

RSM Program Update

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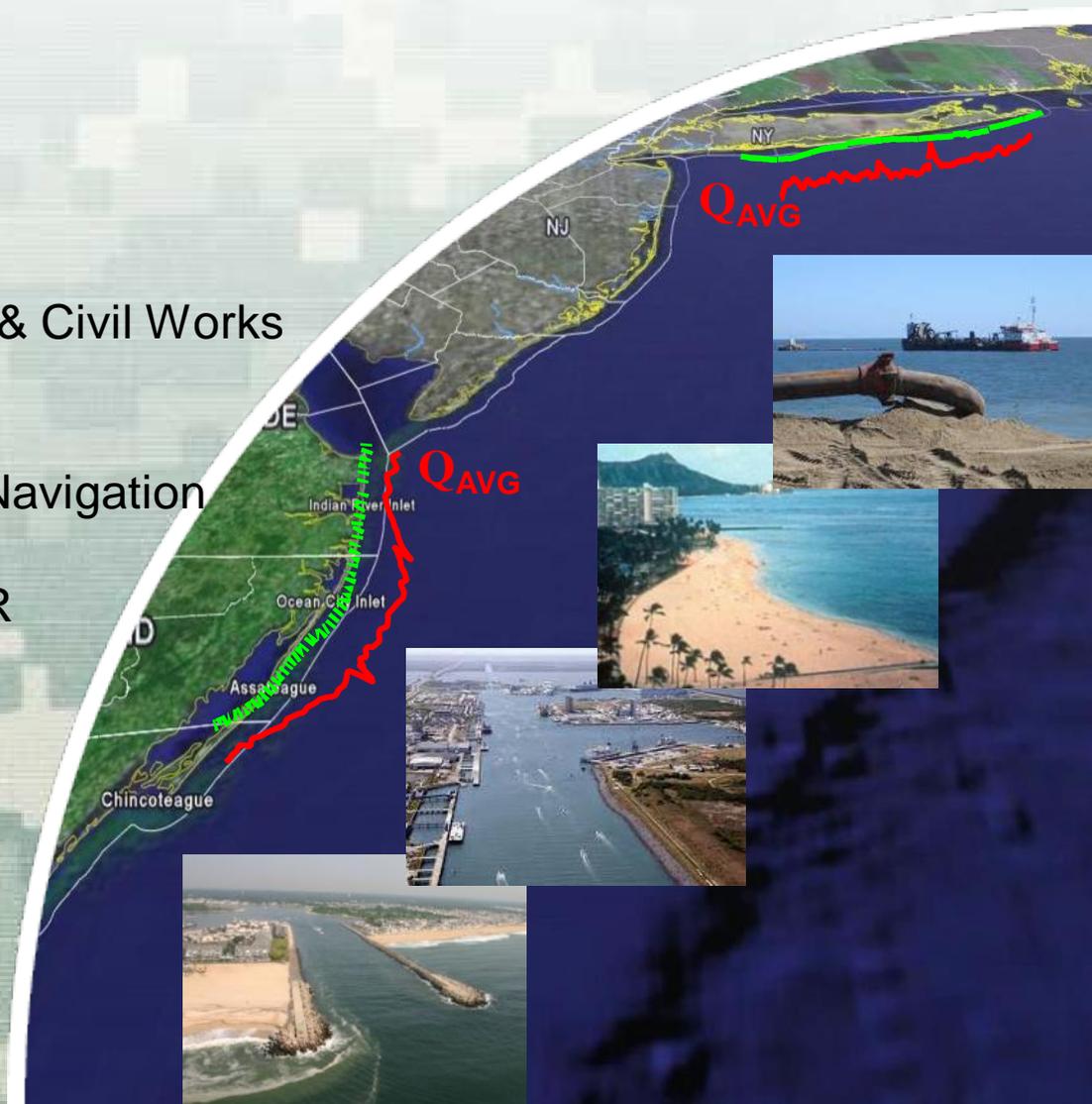
Eddie Wiggins
ERDC Associate Technical Director, Navigation

RSM and EWN Workshop/RSM IPR
20-22 August 2013
Vicksburg, MS



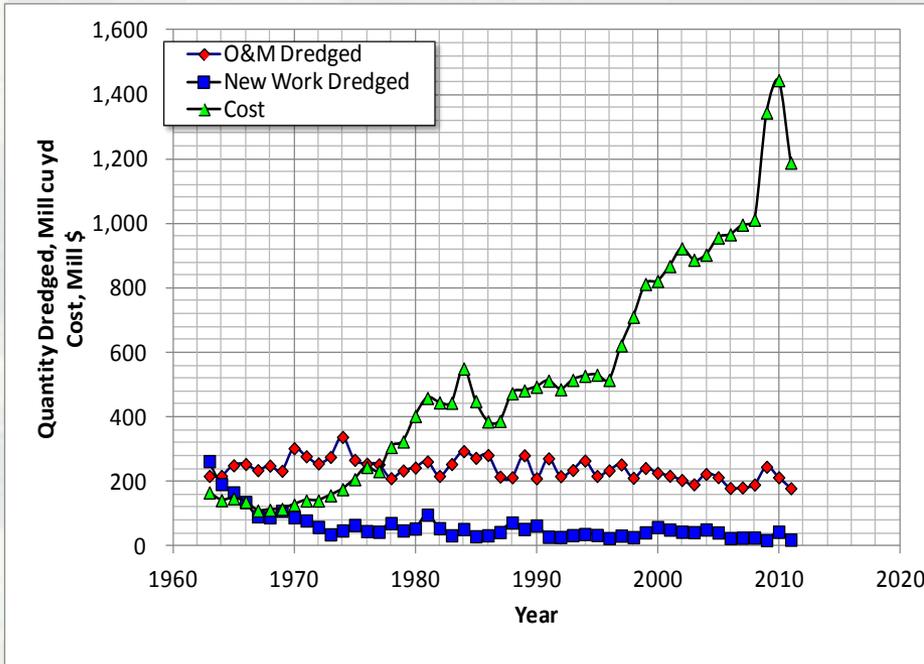
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US Army Corps of Engineers
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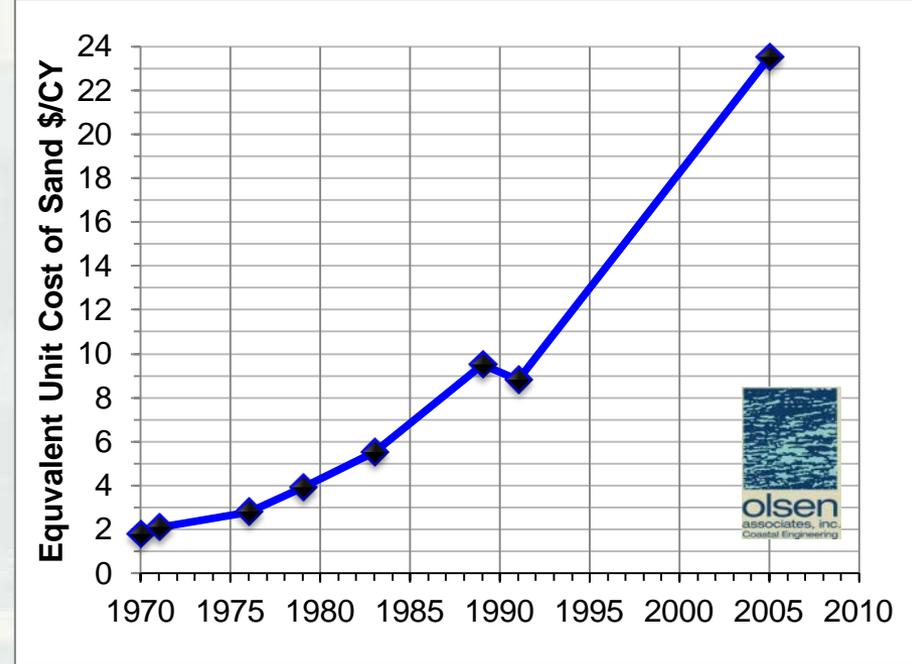


Increasing Maintenance Costs

US Navigation Channels
O&M & New Work Volumes and Cost



Broward Co Shore Protection Project
Cost of Sand



Regional Sediment Management



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



RSM = Sustainable Solutions for.....

Navigation/ Dredging



Flood Risk Management



Environmental Restoration

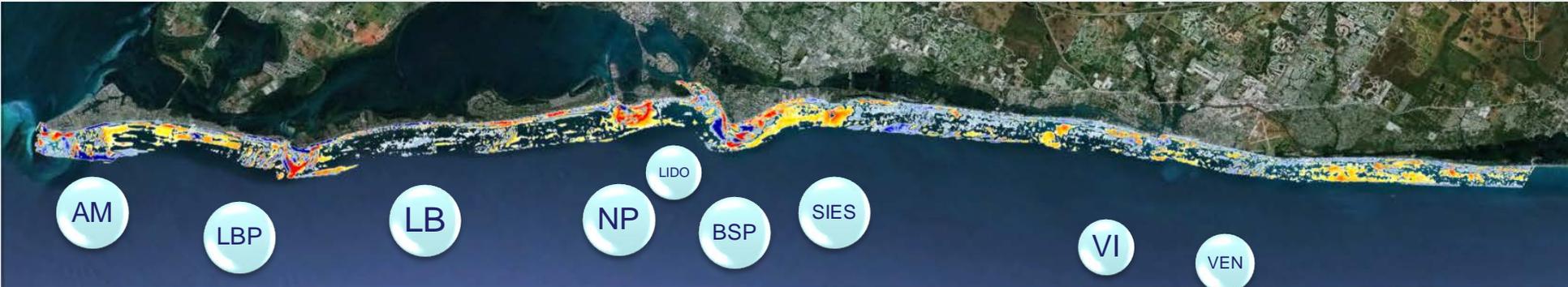


RSM Operating Principles

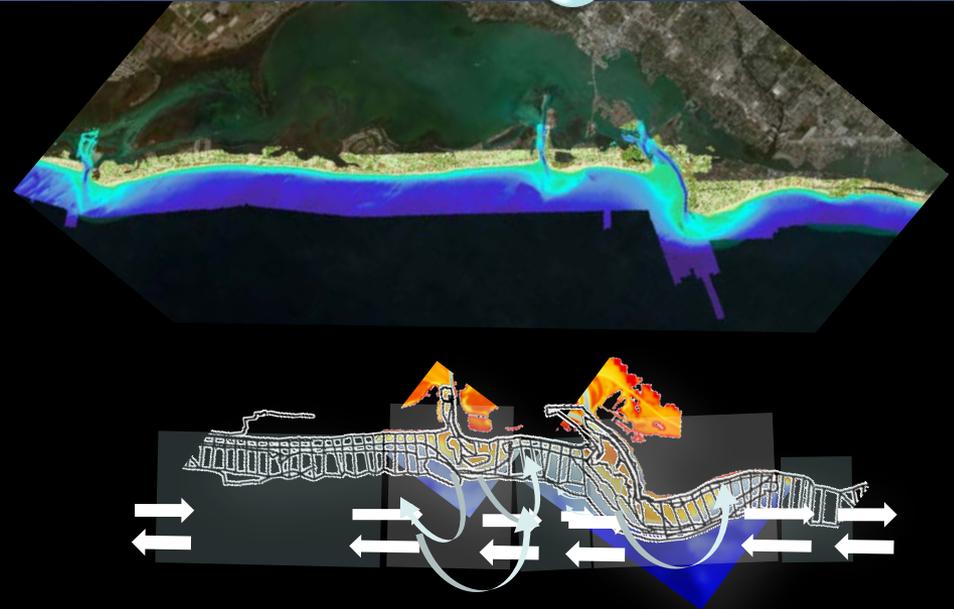
- Recognize sediment as a regional resource
- Balanced, economically viable, environmentally sustainable solutions
- Improve economic performance by linking multiple projects
- Optimize operational efficiencies & natural exchange of sediments
- Consider local & regional impacts (physical, environmental,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



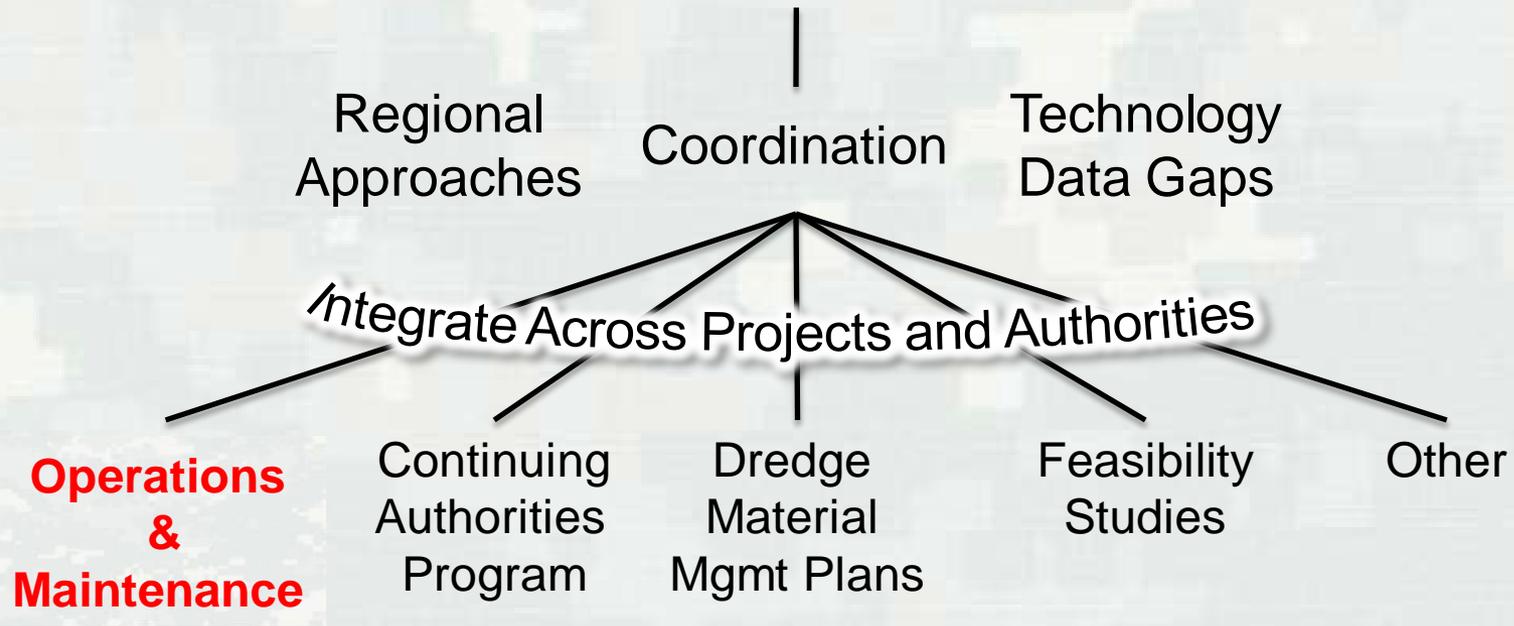
Regional Approaches



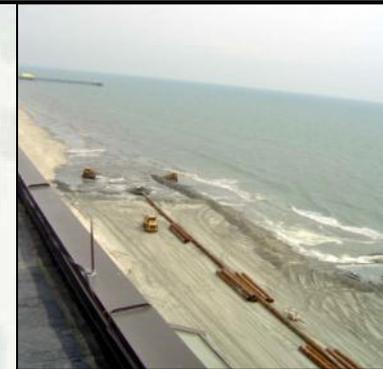
- Anna Maria Island—nourished
- Long Boat Pass—dredged
- Longboat Key—nourished
- New Pass—dredged
- Lido Key—nourished
- Big Sarasota Pass BSP—not dredged
- Siesta Key—not nourished
- Venice Inlet—dredged
- Venice Beach—nourished



RSM Program



Construction



RSM Plans

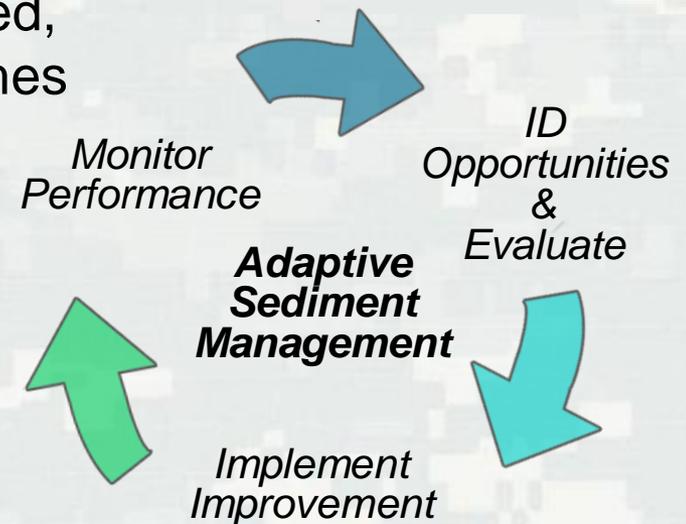
- 3-5 (or greater) year studies
- Expensive \$\$\$\$
- Lack coordination (authorities, cost share, permits, overcome hurdles)
- Do not result in construction -
Not moving sediment or no sand on the beach



RSM Evaluations*

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

*Win-Win for everyone



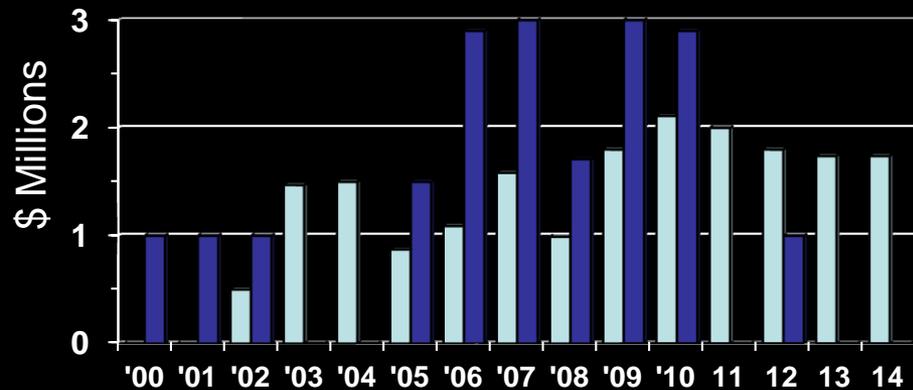
RSM Progress/Status



Historical Budget and District Participation

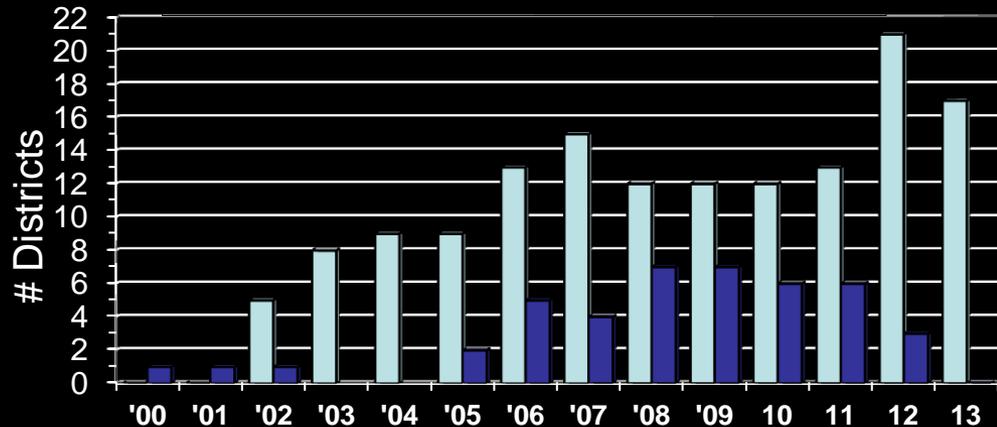
RSM Budget

■ Base ■ Congressional Adds/Plus Up



District Participation

■ Base ■ Congressional Adds/Plus Up



Historical RSM Participation



25 Districts, ERDC/IWR-HEC



CODS/CFDC

NCDB

MCNP

WOTS



RSM FY13 Participation



CODS/CFDC

NCDB

MCNP

WOTS



◆ ◆ RSM FY13: 24 Initiatives, 17 Districts, ERDC/IWR-HEC
◆ EWN FY13: 7 Initiatives, 5 Districts, ERDC



FY13 RSM

Districts

LRB Sediment Budgets Lake Erie/Ontario
NAB Regional Sediment Budget, Integrate Projects
POH Haleiwa Sediment Budgets, RSM Strategies
SPN Sediment Budget, RSM Strategies

NAE Saco Bay RSM Strategy
NAN Sandy Hook Channel Sediment Management
NWP Port Orford Sedimentation Reduction
SWG GIWW Sedimentation Reduction
MVR Sangamon/Illinois River Sedimentation Reduction
MVS Kaskaskia River Sedimentation Reduction

NWO Sediment Transport Tools in HEC-RAS
NWK Reservoir Sustainability Sediment Continuity
LRC Calumet River Erodibility/Sediment Database
SAC Myrtle Beach Shore Protection eGIS

SAM Mobile Bay Biodegradable Containment
NAP EWN/RSM placement Strategies Post Hx Sandy

R&D/Tech Transfer

Nearshore Placement Guidance
3D Lidar Data & Tools
Sediment Budget Analysis System
Reservoir Sediment Tools
CMS Model Applications
HEC-RAS Model
Data Management and Access
Sediment Database
Nav Data Integration Framework
Nav & Coastal Data Bank
RSM & CE-Dredge Viewers
Engineering With Nature



SAJ NE Region St Johns, Duval, Nassau Counties
SAJ SW Region Tampa Harbor and Sarasota Bay



RSM R&D and Tech-transfer

**Just a Sampling*



JALBTCX – National Coastal Mapping Program



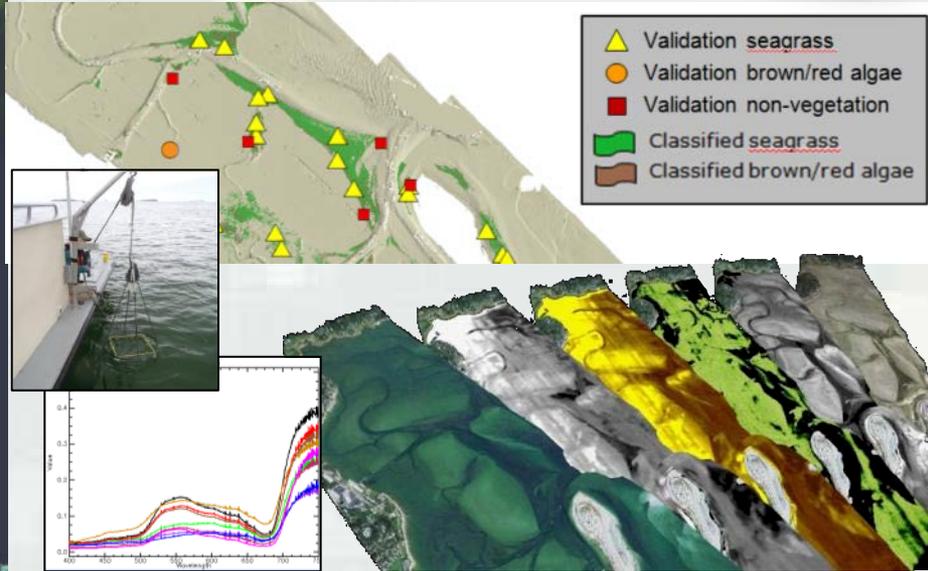
National Coastal Mapping Program

Products

- 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

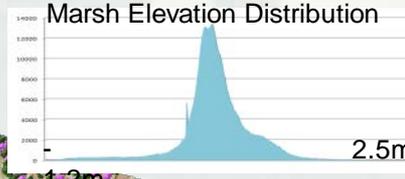


Submerged Aquatic Vegetation



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

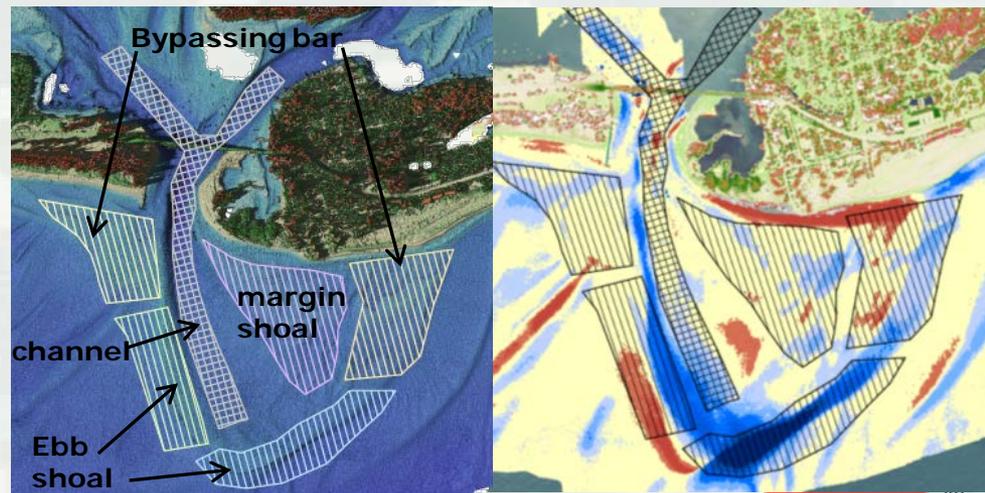
Coastal Land Cover



Landcover type	Manning n Value
bare/open	0.04
buildings/structures	0.07
grass/lawn	0.034
marsh	0.04
road/impervious	0.012
sand/beach	0.04
shrub	0.05
trees/forested	0.12
water	0.02



Sediment Budgets

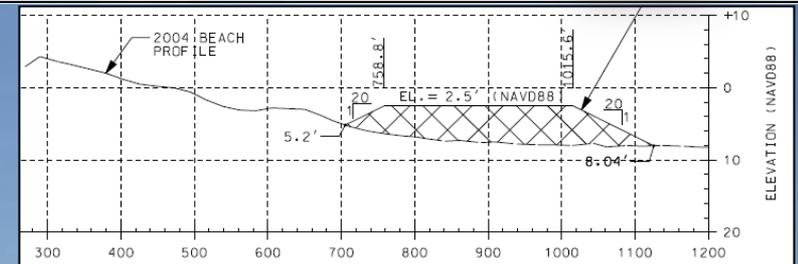


Advancing Nearshore Berm Research, Guidance, and Tool Developments



Guidance and Tools needed for:

- Design
- Operations & Placement
- Evolution
- Benefits



Nearshore
Berm

SoN 2011-N-15 Design & Evaluation Tool for Nearshore Berm placement of Non-Beach Compatible Material
SoN 2011-N-19 Nearshore placement of Dredged Sediment Assessment

Sediment Budget Analysis System (SBAS) – GIS

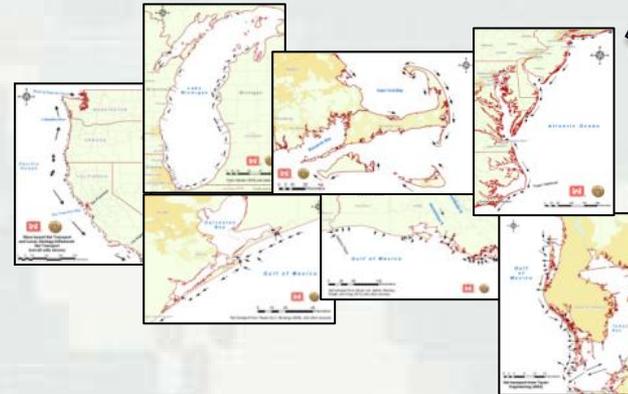
*Regional Process and Analysis Tool (RPAT)

Sediment Budget Viewer

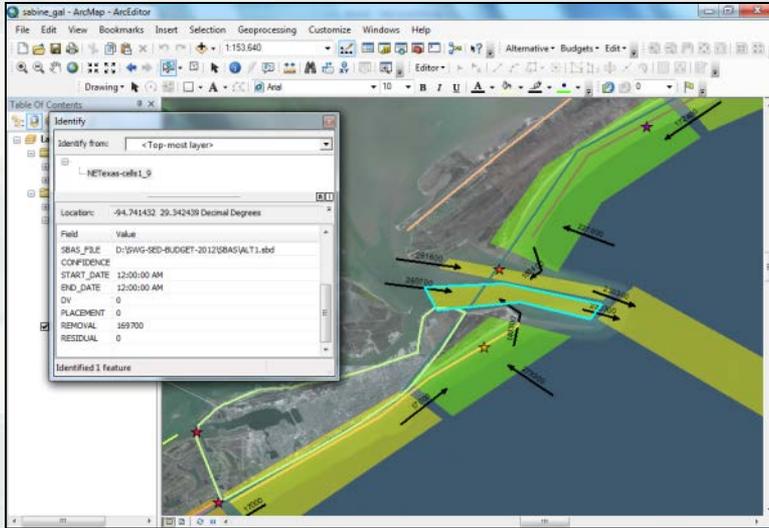
Sediment Budget Repository



SBAS Web-Viewer



Sediment Budget Repository



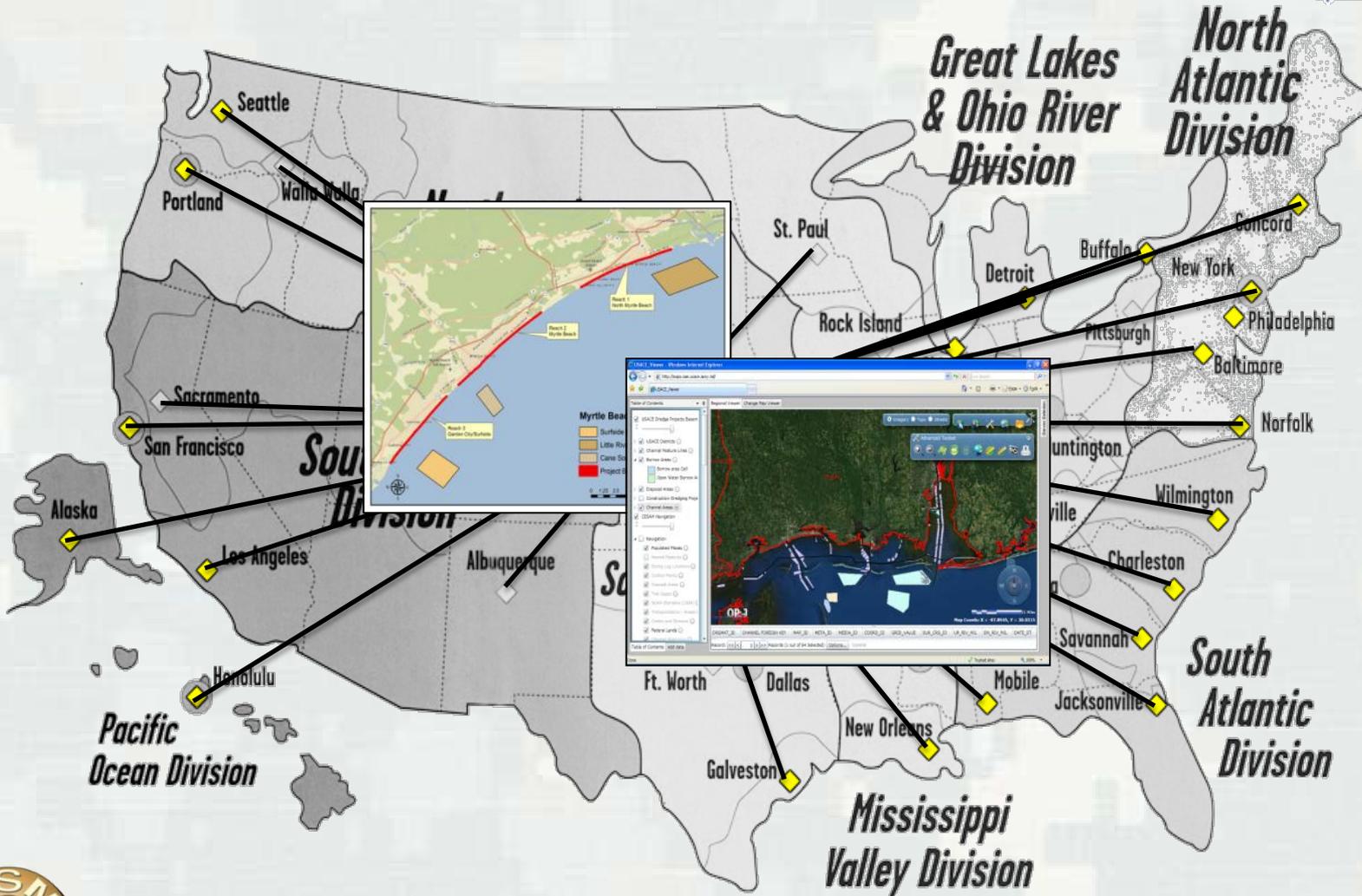
SBAS Arc10
NCMP 3D Lidar

*SoN 2012-N-15

Automated Feature Extraction for Sediment Budgets



Web/GIS-Based RSM and CE-Dredge Viewers Access to Corps-wide Data



SoN 2013-N-31 Data Integration Framework-Navigation Portal



RSM Technical Notes, Reports, Manuals, Conference Papers, Journal Articles



Bi-Monthly RSM Conference Calls Webinars



District RSM Workshops

Program Publications - Technical Notes and Manuals

CHETN-XIV-17	Northern Gulf of Mexico (NGOM) RSM Demo Program Initiatives	SAM	L. Parson and S. Rees
CHETN-XIV-18	Regional Morphology Analysis Package (RMAP): Version 3, User's Guide and Tutorial	CHL	A. Morang, B. Batten, K. Connell, W. Tanner, M. Larson, N. Kraus
CHETN-XIV-19	An Update on Nearshore Berms in the Corps of Engineers: Recent Projects and Future Needs	CHL	T. Beck, J.D. Rosati, J. Rosati
CHETN-XIV-20	Regional Sediment Management through Dredged Material Management Planning	SAJ	W. Aley
CHETN-XIV-21	Barren Island Dredged Material Placement for RSM	NAB	R. Blama
CHETN-XIV-22	RSM at East Rockaway Inlet, NY, Utilizing the USACE CMS	NAN	NAN
CHETN-XIV-23	Estuarine Sediment Budgets for Chesapeake Bay Tributaries	NAB	J. Herman
CHETN-XIV-24	Practical Recommendations for RSM: Lessons Learned at St. Johns County Shore Protection Project	CHL SAJ	R. Thomas, M. Schrader, J. Engle, K. Legault
CHETN-XIV-25	Practical Recommendations for RSM: Lessons Learned as part of the Niobrara River Basin Initiative	NWO	P. Boyd
CHETN-II-54	First Year Morphological Evolution of an Artificial Berm at Fort Myers Beach, Florida	CHL	K. Brutsche and P. Wang
CHETN-XIV-26	Evaluation of RSM Actions Using Government Shallow Draft Dredges	NAD/ NAP	R. Thorsen and M. Chasten
CHETN-XIV-27	Identification of RSM opportunities on the Upper Texas Coast through Sediment Budget Application	SWG	S. Willey, T. Campbell, S. Lambert, A. Morang, D. King, R. Thomas
CHETN-XIV-28	A Review of Innovative Sediment Delivery Systems	POH	T. Smith
CHETN-XIV-29	RSM Principles in Flood Recovery: Incorporating RSM after the 2011 Missouri River Flood	NWO	P. Boyd
CHETN-XIV-30	Creation of Island Habitat in Jacksonville Harbor, FL	SAJ	Stephanie M. Groleau
CHETN-XIV-31	Hawaii RSM: Application of SBAS for ArcGIS©10 to develop Regional Sediment Budgets for the Island of Maui, HI	POH	J. Podoski
CHETN-XIV-32	Hawaii RSM: Regional Sediment Budget for the Kekaha Region of Kauai, HI	POH	J. Podoski
CHETN-XIV-33	Hawaii RSM: Regional Sediment Budget for the Poipu Region of Kauai, HI	POH	J. Podoski
CHETN-IV-89	Initial Morphologic Evolution of Perdido Key Berm Nourishment, Florida	SAJ	Wang, Brutsche, Beck, Rosati, Lillycrop
Technical Note	RSM for Atlantic Coast of Maryland and Assateague Island Sheashore (Assateague By-Pass Project)	NAB	R. Blama, M. Gomez, and T. Laczko
User's Manual	Users Manual: Bank Stability Toe and Erosion Model in HEC-RAS	HEC	S. Gibson
User's Manual	Sediment Budget Analysis System (SBAS) ArcGIS10.0 User's Guide	SAM	Mobile District, Spatial Data Branch

** 18 new TNs, Reformatted and Published 17 Old RSM TNs

FY12 Program Publications

Technical Reports

Published			
ERDC/CHL-TR-12-17	Sediment Budget for the Indiana Shore from Michigan City Harbor to Burns Waterway Harbor	CHL LRC	A. Morang, A. Frey, D. Bucaro, S. Brodzinsky, J. Fuller
ERDC/CHL-TR-12-14: Report 1	St. Johns County, St. Augustine Inlet, FL Report 1: Historical Analysis and Sediment Budget	CHL SAJ	K. Legault, J.D. Rosati, J. Engle, T. Beck
ERDC/CHL-TR-12-14: Report 2	St. Augustine Inlet, Florida: Application of the Coastal Modeling System Report 2	CHL SAJ	T. Beck and K. Legault
ERDC/CHL-TR-12-14: Report 3	Optimization of Ebb Shoal Mining and Beach Nourishment at St. Johns County, St. Augustine Inlet, Florida	CHL SAJ	T. Beck and K. Legault

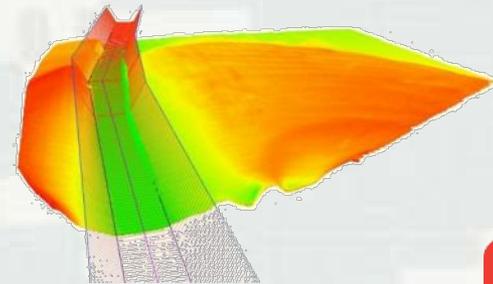
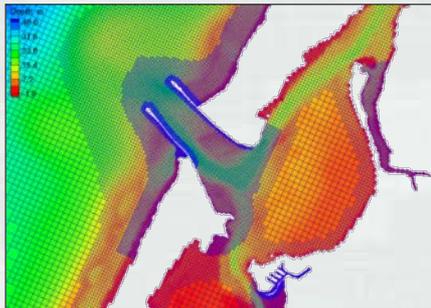
In Publication			
RSM/CIRP	Sedimentation Impacts at the Confluence of the Sangamon and Illinois Rivers	MVR	
RSM	Regional Sediment Management (RSM) Principles in Flood Recovery: Incorporating RSM after the 2011 Missouri River Flood	NWO	
RSM	Proposed Navigation Corridor Morehead City Harbor, NC Application of Regional Sediment Management Concepts	SAW	
RSM/CIRP	RSM: Matagorda Bay Texas	SWG	
RSM	Hawaii RSM Needs Assessment	POH	

RSM Future Direction



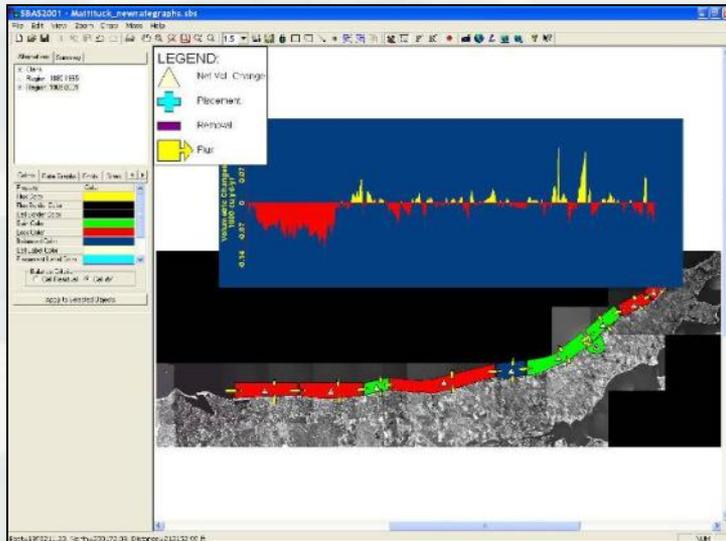
Short-Term Program Goals

- Re-engage/Benefit O&M in addition to FRM, ER
- Take Action – move sediments
- Focus on RSM Strategies & adaptive management
- 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)

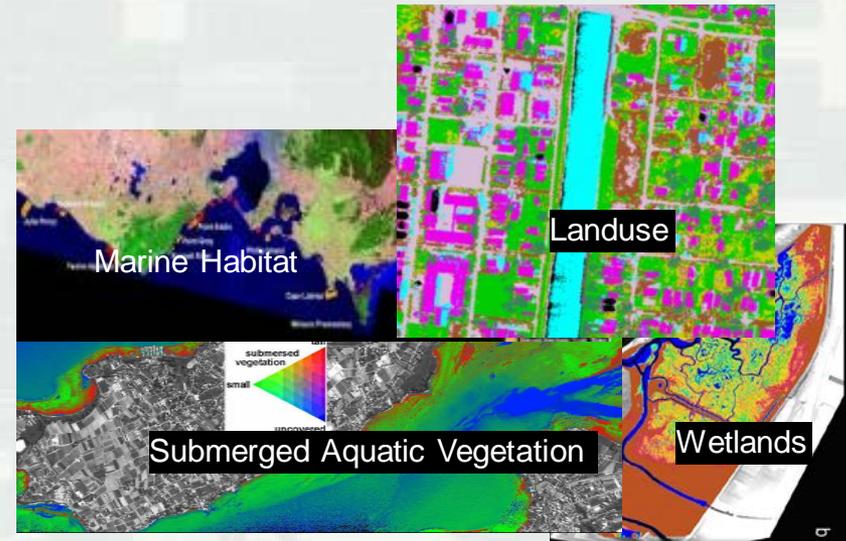


RSM Long-Term *Engineering With Nature*

Bridge Sediment Processes
with
Environmental Processes



Sediment/Engineering



Environmental/Ecosystem



RSM FY11-14 Proposal Criteria

- **Supports RSM and EWN Principles and Practices**
- **Takes action to optimize and move sediment**
- **Reduces lifecycle costs/Increases benefits**
- **Innovative solutions:**
 - Links multiple projects
 - Leverages across business lines, programs, projects
 - Develops new capabilities or techniques.
- **Utilizes existing/enhances Corps tools and builds Corps technical expertise.**
- **National significance & product transferability**
- **Technical Transfer:**
 - Communicate lessons learned / Publish results
 - Demonstrates benefits
 - Participation in Annual RSM IPR and Workshop
- **Completed Products and Milestones**

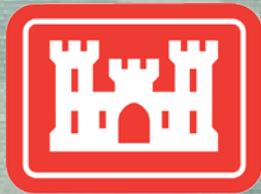
FY14: 38 proposals submitted



Thank you

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