RSM Program Update and Future Direction

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Regional Sediment Management
And
Engineering With Nature Workshop

28-30 August 2012
Outline

- RSM Overview
- Status and Progress
- Future Directions
Regional Sediment Management

A systems approach for efficient and effective use of sediments and management of projects in our Coastal, Estuarine, Riverine, and Watershed environments.
RSM = Sustainable Solutions for….

**Navigation/Dredging**

**Flood Risk Management**

**Environmental Restoration**

**RSM Operating Principles**

- Recognize sediment as a regional resource
- Balanced, economically viable, environmentally sustainable solutions
- Improve economic performance by linking multiple projects
- Optimize operational efficiencies & natural exchange of sediments
- Consider local & regional impacts (physical, environmental, social)
- Apply/develop technology & tools to optimize system
- Share information & data, reduce data duplication
- Coordinate/Communicate/Collaborate with stakeholders & partners
RSM Practices

Reduce Offshore Disposal
Place Nearshore
Reduce CDF Placement
Utilize to improve system

Bypass/Optimize Placement
Reduce Sedimentation
Ecosystem Restoration w/partners

- Keep sediment in the littoral system
- Follow natural sediment processes
- Reduce sedimentation
Key to RSM Success.....

USACE District Team
Planning, Engineering, Operations

Stakeholder and Partners

Working Together To:
- Identify Opportunities and Solutions
- Make Decisions
- Overcome Obstacles
- Take Action
- Leverage Resources to Make It Happen
Communication Coordination Collaboration
USACE (Planning, Engineering, Operations…)
Partners Stakeholders
Environmental Agencies

Regional Understanding
Conceptual Sediment Budget
ID Gaps in Knowledge
Develop Plan to Improve Knowledge

Adaptive Management
Models
Data Management GIS
Field Data
Refine Regional Sediment Budget
ID Opportunities & Develop Strategies For Optimizing Use of Sediments
Action - Adaptive Management
Incorporate Standard Practice
RSM Plans
- 3-5 (or greater) year studies
- Expensive $$$$
- Lack coordination (authorities, cost share, permits, overcome hurdles)
- Do not result in construction - *Not moving sediment, no sand on the beach,....*

RSM Evaluations*
Practical actions that can be planned, evaluated, coordinated, and constructed in short timeframes (1-3 years).

*Win-Win for everyone
RSM Progress/Status
Historical RSM Participation

District Participation

- Base
- Congressional Adds

# Districts

- '00
- '01
- '02
- '03
- '04
- '05
- '06
- '07
- '08
- '09
- '10
- '11
- '12

# Districts
RSM FY12: 21 Districts, 2 MSCs, ERDC, IWR
FY12 (FY11/FY13) Program Goals

- Re-engage/Benefit O&M in addition to FRM, ER
- Focus on adaptive management
- Take Action – move sediments
- Leveraging and supplementing
- Build Corps capability & sustainable RSM programs
- Execute what is planned within funding timeline
- Lessons Learned local and national perspectives (Document and share knowledge gained)

✧ FY13 - Engineering With Nature
FY12 (FY11/FY13) Proposal Criteria

• Takes action to move sediment in a manner that optimizes use.

• Reduces lifecycle costs
  Navigation, Flood Risk Management, Environmental Restoration

• Innovative solutions:
  - links multiple projects
  - Leverages across business lines, programs, projects
  - develops new capabilities or techniques.

• Utilizes existing/enhances Corps tools, builds Corps technical expertise.

• National significance & product transferability

• Technical Transfer:
  - Communicate lessons learned
  - publish results
  - demonstrates benefits
  - RSM IPR/Workshop participation

• Past Performance
FY12 RSM Efforts

LRC Lower Lake Michigan Sediment Budget  
LRB Sediment Budgets Lake Erie/Ontario  
MVN Coastal LA Sediment Budget  
POH Sediment Budgets, RSM Strategies  
SAJ Nassau Co Sediment Budget  
SAC Charleston Harbor Sediment Budget  
SWG Upper TX Coast Sediment Budget  

SWG Matagorda sedimentation, TX Region  
LRC Calumet DD Harbor sedimentation  
LRE St Joe DD Harbor - mixed material feeder berm  
NAB Assateague Bypassing  
SAC Charleston DD Harbor - sediment suitability  
SPN Ocean Beach/SF Bay sediment transport Model  
MVR Sangamon/Illinois River confluence sedimentation  
SAW Navigation Corridor Morehead City Harbor  

SAJ St Johns & Duval Counties RSM approaches  
SAJ Tampa & Sarasota Bay  
SAM Mobile Bay In-Bay Disposal Strategies  
NAE Saco Bay Comprehensive Mgmt  
NAO Shallow Draft Dredges Pilot  
NWO Missouri River Flood Recovery RSM approaches  
NWP ADH Identify BU placement  

NWP Monitoring new MCR BU sites  
SPL CA Sediment Management  
NAN RSM Opportunities  
POH Sediment Budgets, RSM Strategies  

NWK Integrate BSTEM w/HEC-RAS  
NAP Link Navigation Projects  
SAC Folly Beach Data Mgmt  

R&D/Tech Transfer
Nearshore Placement Guidance  
3D Lidar Data & Tools  
Landscape Metrics  
CMS Model & Applications  
GenCade Model Enhancements  
ADH Model Applications  
Integrate BSTEM w/HEC-RAS - NWK  
RSM Tools & CE-Dredge  
Sediment Budget Analysis System  
Navigation and Coastal Databank
Shallow Draft Dredges
Nearshore Berm Guidance

- Ft. Myers: Monitored since May 2010
- Egmont: Scheduled Mar 2012
- Pensacola: Constructed Dec 2011
- Assateague Island: Fall 2012

(Egmont: POC: Tanya Beck, CHL)
- Data management, visualization & analysis
- Improve decision making
- Facilitate sharing data & tools
Model Enhancements
Waves, Circulation, Water levels, Sediment Transport, Shoreline Change

Complex to Adaptive Management
- Regional processes and trends
- Sediment sources & sinks
- Multiple interacting projects
- Connect beaches & inlets
- Navigation channel maintenance
- Evaluate local/regional Strategies
National Coastal Mapping Program

- ASCII XYZ
- Aerial photos
- Zero contour
- Aerial photo mosaics
- 1-meter bathy/topo DEM
- LAS format topo
- 1-meter bathy/topo bare earth DEM
- Hyperspectral image mosaics
- Laser reflectance images
- Basic landcover classification
- Volume change

Coastal Land Cover

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<th>Landcover Type</th>
<th>Manning n Value</th>
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Submerged Aquatic Vegetation

- Validation seagrass
- Validation brown/red algae
- Validation non-vegetation
- Classified seagrass
- Classified brown/red algae

Sediment Budgets

- Bypassing bar
- Ebb shoal
- Channel
- Margin shoal

Marsh Elevation Distribution

-1.2 to 2.5m
Regional Sediment Management (RSM) Program

Managing sediment to benefit a region potentially saves money, allows use of natural processes to solve engineering problems, and improves the environment. As a management method, RSM:

- Includes the entire environment, from the watershed to the sea
- Accounts for the effect of human activities on sediment erosion as well as its transport in streams, lakes, bays, and oceans
- Protects and enhances the nation’s natural resources while balancing national security and economic needs

The Corps of Engineers holds in trust and manages lands and waterways across the U.S. Using regional sediment management concepts will significantly improve the Corps’ mission accomplishment. The Corps’ engineers and scientists develop new technologies through research to make management decisions more accurate and efficient. Simultaneously, they evaluate RSM concepts through projects that highlight and improve sediment management activities.

What’s New?

- DMC District Survey
- FY 15 Request for Proposals
- Waterways Research: Development and Technology Strategic Needs and Priorities Document v1.0
- District Project Template:
  - Fact Sheets
  - Quarterly Reports
- SSASS for ArcGIS 10
  - AddIn (zip)
  - Users Guide (pdf)

Updated March 2012
Engineering with Nature

- Working with Nature (PIANC)
- Regional Sediment Management
- Beneficial Uses of Dredged Material
RSM Long-Term Goal

Link with Engineering With Nature

Sediment/Engineering Processes + Environmental Processes
Thank you

rsm.usace.army.mil

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