEND:
- DESIGN CUT
- OVERDREDGE TOLERANCE
- EXISTING GRADE (2012)

C – C'

D – D'

ELEVATION ( NAVD 88 FT)

DISTANCE ALONG PROFILE (FEET)
Conveyance Corridor
OUTLINE

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The Equipment

• Cutterhead Dredge: *Alaska*
• Booster Pumps (3 at a time)
• Over 10 Miles of Sediment Pipeline
• 2 Quarters Barges and 1 Recreational Barge
• Crane, Anchor, Transport, and Fuel Barges
• Dozers, Frontend Loaders, and Marsh Buggy
• Excavators
• Tug, Survey, and Crew boats
• and 1 Awesome Mini Drone
The Equipment

Cutterhead Dredge *Alaska*
The Equipment
Booster Pumps

Booster Barney
Booster Erin C
Booster Texas, Jr.
Booster Jessie
The Equipment

Quarters Barges & Recreational Barge

Quarters Barge –
Dredge Pontchartrain

Recreational Barge

Quarters Barge –
Chandaleluer
Fill Placement
Construction Heading East

900 FT
Fill Placement
Construction Heading East
Fill Placement
Construction East Side Complete
Fill Placement
Construction Heading West – Marsh Fill
Fill Placement
Construction Heading West – Marsh Fill Complete
Fill Placement
Construction Heading West – Beach/Dune Fill
Fill Placement
Construction Heading West – Beach/Dune Fill Complete
Sand Fencing
Vegetative Planting
Settlement and Overwash Monitoring System

Settlement Plate Install

Settlement Plate – Post Fill

Overwash Plate Install

2016/04/28
Restoration Complete
• Project Introduction
• The Plan
• Executing the Plan
• What We Learned when the Plan does not go as Planned
Shoreline Erosion and Longshore Transport

NOTES:
1. AERIAL IMAGE FROM AERODATA CORP., NOVEMBER 7, 2016.

LEGEND
- BID FILL TEMPLATE
- RELOCATION FILL TEMPLATE
- PROJECT BASELINE

SCALE: 2,400' 1,200' 0' 2,400' 4,800'
Shoreline Erosion and Longshore Transport
**Weather**

*Tropical Storm Cindy: 8 days of downtime*

*Hurricane Harvey: 11 days of downtime*

*Hurricane Nate: 11 days of downtime*
Weather

Effects of Tropical Storm Cindy (June 2017)
Weather

Effects of Tropical Storm Cindy (June 2017)
Lessons Learned

• Conduct a pre-bid conditions survey if time and budget allows.

• Anticipate weather impacts. (Over 100 down days attributed to weather for the Project)

• Bird abatement and Agency coordination essential during nesting season.

• Quick and efficient adaptability to outside forces effecting construction key to keeping the Project on track with minimal to no downtime.
Man That is a Big Pile of Sand
The Cast of Characters

State and Federal
- CPRA
- Louisiana Department of Wildlife & Fisheries

Construction Administration, Observation, and Monitoring
- COASTAL ENGINEERING CONSULTANTS INC.
- SWCA ENVIRONMENTAL CONSULTANTS
- EMC SURVEYING & MAPPING

Construction
- DREDGE & DECK
- GREAT LAKES
- CADRY TUGS LLC
- HYDROTERRA TECHNOLOGIES, LLC
- SES