Historic U.S. Coastal Navigation Sediment Placement

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ASBPA’S 90TH ANNIVERSARY | LONG BRANCH, NJ
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Regional Sediment Management

Regional Sediment Budgets
Local Actions = Regional Benefits

RSM Collaboration 2000-2016

Data Management and Access

Guidance, Lessons Learned

Nearshore Placement

Thin-Layer Placement

Fine Sediment Losses

Ecosystem Value
Project Goal and Objective

• **Goal:** To determine the extent to which Regional Sediment Management (RSM) goals have been implemented across the USACE Coastal Districts
  - How much navigation sediment is placed beneficially?

• **Objectives:** Create geodatabase of govn’t datasets
  - Refine government datasets with more detailed information from the Districts (2 databases)
    - Disposal/placement intent
    - Reduce unknown placement types
Available Data and Statistics

- 200-300 Mcy/yr Navigation Dredging by USACE\(^1\)
- 20-30% placed beneficially\(^1\)
- Update with existing USACE Datasets:

\(^1\)EPA & USACE, 2007
Utilize existing data from 3 datasets

Automate data integration
  • Specific rules
  • Standardize project names w/in Districts
  • Repeatable

Geodatabase

Online data review
  • Dynamic link
  • Minimize review times

USACE Civil Works Information System (CWIS) Numbers
Database #1: USACE Datasets (1998-2014)

376 Coastal Navigation Projects

Total Volume 2,678,937,544 cy
3,284 Dredging Events
913 RSM Events

INTENT
Dredged Sediment Management Type
1995-2011

- Overboard and open water: 47%
- Confined: 9%
- Underwater confined: 1%
- Upland: 7%
- Wetland nourishment and creation: 8%
- Undefined or not described: 7%
- Beach nourishment: 5%
- Mixed: 10%
- Beach nourishment & upland: 1%
- Open water & upland: 5%

23% = “unknown”
Database #1: USACE Datasets (1998-2014)

376 Coastal Navigation Projects

Total Volume 2,678,937,544 cy
3,284 Dredging Events
913 RSM Events

INTENT

RSM Volume: 584,101,458
34,358,909 cy/yr

Unknown Volume: 593,324,959
34,901,468 cy/yr
22%
Data Refinement
Reduce Unknown Volumes & Clarify Intent

- QA/QC 3,284 individual projects since 1998
- Excellent DIS data = no unknowns
  - SAC, LRB
- District databases
  - MVN, SPL, SPN, NWP, NAE
- Interviews – discuss specifics, e.g., intent
Example of Data Refinement: New York District

RSM Vol: 14.5 Mcy (855,246 cy/yr)

Unknown: 32.9 Mcy (1.9 Mcy/yr)

RSM Vol: 51.9 Mcy (3 Mcy/yr)

Unknown: 337,000 cy (19,823 cy/yr)
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Total Volume Dredged</td>
<td>63,396,025</td>
<td>3,729,177</td>
<td>60,296,025</td>
<td>3,546,825</td>
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<tr>
<td>Volume Placed Beneficially</td>
<td>14,539,198</td>
<td>855,246</td>
<td>51,895,505</td>
<td>3,052,676</td>
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<tr>
<td>% Placed Beneficially</td>
<td>23%</td>
<td>23%</td>
<td>86%</td>
<td>86%</td>
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<tr>
<td># Dredging Events</td>
<td>120</td>
<td>7.5</td>
<td>119</td>
<td>7.4</td>
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<tr>
<td># Dredging Events Placed Beneficially (&quot;RSM&quot; Events)</td>
<td>42</td>
<td>2.625</td>
<td>94</td>
<td>5.875</td>
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<tr>
<td>% Dredging Events Placed Beneficially</td>
<td>35%</td>
<td>2%</td>
<td>79%</td>
<td>5%</td>
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<tr>
<td>Unknown volume</td>
<td>32,923,022</td>
<td>1,936,648</td>
<td>337,000</td>
<td>19,823</td>
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<td>Volume Placed on Beaches</td>
<td>14,187,915</td>
<td>834,583</td>
<td>15,446,287</td>
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<td>Volume Placed in Wetlands</td>
<td>0</td>
<td>0</td>
<td>975,000</td>
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<td>Volume Placed Beneficially in Littoral Zone</td>
<td>351,283</td>
<td>20,663</td>
<td>1,351,283</td>
<td>79,487</td>
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<td>Volume Placed Beneficially in Open Water</td>
<td>0</td>
<td>0</td>
<td>25,590,030</td>
<td>1,505,295</td>
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<td>Volume Placed Beneficially in Upland</td>
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<td>0</td>
<td>8,532,905</td>
<td>501,935</td>
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<td>Volume Disposed (not placed beneficially)</td>
<td>48,856,827</td>
<td>2,873,931</td>
<td>8,400,520</td>
<td>494,149</td>
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https://gim2.cbi.com/RSM/

<table>
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<tr>
<th>District</th>
<th># DIS Projects</th>
<th># NDC Projects</th>
<th># RSM Projects</th>
<th>Total Vol (cy)</th>
<th>Beach (cy)</th>
<th>Upland (cy)</th>
<th>Wetland (cy)</th>
<th>Open Water (cy)</th>
<th>Littoral (cy)</th>
<th>Upland (cy)</th>
<th>Open Water (cy)</th>
<th>Littoral (cy)</th>
<th>Unknown (cy)</th>
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1 - 15 of 20 results
Summary

• 1st time navigation dredging databases visualized on a National scale

• 2007 Statistics:
  • 200-300 Mcy/yr Navigation Dredging by USACE\(^1\)
  • 20-30% placed beneficially\(^1\)

• This Study:
  • 175 Mcy/yr Coastal Navigation Dredging by USACE
  • 33% placed beneficially (57.6 Mcy/yr)
  • Unknown Disposal reduced from 35 Mcy/yr to 5 Mcy/yr

\(^1\)EPA & USACE, 2007
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Questions?