

FY16 RSM IPR

SAJ-ERDC, Evaluating the True Cost of Dredged Material Management, John Childs-ERDC, Eric Summa-SAJ, Jackie Keiser-SAJ

BLUF: This research will allow the true cost of dredged material management to be considered during dredged material management alternative analysis, so that funds available for maintaining federal navigation are spent responsibly and carefully.

Objectives: Increase amount of Navigational Dredged Material managed consistent with Federal Standard AND Regional Sediment Management (RSM)

Description/Challenge

- Incentive is required (\$\$\$, effort, benefits)
- Reason WHY needs to be bigger than NO;
- Quantify the “true cost” of dredged material management.



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Approach

$$\text{True Cost} = \text{Direct Costs} + \text{Incidental Costs}$$

where,

Direct Costs = Contract Cost of Navigational Dredging + Other Project Costs

Incidental Costs = Life-Cycle Costs associated with Dredged Material Placement Site

Note, Three Phases are considered: Pre-Dredging; During-Dredging, Post-Dredging

Direct Costs

- single-project
- one-time project costs
- = Contract costs + in-house costs
- Add DMMA maintenance?

Incidental Costs

- Life-Cycle of Placement Site (ODMDS or DMMA)
- Siting, Permitting, Monitoring, Expansion,
- Corps and other Federal Agencies,
- Costs/Total Capacity (\$/cy)

Deliverables

Technical Note: Evaluating the True Cost of Dredged Material Management, FY16

Meeting/Workshop: Jacksonville District, Multiple Branches, March 2016

Future Technical Report, Other Jacksonville District Sites, other Districts FY17



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DMMA Incidental costs:

Original Estimate of DMMA expansion = \$19.5E6 for 7E6 cy increase in capacity

Detailed Estimate of DMMA expansion = \$26.9E6 for 9.3E6 cy increase in capacity

Partial Incidental cost for expansion = ~\$2.9/cy

ODMDS Incidental costs:

other Federal Costs = \$330k

In-house Direct Costs:

Construction Branch S&A S&I (Supervision and Admin/Inspection) rates: 7.5% Civil Works O&M Dredging

Engineering and Design: 7.5% - 15% (depending on contract cost)

Scenario	Dredge	Placement	Qty	unit Price	Mob/Demob	Mob/Demob	Contract	Incidental	true-cost
1	Seg 1	ODMDS	426,000	\$8.12	\$902,840	\$2.12	\$10.24	tbd	\$10.24+
2	Seg 2	ODMDS	426,000	\$8.12	\$902,840	\$2.12	\$10.24	tbd	\$10.24+
3	Seg 2	DMMA-1	42,000	\$14.18	\$1,314,090	\$31.29	\$45.47	tbd	\$45.47+
4	Seg 3	ODMDS	450,000	\$19.71	\$900,569	\$2.00	\$21.71	tbd	\$21.71+
5	Seg 3	DMMA-2	335,000	\$10.34	\$2,256,034	\$6.73	\$17.07	\$2.90	\$19.97



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District/Other USACE PDT Members

John L. Childs, Eric P. Summa, Linda S. Lillycrop, Jackie J. Keiser, John W. Bearce, Tony D. Ledford, Samantha J. Borer, Shelly F. Trulock, J. Aaron Lassiter, Jason S. Harrah, Erik Adamiec

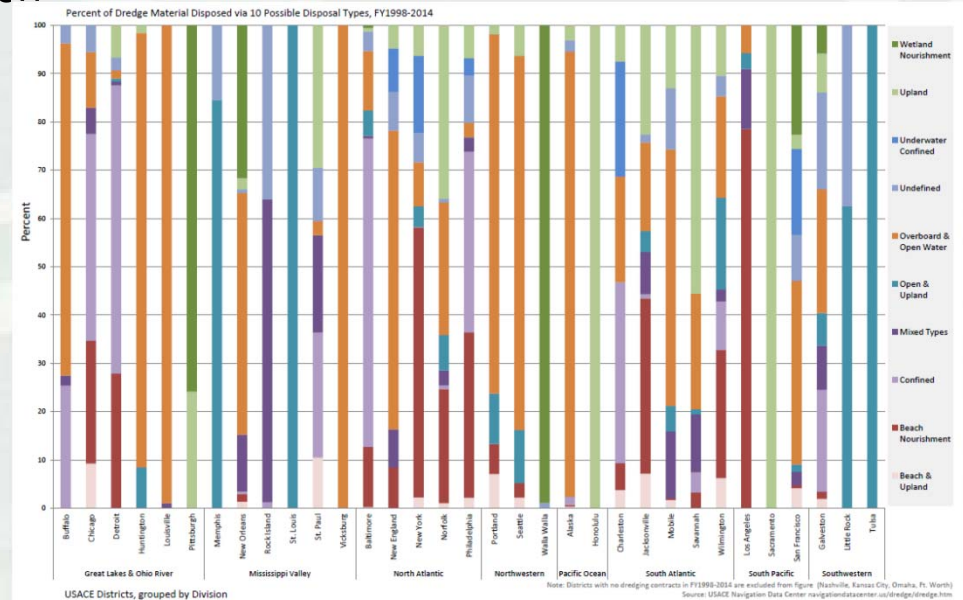
(Multi-Disciplinary: Engineers, Scientists, Cost Estimator, Planners, Economists)

Leveraging/Collaborative Opportunities

- Other Jacksonville District Sites
- Other Districts
- HQ Navigation and Division-level Navigation Managers
- Navigation Data Integration Framework (NDIF)

What is working? Challenges

- Operations' involvement
- Scale, level of detail
- Significant Figures



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Next Steps

- **Baseline – Nicole Elko**
- **Consistent DM Management Terminology TN-DOER-R22, June 2015**
- **Quantification of Benefits**, as described by EM 1110-2-1204, Environmental Engineering for Coastal Shore Protection, 1989 (“qualified in adequate detail so they can be included with the economic and technical analysis to compare and select the plan to maximize NED benefits”)
- **Measure performance metrics to maximize benefits**
- **Regulatory Improvements (CWA 40CFR 227.4-Criteria for evaluating environmental impact)**
- **Research** placement techniques, predictability of benefits

Value to the Nation

Provide method to evaluate dredged material management alternatives considering costs and benefits—**DMMPs/DMMSs**

- beach projects receiving navigation sediment
- Improved partnerships
- Permitting and compliance requirements improved (cost savings from reduction in requirements...e.g.: work windows)
- Capacity of placement site saved and therefore \$ saved on permitting, coordination, surveys, modeling, etc

