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2023 Conference on Innovations in Climate Resilience
Houston Ship Channel Expansion Project 11: Dollar Reef Oyster Mitigation Galveston Bay, Galveston County, Texas

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Government & Industry in Harmony with the

Overview

- What were we trying to accomplish?
- Who is responsible for this project?
- When did we do it?
- Where did the work take place?
- How did we pull it off?
- Why is this work important?
- Summary
- Q & A

What were we trying to accomplish?

A mitigation project to replace reefs damaged or destroyed during the widening of the Houston Ship Channel designed to accommodate new Panamax container ships

Nick Souza Photography 2020

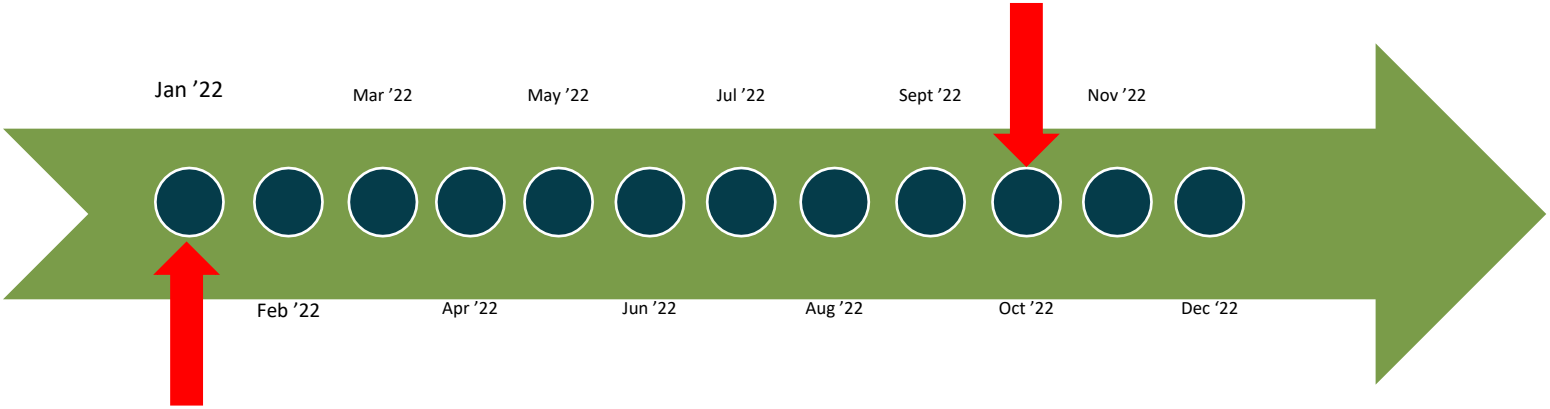
Who is responsible for this project?

PORT HOUSTON
THE INTERNATIONAL PORT OF TEXAS℠

US Army Corps of Engineers®

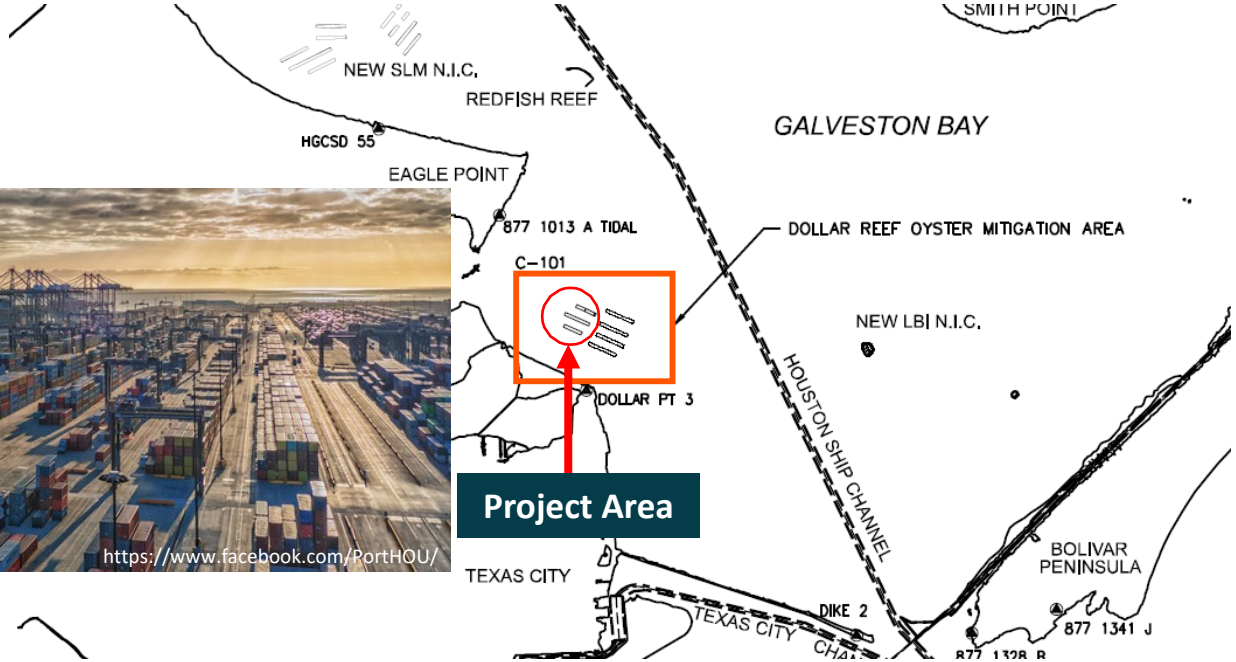
MIAMI WIIPICA, LLC

When did we do it?



The project took place between January and October of 2022

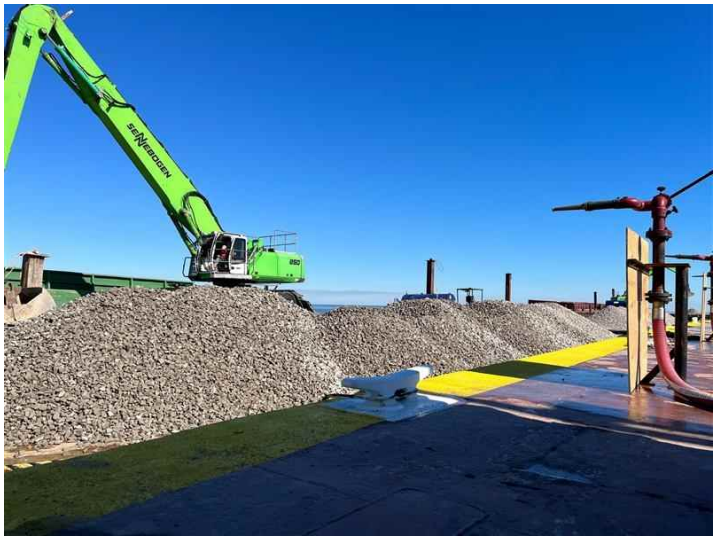
Where did the work take place?



Part of Port Houston - One of the busiest seaports in the world

- **70% of US Gulf Coast Container Traffic**
- **$339B in economic value**
- **Home to marshes and habitat for waterbirds and all forms of sea life, including oysters**

How did we pull it off?



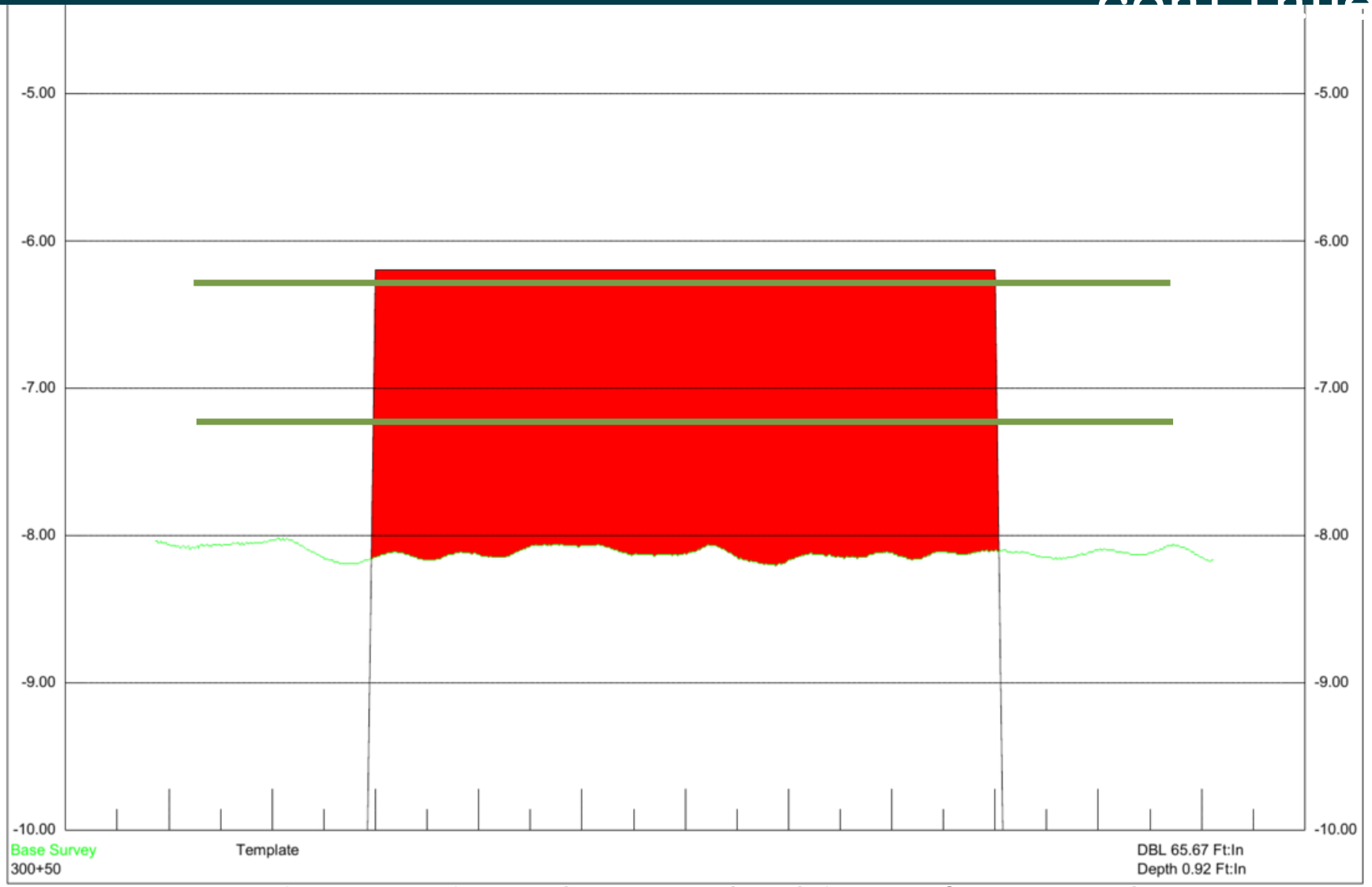
- Sourced 200K tons of crushed limestone from quarry in Salem, KY
- Barged stone via the Intracoastal Waterway to Galveston Bay - a 1,500-mile journey!

- Four operators per spray barge used fire nozzles on 150-200 psi sprayers to push the stone 5-30 feet off the side of the deck barge
- Created three, 1.5-2.5’ thick reef pads: 13, 14, and 17 acres in area

How did we pull it off? – continued

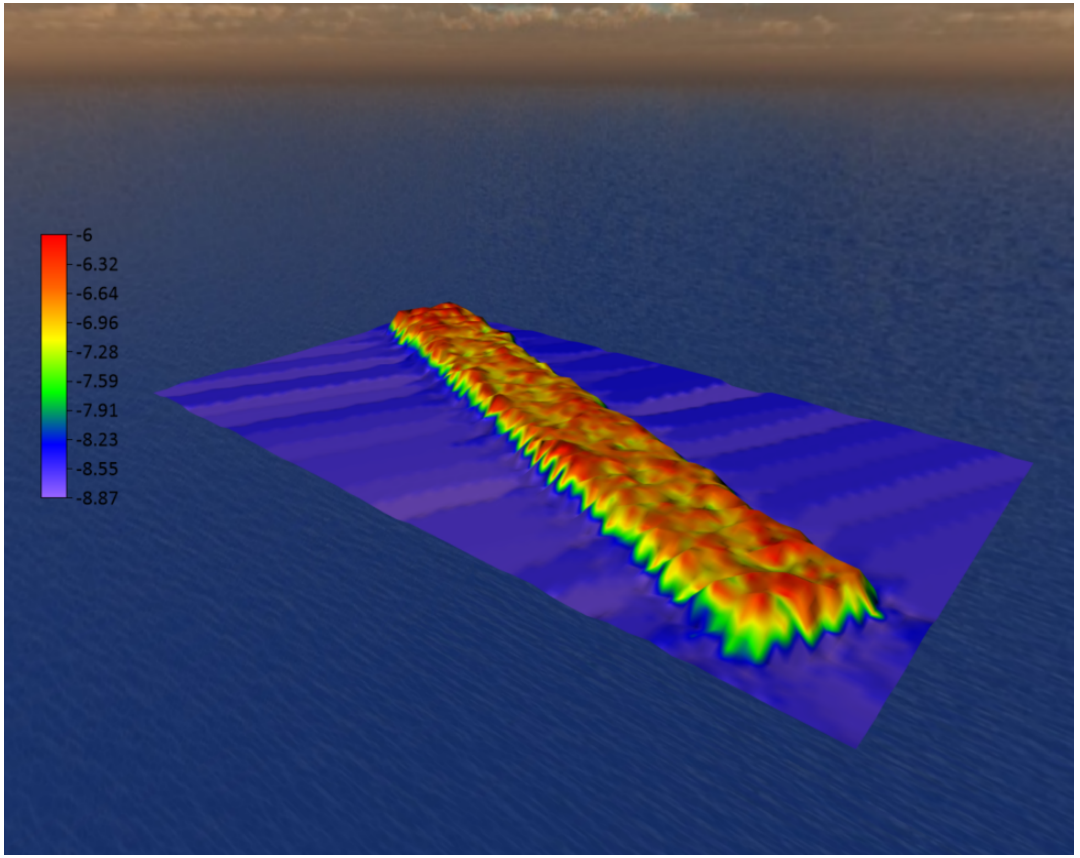
- **Stone sprayed from deck barges for even distribution**
- **Progress Surveys used single beam sonar and data loaded into dredging app (HYPACK) for visualization of material placed on bay bottom plus high/low areas.**

How did we pull it off? – continued



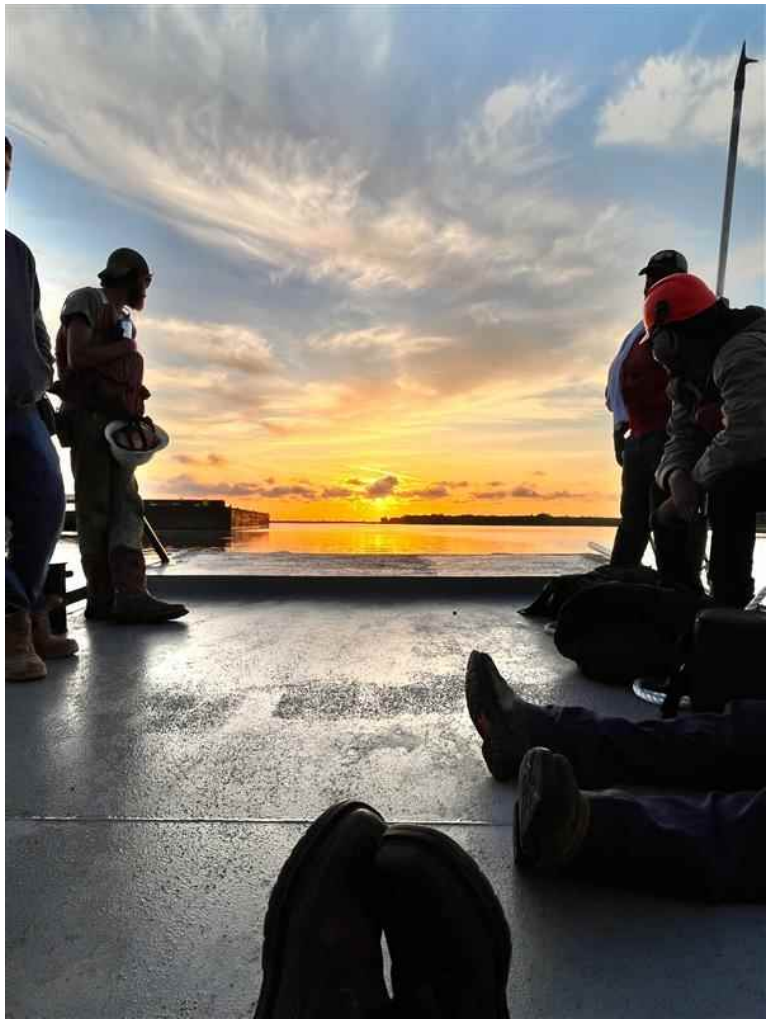
Side scan data showing build up of material at reef pad A3

How did we pull it off? – continued



3D rendering of a completed reef pad

Why is this work important?



Expect nearly 350 million adult oysters

Oyster reef benefits:

- **Carbon sequestration**
  - **~2.591x10^6 pounds of dissolved CO2**
- **Water filtration**
  - **~8.745x10^9 gallons of seawater per day**
- **Coastal protection**
  - **Reefs protect against storms and tides which degrade coastlines**

Summary

- **Conceptually very simple, straightforward project, but the logistics and execution added an additional degree of difficulty**
- **Dedicated crew and project management plus cooperation of stakeholders made this project a huge success!**

Questions???