RSM Program Update and Future Direction

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Regional Sediment Management
And
Engineering With Nature
Workshop

28-30 August 2012

US Army Corps of Engineers
BUILDING STRONG®

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

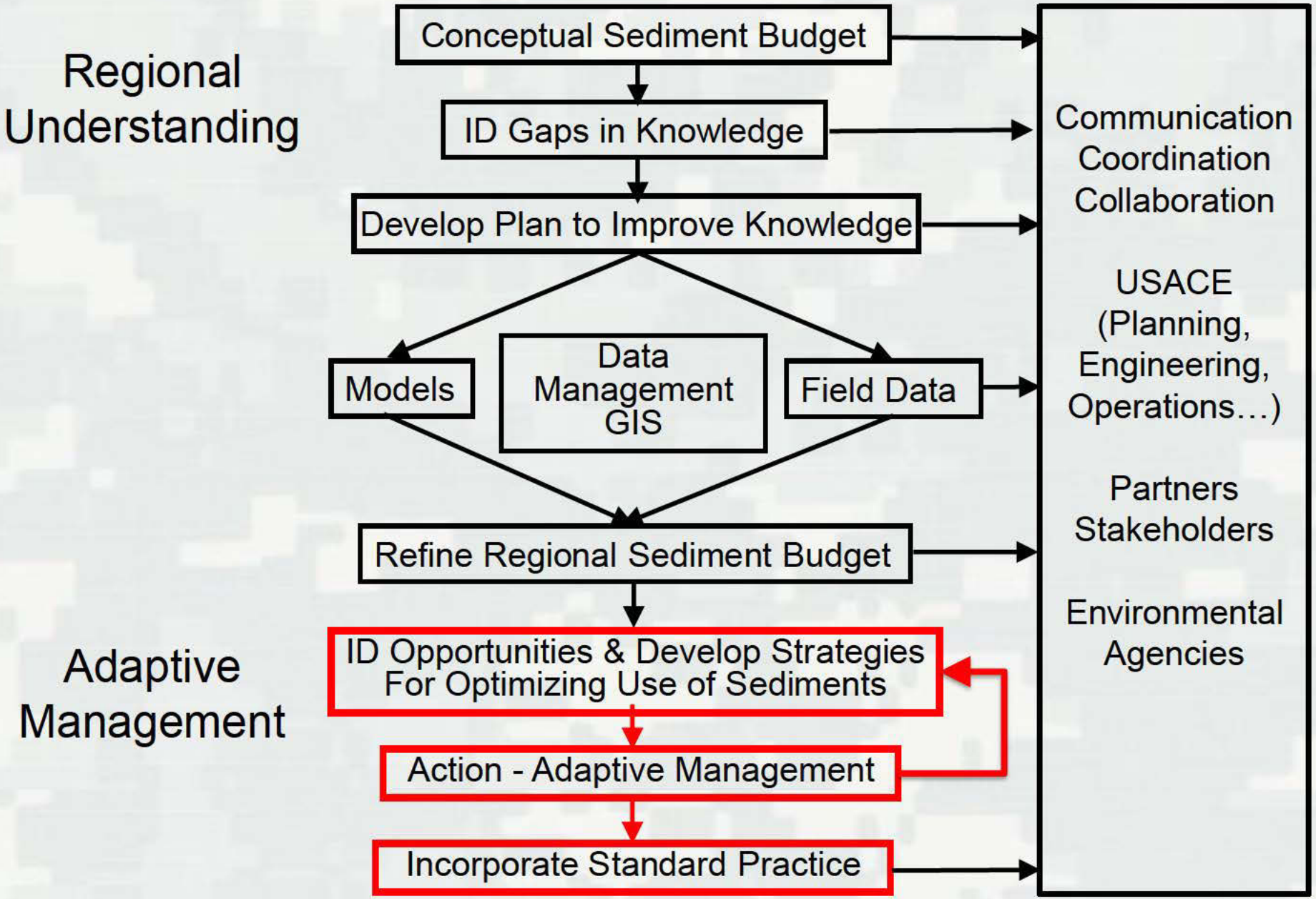
Planning, Engineering, Operations

Stakeholder and Partners

Working Together To:

- Identify Opportunities and Solutions
- Make Decisions
- Overcome Obstacles
- Take Action
- Leverage Resources to Make It Happen

RSM Progression



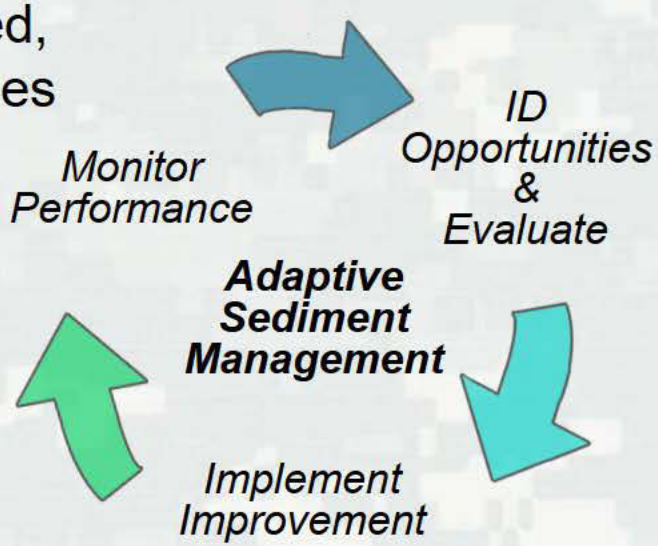
RSM Plans

- 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 Program

Regional Approaches

Coordination

Technology Data Gaps

Integrate Across Projects and Authorities

Operations & Maintenance

Continuing Authorities Program

Dredge Material Mgmt Plans

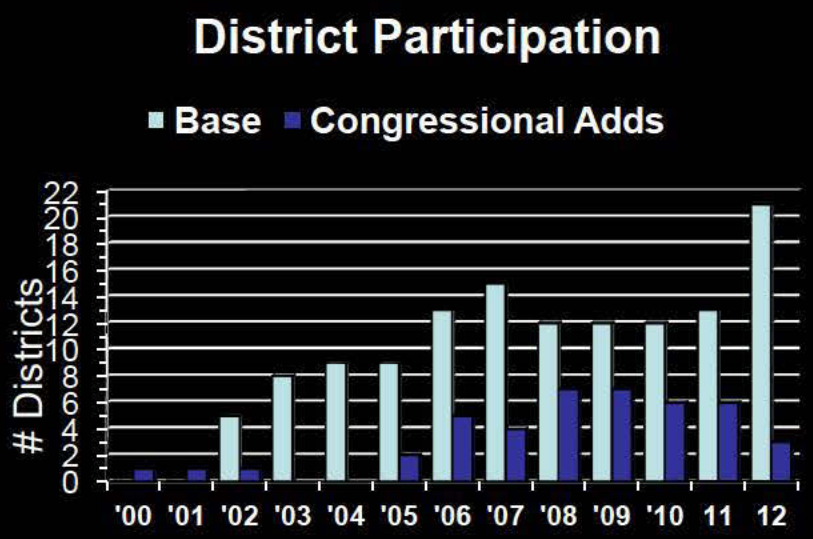
Feasibility Studies

Other

Construction

RSM Progress/Status

Historical RSM Participation



MCNP
CFDC
NCDB

RSM FY12 Participation

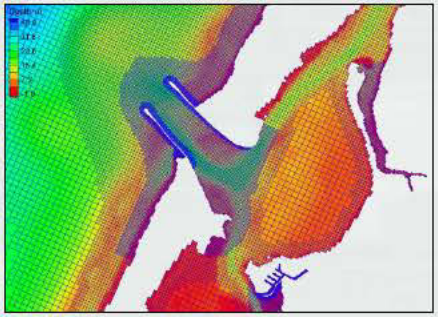
MCNP
CFDC
NCDB

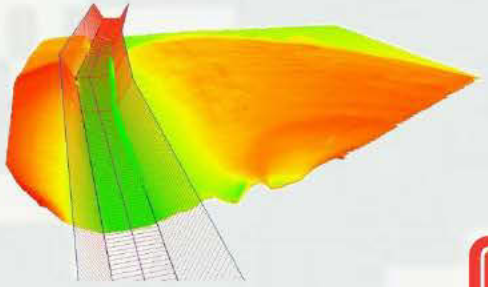
RSM FY12: 21 Districts, 2 MSCs, ERDC, IWR

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

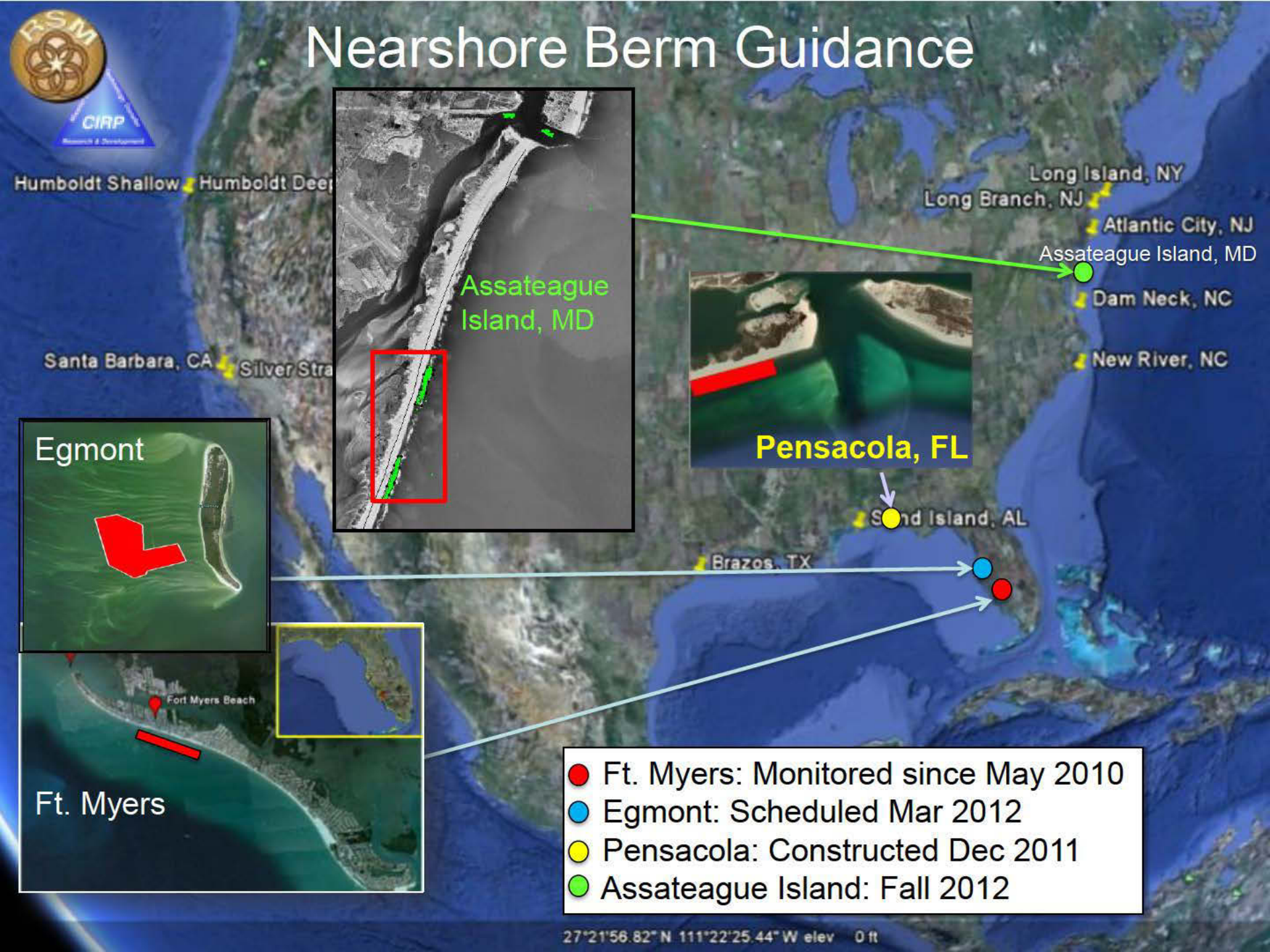
NWK Integrate BSTEM w/HEC-RAS
NAP Link Navigation Projects
SAC Folly Beach Data Mgmt

R&D/Tech Transfer

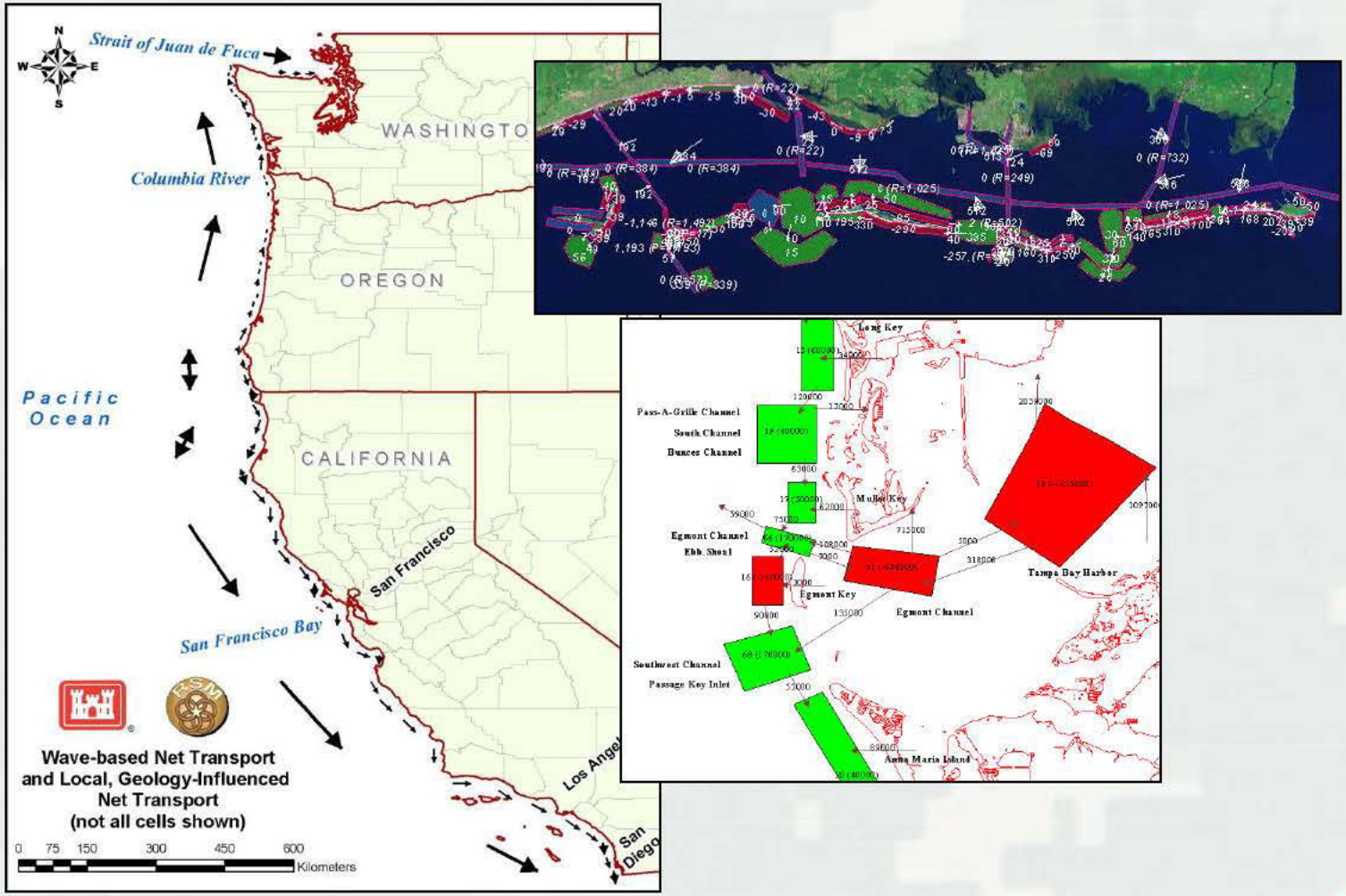
Nearshore Placement Guidance
3D Lidar Data & Tools
Landscape Metrics
CMS Model & Applications
GenCade Model Enhancements
ADH Model Applications
Integrate BSTEM w/HEC-RAS - NWK
RSM Tools & CE-Dredge
Sediment Budget Analysis System
Navigation and Coastal Databank

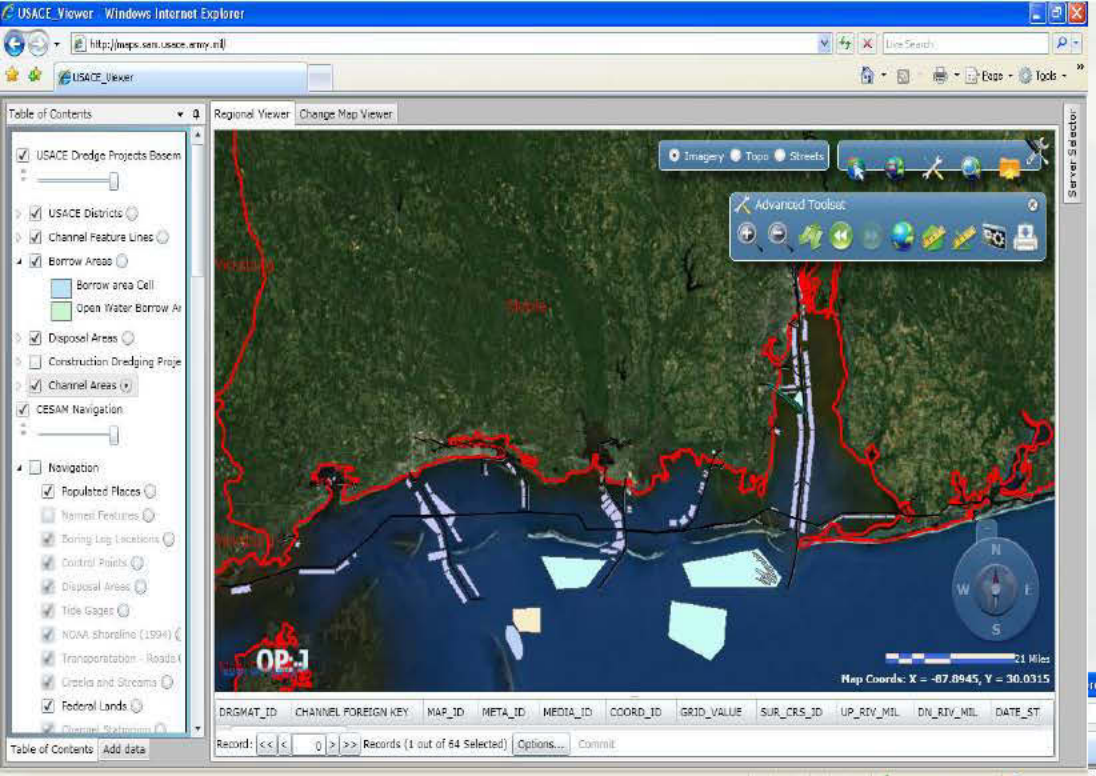
Shallow Draft Dredges

Nearshore Berm Guidance



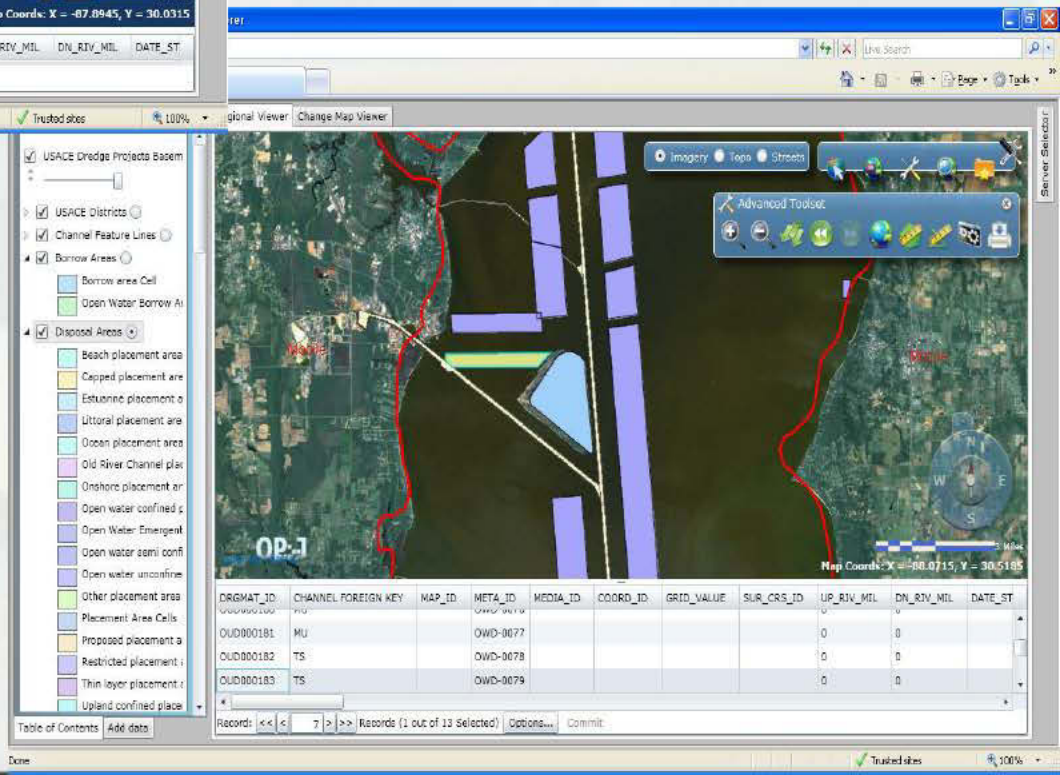
Sediment Budget Analysis System (SBAS Arc10)
Sediment Budget Repository





CE-Dredge and RSM Tools

- Data management, visualization & analysis
- Improve decision making
- Facilitate sharing data & tools

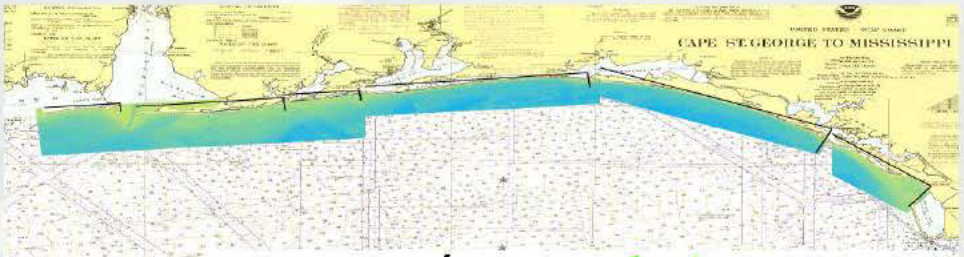


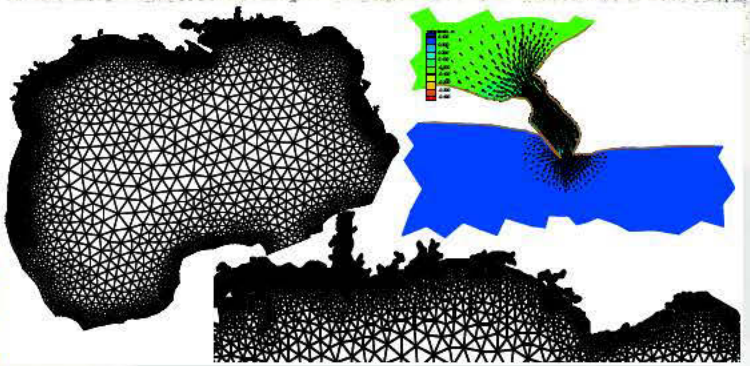
Model Enhancements

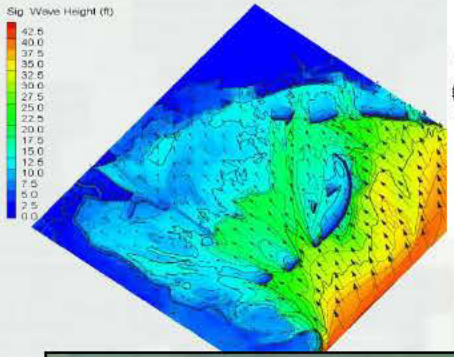
Waves, Circulation, Water levels, Sediment Transport, Shoreline Change

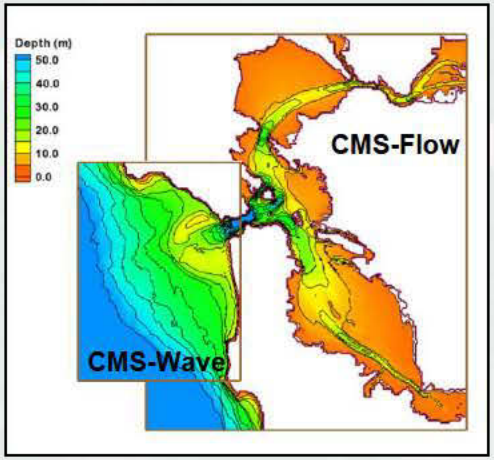
Complex to Adaptive Management

- Regional processes and trends
- Sediment sources & sinks
- Multiple interacting projects
- Connect beaches & inlets
- Navigation channel maintenance
- Evaluate local/regional Strategies





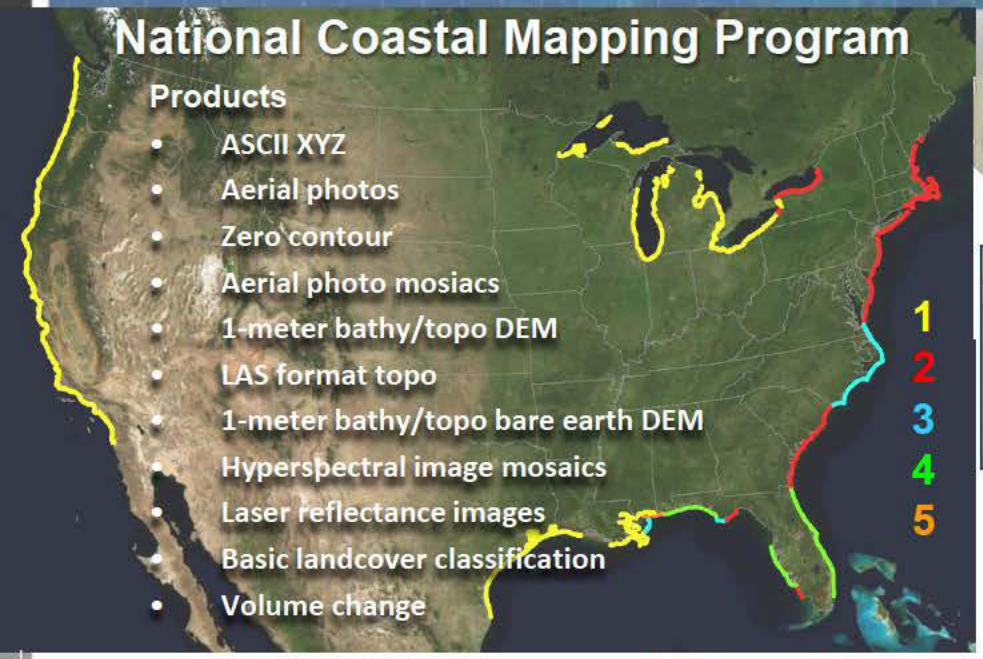




JALBTCX

Joint Airborne Lidar Bathymetry Center of Expertise

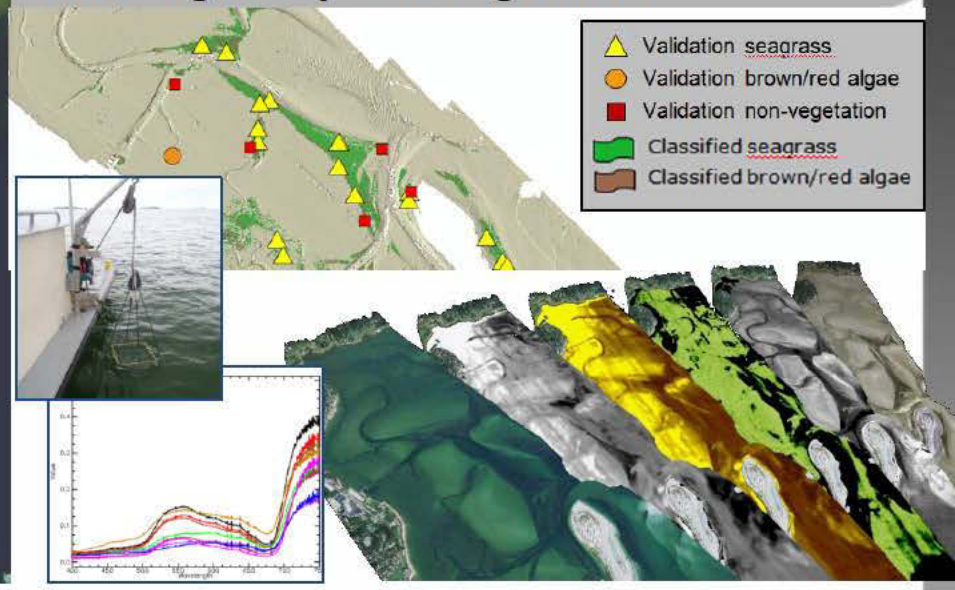
National Coastal Mapping Program



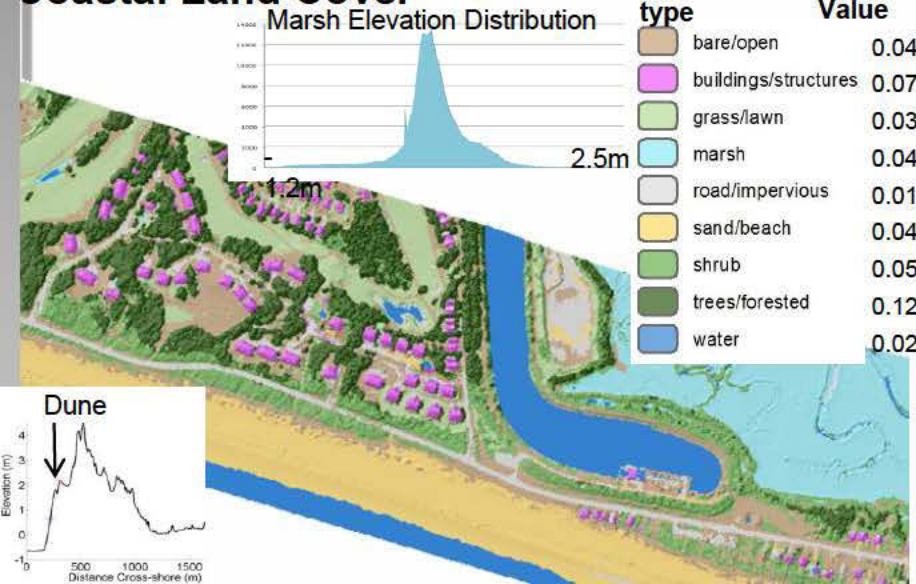
Products

- ASCII XYZ
- Aerial photos
- Zero contour
- Aerial photo mosiacs
- 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

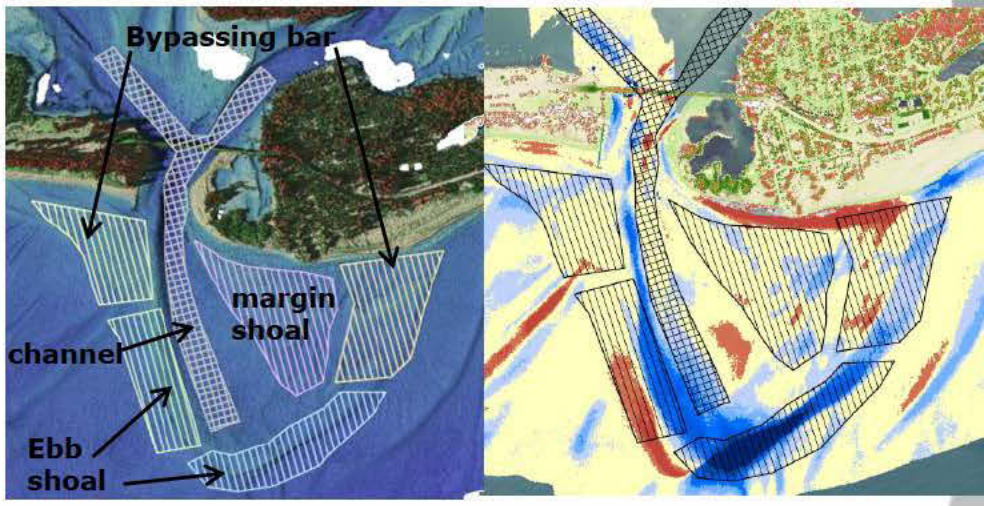


Coastal Land Cover

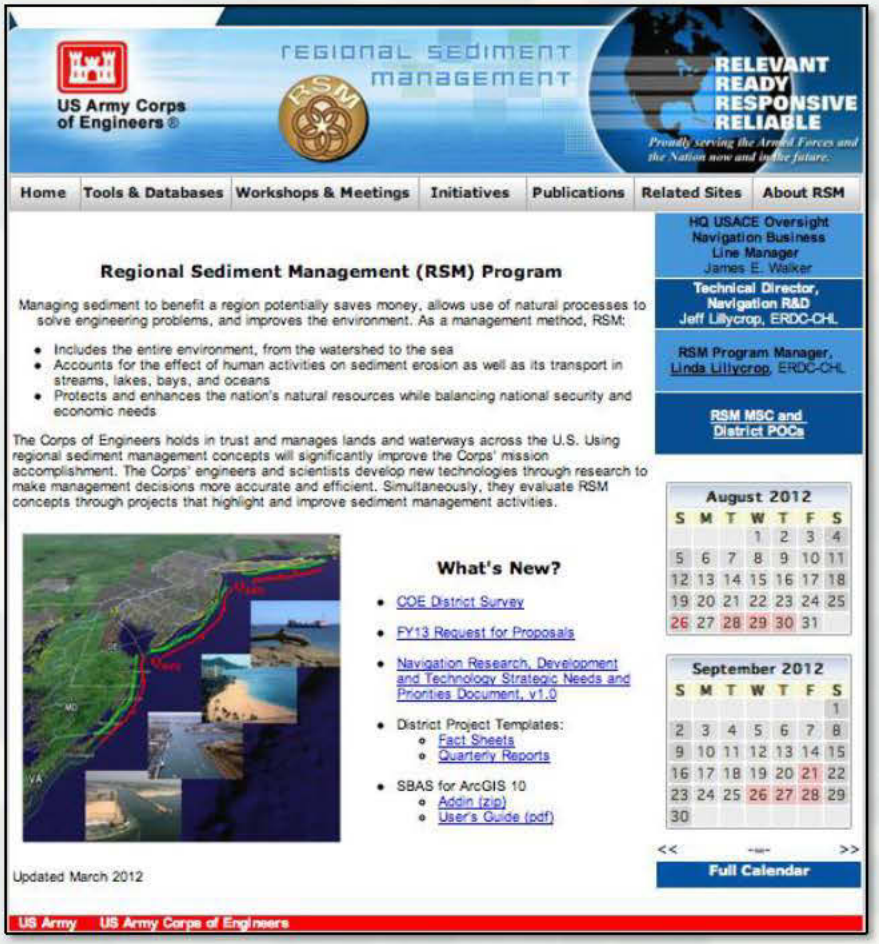


Landcover type	Manning n Value
bare/open	0.04
buildings/structures	0.07
grass/lawn	0.034
marsh	0.04
road/impervious	0.012
sand/beach	0.04
shrub	0.05
trees/forested	0.12
water	0.02

Sediment Budgets



Updated RSM.USACE.ARMY.MIL



RSM Technical Notes, Reports, Manuals, Conference Papers

Bi-Monthly RSM Conference Calls Webinars

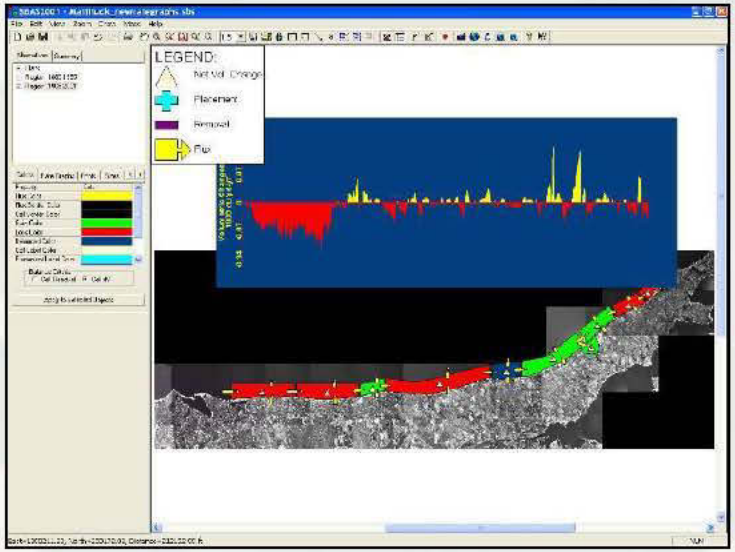
RSM Future Direction Long-Term

Engineering with Nature

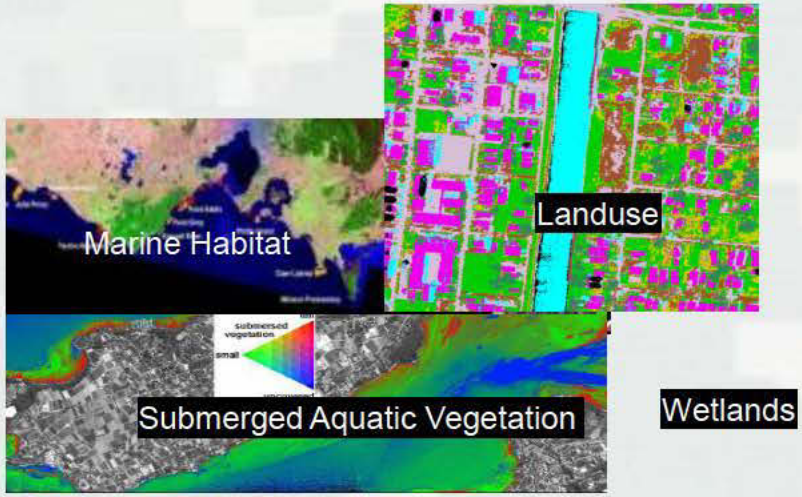
- Working with Nature (PIANC)
- Regional Sediment Management
- Beneficial Uses of Dredged Material

RSM Long-Term Goal

Link with Engineering With Nature



Sediment/Engineering Processes



Environmental Processes

Linking RSM with EWN

MCNP
CFDC
NCDB

Thank you

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