

OPTIMIZING THE STORAGE CAPACITY OF A CDF IN SAVANNAH HARBOR , GEORGIA – 7 YEARS OF INTENSIVE MANAGEMENT OF DREDGED SEDIMENTS

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- Project Location and Background
- Concept of Intensive Management
- DMCA Capacity Restoration Program
- Current Results of Intensive Management
- Future Capacity Restoration Activities
- Lessons Learned/Conclusions
- Questions

Project Location and Background

- Located 5 miles East Northeast of Savannah
- Lower Savannah Harbor
- Most seaward port facility
- Continual shoaling from fine-sediment loading in the Savannah River
- Dredging to facilitate tanker ship loading & off-loading operations





- 44-ac ship slip needs regular dredging for Post-Panamax LNG tanker ships
- Disposal in 2 adjacent DMCA's (approx. 250 ac in footprint)
- Facility modification:
 - On-site liquefaction for LNG export
 - Reduced DMCA 2 footprint
 - Accelerated schedule for tanker ships
 - Dedicated Dredge Contract
- Facility Life directly related to life of DMCA's

Removal of Decanted Water



Use of Specialty Equipment to Remove Desiccated and Consolidated Dredged Materials



Hauling Desiccated and Consolidated Dredged Materials to Stockpile Areas for Drying and Processing



- Concept presented at WODCON XXI in 2016
- Aggressive weir board management to remove decanted water after each dredging event
- Use of specialty equipment to promote drainage
- Excavation/harvesting of desiccated and relatively dried DM for use as fill or to stockpile areas
- **Enhancements to program focus of this presentation**



- Restore disposal capacity to facilitate ship slip dredging
- 1.6 MCY capacity restored in DMCA 2 from August 2011 to May 2015
- Additional disposal capacity gained thru Nov 2016
- May 2015 to Nov 2016 – DMCA 2 divided into two with a center berm



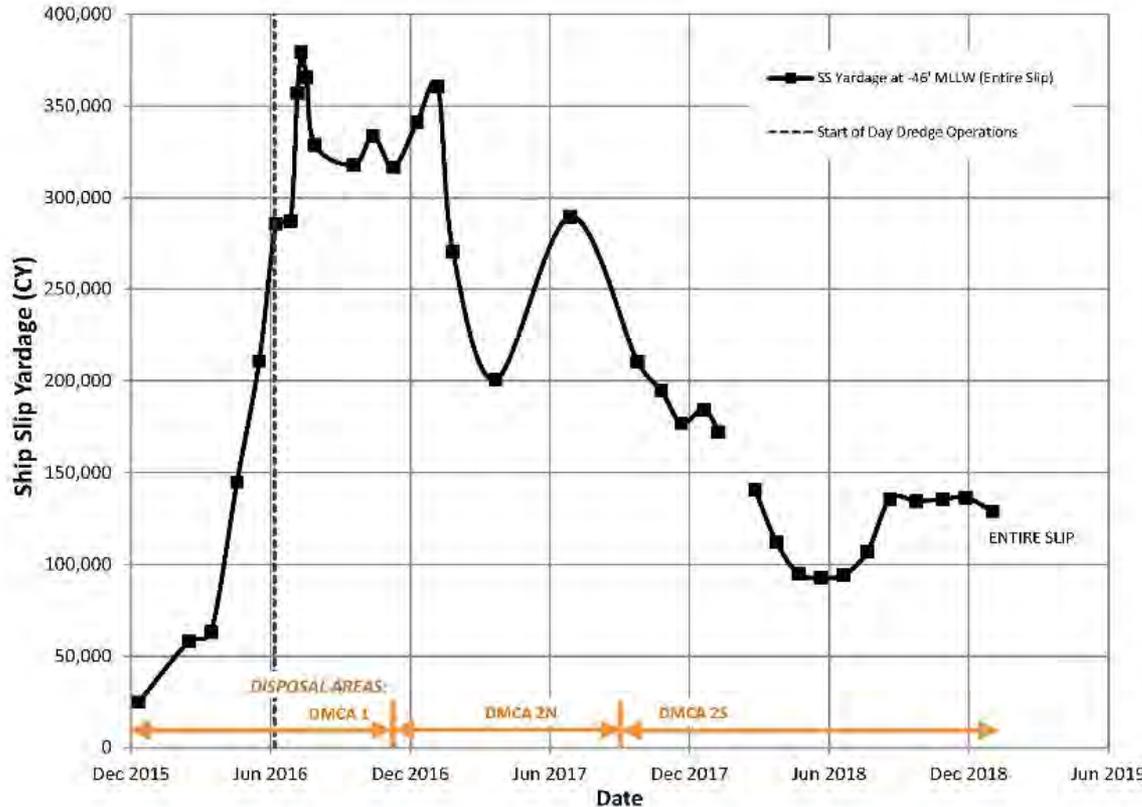
- Harvesting of DM using amphibious long-reach excavator



- Pan scrapers used for removal of harvested DM



- Prior to 2016 dredging was performed by a 30-in. hydraulic cutterhead dredge
- 196,000 to 290,000 CY of material typically dredged over a 2-week period
- Dredging contract difficulties when needed
- 2016 – contract for a dedicated 20-in. day dredge
- 8-hr, 5-days/week dredging schedule
- Continual inundation of DMCA



- DMCA 2N used for 6 months
- DMCA 2S used since Sep 2017
 - More volume gained due to equipment access
- Ship slip volume based on bathymetric surveys
 - Steady-state conditions since March 2018
 - Effectiveness of day dredge program under evaluation

Intensive Management in DMCAs 1 & 2



Intensive Management in DMCAs 1 & 2



- Estimated volume of harvested material used in dike raising and center berm construction

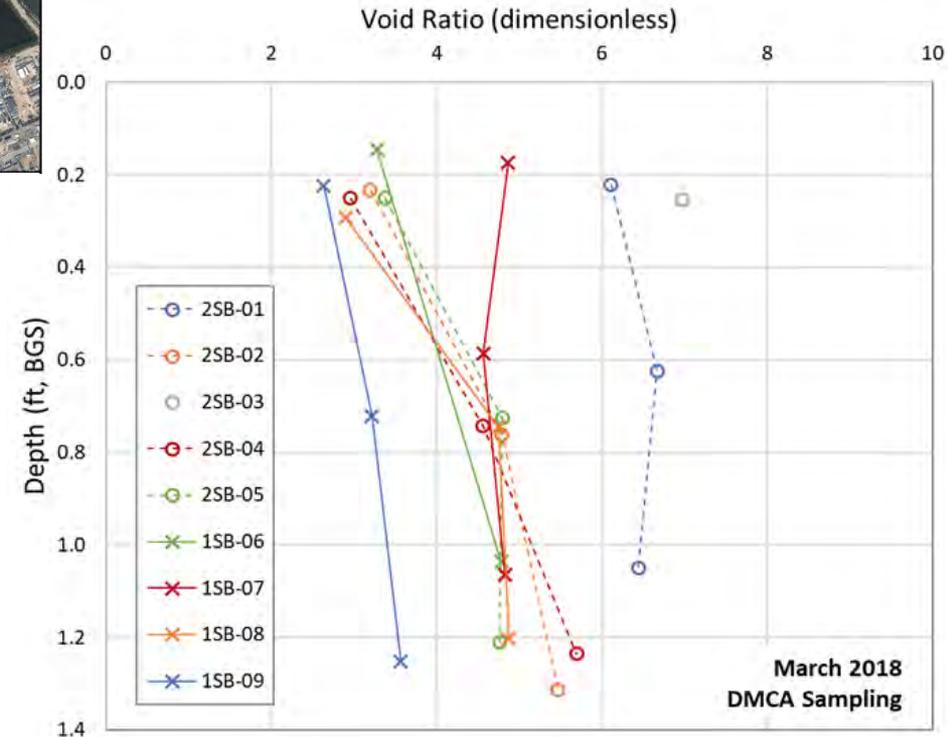
Location	Volume (CY)
A	6,500
B	21,000
C	5,000
Center Berm	65,000

Note: 1 CY = 0.765 m³



- Desiccation of DMCA 2N
- Sampling locations in DMCA 1 and DMCA 2N

- Initial void ratio decreased from 10 to 4
- 55% decrease in storage capacity (or volume gained)



- Increase in available disposal capacity of DMCA's since implementation of IM program in 2011
- Efficient use of specialty equipment and DM harvesting extend anticipated life of the DMCA's
- Improved drainage and access to DM with construction of center berm in DMCA 2
- Similar center berm construction in DMCA 1 underway
- Routine monitoring of the capacity restoration program through regular mudline surveys
- Beneficial use of DM for off-site applications being explored

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QUESTIONS

