Unique Dredging and Placement Projects

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Presentation Overview

• Dredging Basics, A Short Review
• On-site Aquatic Placement
• Confined Aquatic Disposal
• Beneficial Use Sites
• Coastal Mississippi: An Update
Review—A Yard Is Not a Yard Is Not a Yard

In situ, Intermediate, and End State

[Graph showing data points for In-Situ, Dredge Bulk, Ditch Shrinkage, Relay Shrinkage, Trucking, and Dike Placement]
On-site Placement
Dredging Method
Commercial Landfill

• Regulations
  – Federal: U.S. Environmental Protection Agency (USEPA)
  – State: DEP, DEQ, etc.
  – Local

• Processing for transport
  – Additives (e.g., Portland cement, etc.)

• Transport
  – Marine
  – Truck
  – Rail
On-site Placement

• Regulations
  – Federal: USEPA
  – State: DEP, DEQ, etc.
  – Local

• Transport
  – Barge
  – Truck and rail
  – Conveyor
On-site Placement

• Measurement and payment
  – Cubic yard (CY) in situ

• Liabilities and risks
  – Owner vs. landfill
  – Managed risks

• Contaminant stability
  – AVS SEM
  – Hydric conditions
On Site Placement for Restoration

Location, location, location
Confined Aquatic Sites
Unique Dredging and Placement Projects
Port Hueneme Impacted Sediment Locations

- Naval Base Ventura County
- USACE Federal Channel
- Oxnard Harbor District
Construction Sequence

Naval Base Ventura County

Oxnard Harbor District
CAD Excavation

Step 1: Excavate Cell

Beach Nourishment
Contaminated Sediment Dredging

Step 2: Place Contaminated Sediment in Cell
Step 3: Place Cap Material
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Port Hueneme CAD Cross Section

-46’ MLLW

-56’ MLLW

-85’ MLLW

Clean Cap

Contaminated Sediments

-43’ MLLW
Beneficial Use Sites
Beneficial Use (BU)

- Beach nourishment
- Agriculture and products
  - Topsoil
  - Aquaculture
- Berms
  - Stable and feeder
- Land creation
- Land improvement
- Marsh and intertidal habitat
BU Marsh Design

• Design Considerations
  – Foundation
  – Dredge material properties
  – Placement methods
  – Density phases

• Lessons learned
  – Marsh now
  – Larger sites and adaptive management
Coastal Mississippi: An Update
History and the BU Law

• 2001 & 2002
  – USACE and DMR identify potential BU sites
  – Develops Master Plan for BU in Mississippi
  – Deer Island identified as a pilot project and completed in 2003

• 2008
  – Beneficial Users Group (BUG) formed
  – State and federal agencies, co-chaired by DMR and USACE
  – Private stakeholders (e.g., local ports)

• 2010
  – BUG recommends revised legislation
  – House Bill 1440 passed March 2010
  – Coastal Wetlands Protection Act § 49-27-61,
Deer Island Marsh Creation Project: 2001 to 2003

- Components:
  - 7- to 8-foot-high dike
  - Easterly wing dike
  - Flash board riser weirs
  - Offset to provide bayou

- Dredged material from Biloxi Lateral Channel

- Approximately 40 acres were filled with 365,000 cy of sediment
Pre-Katrina
Post-Katrina
Deer Island BU and Port of Gulfport 2012

- Designed with DMR, Port, and Stakeholders
- USACE rebuilt existing cell under MsCIP
- Refill existing BU cell and construct additional expansion area BU cell
  - Open at the western end to encourage circulation and habitat development
  - Can be expanded for additional material
  - Mimics the historic 1850s footprint
  - Intertidal plant species
  - Chenier for nesting
Port of Gulfport—2012 Restoration
Deer Island BU Construction 2012
Port of Gulfport—2012 Restoration (cont.)
Current Views
Current Views
BU to Enhance Existing Marsh

Illustration of conceptual model for marsh recovery after thin-layer disposal
Regional Sediment Management Sites

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Questions /Discussion

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