

# RSM Program Update

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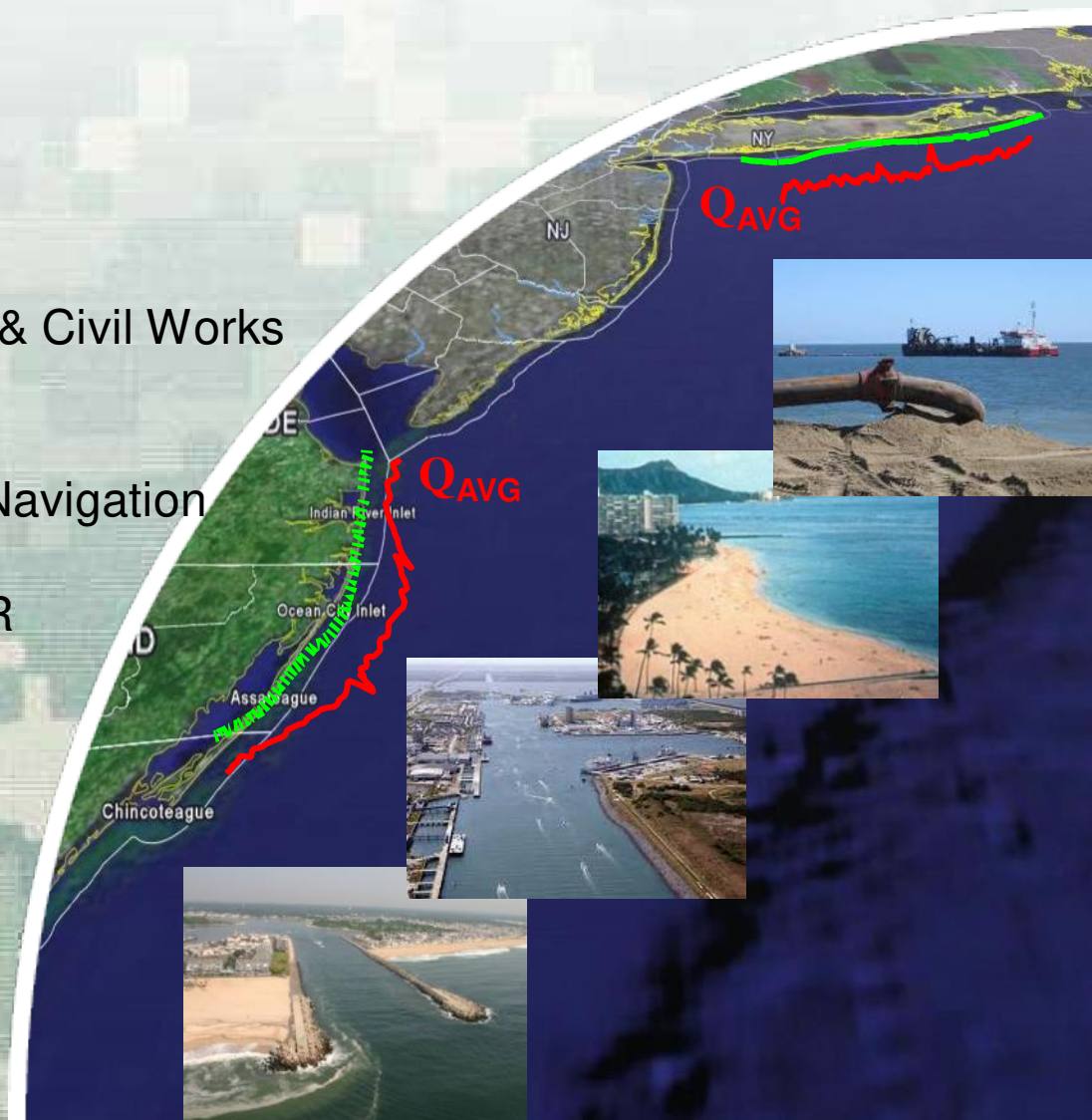
**Eddie Wiggins**  
ERDC Associate Technical Director, Navigation

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



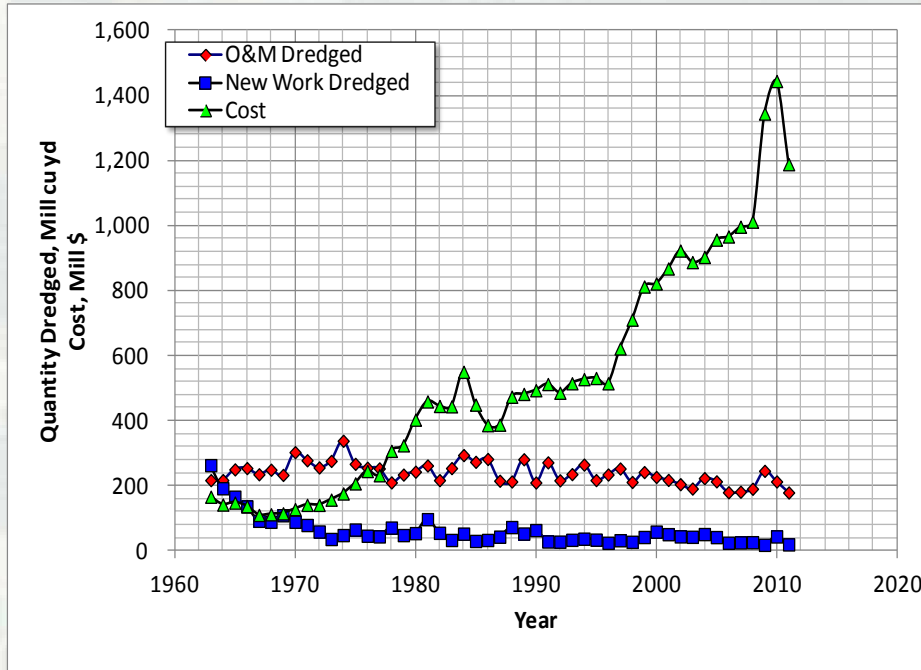
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US Army Corps of Engineers  
**BUILDING STRONG**®

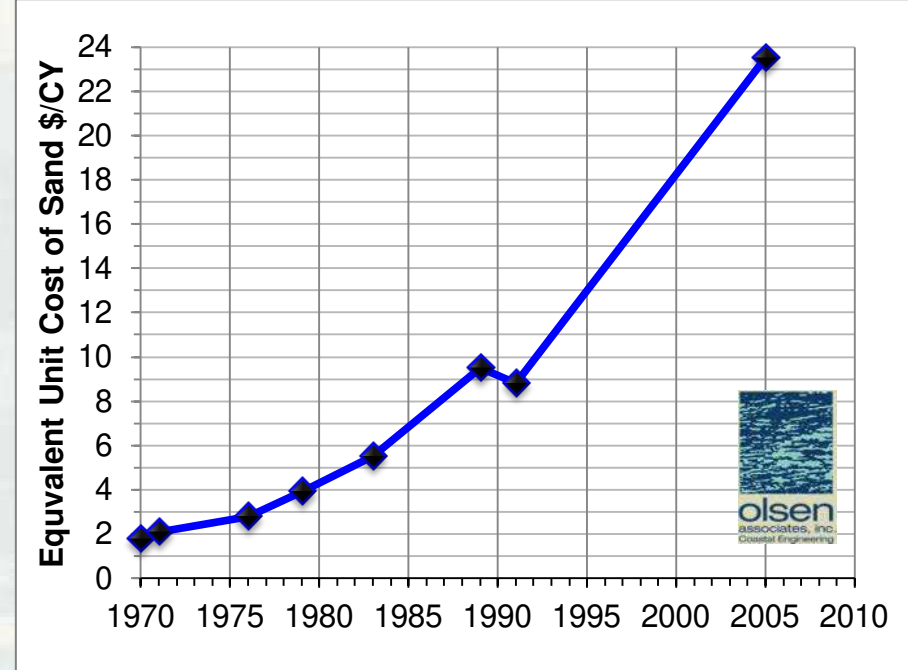


# Increasing Maintenance Costs

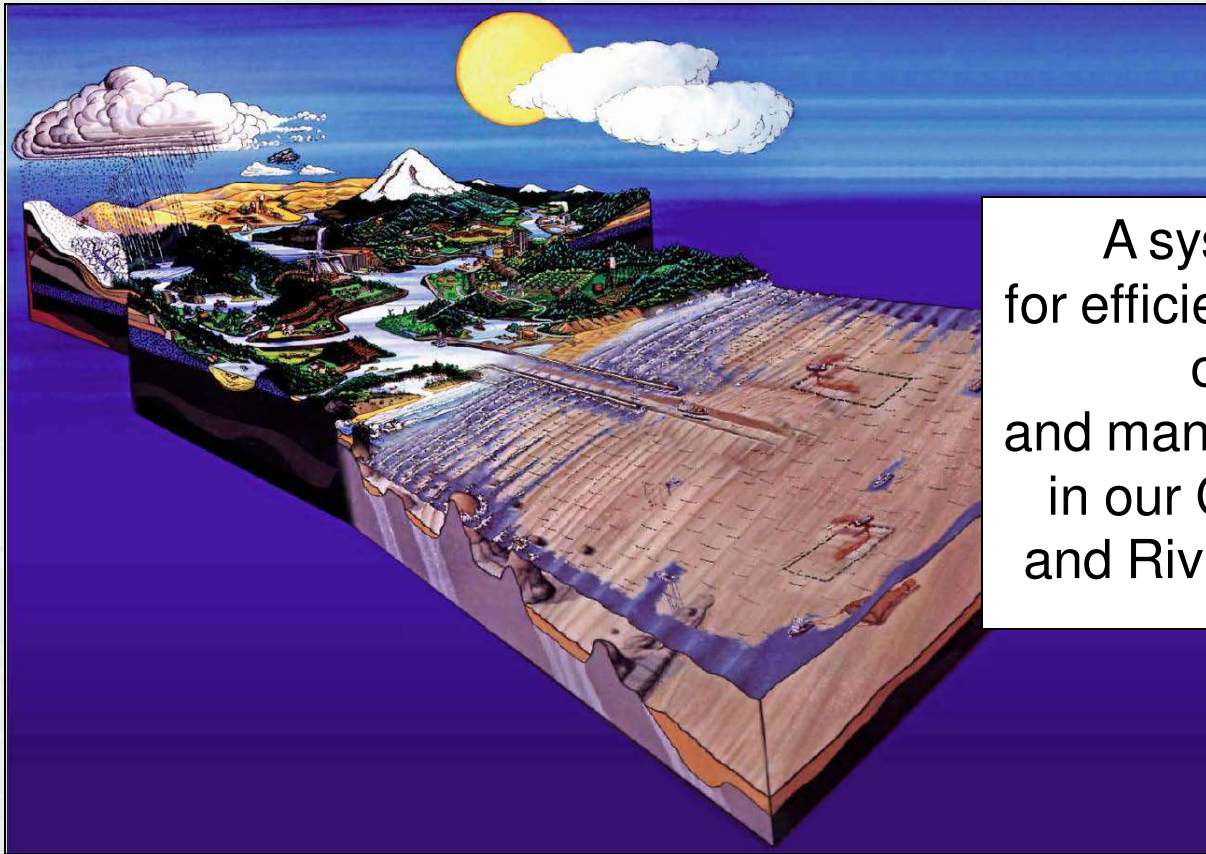
## US Navigation Channels O&M & New Work Volumes and Cost



## 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

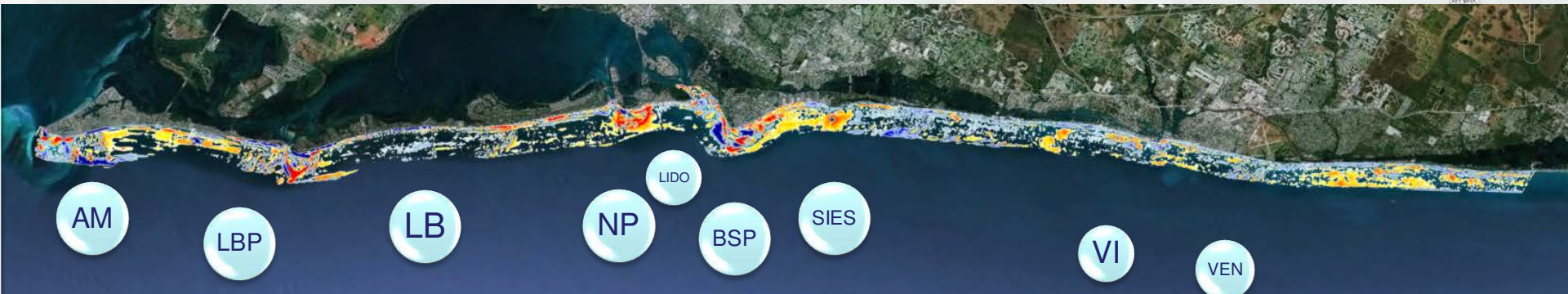


## RSM Operating Principles

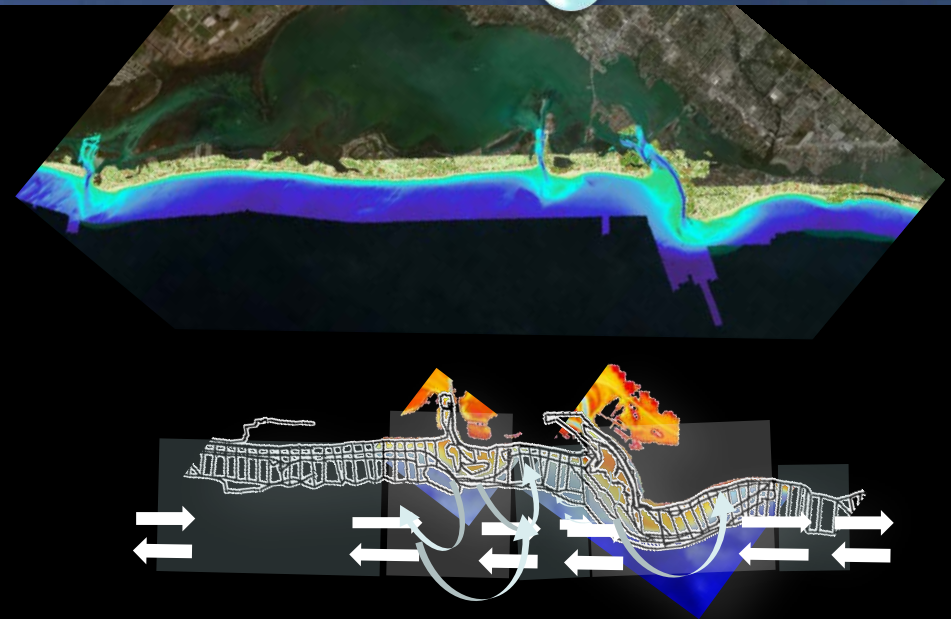
- Recognize sediment as a regional resource
- Balanced, economically viable, environmentally sustainable solutions
- Improve economic performance by linking multiple projects
- Optimize operational efficiencies & natural exchange of sediments
- Consider local & regional impacts (physical, environmental,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



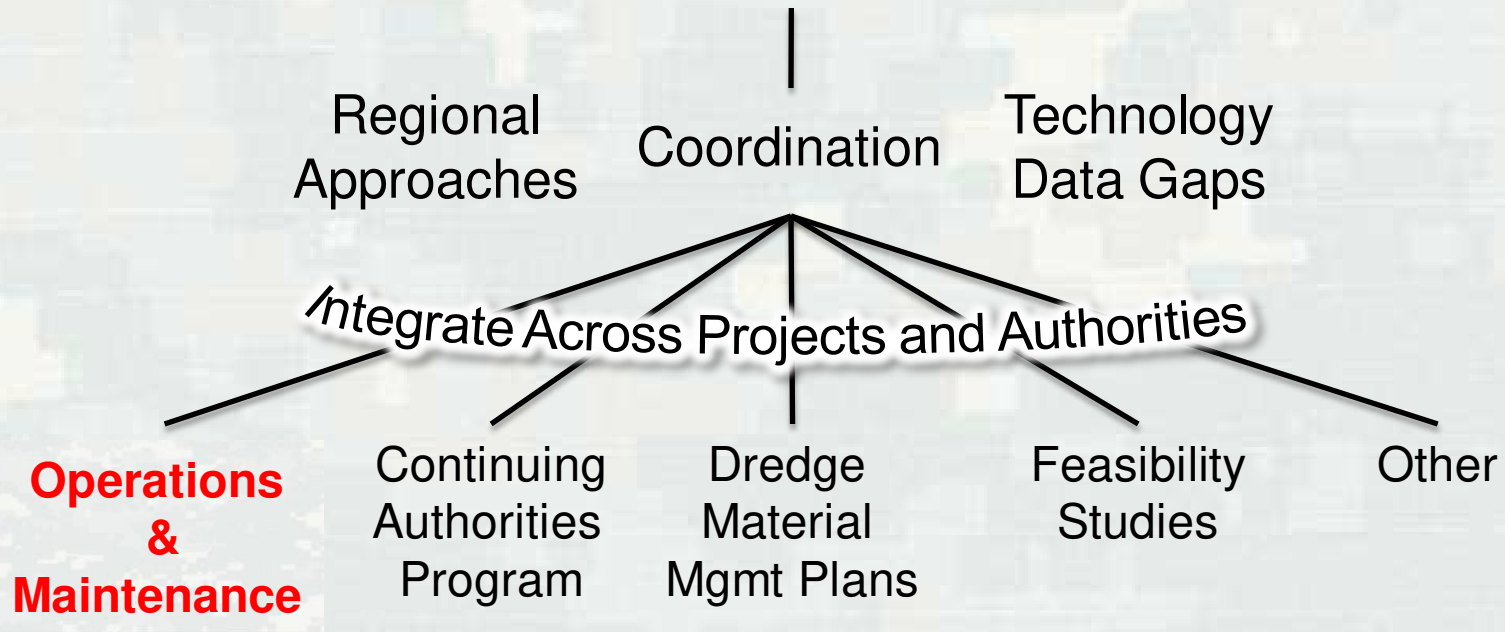
# Regional Approaches



- 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

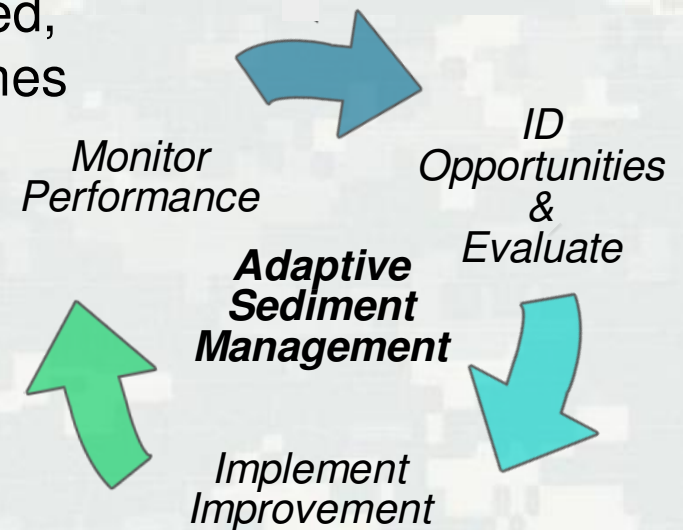
- 3-5 (or greater) year studies
- Expensive \$\$\$\$
- Lack coordination (authorities, cost share, permits, overcome hurdles)
- Do not result in construction -  
*Not moving sediment or no sand on the beach*



## 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

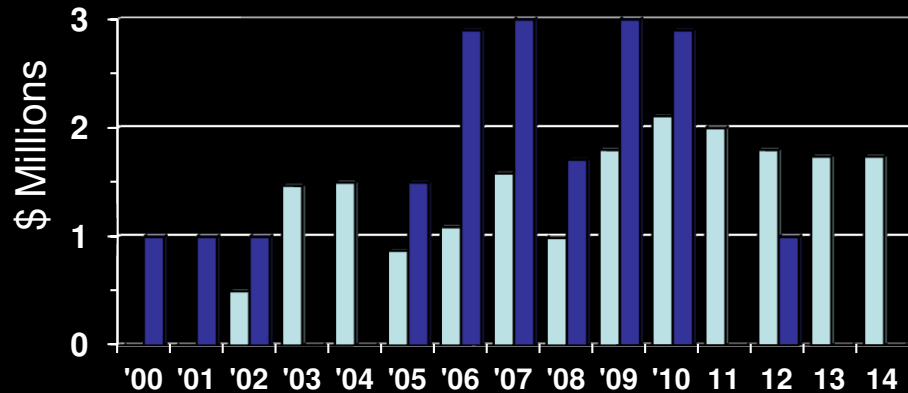




# Historical Budget and District Participation

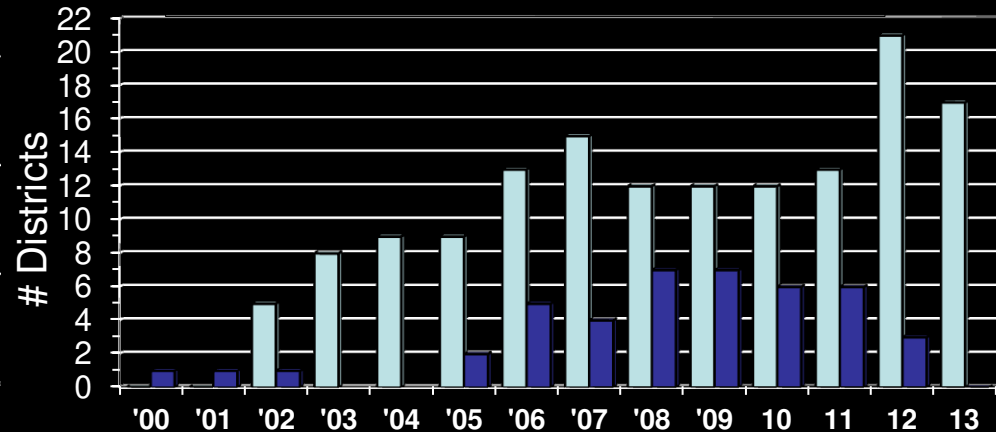
## RSM Budget

■ Base ■ Congressional Adds/Plus Up



## District Participation

■ Base ■ Congressional Adds/Plus Up



# Historical RSM Participation

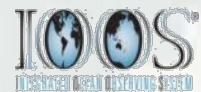


CODS/CFDC

NCDB

MCNP

WOTS



25 Districts, ERDC/IWR-HEC



# RSM FY13 Participation

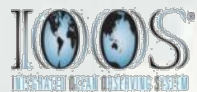


**CODS/CFDC**

**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*



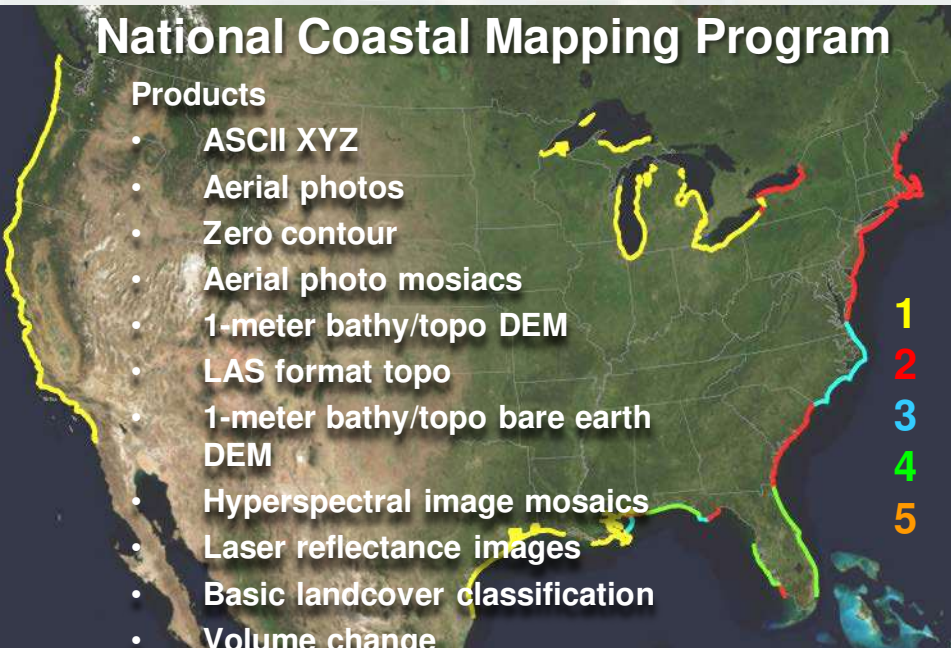
# JALBTCX – National Coastal Mapping Program



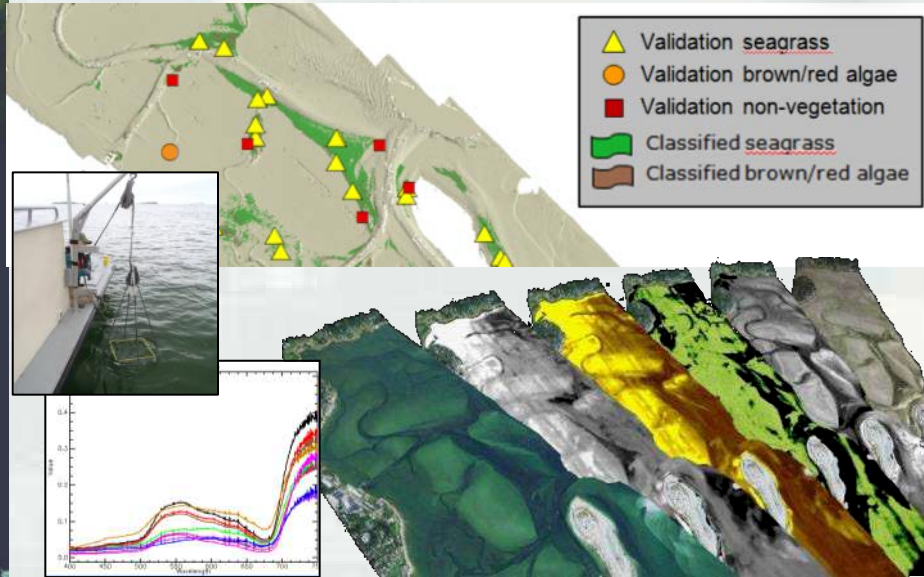
## National Coastal Mapping Program

### Products

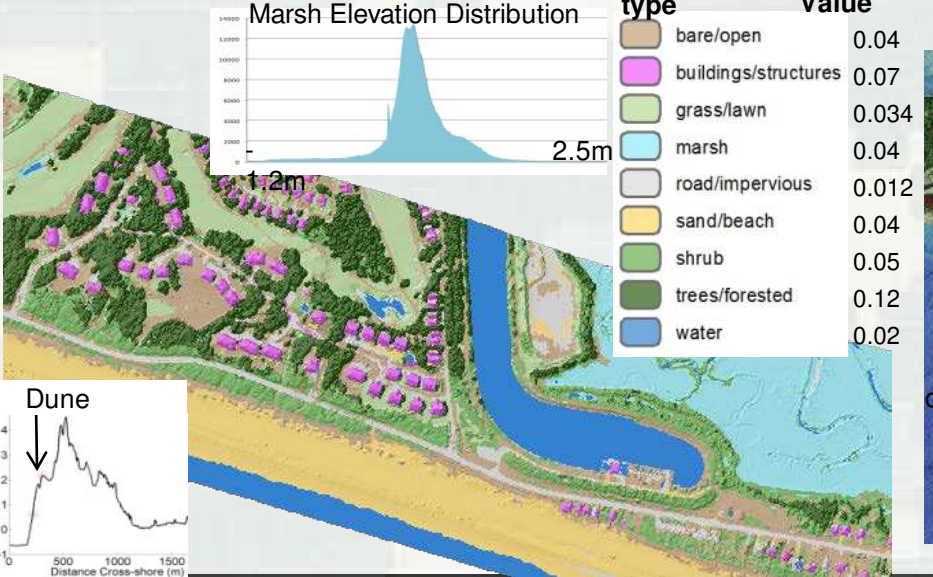
- ASCII XYZ
- Aerial photos
- Zero contour
- Aerial photo mosaics
- 1-meter bathy/topo DEM
- LAS format topo
- 1-meter bathy/topo bare earth DEM
- Hyperspectral image mosaics
- Laser reflectance images
- Basic landcover classification
- Volume change



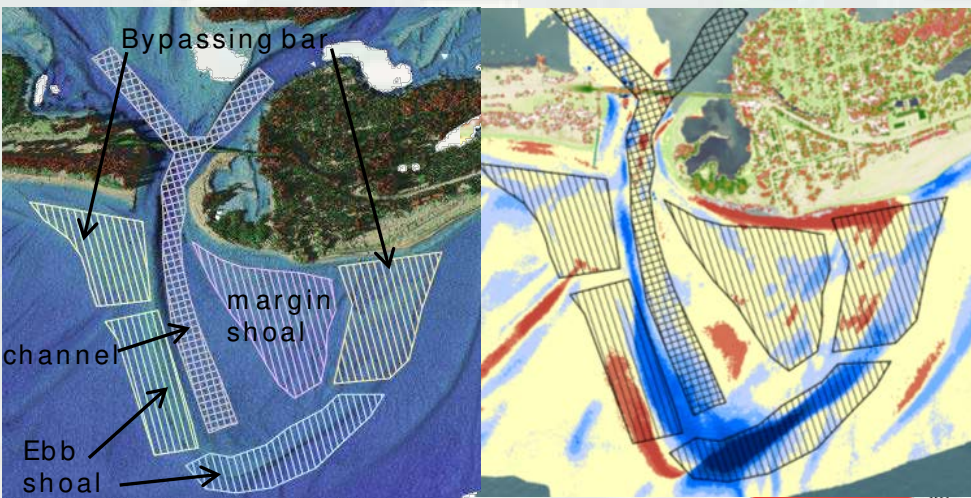
## Submerged Aquatic Vegetation



## Coastal Land Cover



## Sediment Budgets

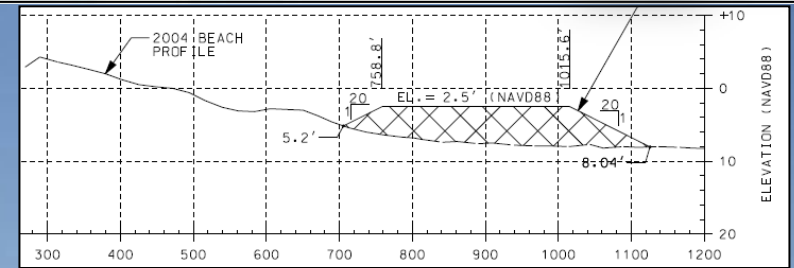


# Advancing Nearshore Berm Research, Guidance, and Tool Developments



## 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

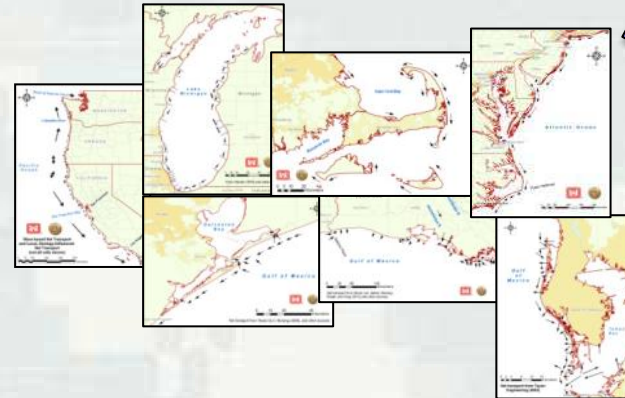
\*Regional Process and Analysis Tool (RPAT)

Sediment Budget Viewer

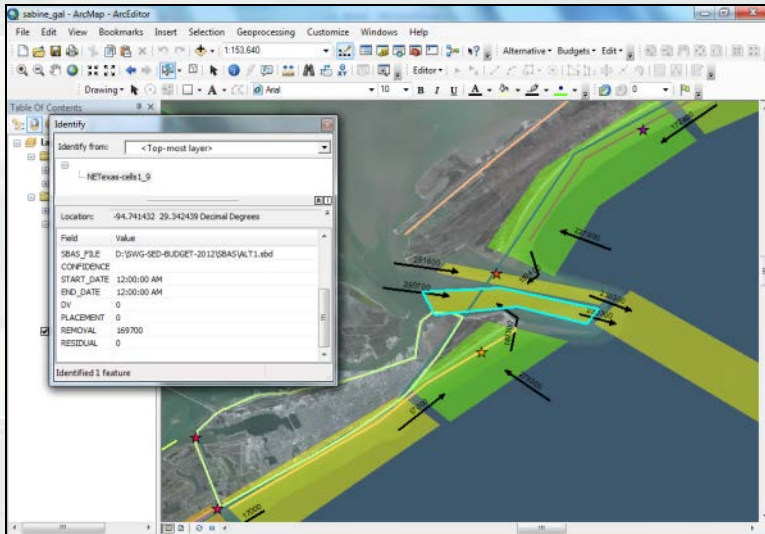
Sediment Budget Repository



SBAS Web-Viewer



Sediment Budget Repository



SBAS Arc10  
NCMP 3D Lidar



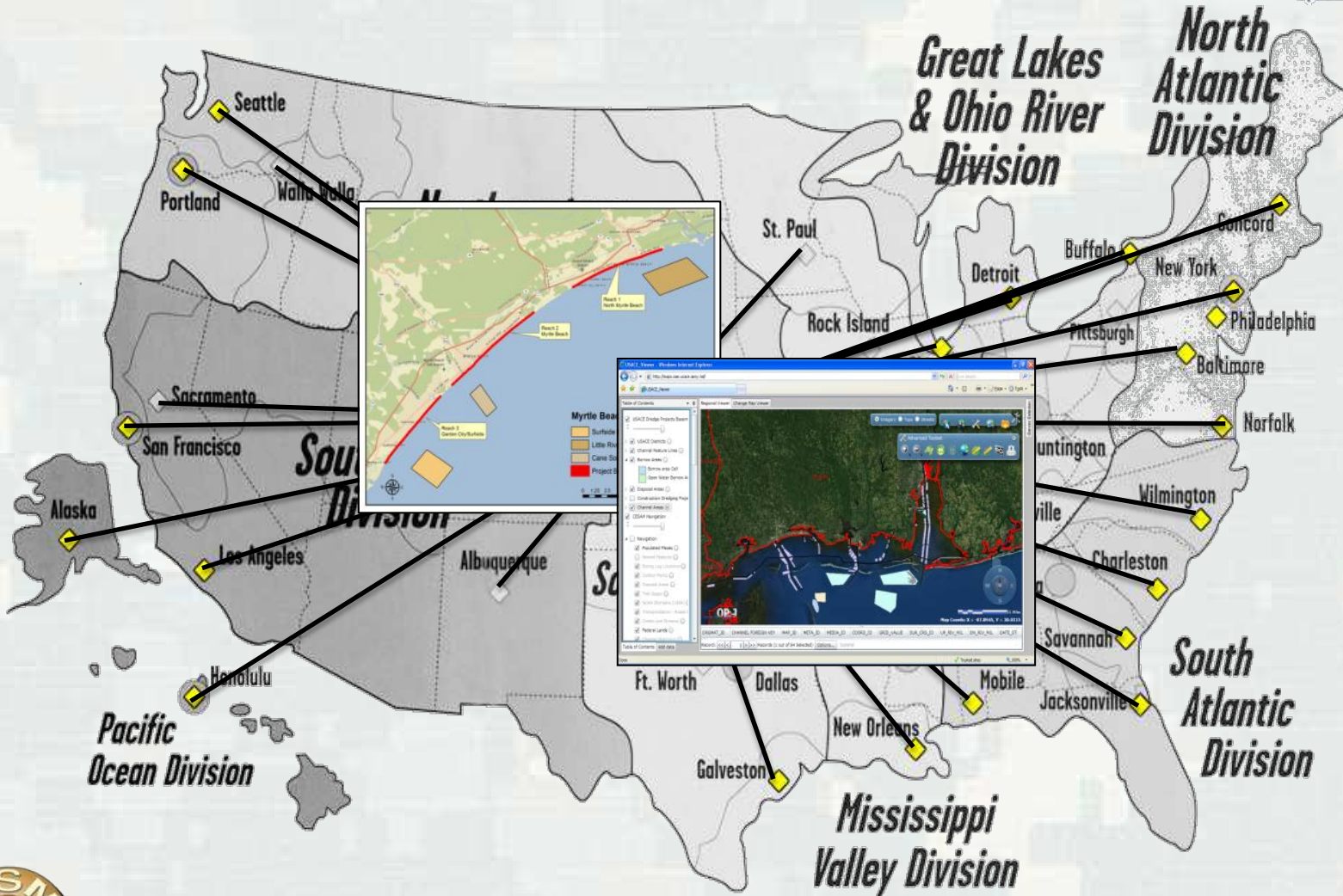
\*SoN 2012-N-15

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



**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?**

- [COE District Survey](#)
- [FY13 Request for Proposals](#)
- [Navigation Research, Development and Technology Strategic Needs and Priorities Document, v1.0](#)
- District Project Templates:
  - [Fact Sheets](#)
  - [Quarterly Reports](#)
- SBAS for ArcGIS 10
  - [Addin \(zip\)](#)
  - [User's Guide \(pdf\)](#)

Full Calendar  
Last update 9/18/2012



## 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

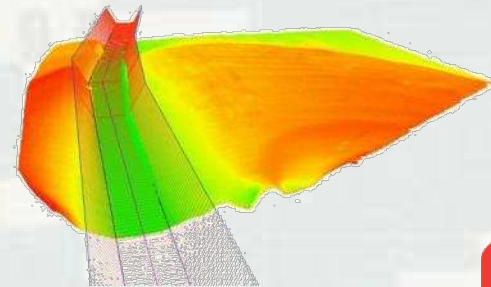
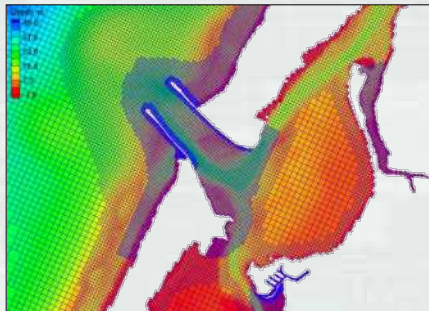
In Publication			
RSM/CIRP	Sedimentation Impacts at the Confluence of the Sangamon and Illinois Rivers	MVR	
RSM	Regional Sediment Management (RSM) Principles in Flood Recovery: Incorporating RSM after the 2011 Missouri River Flood	NWO	
RSM	Proposed Navigation Corridor Morehead City Harbor, NC Application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

# RSM Future Direction



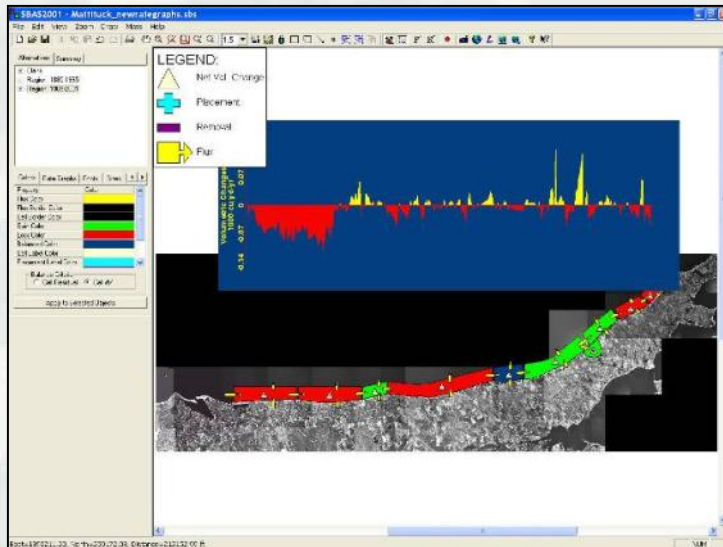
# Short-Term Program Goals

- 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)

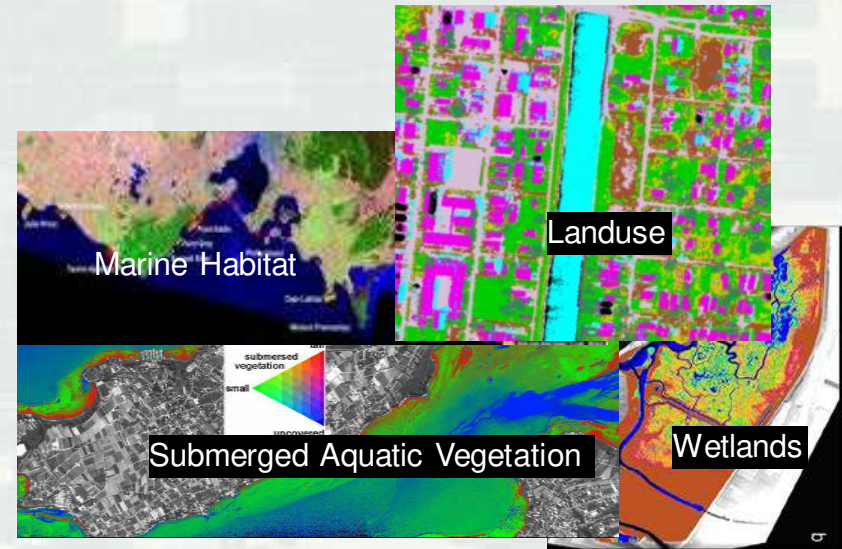


# RSM Long-Term *Engineering With Nature*

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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