Regional Sediment Management
In-Progress Review
Success & Challenges Meeting
17-19 May 2016 Kitty Hawk, NC
RSM is…
RSM: Sustainability
Resiliency
CWT
IWRM
UNLESS someone like you cares a whole awful lot, nothing is going to get better. It’s not.

—The Lorax

Districts helping Districts
RSM-RCX: What are our goals?

Short term: USACE Districts and vertical chain understands and appreciates value provided by RSM

Mid term: Districts consistently and routinely implementing RSM practices to the maximum extent practicable

Long term: RSM program, while led by USACE extends beyond organizational boundaries as a true National initiative

How do we get there?

• Identify biggest impediments
• Implement a focused deliberate strategy to overcome
  • Seek funding/ dedicated resources to focus and execute
  • Prioritize and execute in iterative spirals
Be stubborn about your goals and flexible about your methods.
Top 4 Challenges to RSM Implementation

1. **Financial**
   - No incentive!, budget penalty vs. priority, no understanding or recognition of value, risk to execution (2101), coordination funds, non-Federal funding coordination

2. **Authority/Policy**
   - Lack of understanding, unclear & inconsistent guidance. Cross, business lines, Fed Standard, CAP, 7a 1, other creative potential, risk/fear, 3X3X3

3. **Environmental**
   - Risk, time, funding, coordination
     - Understand issues and state of the science, what questions need to be answered

4. **Operational**
   - Innovative techniques are required, risk, perceived expense.
     - Understand issues and state of technology. Industry wants to help.
BUILDING STRONG® US ARMY CORPS OF ENGINEERS | Jacksonville District

Recognition/Communication Value

Implement

Clear, consistent guidance, tech assistance

District desire to overcome obstacles

Budgetary recognition

RSM Role

District Role

Communication
“Your WHY has to be BIGGER than their no.”
RSM Optimization: Bottom Line Up Front

- Practical implementation and achievement of IWRM across 3 Business Lines (Navigation, FRM, and Environmental) and 2 appropriations (CG and O&M) in line with stated aims of Civil Works Transformation (CWT).

- Benefits include:
  - Saving millions of appropriated dollars;
  - Maintenance of low-use projects;
  - Local & regional benefit at no cost to the federal government;
  - Tangible sustainability results for projects, people, and processes;

- Proof of concept and a tool to quantify RSM value so that it can be understood, recognized in the budget, tracked & communicated.
SAD Dredge Program – **Baseline** vs. **Optimized**
Assuming $250M annual dredging budget

- Deep Draft NAV
- Lower Tonnage & Shallow Draft NAV
- Federal Beach
SAD Dredge Program – Baseline vs. Optimized
Assuming $250M annual dredging budget*

- Lower Tonnage & Shallow Draft NAV
- Deep Draft NAV
- Federal Beach
What does it mean?: Budget
Efficiencies are there for the taking

+71% more project execution
NAV execution +29%, $63.3M
FRM execution +49%, $14.6M
FRM RSM Beach Lifecycle Value:
+$350M

>$16.6M in regional/local value

Reduce long term DMMA/ODMDS costs

There is much more left on the table
4 deepenings in SAD, 98MCY, $2.3B

It’s time for a dramatic shift in how we budget for projects
The secret to change is to focus all of your energy not on fighting the old but on building the new.

-Socrates
What do we need?

- Willingness & DRIVE to change- Our WHY bigger than their NO
  - Further development of VALUE
- Budgetary and Policy support
  - Budgeting and planning across business lines and approps
    - Planning/economics and 3x3x3 consideration
  - Subject matter experts to help drive change
    4 deepenings in SAD
    98MCY, $2.3 B
    NO RSM planned

HELP US ANSWER THE QUESTION OF WHAT WE NEED TO DO BETTER
Methods

Consult with district experts: Project managers, operations managers, engineering, planning, operations

Define all reasonable dredging/placement options and beneficial uses

- Determine costs: actual contract costs, estimates
- Determine total project costs: USACE labor, Contract Cost (mob/demob, dredge volume x per CY cost)
- Lifecycle benefits of placement where available
- Unquantified value: wetland creation, cost of developing/maintaining upland/offshore placement areas

Calculate total costs and value for RSM strategies
Products: Report

- Fact sheets for all projects:
  - Summary statistics
  - Summary data of projects
  - Dredging information: dredge intervals, volume estimates, placement options
  - Identified RSM projects, opportunities, value

- Division and District Roll-Up Fact Sheets
  - Summary Statistics
  - Identified areas of successes and opportunities
  - Identified policy and process hurdles
Products: Web Application

- Web service that leverages and enhances existing USACE tools.
- Navigation Integration Framework
  - Integrated with CE Dredge
  - Potential to integrate eHydro planning quantities and CSAT (Corps Shoaling Analysis Tool) for out year budgeting projections
  - Updating, expanding National Placement Areas database
- Provides transparency and knowledge management
- Collaboration with USACE Partners
  - SAM Spatial Data Branch, ERDC Coastal Hydraulics Lab, RSM funded R&D
  - Agency and Non-federal partners
SAD RSM Optimization: Results

100+ Dredging Projects in SAD, 35.5MCY/yr
Ave annual cost: $220M(NAV)+$30M(FRM)=$250M

Through RSM efficiency/value SAD is
Creating $96M in total value
increasing Federal project execution by
$79M or 32% total Federal
$65.9M NAV 30%
$13.1M FRM 43%

And providing $17.0M in regional/local value
Regional contracts can increase savings by $25M/yr
### Total Dredge Volume and Value of RSM Implemented SAD NAV-FRM Projects

<table>
<thead>
<tr>
<th>District</th>
<th><em>Total Dredge Volume (CY)</em></th>
<th>% Managed by RSM Strategies</th>
<th>Annual RSM Value ($ M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAD Total</td>
<td>62,421,600</td>
<td>49%</td>
<td>$95.9</td>
</tr>
<tr>
<td>SAC Total</td>
<td>17,726,100</td>
<td>58%</td>
<td>$38.8</td>
</tr>
<tr>
<td>SAJ Total</td>
<td>10,027,000</td>
<td>53%</td>
<td>$27.6</td>
</tr>
<tr>
<td>SAM Total</td>
<td>18,996,500</td>
<td>56%</td>
<td>$18.1</td>
</tr>
<tr>
<td>SAS Total</td>
<td>6,572,000</td>
<td>4%</td>
<td>$0.0</td>
</tr>
<tr>
<td>SAW Total</td>
<td>9,100,000</td>
<td>48%</td>
<td>$10.8</td>
</tr>
</tbody>
</table>

*Total dredge volume calculated as the sum of all material dredged from NAV projects per dredge cycle.*
SAD Projects with $2+ Million in Annual RSM Value

<table>
<thead>
<tr>
<th>Project</th>
<th>Material RSMed</th>
<th>Annual RSM Value ($ M)</th>
<th>Primary Benefactor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charleston Harbor</td>
<td>57%</td>
<td>$37.6</td>
<td>NAV</td>
</tr>
<tr>
<td>Mobile Harbor</td>
<td>51%</td>
<td>$11.9</td>
<td>NAV</td>
</tr>
<tr>
<td>Tampa Harbor</td>
<td>70%</td>
<td>$4.5</td>
<td>Other</td>
</tr>
<tr>
<td>Pinellas Shallow Draft</td>
<td>100%</td>
<td>$4.4</td>
<td>FRM</td>
</tr>
<tr>
<td>St. Aug - St. Johns</td>
<td>100%</td>
<td>$4.2</td>
<td>NAV</td>
</tr>
<tr>
<td>Wilmington Harbor</td>
<td>29%</td>
<td>$3.8</td>
<td>Other</td>
</tr>
<tr>
<td>Morehead City</td>
<td>42%</td>
<td>$2.8</td>
<td>Other</td>
</tr>
<tr>
<td>Fort Myers</td>
<td>100%</td>
<td>$2.5</td>
<td>FRM-NAV</td>
</tr>
<tr>
<td>Pascagoula Harbor</td>
<td>65%</td>
<td>$2.5</td>
<td>NAV</td>
</tr>
<tr>
<td>Kings Bay - Nassau Co</td>
<td>28%</td>
<td>$2.4</td>
<td>NAV</td>
</tr>
<tr>
<td>Baker's Haulover-Miami Harbor</td>
<td>100%</td>
<td>$2.2</td>
<td>FRM</td>
</tr>
</tbody>
</table>
WEB APPLICATION DEMONSTRATION

http://sajgis.saj.usace.army.mil/rsm-dash/

(website to be posted to navigation portal when final)
Scheduling Optimization Concept

- Schedules are uncoordinated
- Potential for inefficient dredge plant itineraries over course of dredging year
- Results in higher dredge mobilization costs

- While accounting for Project-level requirements and environmental work windows, schedule dredging so as to minimize mobilization costs.
Implications of Results

- Fleet scheduling model provides a quantitative way to evaluate the relative cost-effectiveness of various approaches to O&M dredging program execution.

- It also serves as a starting point for exploring the most promising candidate groups of projects for regional contracting.
Next Steps:

- Tool available for FY17 SAD workplan/FY18 budget build in SAD
- Roll out, receive feedback, improve tool as needed
  - Leverage and inform other USACE initiatives
- Expand concept to inland systems, reservoirs and dams
- Provide similar capability to other Divisions/Districts
- Refine values to include long term maintenance costs and value of fine grained sediments (ECO)
- Continue to communicate the value of RSM and assist in implementation throughout USACE and beyond
Thank You!

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