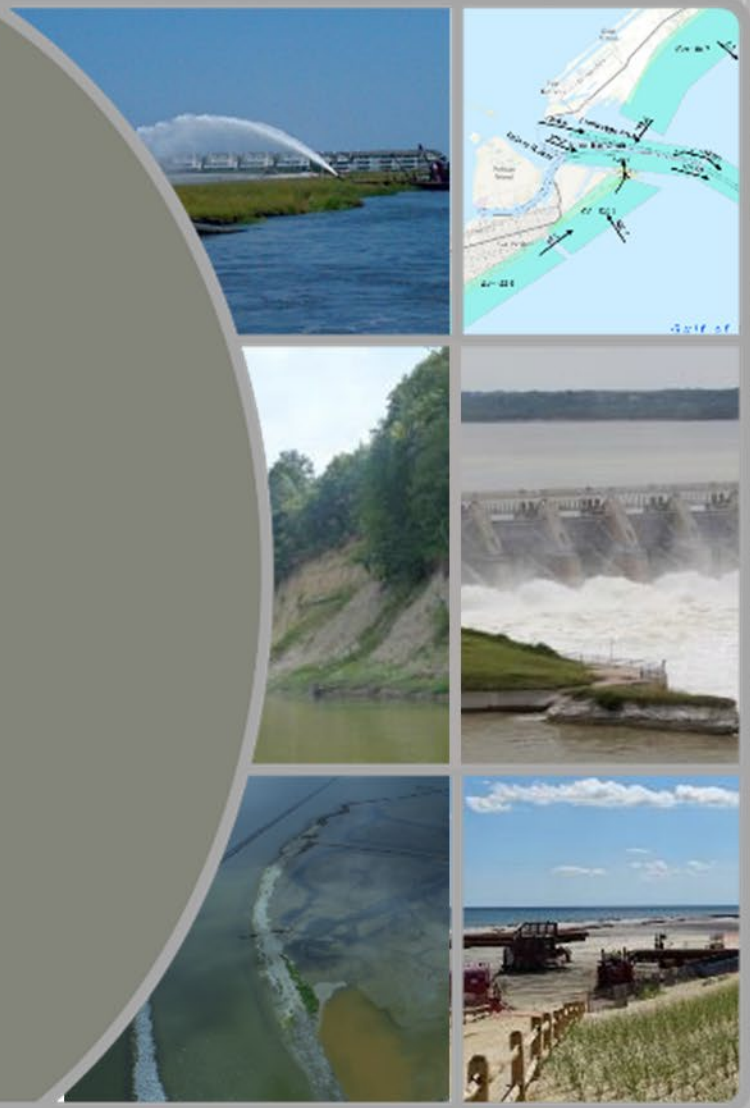
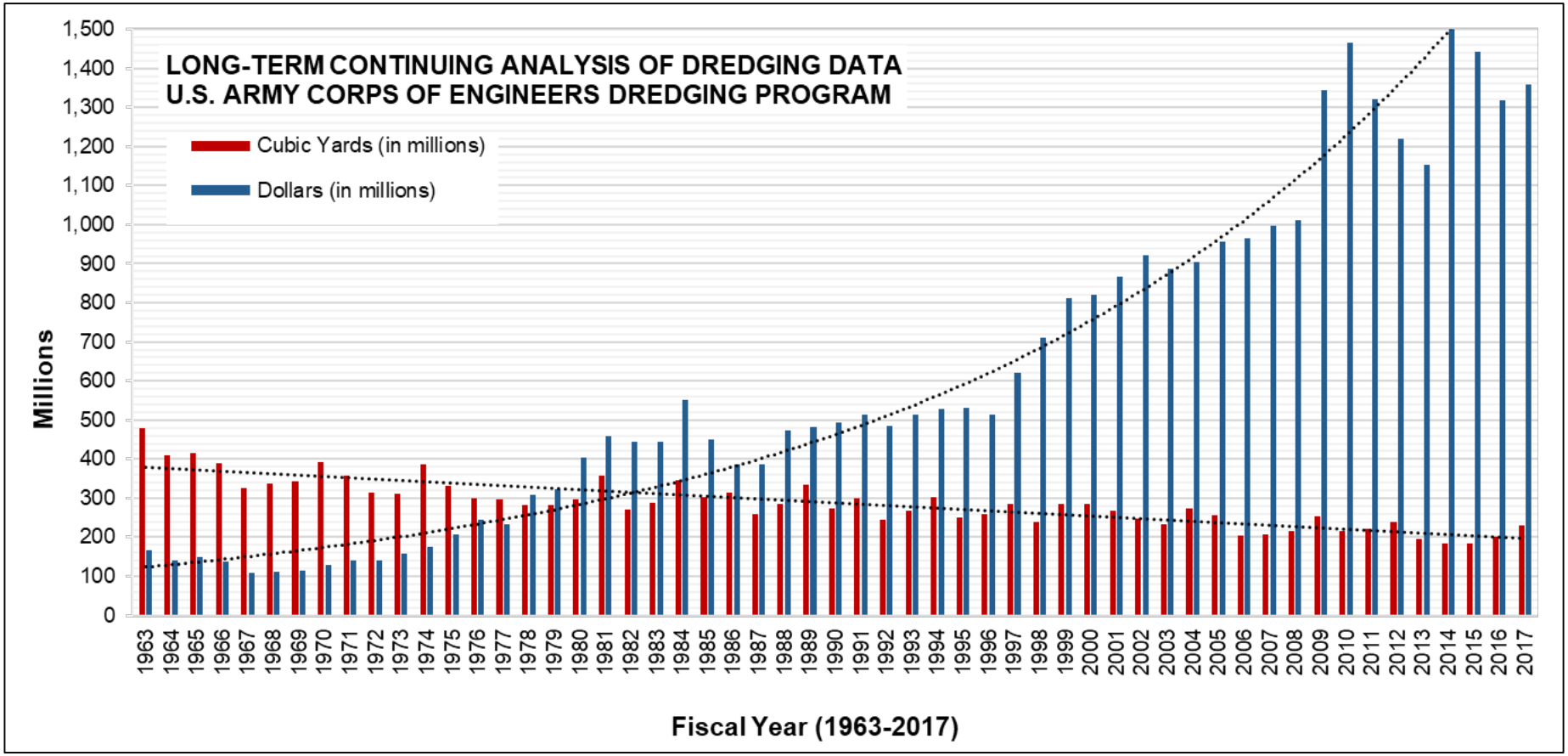


Katherine E. Brutsché, PhD
Program Manager
National Regional Sediment Management Program

Dave Perkey
Deputy Program Manager, Coastal

David May
Deputy Program Manager, Inland

The Corps moves 200 million cu yds of sediment annually…



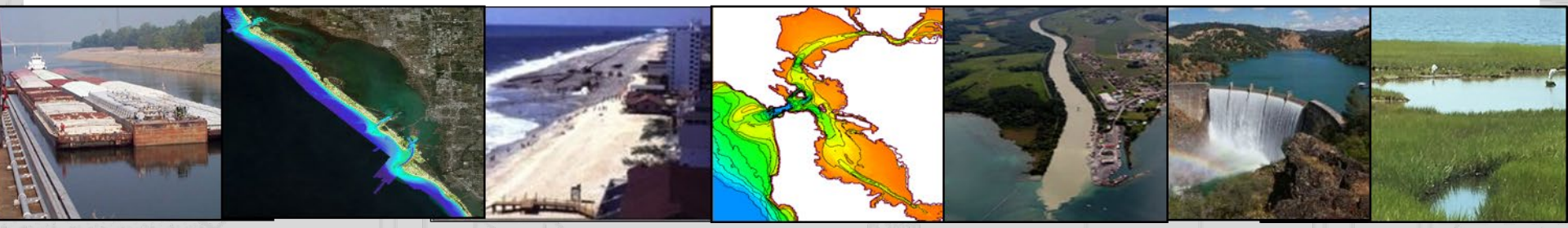
…at a cost of more than $1 billion per year

Regional Sediment Management

Established 1999, CERB Charge

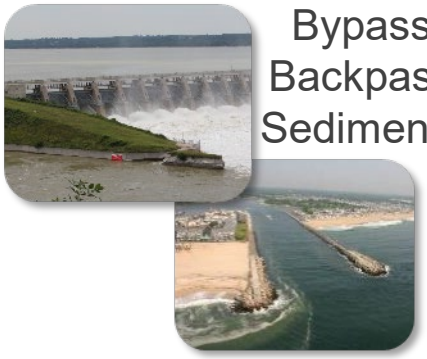
"A systems approach using best management practices for more efficient and effective use of sediments in coastal, estuarine, and inland environments for healthier and more resilient systems."

- Recognizes sediment as a valuable ***resource***
- ***Work across business lines, projects, and authorities*** to create short and long-term economically viable and environmentally sustainable solutions
- ***Improve*** operational efficiencies and natural exchange of sediments
- ***Consider*** regional implications of project scale actions and benefits
- ***Apply/Enhance*** tools and technologies for regional approaches
- ***Share*** lessons learned, information, data, tools, and technologies
- ***Communicate and collaborate***



RSM Goals and Strategies

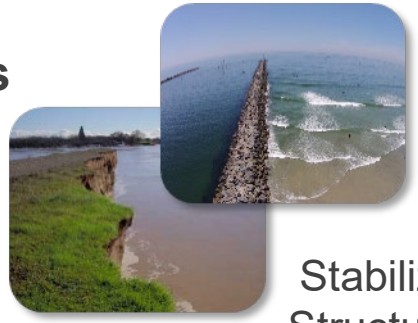
Reduce Upland/CDF Disposal



Bypass Backpass Sediments

Reduce Erosion

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



Stabilize Structures

Save Capacity

Reduce Channel Shoaling

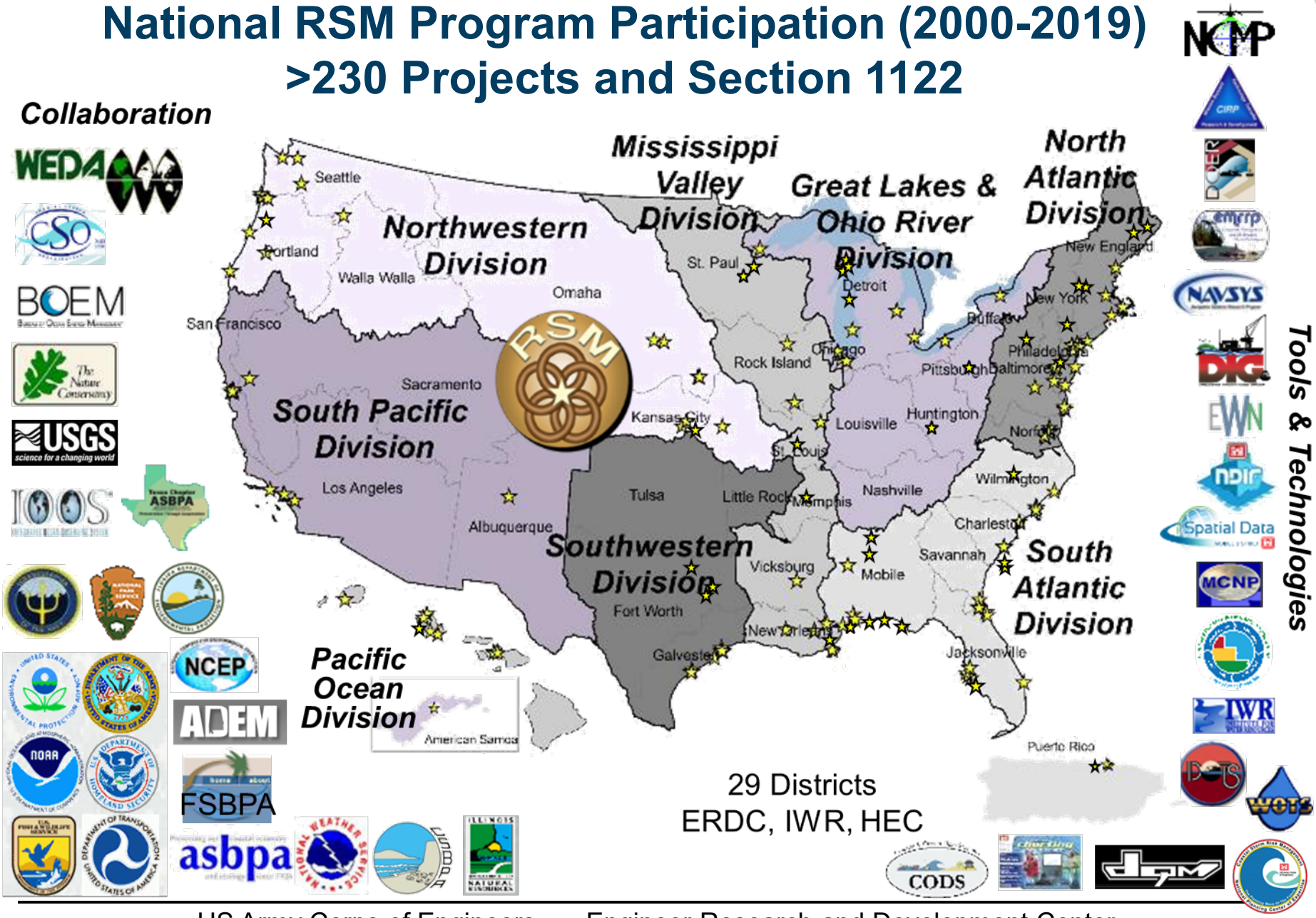
Reduce Runoff

Ecosystem Habitat Restoration

RSM Process


4. TAKE ACTION
-Construct, monitor & adaptively manage
-Capture benefits & lessons learned
-Incorporate into standard practice
1. UNDERSTAND REGION
-Sediment sources, project needs, processes, gaps, engineering actions, ecological considerations
-Resources, challenges & requirements
RSM
3. REGIONAL RSM STRATEGY
-Integrate projects into Regional Strategy
-ID authorities, funding, permit requirements, leveraging opportunities
-Prioritize: need, benefits, timelines
2. EVALUATE RSM STRATEGIES (PROJECT SCALE)
-Efficient & effective use of sediments
-Project-level analysis (tools, models, technologies)
-RSM pilot projects
Communication, Collaboration, Innovation, Decision Making
Interagency, Stakeholders, Partners, Resource Agencies

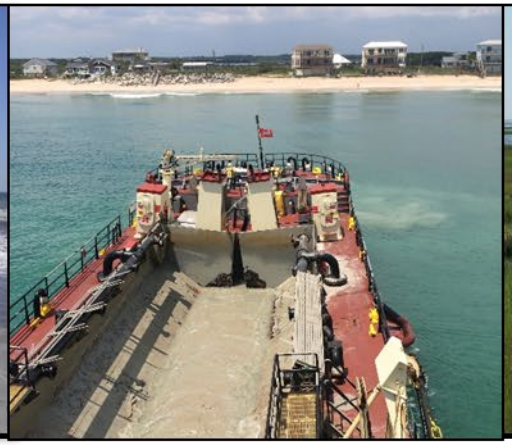
National RSM Program Participation (2000-2019)
>230 Projects and Section 1122



FY20 Program

- 45 Proposals Submitted
- 26 Funded in Work Plan
  - Approx. $50-300k per proposal
  - Close to even split between coastal and inland
- Major hurdle: COVID-19






FY20 Coastal Projects

	Coastal
SWG	Optimization of CTV BUS 2 through Adaptive Management & Implementation of the Guadalupe River Mouth Marsh Restoration Initiative
NAB	Post-Project Monitoring of a Navigation Solution in a Dynamic Coastal Environment, Smith Island, Maryland - year 2
NAN	South Shore of Long Island, NY Regional Sediment Management Investigation
NAO	James River Federal Navigation Channel, Middle Reaches, RSM
ERDC	Separation of Sand and Fine Sediment During Navigation Dredging Operations (partial funded)
ERDC	Improving Communication of Nearshore Nourishment Benefits
ERDC	Sediment Budget Improvements to Support the National RSM Strategy
SAM	Identification of Potential Beneficial Use (BU) Opportunities for Wetland Sites Associated with O&M Projects
POH	Hawaii Regional Sediment Management – Sunset Beach Remote Sensing
SAM-ERDC	Field Implementation of Belowground Biomass for Increased Dune Stability and Resiliency

FY20 Inland Projects

	Inland
MVN	Geochemical Fingerprinting of High Shoaling Reaches of the Calcasieu Ship Channel
ERDC	Flume Studies to Validate the ISSDOTv2 Code under multiple flow scenarios and conditions.
ERDC	Sediment Yield for all Catchments of the Conterminous United States (partial funded)
ERDC	Guidance for Incorporating Regional Sediment Management into the Design of Channel Systems
HEC-ERDC	Ensemble Rip-Rap Calculator in HEC-RAS
ERDC	Geomorphic Analysis Package
MVM	Geomorphic Assessment of the St. Francis River
NWO	Application of Shallow Acoustic Reflection Seismic (Chirp) Data to Reservoir Storage: Can we revisit the past and plan for the future? Phase I - Exploration and Data Collection
NWO/PM	Exploring an Interagency Geomorphic Data Exchange Portal – Developing Demonstrations of Data Storage and Sharing
NWP	Hydrodynamic Controls on Sand Wave Growth in the Lower Columbia River
NWK	Longevity and Effectiveness of Nature-based Bank Protection for Reducing Sediment Loading to Rivers
MVP	Comparison of 1D and 2D Sediment Models using HEC-RAS for the Chippewa River (Wisconsin)

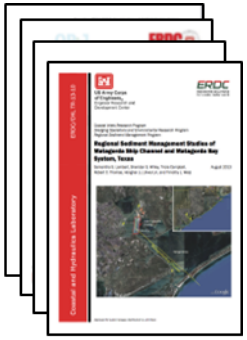
FY20 Inland/Coastal Projects

	Inland/Coastal
ERDC	Beneficial Use Database and Viewer Updates
ERDC	CORSED Consolidated Sediment Transport Code
NWP	Life Cycle Cost Analysis of RSM Strategies
NAP	Utilizing High Velocity Tidal Channels for the Beneficial Use of Dredged Material and Marsh Restoration in the Delaware River Estuary

Outreach and Communication (Highlights)

- RSM Website Updates
- Trifold Pamphlets
- Coastal and Inland Tools & Technologies Brochures
- Posters (one additional)
- SharePoint
- Bi-Monthly RSM Web Meetings
- ASBPA National Coastal Conference (Myrtle Beach, SC)
- Pacific Chapter WEDA (Newport Beach, CA)
- Gulf Chapter WEDA (Galveston, TX)
- NAO James River Partnership Meeting (Newport News, VA)
- Coastal Working Group Meeting (Washington, DC)
- MCR Stakeholder Meeting (Oregon)
- Participation in USCRP
- ASBPA Summit (Virtual)
- RARG Meeting (Virtual)
- CERB Executive Meeting (Corvallis, OR)
- RSM ROI Webmeetings (Virtual)
- …..

RSM Technical Notes, Reports Manuals



Published
86 RSM Technical Notes
-5 additional in FY20
30 RSM Technical Reports
-5 additional in FY20

In Publication
1 RSM Letter Report
1 RSM Special Report
10 RSM Technical Notes
6 RSM Technical Reports

Other
Journal Articles
Conference Papers and Briefs
Newsletter Articles

RSM.USACE.ARMY.MIL

Technical Notes (CHETNs and other)

▲ (CIRP) (DOER) (NavSys) denote publications co-sponsored with RSM or directly funded by indicated program(s).

FY 20	• Seamless Integration of Lidar-derived Volumes and Geomorphic Features into the Sediment Budget Analysis System • Geochemical Fingerprinting of Sediment Sources Associated with Deposition in the Calcasieu Ship Channel • Design Considerations for Beneficial Use Sites along the Channel to Victoria, Calhoun County, TX • Bed-load Transport Measurements on the Chippewa River using the ISSDOTv2 method • Effects of bank stabilization on Regional Sediment Management : lessons learned from the Kansas River and Grand River Basins
FY 19	• Coastal Modeling System : Dredging Module simulation with multiple grain sizes ▲ • Reservoir sediment management and analysis workshop for engineers • Modeling Sediment Concentrations during a Drawdown Reservoir Flush: Simulating the Fall Creek Operations with HEC-RAS • Feasibility of Nearshore Placement Near the Swinomish Navigation Channel; Puget Sound, Washington • Analysis of a Hydrosuction Sediment Removal System for Tuttle Creek Lake, Kansas • Identification of alternatives to reduce shoaling and for beneficial use at the Bolivar Flare of the Gulf Intracoastal Waterway • Evaluating Post-Wildfire Impacts to Flood Risk Management (FRM): Las Conchas Wildfire – New Mexico • Kikiaola Light Draft Harbor, island of Kauai; Hawaii; Regional Sediment Management (RSM) • Implementing Regional Sediment Management (RSM) : policy guidance and authorities pertinent to improving the use of dredged sediments • Alternatives to manage sediment at the intersection of the Gulf Intracoastal Waterway (GIWW) and the Corpus Christi Ship Channel (CCSC) • Hawaii RSM: Advance planning for the beneficial reuse of dredged material at Haleiwa Harbor, Island of Oahu, Hawaii • Hawaii Regional Sediment Management : West Maui region; nearshore sedimentation at Honokowai Stream
FY 18	• Reservoir Sediment Management Workshop for Regulators, Planners, and Managers • Physical Monitoring Methods for the Nearshore Placement of Dredged Sediment • Potential RSM Projects; Utulei Beach Region, American Samoa • American Samoa RSM: Numerical Modeling of Waves and Currents in the Utulei Beach Region • User's guide for the Sediment Mobility Tool web application • The Cross Section Viewer: A Tool for Automating Geomorphic Analysis Using Riverine Cross-Section Data • Understanding Regional Shoreline Change and Coastal Processes at the Sunset Beach Region, Oahu, Hawaii • Regional Sediment Dynamics in Mobile Bay, Alabama; A Sediment Budget Perspective
FY 17	• Identification of Alternatives to Reduce Shoaling in the lower Matagorda Ship Channel • Pinellas, Manatee, and Sarasota Counties, Florida; Regional Sediment Budget • Reservoir Sediment Management Workshop for Milford Lake in the Kansas River Basin • Beach and Morphology Change Using Lidar • Gaillard Island Bio-degradable Geotube Test Project, Mobile Bay, Alabama

Complete RSM Tasks and Submit Products: 30 Sept 2020

****No FY20 Carry Over****

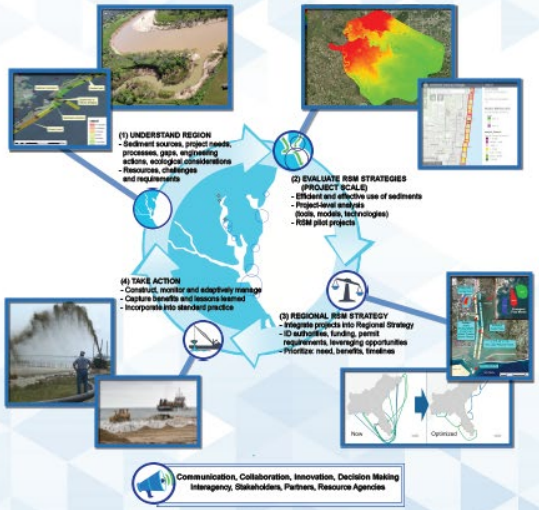
(MIPRs are obligated already)

Management Updates

- Navigation TD: Eddie Wiggins
- Navigation ATD: Katie Brutsché
- RSM Management Team Update
  - Katie Brutsché, Program Manager
  - David May, Inland Deputy Program Manager
  - Dave Perkey, Coastal Deputy Program Manager
- New poster (completes the full poster series)
- New Fact Sheet booklet
- ROI Effort
- Strategic Focus Areas (CWRDSC)

Tools and Technologies

RSM Process



Many of these tools were created by other USACE R&D programs. Please visit rsm.usace.army.mil for more information.

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Links to these tools and technologies as well as information about past and current projects can be found at: rsm.usace.army.mil

Regional Sediment Management

A systems approach using best management practices for more efficient and effective use of sediments in coastal, estuarine, and inland environments for healthier and more resilient systems.

Recognize sediment as a resource

As part of the USACE mission to maintain navigable waterways, approximately 200 million cubic yards of sediment is dredged annually. One goal of RSM is to create economically viable and environmentally sustainable sediment management solutions.

Work across disciplines and projects

By considering interdisciplinary solutions, RSM aims to maintain and enhance natural sediment processes. Working across business lines, projects and authorities helps to increase operational efficiencies.

Consider regional implications

Along with partnering USACE programs, RSM develops and applies tools and technologies to evaluate strategies for regional approaches. The implications and benefits of these approaches must be evaluated on both the project and regional scale.

Communicate and collaborate

The RSM Program works nationwide in and outside of the USACE to share knowledge with stakeholders, resource agencies, and other partners to create more efficient and effective solutions for sediment management.

US Army Corps of Engineers · ERDC · COASTAL & HYDRAULICS LABORATORY

http://rsm.usace.army.mil
RSM@usace.army.mil

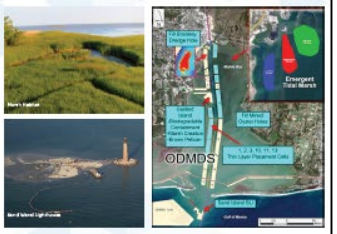
Success Stories:

Mobile District

Cost Savings: $6M annually

Mobile Bay Regional Stategy

- Previous legislation required sediment dredged from bay to be deposited into offshore site, leading to degradation.
- Beneficial use opportunities were evaluated for in bay placement of dredged material.
- Integrated beneficial use alternatives to create a regional strategy for Mobile Bay material.



Portland District

Cost Savings: $110K seasonally

Mouth of the Columbia River Improvements

- Use of deep water site removed sediment from system.
- Sought nearshore alternatives for placement to protect infrastructure and keep sediment in the system.
- Reduced dredging cost without disruption of benthic ecosystem communities.

Omaha District

Cost Savings: $500K

2011 Missouri River Flood Recovery

- While repairing levees, identified dredged borrow areas that provide backwater habitat for threatened and endangered species
- Dredged material from flood repairs used to build control structures, habitat ponds, and bank stabilization near bridge abutment.
- Provided public access to stockpiled sediment for flood repairs

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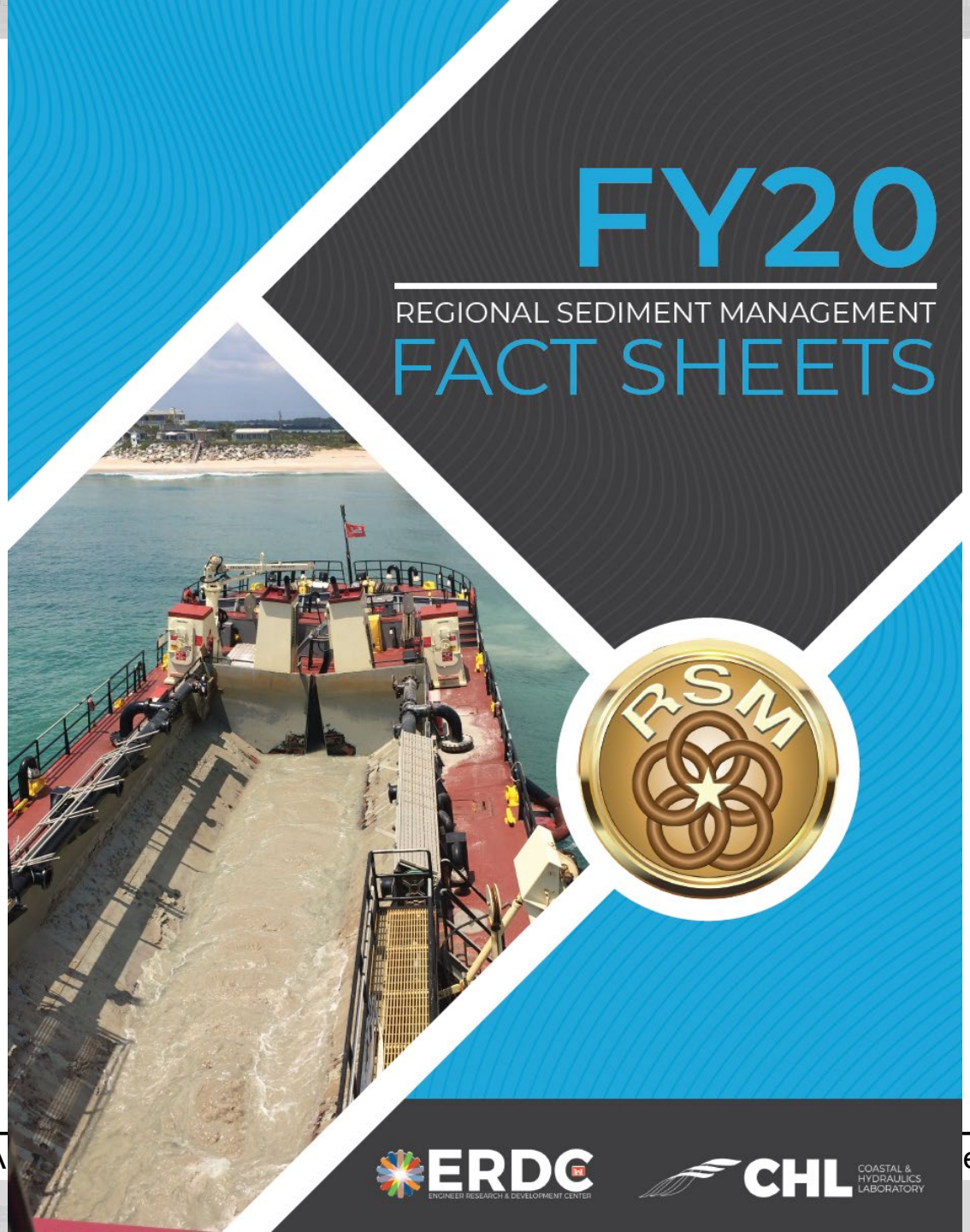
Information about past and current projects can be found at: rsm.usace.army.mil


FY20
REGIONAL SEDIMENT MANAGEMENT
FACT SHEETS
RSM
ERDC
ENGINEER RESEARCH & DEVELOPMENT CENTER
CHL
COASTAL & HYDRAULICS LABORATORY

Strategic Focus Areas

USACE priority needs for innovation in the next years to decades

INNOVATION IN SEDIMENT MANAGEMENT

NATIONAL CHALLENGE

- Sedimentation in navigation channels and reservoirs represents **>$1B/year cost,** dredging costs continue to rise, and all dredging needs are not met
- **Loss of water/flood storage capacity** due to sedimentation
- **Shoreline erosion** and loss of function and value of natural features
- **Only 30% of dredged sediment** is used beneficially

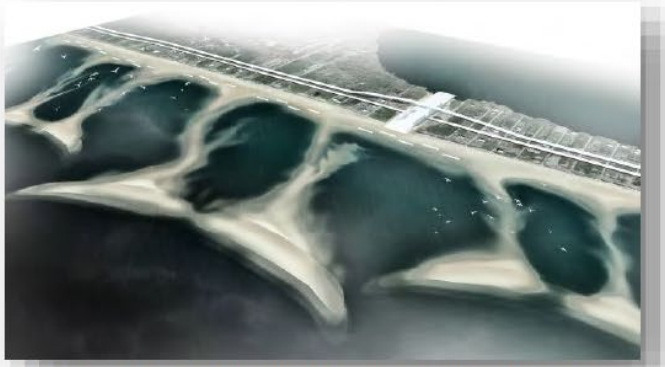
CAPABILITY NEEDS

- Leap-ahead construction and operation technologies to **lower costs** and accelerate schedules
- **Next generation sensors,** monitoring and modeling technologies to reduce sediment imbalances, channel in-filling and dredging needs
- **National physical modeling facility** to test new marine/aquatic dredging and construction techniques
- **Engineering With Nature® solutions** for sediment that deliver multi-purpose value

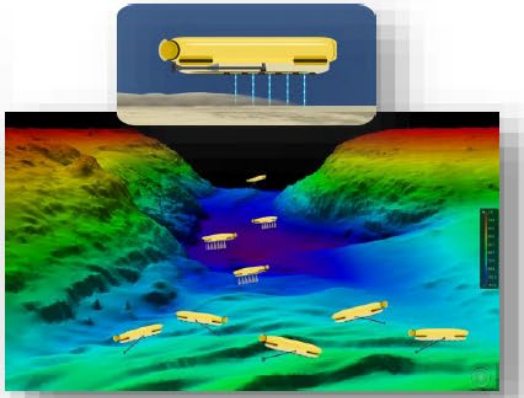
OUTCOMES

- $80M annual investment in sediment innovation over five years delivers **$10B in cost savings and added value** over the first 15 years
- Increase national beneficial use from **30% to >70%** over 10 years
- Advance USACE sustainability by expanding environmental and social benefits at navigation projects by **50% over 10 years**

OV1 – Vision for 10yr Capability



Strategic Sediment Placement becomes dominant practice, supporting sustainable river and coastal shorelines and habitats



"Swarm" of autonomous dredging drones working the Southwest Pass

Mosaic of offshore features constructed and sustained through beneficial use, providing flood risk reduction, environmental and social value

Back-bay wetland park constructed through beneficial use to provide storm and sea level rise resilience

Restored wetland integrated into a "horizontal" levee provides flood risk reduction, sea level rise resilience, environmental, and social value

RSM Program Funding Process

- **Annual Request for Proposals: *Submittals Were Due* ***26 June 2020****
- **Submittals THROUGH:**
  - **District RSM POC**
  - **District Navigation BL Leader**
  - **MSC RSM POC and MSC Navigation BL Leader**
- **Submittals TO:**
  - **HQ, Navigation Business Line Manager**
  - **ERDC Nat'l RSM Program Manager**
- **Review Team: Districts (Coastal/Inland OP, PD, EN); HQ CWG/Inland Leads**
- **Recommend Program/Budget: ERDC RSM PM/Deputy PM & TD Nav**
- **Approval: HQ Navigation Business Line Manager**
- **Required from all initiatives**
  - **Quarterly Progress Reports, Fact Sheets, Present RSM IPR& Workshop**
  - **Lessons Learned: RSM TN/TRs, Newsletters**

We hope to have a decision by the bimonthly call in October

A note about FY21 funding…

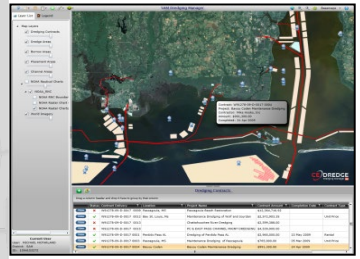
- There are no Corps to Corps MIPRs anymore
- Funds will be sent to Districts/HEC via CCLC and repositioning
- ERDC funding process remains the same
- All projects will need to be diligently tracking funds
  - More oversight from PM/PA team
  - Quarterly (at minimum) check-ins on obligation/expenditures
  - Will also include Deliverables
- WE WILL PULL FUNDS IF NOT SPENDING ON TIME
  - Unless otherwise approved

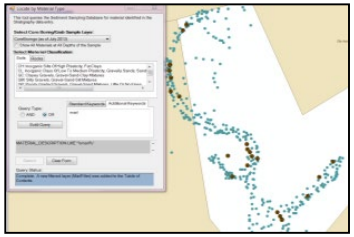
RSM Program Goals for FY21 and Beyond

- Continue District support to determine best RSM alternatives for projects
- Ongoing effort to quantify BU in USACE
  - Connect Dredging Information System directly to database
- Continued quantification of cost savings/value due to RSM
  - Quantification of benefits not necessarily related to money (i.e. what is the value of a wetland?)
- R&D on innovative RSM solutions
- Create RSM Advisory Board
- Make RSM SOP in District and Division project planning

Regional Sediment Management = Resilient Healthy Systems

Regional Sediment Budgets
Local Actions=Regional Benefits





Data Management and Access

Guidance, Lessons Learned