

# Regional Sediment Management Leveraging to Restore Natural Infrastructure



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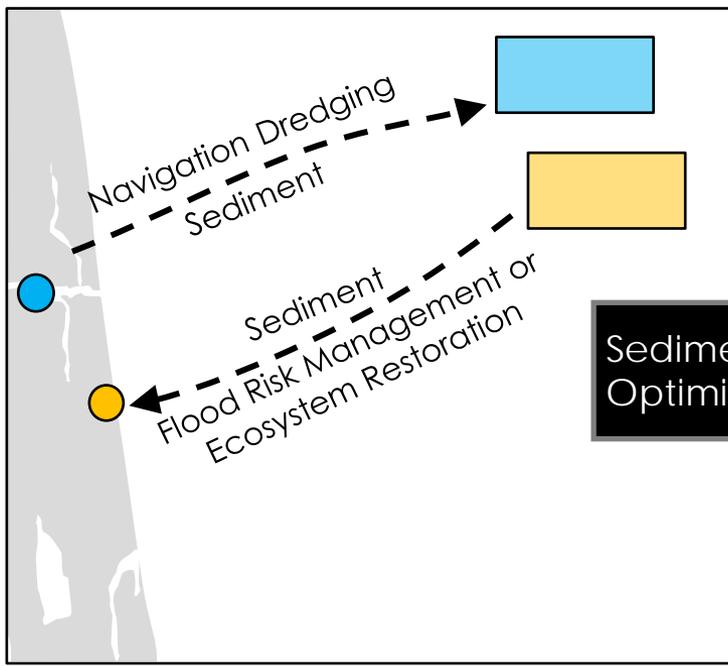
U.S. ARMY CORPS OF ENGINEERS | Jacksonville District

# RSM, What Is It?

- A systems approach to deliberately manage sediments in a manner that maximizes natural and economic efficiencies to contribute to sustainable water resource projects, environments, and communities.
- Recognizes sediment as a valuable resource for Healthy Systems
- Regional implementation strategies across multiple projects and business lines to guide investments to achieve long-term economic, environmental, and social value and benefits
- Enhances relationships with stakeholders and partners to better manage sediments across a region (local actions with regional benefits)
- Share lessons learned, data, tools, and technology

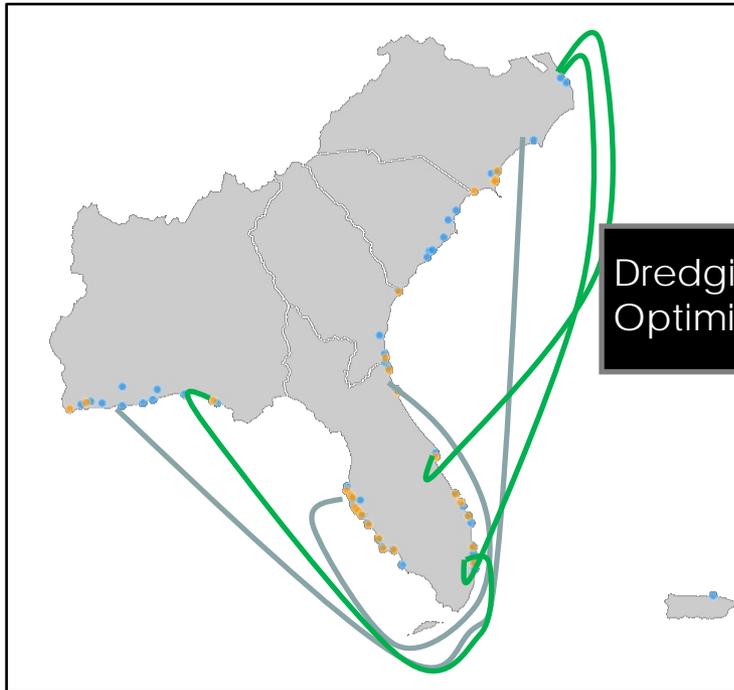
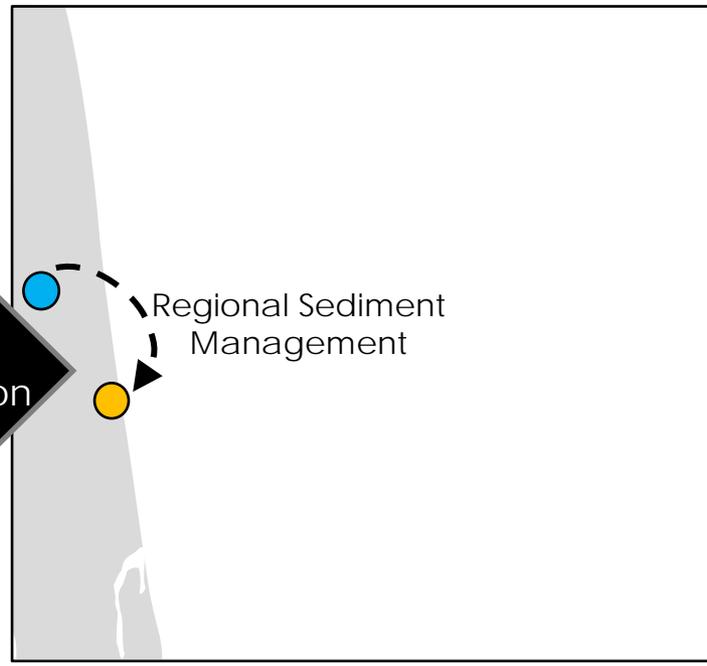


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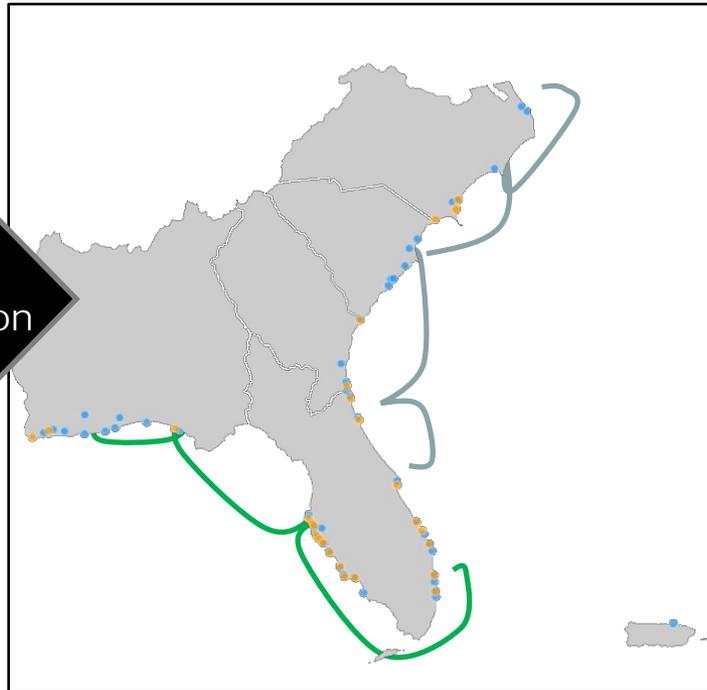
Sediment Optimization

A large black arrow pointing from the left diagram to the right diagram, labeled "Sediment Optimization".



Dredging Optimization

A large black arrow pointing from the left map to the right map, labeled "Dredging Optimization".



# EFFICIENCY

1

# RETURN ON INVESTMENT

Example- 2013 STORM RESPONSE, JACKSONVILLE DISTRICT

FEDERAL NAVIGATION CHANNELS DREDGED



COST: \$23M  
VALUE: \$23M

FEDERAL COASTAL STORM RISK MANAGEMENT PROJECTS NOURISHED



COST: \$0  
VALUE: \$27M

DREDGING OPTIMIZED



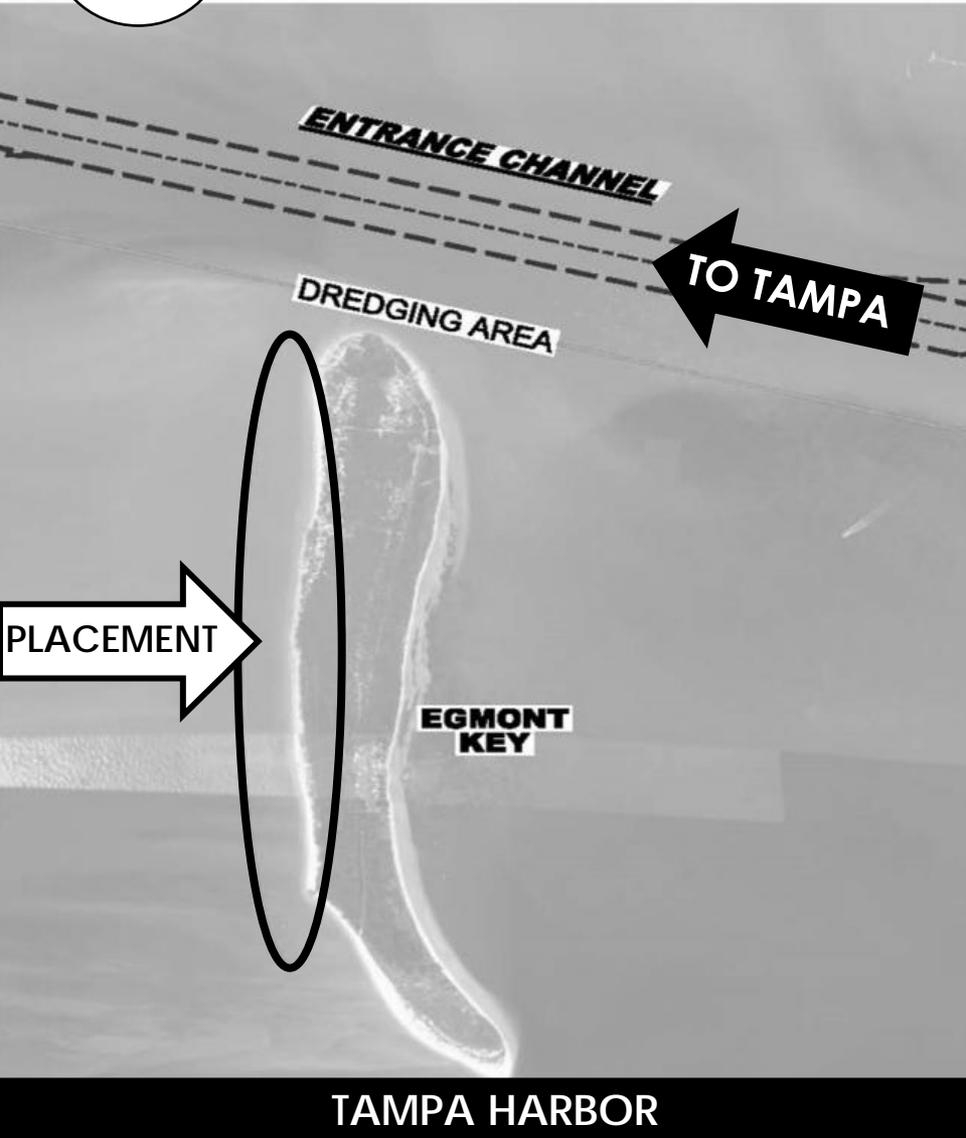
COST: \$0  
VALUE: \$20M



\$70M VALUE AT \$23M FEDERAL COST

2

# RETURN ON INVESTMENT EXPANDING THE ENVIRONMENTAL BOX



SAD NAV savings \$16M, Programmatic savings PRICELESS

**BASELINE  
ANNUAL  
PROGRAM  
\$250M**



**OPTIMIZED  
ANNUAL  
PROGRAM  
\$250M**



Potential for:  
\$97M in value  
**71% MORE  
PROJECT  
EXECUTION**



# HISTORICAL RSM PARTICIPATION (2000-2015)



◆ 27 Districts (20 Coastal, 7 Inland) ◆ ERDC, IWR-HEC ○ RSM Video



NDIF MCNP  
CODS/CFDC WOTS



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# WIIN & RSM

- S. 1122 – Beneficial Use of Dredged Material Pilot Program. Regional Beneficial Use Teams. Cost Sharing under Section 204 of WRDA 92. May not require NFS to pay above Federal Standard
- S. 1143 – Sediment Sources. Domestic and non-Domestic Sources of Sand for shoreline protection.
- S. 1188 – Sense of Congress – State WQC and disposal of dredged material, open-water disposal should be reduced to maximum extent practicable.
- S. 1189 – Disposal of Dredged Material not the Federal Standard if it violates the State WQ standards approved by EPA.
- S. 1204 – South Atlantic Coastal Study. Geographical boundaries of SAD, identifying risks and vulnerabilities of HSDR due to Sea Level Rise with focus on Regional Sediment Management. Due NLT 4 years after date of enactment.





# RSM Around the Nation: 1122



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- 3 day data call → What's out there?
- 97 project proposals including all MSCs
  - ▶ Wetland restoration
  - ▶ Oyster reef habitat creation
  - ▶ Beach placement
  - ▶ Long shore bars for erosion control
  - ▶ Reservoir/Dam sediment removal for downstream restoration
  - ▶ Ephemeral islands for habitat on the upper Mississippi
  - ▶ Mine confined disposal facilities to restore barrier islands
  - ▶ Agricultural/DOT applications
  - ▶ Dune building
- Many, many stakeholder, NGO, Congressional, letters requesting consideration



# RSM in Galveston: 1122



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## Alternatives to Reduce Shoaling in the Gulf Intracoastal Waterway and Prevent Erosion of Bay Islands along the North Shoreline of West Galveston

ERDC/CHL CHETN-XIV-44  
December 2015



US Army Corps of Engineers®

### Alternatives to Reduce Shoaling in the Gulf Intracoastal Waterway and Prevent Erosion of Bay Islands along the North Shoreline of West Galveston Bay

by Kimberly Townsend, Eric Wood, Derek Thornton, Jantzen Miller, Tricia Campbell, Sheridan Willey, Lihwa Lin, Coraggio Maglio, and Robert Thomas

**PURPOSE:** The purpose of this Coastal and Hydraulics Engineering Technical Note (CHETN) is to document development of a regional sediment budget and assessment of coastal sediment processes for a Regional Sediment Management (RSM) study along the Gulf Intracoastal Waterway (GIWW) of West Galveston Bay from just north of Groves Lake to Chocolate Bay, TX. The loss of bay barrier islands is reducing the available placement options and may be leading to increased channel shoaling rates. Several design alternatives were investigated to reduce dredging requirements and prevent erosion of the bay islands that act as a barrier protecting the GIWW.

**INTRODUCTION:** The area of study encompasses Sta. 40+000 to Sta. 120+000 (old stationing), with the primary focus on Placement Areas (PAs) 62 through 65 shown in Figure 1. PAs 62 and 63 serve as barriers along the GIWW and are experiencing the most significant erosion in this area at 8,000 cubic yards (cy) 5,000 linear feet per year (lin ft/yr). Sediment is being lost along the shallow embankments on both sides of the navigation channel and the adjacent bay shoreline due to a combination of currents, wind-generated waves, and ship wakes. PAs 62 and 63 are semiconfined, and as they erode and the frontage levees are breached, sand and silt pass through and are deposited in the channel. If the placement areas are allowed to further erode, they will eventually become unavailable for placement of future dredged sediment. To address this problem, the U.S. Army Corps of Engineers (USACE), District, Galveston (SWG), has identified several sediment management options to prevent erosion of these placement areas, to stabilize the inlets, and to reduce channel shoaling.



Figure 1. Placement Areas 62-65 along GIWW of West Galveston Bay, TX.

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# What do we need?

- Short Term. Corps HQ GUIDANCE on Pilot Projects
- Long Term. Communication and Outreach. Evolution of RSM to standard operating procedure.
- Success Stories.
- Stakeholder engagement – driving change
  - Opportunities to fill the \$ gap above the Federal standard
  - Advocacy from industry and others with skin in the game.We know how to do this!



# Regional Sediment Management

<http://rsm.usace.army.mil/>



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