

Regional Sediment Management Program Update

Linda Lillycrop

RSM Program Manager

Katie Brutsche, PhD

Deputy RSM Program Manager

Jeff Lillycrop

ERDC Technical Director,
Navigation & Civil Works

Eddie Wiggins

ERDC Assoc. Technical Director, Navigation

Jeff McKee

HQ, Proponent
Navigation Business Line Manager

RSM In-Progress-Review
16-18 May 2017
Portland, OR (NWP)



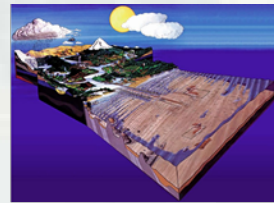
ERDC
Engineer Research and
Development Center





Regional Sediment Management...

Est 1999, CERB Charge



What is the problem RSM is solving?

Improve use of sediments across multiple projects to create healthy systems while reducing costs and increasing value/benefits
= Do More With Less

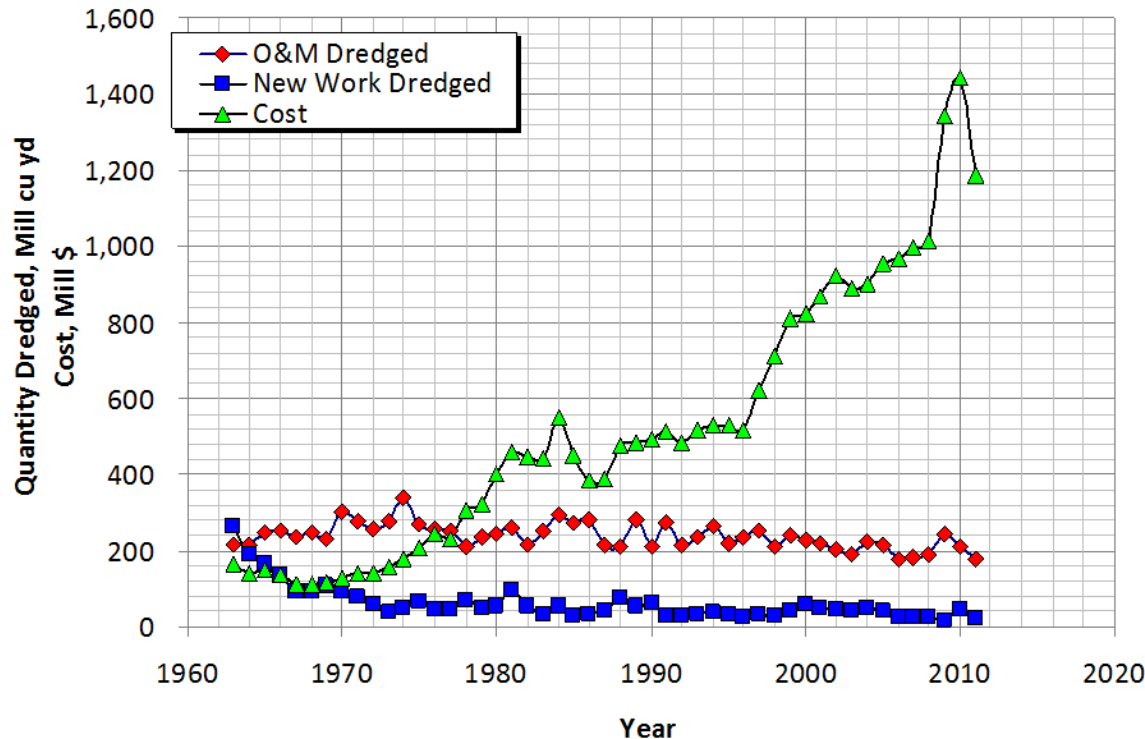
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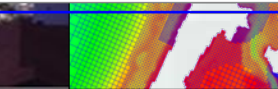
➤ Work s

➤ Tools s

➤ Relatio



able solutions



RSM Goals and Strategies

Reduce
Offshore/CDF
Disposal



Bypass
Backpass
Sediments



Reduce
Erosion



- Keep sediments in the system
- Mimic natural sediment processes
- Reduce unwanted sedimentation
- Environmental enhancement
- Maintain & protect infrastructure

Save
Capacity



Stabilize
Structures



Reduce
Channel
Shoaling



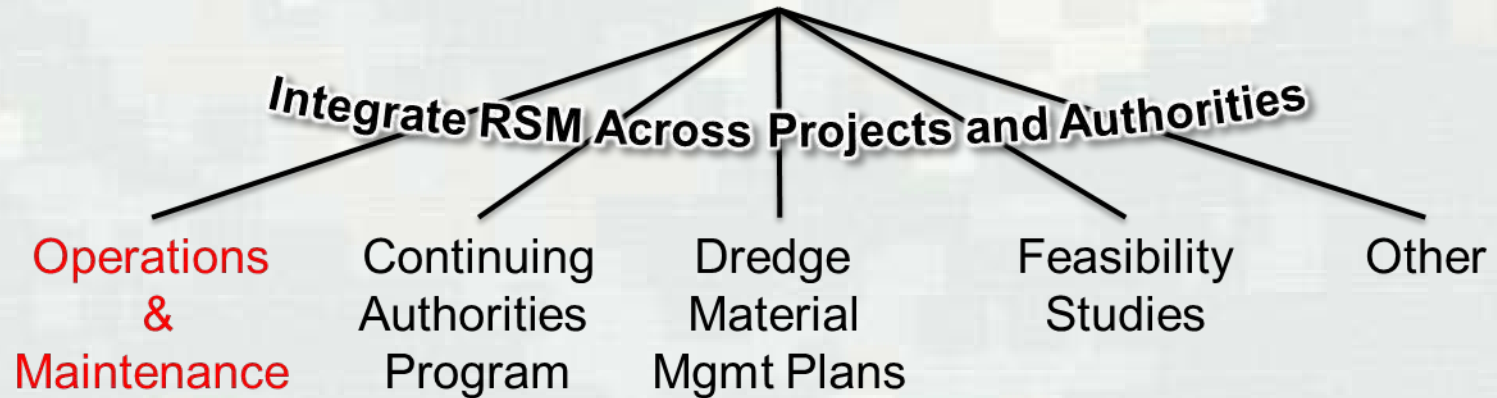
Reduce
Runoff

Ecosystem
Habitat
Restoration



Approach: Work with Districts to integrate RSM practices into existing and new projects

RSM Program



Construction



SAD RSM Regional Center of Expertise (FY15, SAJ Lead)

Jackie Keiser, Director
Clay McCoy, PhD, Assistant Director

Purpose: Operationalize RSM across Districts

Assist Districts with Implementation to Construction

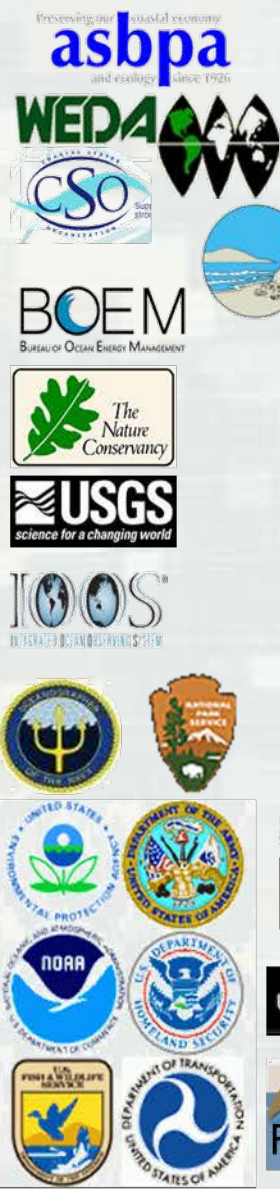
- ✓ Policy & Authorities
- ✓ Value & Benefits
- ✓ Budget Process
- ✓ Outreach



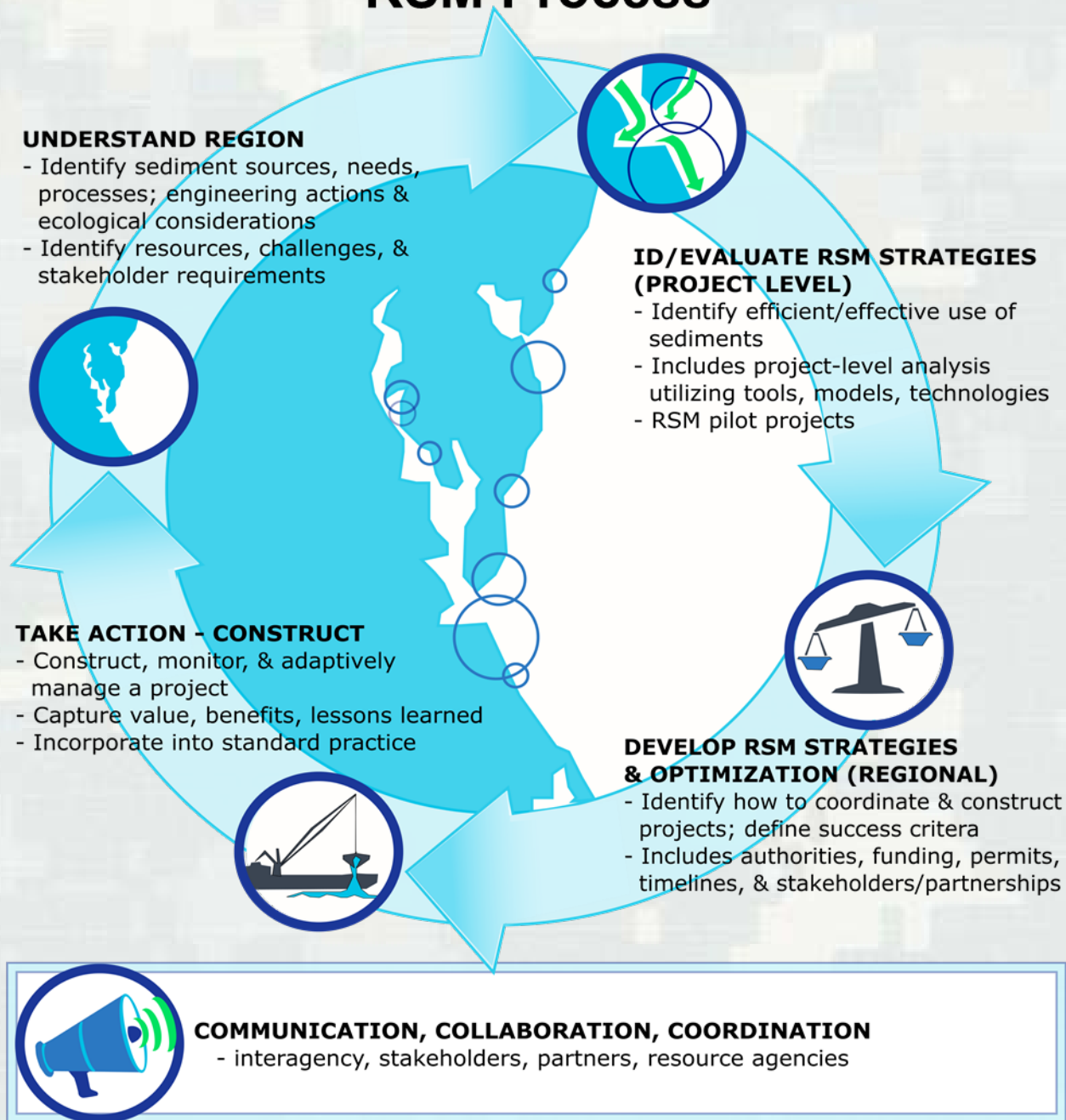
RSM Participation (2000-2017)



- 28 Districts
- 20 Coastal
- 8 Inland
- 7 Coastal/Inland
- ERDC, IWR-HEC



RSM Process



RSM Program Funding Process

- **Annual Request For Proposals: *Submittals Due **30 June 2017***
- **Submittals THRU:**
 - District RSM POC
 - District Navigation BL Leader
 - MSC RSM POC and MSC Navigation BL Leader
- **Submittals TO:**
 - HQ, Navigation Business Line Manager, Jeff McKee
 - ERDC RSM Program Manager, Linda Lillycrop
- **Review Team:** Districts (Coastal/Inland OP, PD, EN); HQ CWG/Inland Leads
- **Recommend Program/Budget:** ERDC RSM PM/Deputy PM & TD Navigation
- **Approval:** HQ Navigation Business Line manager

Required from all initiatives:

Quarterly Progress Reports, Fact Sheets, Present RSM IPR & Workshop
Lessons Learned: RSM Technical Notes/Reports, Newsletters



FY17: 36 proposals submitted, 21 selected



FY17 Regional Sediment Management Program

LRC: Evaluation of Nearshore Placement in Southern Lake Michigan (con't)

LRE: Understanding and Maintaining the Lake Michigan Sand Supply

MVN: Maintenance of Hopper Dredge Disposal Area (HDDA)

MVR: Upper Pool 11 Sediment Transport

NAO: James River Federal Navigation Channel (cont)

NAP: Ebb Shoal mining - Indian River Inlet (RSM & CIRP)

NWK: In-reservoir/downstream channel effects low-cost sediment bypass Tuttle Creek Lake

NWO: Comprehensive Inventory of USACE Reservoir Sediment Management Activities

NWO: Cherry Creek Reservoir Flush

NWP: Lower Columbia River - RSM Strategy (con't)

NWS: Bypass/nearshore placement: Skagit Bay downdrift of Swinomish Nav Ch (con't)

POH: BU Opportunities & Lessons Learned Haleiwa & Kikiaola Harbors

SAJ: Incorporation of RSM into SMART Planning

SAJ: Quantifying Ecosystem Value of RSM

SAM: Pascagoula Harbor DA10 littoral Zone Placement Sand Transport Study (MsCIP & CIRP)

SAM/SAJ: Turbidity Compliance FL (con't)

SAW: Carolina Beach Inlet Complex Sediment Budget and RSM strategy (con't)

SWG: GIWW-Bolivar Flare: Shoaling Reduction & BU Maint Dredge Material (RSM & CIRP)

CHL: Advancing Nearshore Berm Research, Guidance, and Tool Development (RSM & CIRP)

CHL: Literature Review: Monitored Beach/Nearshore Projects to Understand Performance

CHL/SAJ: Improve CMS to Improve BU Activities via Inclusion of Alongshore Variable

Sand Thickness, San Juan Harbor/Condado, PR - CIRP, FRF, UPR, PRDNR

CHL/RCX: Sediment Sorting during Dredging/Placement Process: Implications for Resource
Mgmt & Environmental Impacts (BOEM, ERDC, SAJ)

CHL/RCX: RSM Optimization NAD

RSM Technical Notes, Reports Manuals



Published
53 RSM Technical Notes
21 RSM Technical Reports


In Publication
12 RSM Technical Notes
5 RSM Technical Reports

Other
Journal Articles
Conference Papers and Briefs
Newsletter Articles



RSM.USACE.ARMY.MIL





Identification of Alternatives to Reduce Shoaling in the Lower Matagorda Ship Channel, Texas

by Eric Wood, Tricia Campbell, Matt Duke, Leslie Olson, Lauren Dunklin, and Lihwa Lin

ERDC/TN RSM-17-XX
April 2017

PURPOSE: The purpose of this U.S. Army Corps of Engineers (USACE) Regional Sediment Management Technical Note (RSM-TN) is to document the development of a regional sediment budget and to investigate design alternatives to reduce shoaling in the lower Matagorda Ship Channel (MSC). This RSM-TN focuses on the MSC between channel Station 10+000 and Station 60+000 as well as the Gulf Intracoastal Waterway (GIWW) immediately adjacent to the MSC where the two waterways intersect (Figure 1). Placement Areas (PAs) 6 through 10 are within the focus area. During the genesis of this study, researchers predicted that these PAs were contributing to the shoaling issue in the focus area. The goal of this study is to identify alternatives that will reduce shoaling in the focus area and increase intervals between required maintenance dredging.






Figure 1. Lower Matagorda Ship Channel, TX study area (channel Station 10+000 to Station 60+000).



Regional Sediment Management: Integrated Solutions for Sediment Related Challenges



FY 17	<ul style="list-style-type: none"> • Beach and Morphology Change Using Lidar • Regional CMS Modeling: Southwest Florida Gulf Coast • Applying 1D Sediment Models to Reservoir Flushing Studies: Measuring, Monitoring, and Modeling the Spencer Dam Sediment Flush with HEC-RAS • Applications of Dredging and Beach Fills in GenCade • Identification of Challenges and Opportunities for Regional Sediment Management (RSM) and Engineering with Nature (EWN)
	<ul style="list-style-type: none"> • Assessment of Longboat Pass, Manatee County, FL • Continuity to the Kansas River and Borrow Site Impact Analysis • Budget Update: Tier 2, Assateague Island and Ocean City Inlet • Coast Data • Twentieth Century to Present • Maui, Hawaii • for Reservoir Sedimentation Analysis • of Intracoastal Waterway and Prevent Erosion of Bay Islands along the North Shoreline • aling in the Galveston Entrance Channels, Texas
	<ul style="list-style-type: none"> • et in SBAS • Verification: Diffusion Algorithm • for Tuttle Creek Lake and Perry Lake Reservoirs in the Kansas River Basin • tegy for Mobile Bay, Alabama
2003 and earlier	<ul style="list-style-type: none"> • d Engineering With Nature 2013 Workshop Summary • ed Sediment Transport Tools into HEC-RAS • udget Update • Oahu, Hawaii • RSM) Projects in the Haleiwa Region, Oahu, Hawaii <ul style="list-style-type: none"> • Coast of Maryland and Assateague Island Seashore (Assateague By-Pass Project) • e-Commercial-Use Navigation Program, Mathews County, VA • ional sediment budget for the Poipu Region of Kauai, HI • ional sediment budget for the Kekaha Region of Kauai, HI • lication of SBAS for ArcGIS 10 to develop Regional Sediment Budgets for the island <ul style="list-style-type: none"> • rbor, FL • ciples in flood recovery: Incorporating RSM after the 2011 Missouri River flood • tems • ment (RSM) opportunities along the upper Texas coast through sediment budget • ent actions using government shallow draft dredges • y Berm Nourishment, Florida <ul style="list-style-type: none"> • liment management: lessons learned as part of the • liment management: lessons learned at St. Johns <ul style="list-style-type: none"> • e Bay Tributaries • Skaway Inlet, NY, utilizing the USACE Coastal Modeling System • or regional sediment management • ement through dredged material management planning • o Engineers: recent projects and future needs • ificial Berm at Fort Myers Beach, Florida <ul style="list-style-type: none"> • MAP), Version 3, User's guide and tutorial <ul style="list-style-type: none"> • ediment management demonstration program initiatives <ul style="list-style-type: none"> • es within Intracoastal waterway (IWW) dredging program in the state of Florida • MAP): Part 1, Overview • CH • esses • gement: The Mobile District demonstration program, technical program <ul style="list-style-type: none"> • Application of a regional sediment approach to Hickahala Creek Watershed, Northern Mississippi • Design approach for regional sediment management • Local-scale technologies for measuring and monitoring sediment process <ul style="list-style-type: none"> • Authorities and policies supporting implementation of regional sediment management • Sediment Budget Analysis System-A: SBAS-A for ArcView application • Potential methods for reducing shoaling in harbors and navigation channels • Lessons learned from existing projects on shoaling in harbors and navigation channels • Overview of regional and coastal sediment processes and controls • Sediment Budget Analysis System (SBAS): upgrade for regional applications • Tools for Regional Sediment Management • The Corps of Engineers' National Regional Sediment Management Demonstration Program

RSM Bi-Monthly Call/Webinars



16 June 2016

CAP204 Update

West Maui Watershed Study

Matt Schrader, SAJ

Jessica Podoski, POH

25 August 2016

Coastal Modeling System: Dredging Module

Post-wildfire gauging system developed through

Albuquerque District, ERDC RSM and Flood & Coastal Program

Honghai Li, ERDC-CHL

Ian Floyd, ERDC-CHL

Stephen Brown, SPA

20 October 2016

From Source to Sink -- RSM and Hurricane Matthew

Kelly Legault, SAJ

15 December 2016

Fall Creek Reservoir Flush

HEC

James River Federal Navigation Channel RSM

Stanford Gibson, IWR-

Tahirih Lackey, ERDC-CHL

16 February 2017

Tampa Bay RSM Ecosystem Restoration Strategies

Sedimentation Impacts at Confluence of Sangamon & Illinois Rivers

Aubree Hershorin, SAJ

Nicole Manasco, MVR

20 April 2017

RSM-U Reservoir Sediment Management Workshop

Lake Worth Inlet and Palm Beach RSM

Paul Boyd, NWO

Drew Condon, SAJ

15 June 2017 Murrells Inlet RSM/BU

Sara Brown

RSM-U

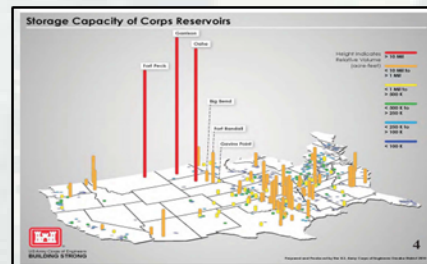
Thin-Layer-Placement: Regulatory/Permitting Meeting,
11-12 April 2017, Jacksonville, FL



Future Topics? Workshops, Training, Other ????

Reservoir Management Meeting: Regulatory, Planning, OPs Managers
15-17 Aug 2017, Risk Management Center, Lakewood, CO

FY18: Engineering workshop: assessment & numerical modeling
of reservoir management methods

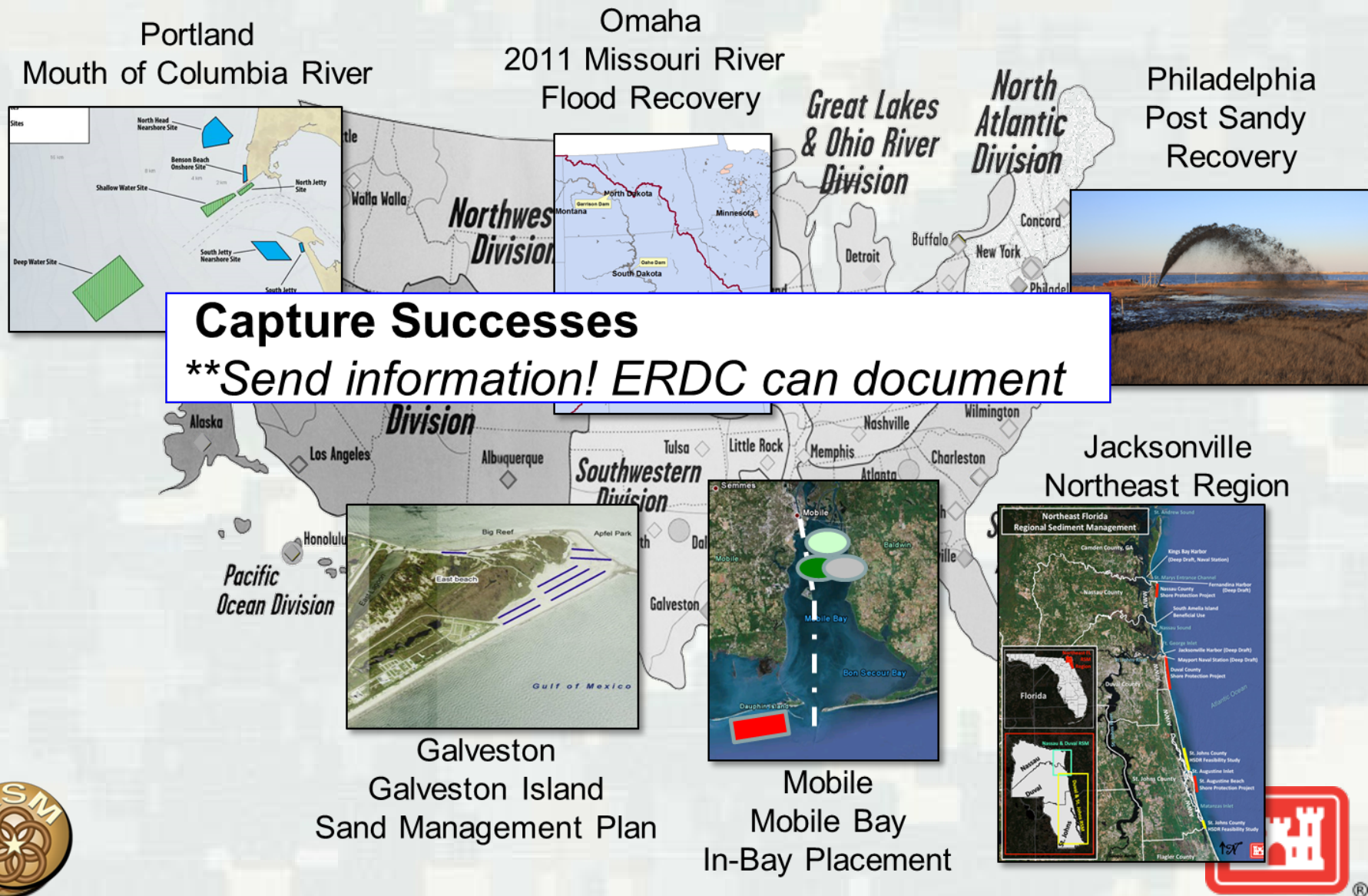


- Dr. John Shelley, NWK
- Dr. Paul Boyd, NWO
- Dr. Ian Floyd, ERDC-CHL
- Mr. Travis Dahl, ERDC-CHL



Improving Communication & Outreach: We need your information!

****Katherine Touzinsky, Marin Kress, Lauren Knapp**



Improving Outreach - We need your information!

HQ Facebook & Twitter

U.S. Army Corps of Engineers, Headquarters
April 14 at 2:36pm · 51

Did you know: A systems approach known as Regional Sediment Management aims to deliberately manage sediments to increase benefits, reduce costs, enhance the environment, and increase the sustainability of our watersheds. Presently, 28 USACE Districts, the U.S. Army Engineer Research and Development Center, and the Institute for Water Resources have actively participated in the RSM program to integrate RSM approaches into new and existing projects to better manage sediment across a region, and to share lessons learned, data, tools, and technologies. Learn more about Regional Sediment Management here: <http://rsm.usace.army.mil/>

Regional Sediment Management Process

UNDERSTAND REGION

- Identify sediment sources, needs, processes, engineering actions & ecological considerations
- Identify resources, challenges, & stakeholder requirements

EVALUATE RSM STRATEGIES (PROJECT LEVEL)

- Identify efficient/effective use of sediments
- Includes project level analysis utilizing basin, models, technologies
- RSM pilot projects

DEVELOP RSM STRATEGIES & OPTIMIZATION (REGIONAL)

- Identify how to coordinate & construct projects, diffuse success online
- Include authorities, funding, permits, timelines, & stakeholder/partnerships

TAKE ACTION - CONSTRUCT

- Construct, monitor, & adaptively manage a project
- Capture value, benefits, lessons learned
- Integrate into standard practice

COMMUNICATION, COLLABORATION, COORDINATION

- Interagency, stakeholder, partners, resource agencies

You, Gail Wells LaHatte and 28 others
Like

U.S. Army Corps of Engineers, Headquarters

For example, within Mobile Bay, the Mobile District has implemented RSM by creating a strategy to utilize thin layer placement of dredge material and biodegradable structures to create tidal marshes and fill dredge and oyster holes.

Like · Reply · More · Friday at 2:37pm

U.S. Army Corps of Engineers, Headquarters

This cutterhead dredge was used for thin layer placement.

Update Vintage Video 2007



RSM Stakeholder Meetings, Conferences, etc

*****Send Agendas, Photos, Notes, etc***

Conferences & Meetings

Oct 2016, ASBPA Conference, Long Branch, NJ – RSM Sessions

28 Feb-2 Mar 2017, ASBPA Summit, Washington, DC

28-30 March 2017, HH&C CoP, Vicksburg, MS, RSM Brief

4-6 April 2017, Navigation RARG, Vicksburg, MS, RSM Brief and Demo

21-25 May 2017, ASCE, Env & Water Resources Institute Conf, Sacramento, CA – RSM brief

31 May 2017, Congressional Coastal Caucus RSM Brief (with ASBPA)

26-29 June 2017, WEDA Conference, Vancouver, BC – RSM briefs

18-21 Sep 2017, Smart Rivers Conference, Pittsburg, PA – RSM Session

24-27 Oct 2016, ASBPA Conference, Ft Lauderdale, FL – RSM Sessions

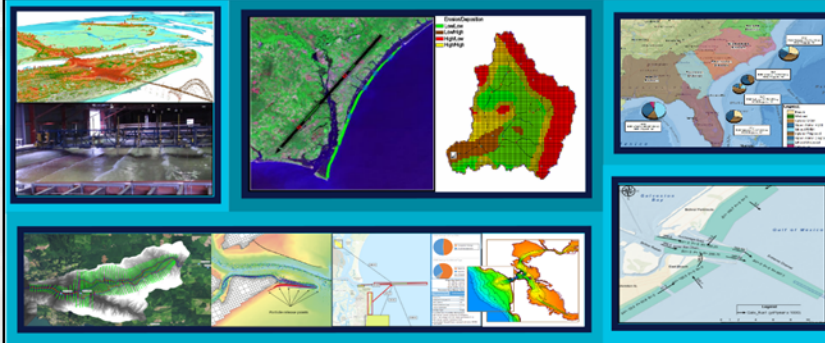


RSM Tools and Technologies Brochure

***Review and comment*

Tools and Technologies for Implementing Regional Sediment Management

Katherine E. Brutsché, Katherine F. Touzinsky, and Linda S. Lillycrop
Coastal and Hydraulics Laboratory
U.S. Army Engineer Research and Development Center
3909 Halls Ferry Road Vicksburg MS 39180



FY18 Technical Report

Tools
Technologies
Case studies

**Comments by 30 June*

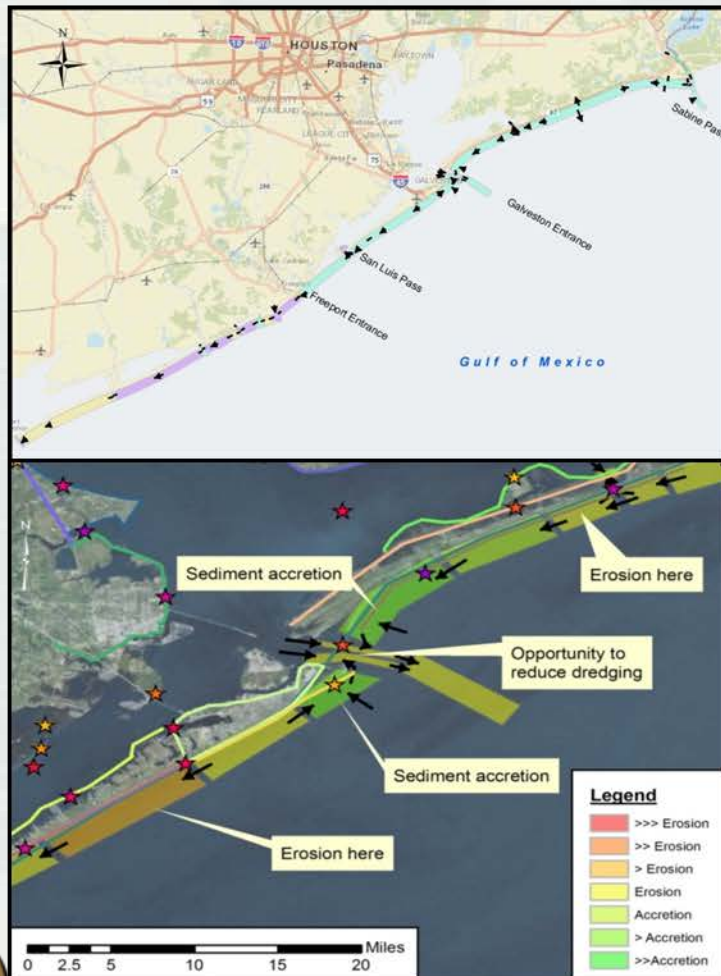


Sediment Budget Repository

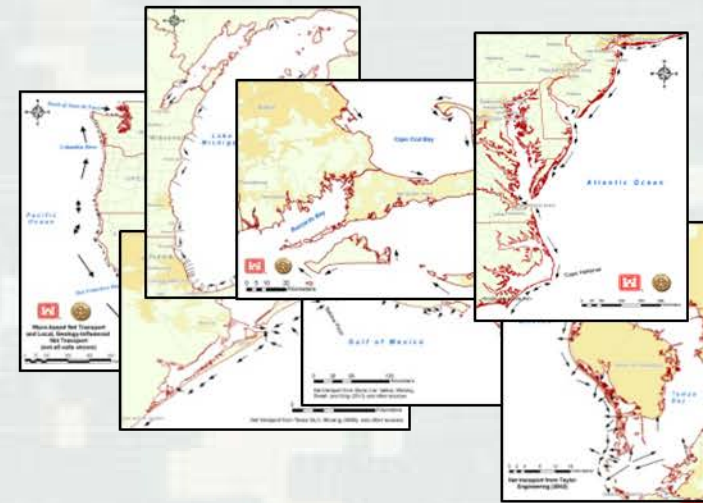
****Send sediment budgets – files, reports, photos, etc**



Regional Sediment Budget



SBAS Web-Viewer



Sediment Budget Repository



RSM Website Update
Send your ideas!



US Army Corps of Engineers

Regional Sediment Management

Home Initiatives Publications Tools & Databases Workshops & Meetings Templates Links In the News

Regional Sediment Management (RSM)



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

Interactive Map

Click icons in the map below for additional information about RSM activities at specific offices.
Note: Not all offices have additional info.



HISTORICAL RSM PARTICIPATION (2000-2015)

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

Logos: EWN, USACE, IOWA, NDIF, MCNP, CODS/CPDC, WOTS, BUILDING STRONG

What's New?

-  **2016 RSM IPR and Successes/Challenges Meeting, 17-19 May 2016**
-  **FY17 Request for Proposals**
- GenCade Version 1 Quick-Start Guide
- Navigation Portal
- USACE Navigation R&D Strategic Vision Document
- RSM Successes
- CHETNs
- District Project Templates:
Fact Sheets
Quarterly Reports

In the News

New Jersey Intracoastal Waterway Dredging with Innovative Placement team is awarded in the NAD Corps of Engineers Day External Partnering Team Award



Moore Channel and Interagency Working Group RSM Teams honored by beach association

Palm Beach receives free sand from Port of Palm Beach dredging

ERDC – Potential RSM Projects, West Maui Region, Maui, Hawaii

RSM Calendar

Note: For all IE users, compatibility mode must be OFF for the image links to work.

Instructions.

<p>HQ USACE Oversight Navigation Business Line Manager Jeffrey A. McKee</p>	<p>Technical Director, Civil Works & Navigation R&D Jeff Lillycrop, ERDC-CHL</p>	
<p>RSM Program Manager, Linda Lillycrop, ERDC-CHL</p>	<p>RSM Deputy Program Manager, Katie Brutsché, PhD, ERDC-CHL</p>	<p>Director, RSM Regional Center of Expertise Jackie Keiser, SAJ</p>



ASBPA Summit: ASBPA Awards



Presidential Award



USACE Award



RSM Award Series

to be Presented at Annual RSM IPR

?Categories?

Volume of Sediment Moved

Cost Savings or Value Added

Stakeholder Collaboration

Tools & Technologies: Advancement or Application

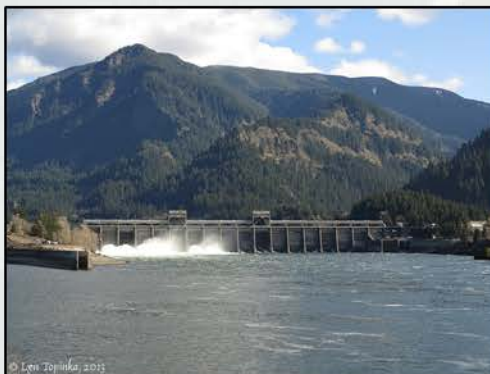
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19th Annual RSM IPR and Meeting (FY18)

April, June, Aug???

Location ??



Complete RSM Tasks and Submit Products: 30 Sept 2017



****No FY17 Carry Over**



Tools and Technologies for RSM

- Navigation Sediment Placement (1998-Present)
- National Coastal Mapping Program Tools
- Resilience and RSM
- Sediment Mobility Tool (SMT)
- Channel Portfolio Tool (CPT)
- Enterprise HydroSurvey (eHydro)
- Channel Shoaling and Analysis Tool (CSAT)
- Sediment Budget Analysis System (SBAS)
- Dredging Technologies Web-App
- Wave Information Study (WIS)
- Sediment Analysis and GeoApp (SAGA)
- Sediment Impact Analysis Methods (SIAM)
- CE-Dredge – Dredging Manager
- Particle Tracking Model (PTM)
- Coastal Modeling System (CMS) (Flow, Wave, Dredge)
- HEC-River Analysis System (HEC-RAS)
- Adaptive Hydraulics Model (ADH)
- Sediment Transport Library (SEDLIB)

Nicole Elko
Jennifer Wozencraft
Katherine Touzinsky
Brutsche/McFall
Ned Mitchell
Shanks Gavin
Marin Kress
Rose Dopsovic
Tahirih Lackey
Ty Hesser
Rose Dopsovic
Travis Dahl
Mike McFarland
Tahirih Lackey
Honghai Li
Stanford Gibson
Ian Floyd
David May





Regional Sediment Management = Resilient Healthy Systems



Regional Sediment Budgets
Local Actions=Regional Benefits



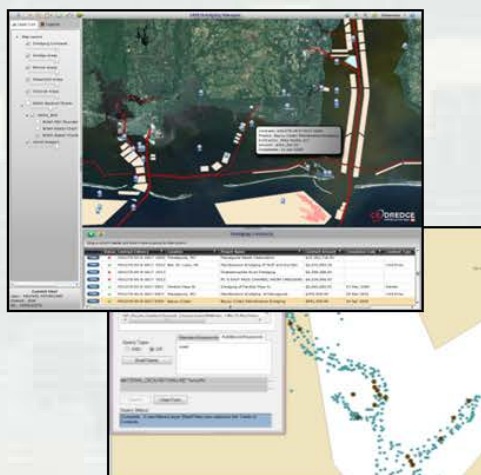
ODMDS
Regional Strategies



Nearshore Placement



Thin-Layer Placement



Data Management and Access



Improved Relationships



Fine Sediment Losses



Riverine & Reservoir Mgmt



Ecosystem Value