

Regional Sediment Management and Navigation

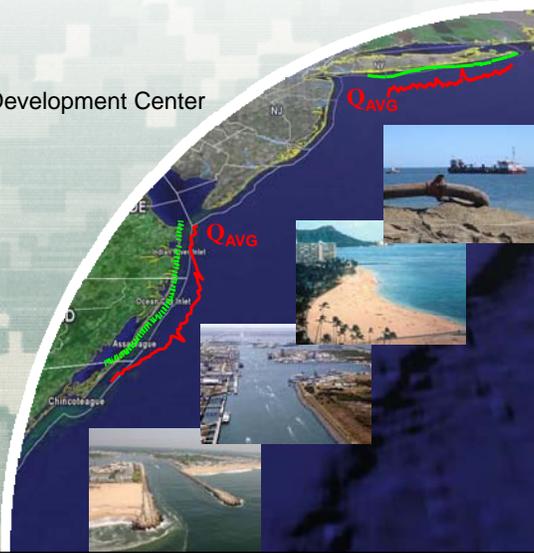
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Regional Sediment Management

US Army Engineer Research and Development Center
Coastal and Hydraulics Laboratory

National Dredging Meeting
24-26 May 2011
Washington, DC

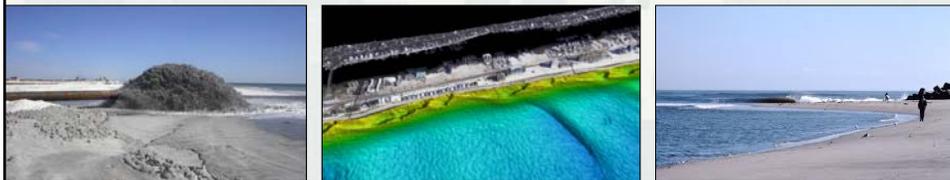


US Army Corps of Engineers
BUILDING STRONG®



Outline

- **Regional Sediment Management**
 - What it is
 - Why it's important
- **Process and adaptive management**
- **Case studies**
- **Summary**



Regional Sediment Management



A systems approach for efficient and effective utilization of sediments and management of projects in our Coastal, Estuarine, Riverine, and Watershed environments

- Manage local projects and sediments within the regional context
- Consider sediments as a regional resource
- Support sustainable solutions for Navigation and Dredging, Flood and Storm Damage Reduction, and Environmental Enhancement
- Communicate and collaborate – USACE, Stakeholders, and Partners



Regional Sediment Management

Goal:

Get more from our O&M funds
Maximize beneficial use of sediments;
Integrate to operations practices;
Minimize environmental impacts;



Objectives:

- Implement RSM Practices
- Improve economic performance by linking projects
- Develop new engineering techniques to optimize/conservate sediment
- ID/overcome bureaucratic obstacles
- Manage in concert with environment



RSM Strategies



Reduce Offshore Placement



Nearshore/Beach Placement



Bypass Optimize Placement



Reduce CDF Placement Utilize to improve system



Reduce Sediments at the Source



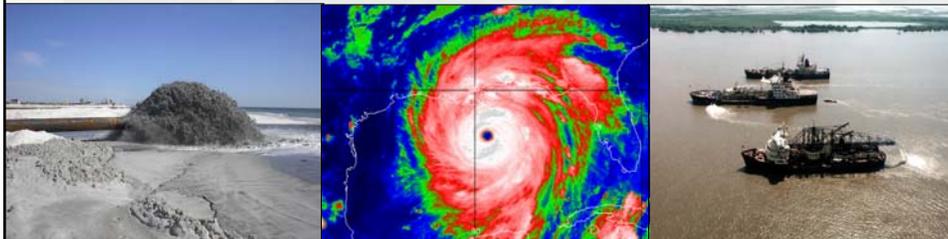
Ecosystem Restoration w/partners

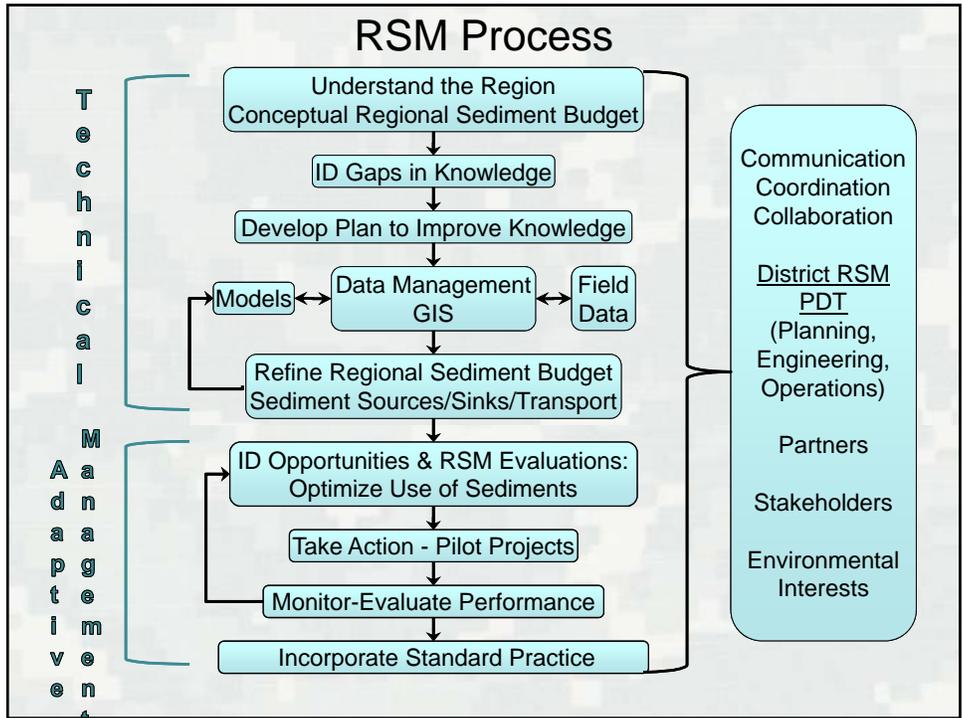
- Keep sediment in the littoral system
- Enhance natural sediment processes
- Reduce sedimentation



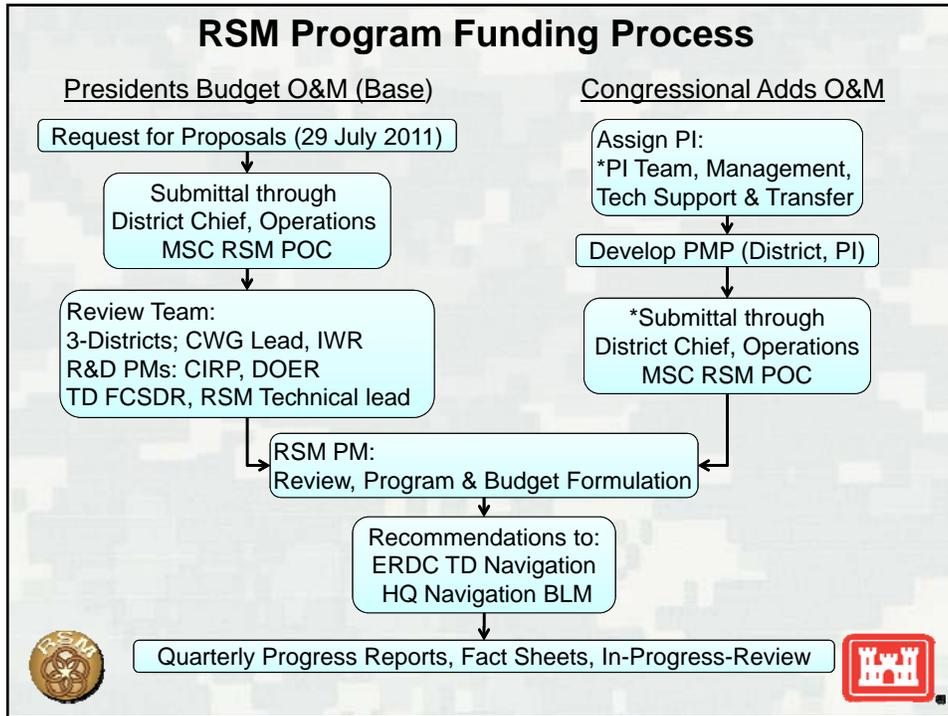
Why RSM is Important to Navigation

- Improve channel availability
- Reduce dredging expenses: frequency/quantity
- Link projects, leverage funding, reduce timelines
- Optimize use of sediments through adaptive Management
- Environmental stewardship
- Improve partnerships and collaboration

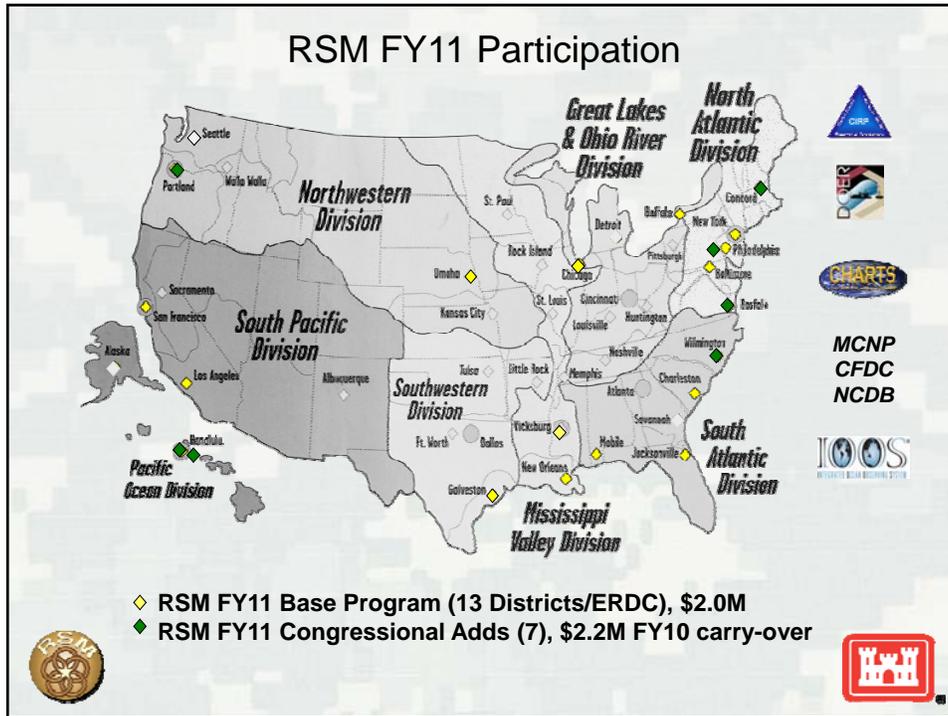




- ### District RSM PDTs
- Operations Division:**
- Chief, Technical Support Branch, Navigation Section
 - Chief, Coastal Branch
 - Chief, Spatial Data Branch
 - Beneficial Uses Project Manager
 - Dredging Project Manager
 - Area Office Representative, Coastal
 - Area Office Representative, Inland
- Engineering Division:**
- Chief, Hydrology & Hydraulics Branch
 - Coastal Engineer
- Planning Division:**
- Physical Scientist, Coastal
 - Physical Scientist, Coastal
 - Inland Environment Team Leader
 - Biologist, Inland
- Office of Counsel**
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- ## RSM FY11 Proposal Criteria
- Review criteria:**
- Improve lifecycle costs/benefits (channel avail, reduce dredging expenses, etc)
 - Improve environmental quality using current dredging dollars
 - Focus on commercial use navigation projects
 - Discuss 'Adaptive Management' strategies
 - Incorporate RSM as standard business practice
 - Utilize existing/upgrading Corps Navigation/Flood & Coastal Program tools
 - Integrating existing/new USACE/Stakeholder data into Navigation/RSM databases, data management structure, format
 - Building Corps Capability
 - Coordination among Corps team members, agencies, stakeholders
 - Leveraging RSM funds w/other USACE, Federal, non-Federal programs
 - Provide National significance & product transferability



RSM Across the USACE

Collaboration Fed/State/Local
All Districts

RSM PgMP, PMP, District Guidance
NAE, NAN, NAP, NAO, NAB, SAW, SAJ, SAM, MVN, SWG, SPL, NAP, NWP, NWS, NWO, POH

RSM Strategies/Alternatives
NAE, NAN, NAP, NAO, NAB, SAW, SAC, SAJ, SAM, MVN, SWG, SPL, SPN, NWP, LRB, POH, NWO

Sediment Budgets/Regional Modeling
NAE, NAN, NAP, NAO, NAB, SAW, SAC, SAJ, SAM, MVN, SWG, SPL, SPN, NWP, LRB, POH, NWO

Model/Tool Develop/tech transfer
NAE, NAN, SAW, SAJ, SAM, MVN, SPN, POH, NWP

Monitoring/Data collection
NAE, NAN, NAO, SAW, SAJ, SAM, SWG, NWP

Data Management/eGIS
All Coastal, expanding inland

CDF Mining/Capacity
SAM, POH

River Sand for Coast
SAJ, SAM

Sand Bypassing-Reduce Offshore Nearshore placement
NAN, NAP, SAJ, SAM, NWP, SPL

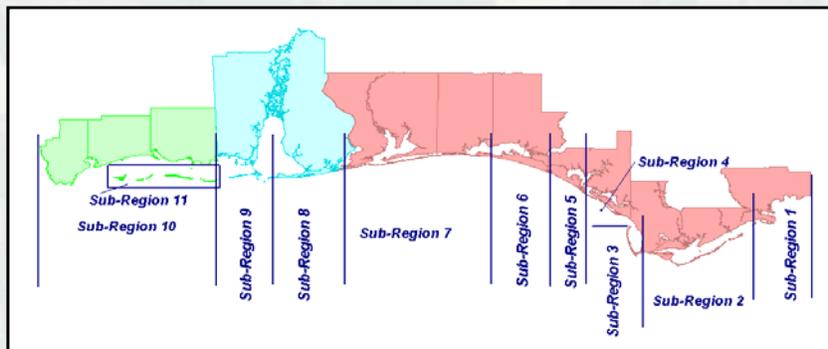
Habitat Restoration
NAN, NAP, SAJ, SAM

Watershed
NAP - Darby Cobbs, Delaware Estuary
SAM - Mobile Bay Watershed
SPL - Santa Ana River
NWS - Howard Hansen Dam
NWO - Upper MO River
NWK - MO River at Kansas City

Case Studies



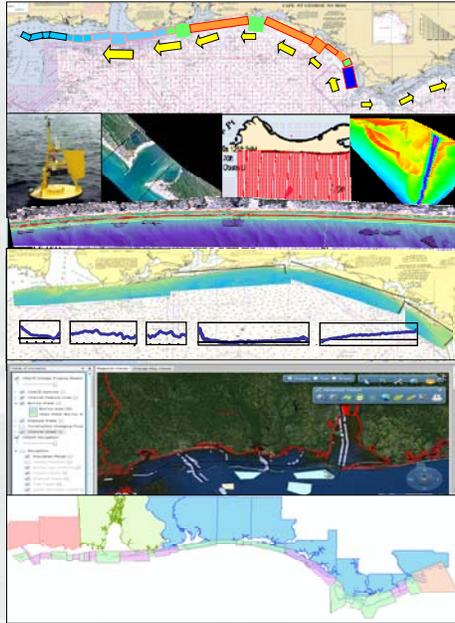
Mobile District RSM Domain



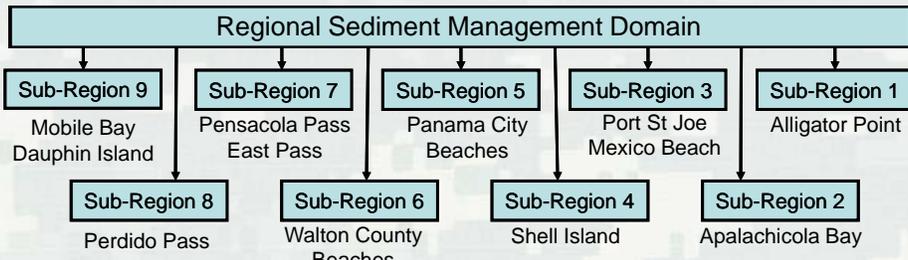
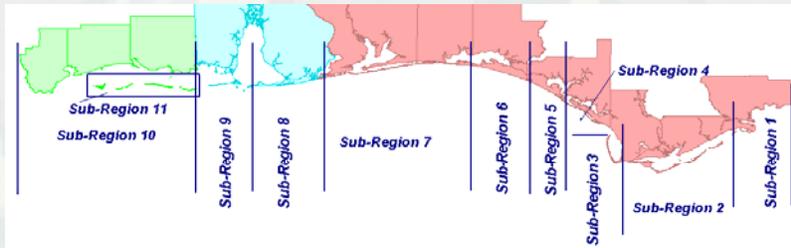
375-miles of Shoreline **Gulf Islands National Seashore**
21 Federal Projects **Harrison County Beach Fill**
8 State Parks **Panama City Beach Fill**
7 Military Installations **Local Projects**



Mobile District RSM Demonstration 2000-2003



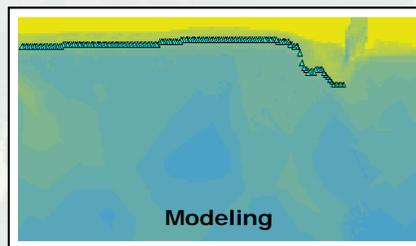
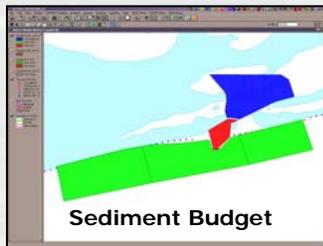
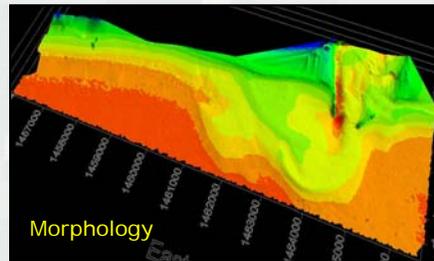
Regional to Local Strategies



Perdido Pass, AL



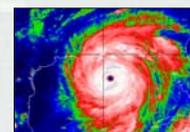
RSM Evaluation: short-term



Conclusions/Recommendations: Perdido Pass Bypassing



Construction April-May 2003



Jacksonville District St. Johns Co. RSM

- Intracoastal Waterway (IWW)
- San Sebastian River
- St. Augustine Inlet
- St. Augustine Beach SPP
- Vilano Beach (Feasibility Study)
- Anastasia State Park

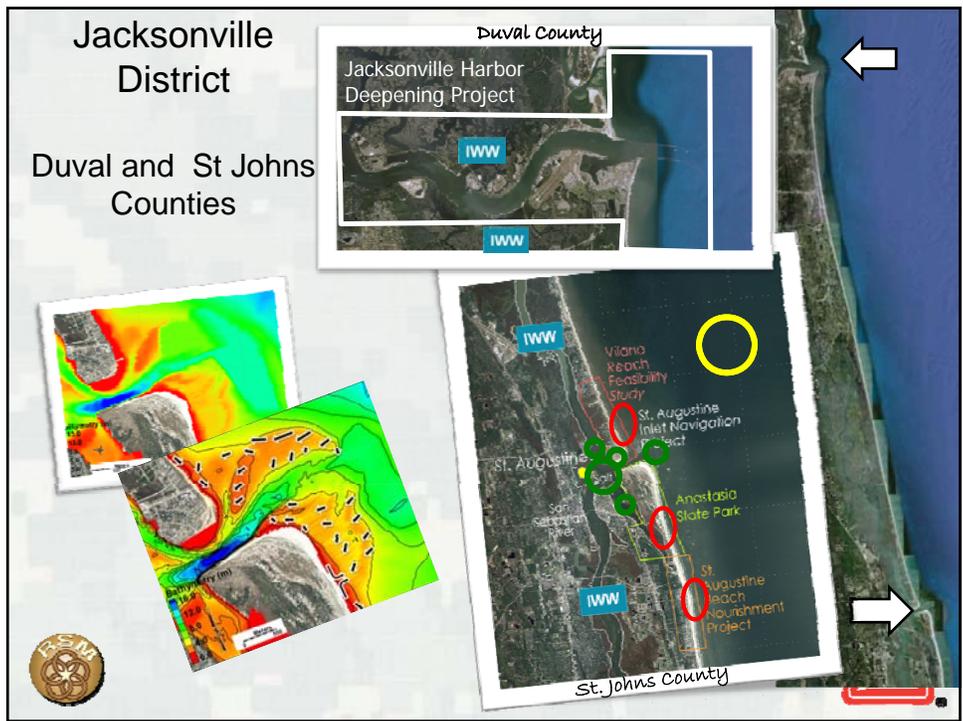
St. Johns County

St. Augustine Inlet, FL and Vicinity

Combining multiple projects (CG, O&M), sand bypassing, shoreline erosion

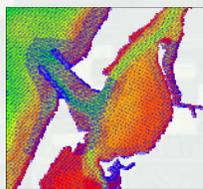
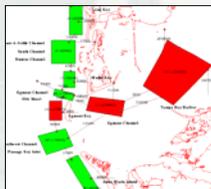
	erosional area
	shoaling area
	offshore borrow area
	inlet bypassing
	beneficial use
	beach nourishment

\$5-7M cost savings
 Reduced dredging/environmental impacts
 Combined permit
 Emergency sand sources



RSM 2015

- Meeting needs of Navigation Mission
- Optimize and Move Sediment
- Max benefits/min costs: adaptive management
- Leveraging and supplementing (Corps/Partners)
- Share lessons learned local & national perspectives
- Stakeholder/community involvement



Annual RSM Workshop & In-Progress-Review

August 10-12, 2011
Coastal and Hydraulics Laboratory
Vicksburg, MS

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