

# Practical Applications of Beneficial Use in Public and Private Projects

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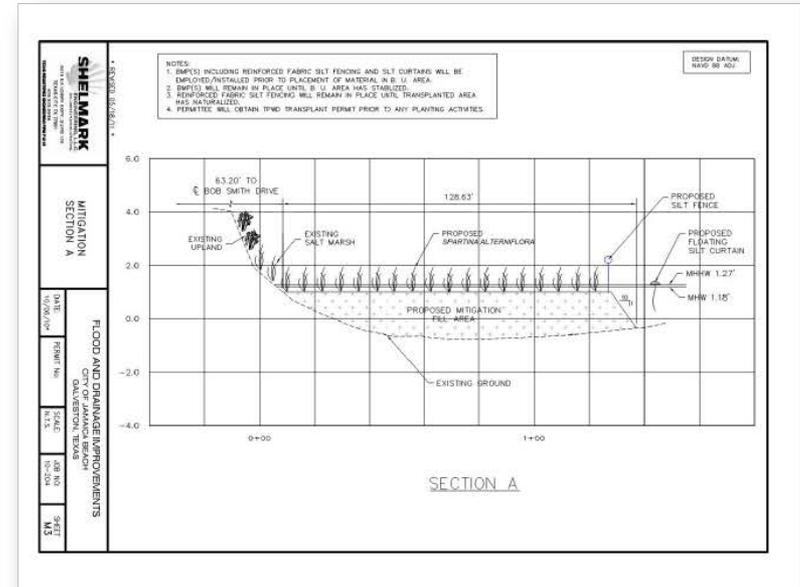




## Overview...

- **Small Projects**
- **Municipal**
- **CIAP - MCND#1**

# Small Scale B.U. Projects...







## B.U. Area

10 acre B.U. Site

1.55 acres/

1,825 L.F. of armored berm

# Expect the Unexpected....



The little dredge that could...

Post Ike  
Trash &  
Treasures



# Tres Palacios

## Beneficial Use of Dredged Material Study

### Phase 1 & 2



**Port of Palacios**  
MATAGORDA COUNTY NAVIGATION DISTRICT NO. ONE



**ATKINS**

This report utilizes 2007 funds (qualified outer continental shelf oil and gas revenues) provided by the Coastal Impact Assistance Program, U.S. Fish and Wildlife Service, U.S. Department of the Interior, and the Texas General Land Office.

# Our Approach...

## Phase 1

- Task #1 Data Collection & Coordination
- Task #2 Dredge Data Analysis
- Task #3 Alternative Sites & Site Assessment
- Task #4 Sediment Modeling & Management
- Task #5 BUDM Plan Formulation & Coordination
- Task #6 Plan Evaluation
- Task #7 Reporting



## Phase 2

- Task #1 Engineering Design
- Task #2 Permit Preparation
- Task #3 Specifications & Construction Documents



# Our Progress...

Data Collection & Coordination **95%**  
Dredge Data Analysis **85%**  
Alternative Sites & Site Assessment **50%**  
Sediment Modeling & Management **10%**



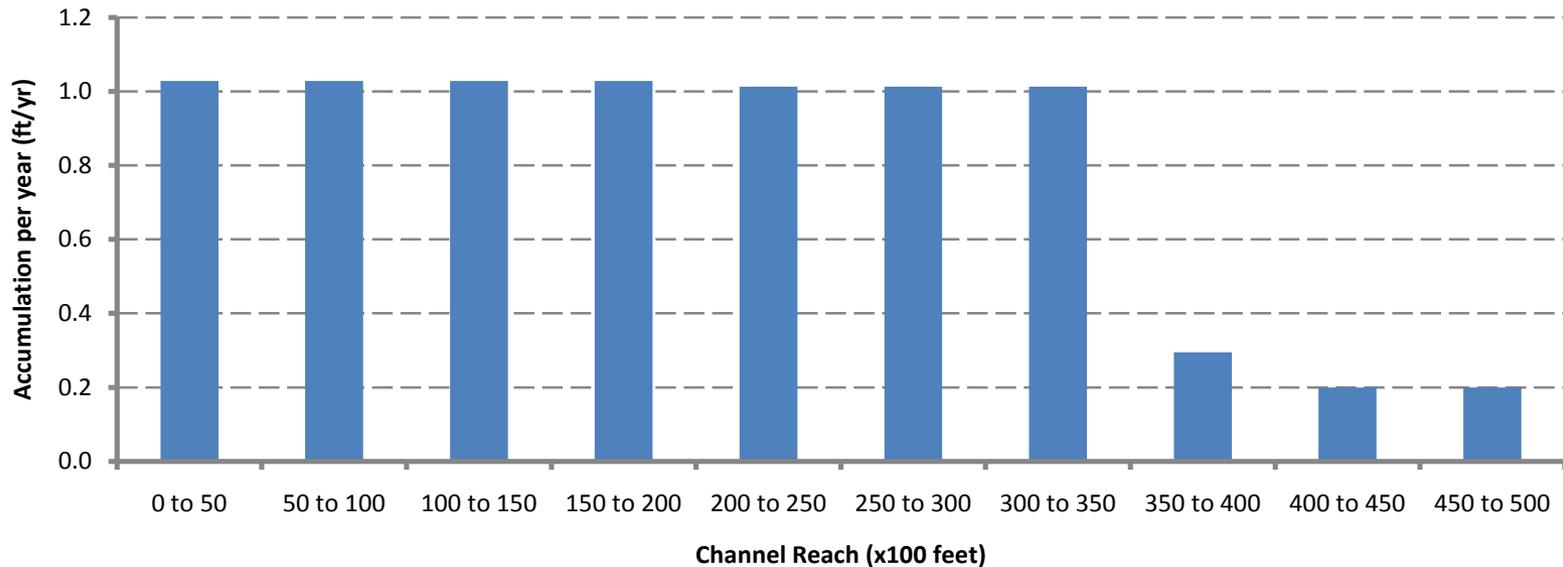
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# Original Channel

- Channel was initially dredged in the 1940s
- Original dimensions were 9 feet deep by 100 feet wide
- Maintenance Dredging was approximately 150,000 cubic yards/year, primarily in the northern part of the channel

# Approximate Sediment Accumulation Rate In Original Channel

1940-1965



Palacios

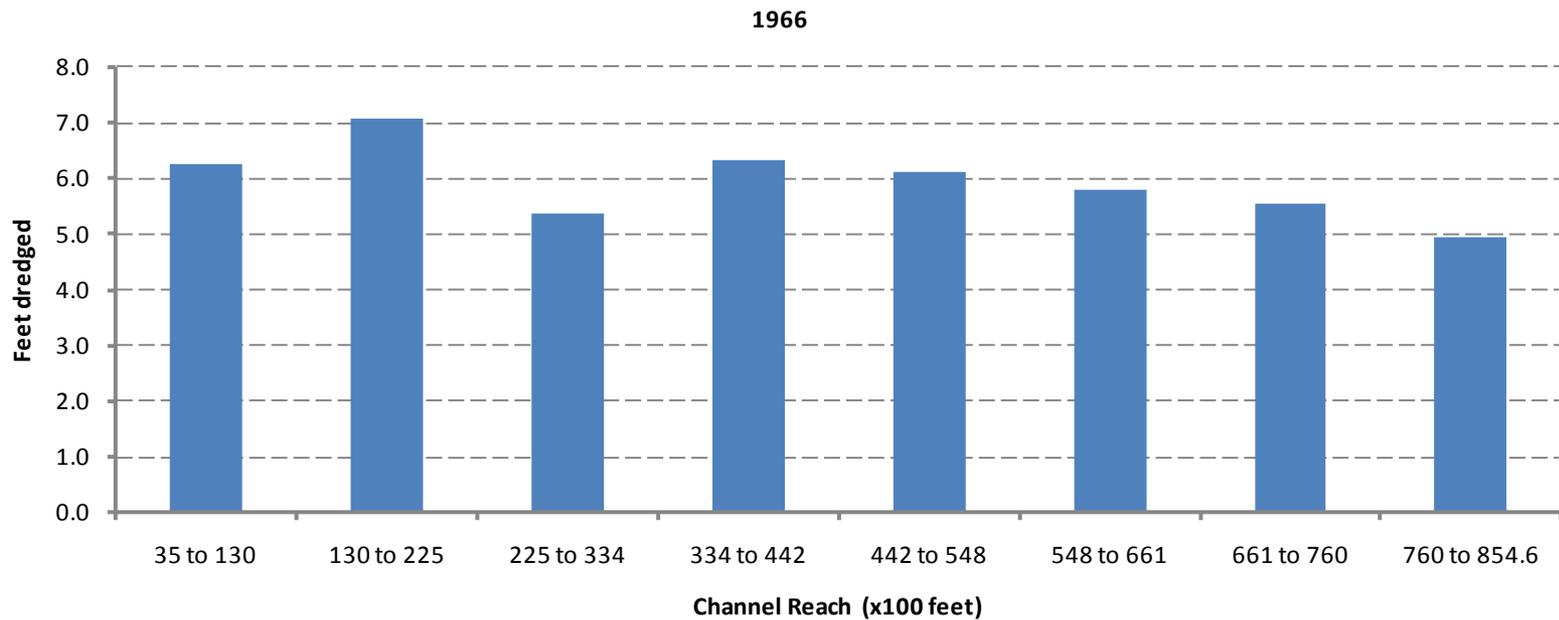
Oliver Point

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# Expansion in 1966

- In 1966 channel was enlarged to the GIWW dimensions of 12 feet deep and 125 feet wide
- A total of 2.57 million cubic yards was dredged
- Stone breakwater also constructed at harbor mouth

# Depth Dredged in 1966



Palacios

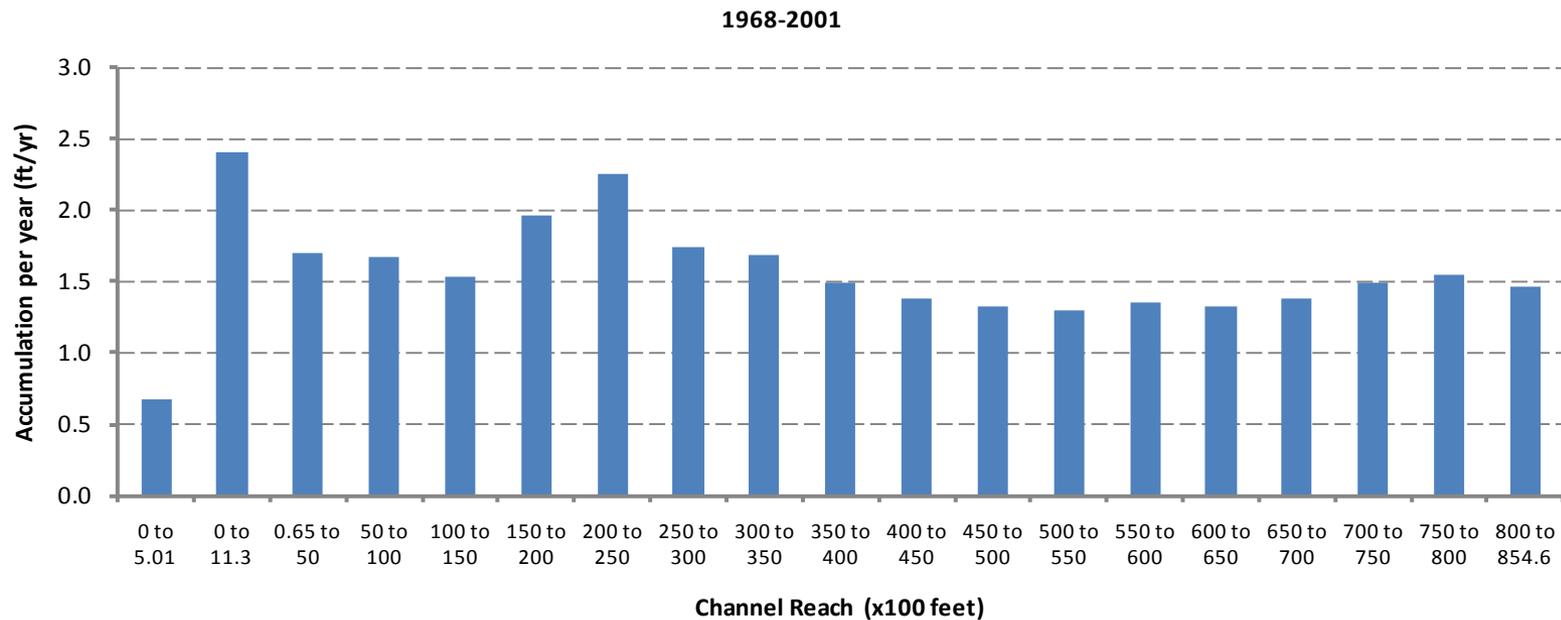
GIWW

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# Maintenance From 1968 to 2001

- Dredging has been required every 3 years
- Average quantity dredged is approximately 2 million cubic yards
- Average volume per year is 629,000 cy
- The material accumulates at about the same rate over the entire channel length
- After 2001 maintenance dredging has been reduced

# Average Sediment Accumulation by Channel Reach, 1968-2001



Palacios

GIWW



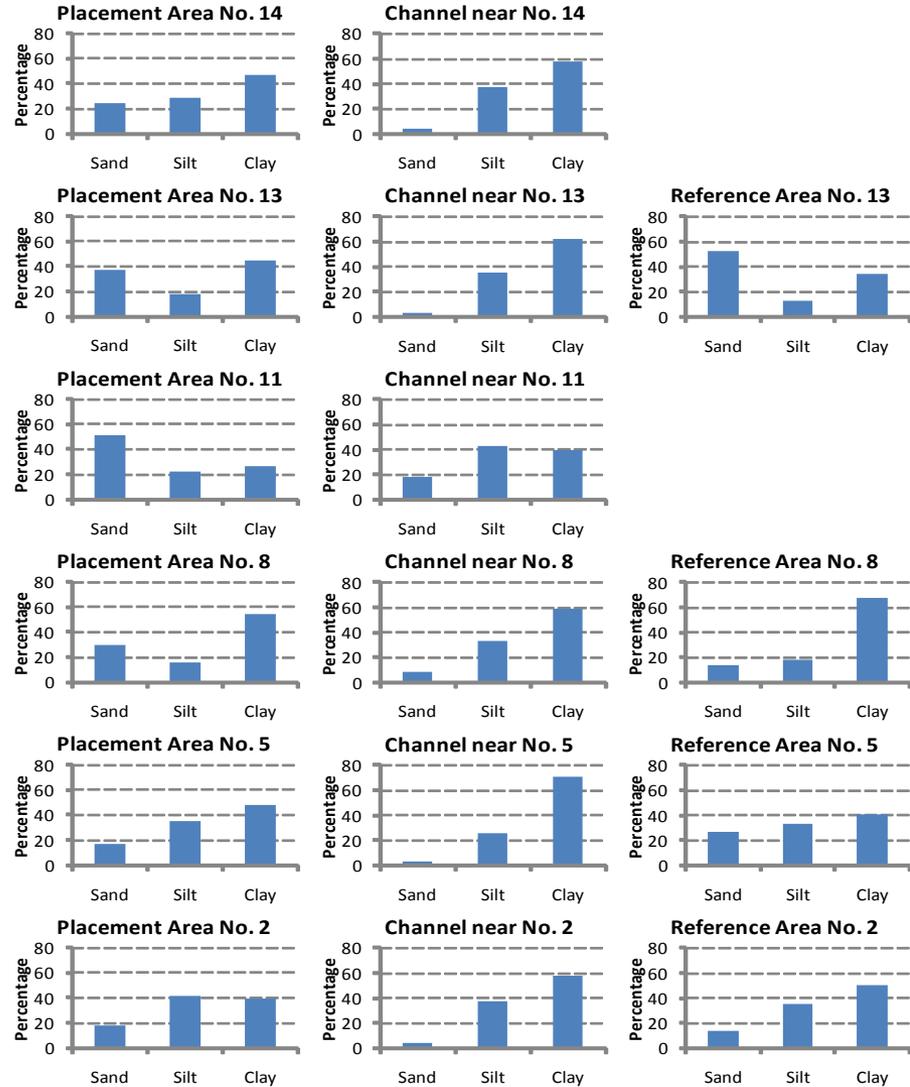
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# Material Characteristics

- Material is over 93% Silt and Clay
- Moisture Content is about 65%
- About 18% of the solids are organic with the rest being mineral

# Sand, Silt and Clay in Sediments

The Sand Percentage in the Channel is low and always lower than the percentage in the adjacent Placement or Reference Areas



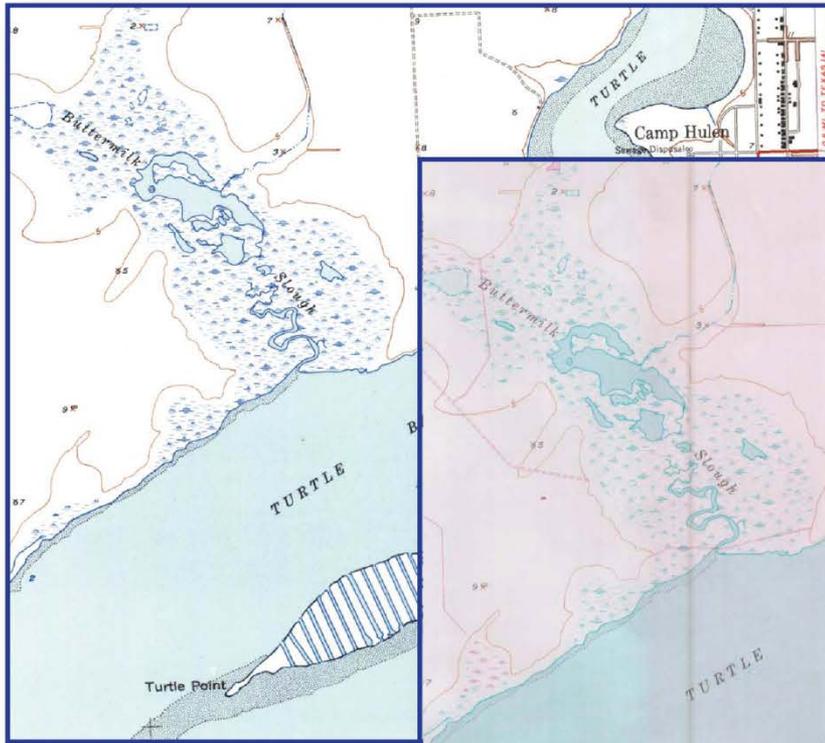
# Potential B.U. Locations



**Buttermilk Slough**



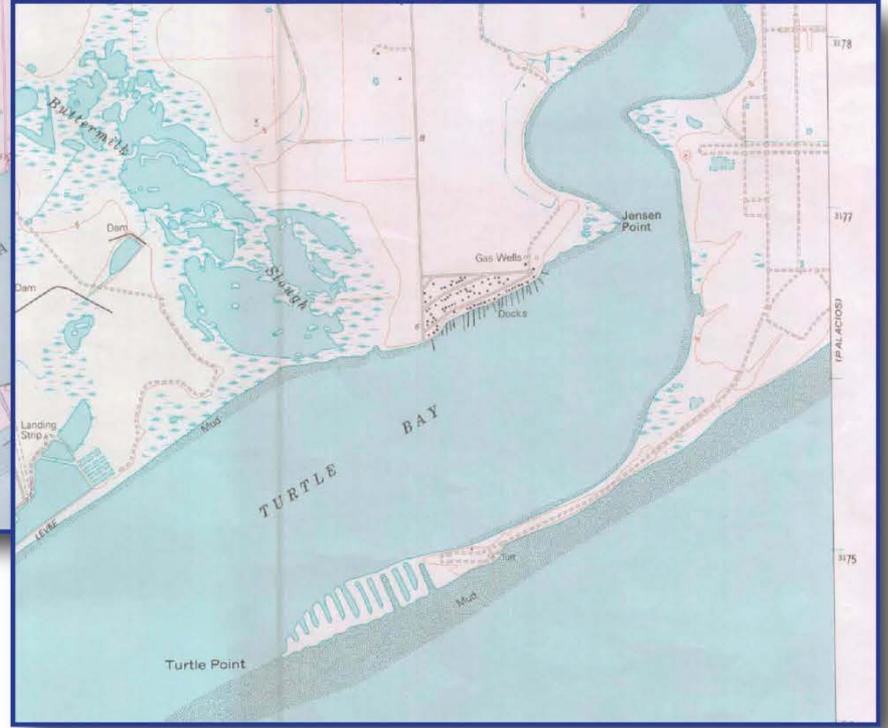
Turtle Bay



1952



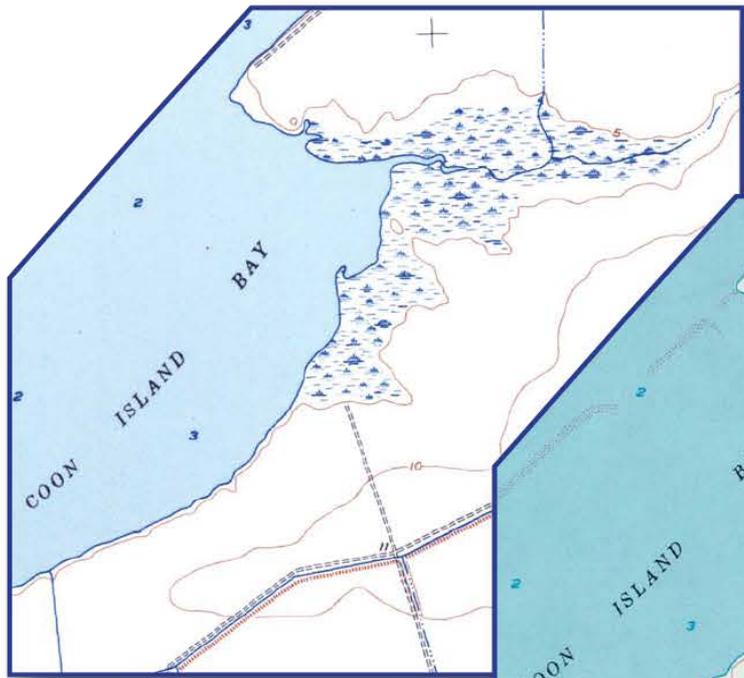
1973



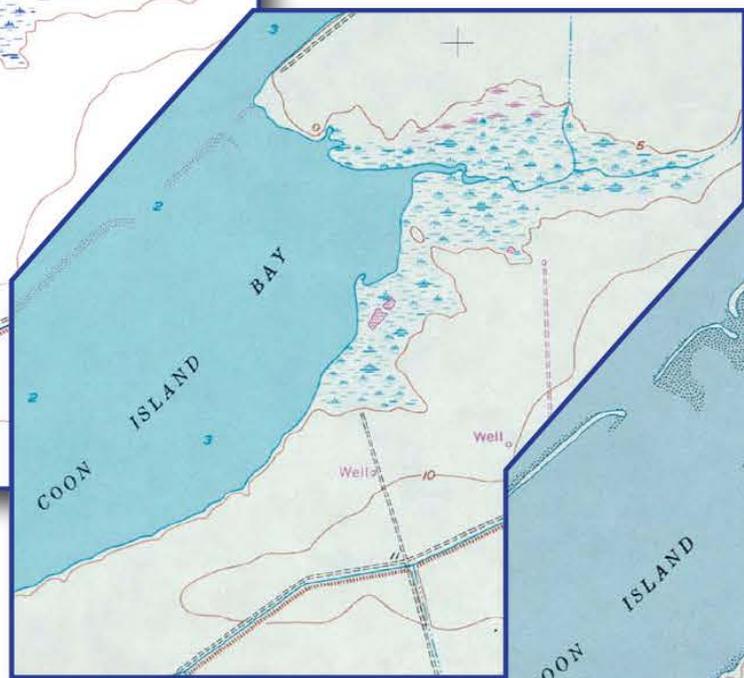
1995

Coon Island Bay

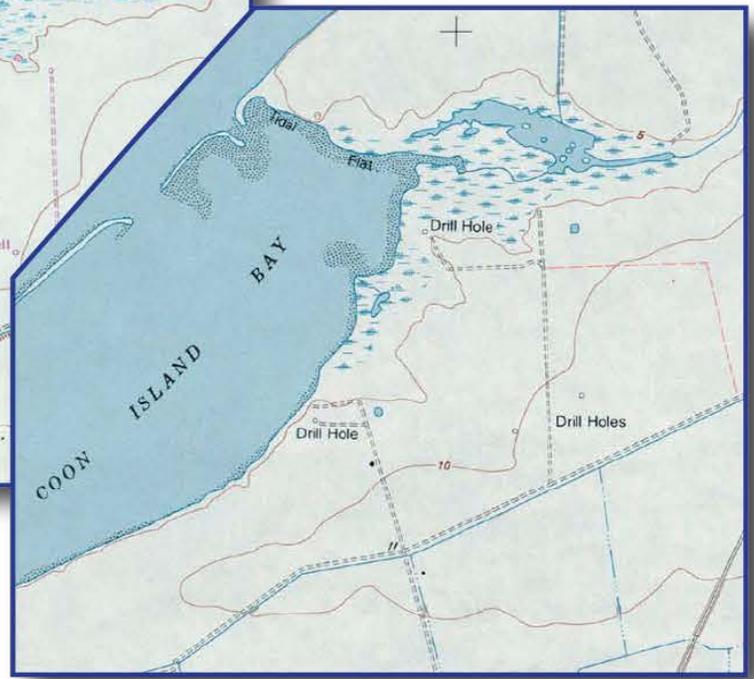




1952

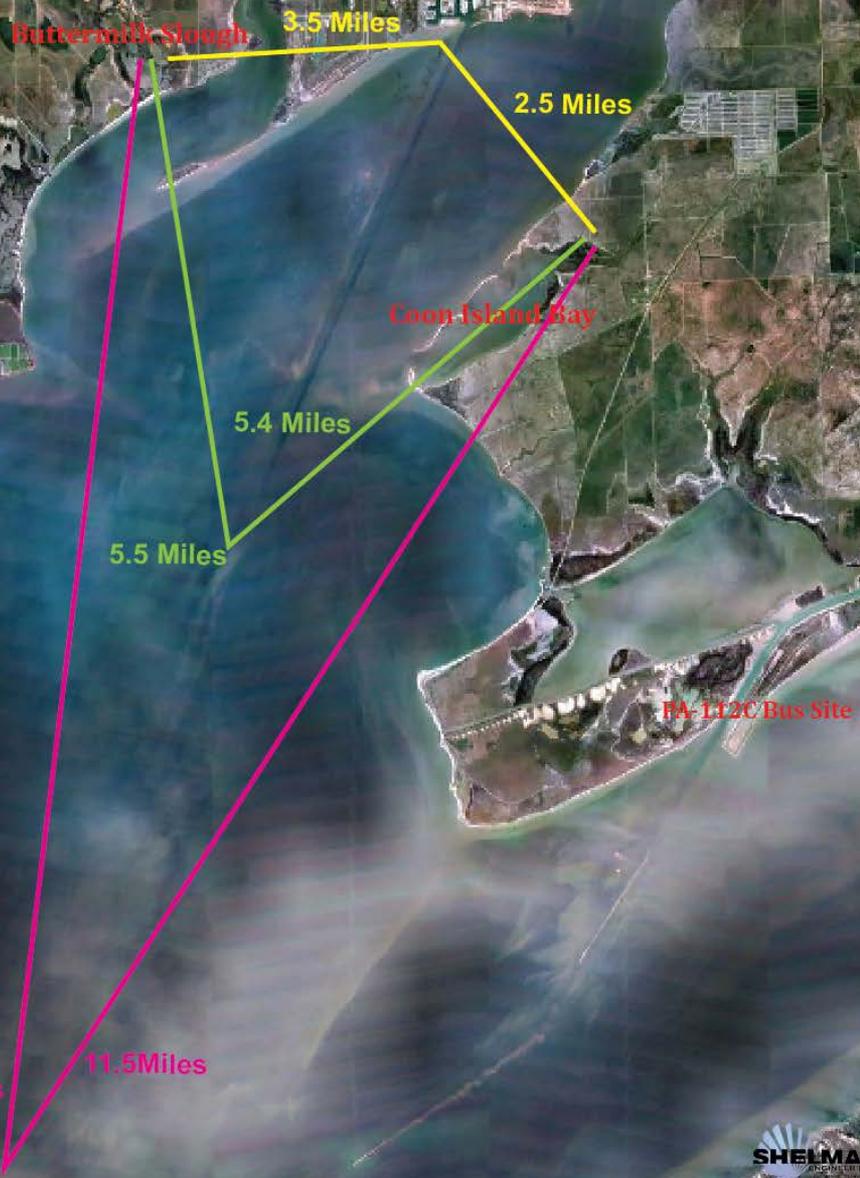


1973



1995

# Approximate Distances to Potential B.U. Sites



# What is Next...



Patented thin-layer disposal system, shown dredge material being placed by the JET SPRAY® thin-layer disposal technique. Texas A&M Transportation Institute.



Bessie Heights Marsh near Beaumont, Texas.  
USACE Galveston District, Texas Parks and Wildlife Dept.

- Public meetings for local input.
- Identifying land owners adjacent to potential B.U. sites.
- Final analysis of data, materials and applicable uses.
- Alternatives Matrix: Evaluating costs, logistics, benefits, Impacts.
- BUDM plan formulation, evaluation and reporting.