

Great Lakes Dredging Team  
2017 Fall Webinar Meeting

The Future of Dredged Material  
Management in the Great Lakes  
and the Partnerships it Requires

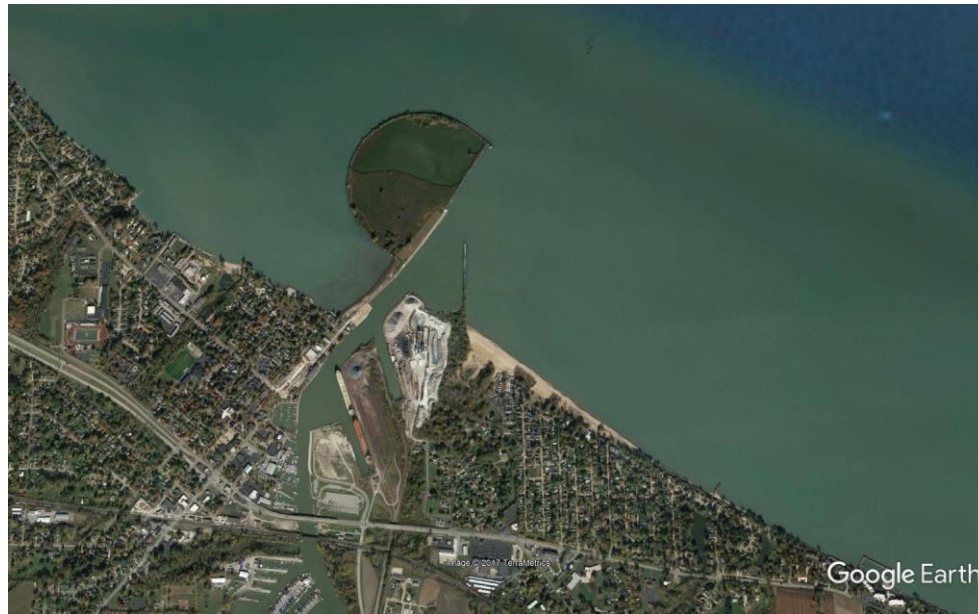
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Thursday, December 7, 2017



# Historical Dredged Material Management

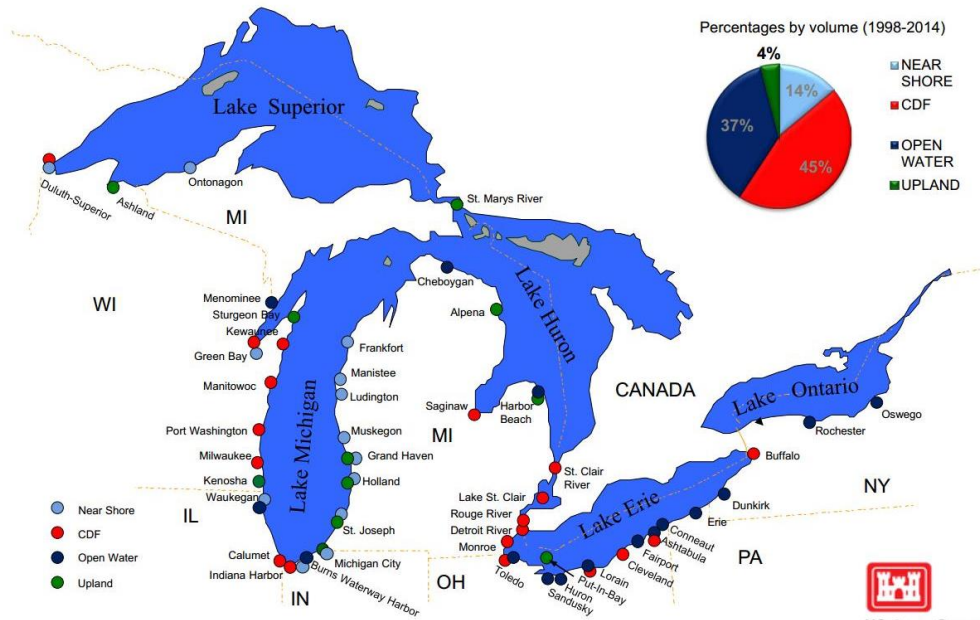
- U.S. ACE constructed and/or operated 45 CDFs to manage over 90 million cubic yards of dredged material from Great Lakes harbors and channels
  - Section 123 of the Rivers and Harbors Act of 1970 (Public Law 91-611), as well as project-specific authorities
  - Federal cost of \$300 million (unadjusted for inflation) and significant local cost-share



# Material Management Evolution

- Channel maintenance and CDF placement helped address impacted sediment management
- Most CDFs are at or near capacity
- Most materials now meet current federal standards for open-water placement (“least-costly, environmentally acceptable”)

Current Dredged Material Placement Methods





# CDF and Navigation System Conditions



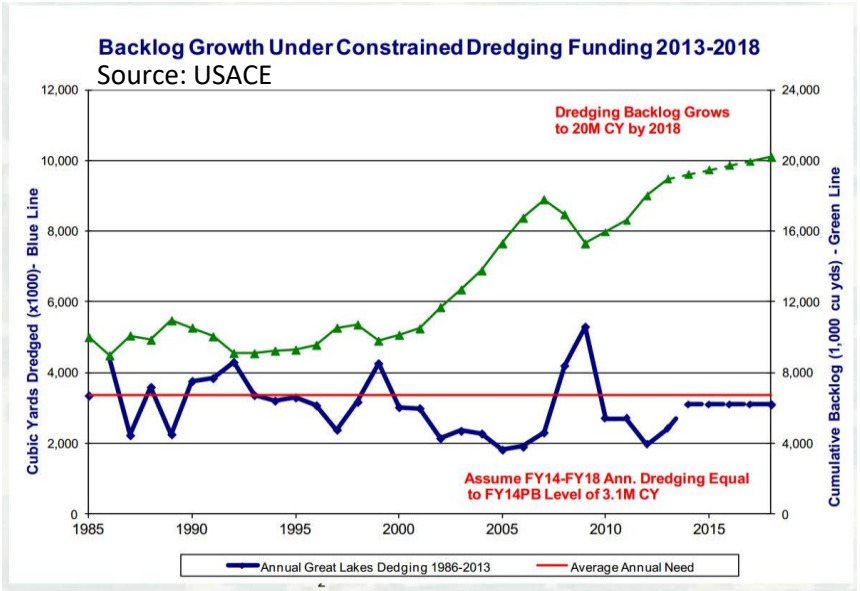
Figure 4. Condition of Federal Projects on the Great Lakes

Source: Great Lakes Navigation System: Economic Strength to the Nation, U.S. ACE, 2013

# Harbor Maintenance Trust Fund (HMTF)

- Collects approximately \$1.7 billion annually; 10% directed to Great Lakes
  - Fee collected from users of the maritime transportation system
- Fund U.S. ACE O&M activities
  - Harbor/channel dredging, maintenance of breakwaters, and operation of the Soo Locks
- Congress has restricted spending
- 2014 WRRDA called for full use of harbor maintenance tax revenue and established incrementally larger spending targets between FY2015-25 (67%-100%)
  - For the first three years of this plan, Congress met WRRDA targets
  - AGLPA POSITION: Congress should follow the spirit of the WRRDA legislation and provide at least \$1.33 billion in the FY2018 Energy and Water Development Appropriations Bill to fund U.S. ACE operation and maintenance activities
    - Appropriation recommendations meet target

# Maintenance Backlog and Budget Needs



Great Lakes Navigation System – Anticipated Needs for Commercial Harbors									
<i>Values are represented in millions of dollars</i>									
FY	Annual Maint. Dredging	Backlog Removal Dredging	DREDGING TOTAL	CDFs & DMMPs	Breakwater Prev. Maint. & Rehab.	Lock Asset Renewal	Strike Removal	Other Navigation O&M Costs <sup>1</sup>	Total System O&M Need
FY14	\$42.8	\$25.0	<b>\$67.8</b>	\$22.9	\$54.0	\$29.6	\$6.5	\$33.1	<b>\$213.9</b>
FY15	\$43.6	\$25.5	<b>\$69.1</b>	\$9.6	\$58.4	\$23.7	\$6.7	\$33.2	<b>\$200.7</b>
FY16	\$44.5	\$26.0	<b>\$70.5</b>	\$37.9	\$47.6	\$29.5	\$6.9	\$32.7	<b>\$225.1</b>
FY17	\$45.4	\$26.5	<b>\$71.9</b>	\$37.1	\$66.7	\$16.7	\$7.1	\$33.0	<b>\$232.5</b>
FY18	\$46.3	\$27.0	<b>\$73.3</b>	\$35.9	\$34.4	\$17.2	\$7.4	\$34.0	<b>\$202.2</b>

*1. Other Navigation costs include routine operation and maintenance of locks, project condition surveys, environmental activities, and other support staff*

**Table 1. Great Lakes Navigation System - Anticipated Needs for Commercial Harbors**  
Source: Great Lakes Navigation System: Economic Strength to the Nation, USACE, 2013

# Current Framework to Navigation System Maintenance

“One-Time” Maintenance Projects (annually)

vs.

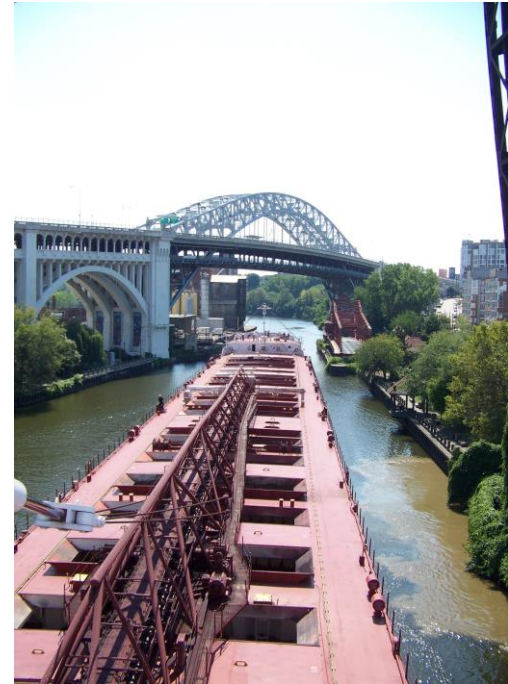
Capital Investments for  
Long-Term Program Management & Efficiencies





# Comparison of Current Approaches to Dredged Material Management to Other Public Infrastructure Projects

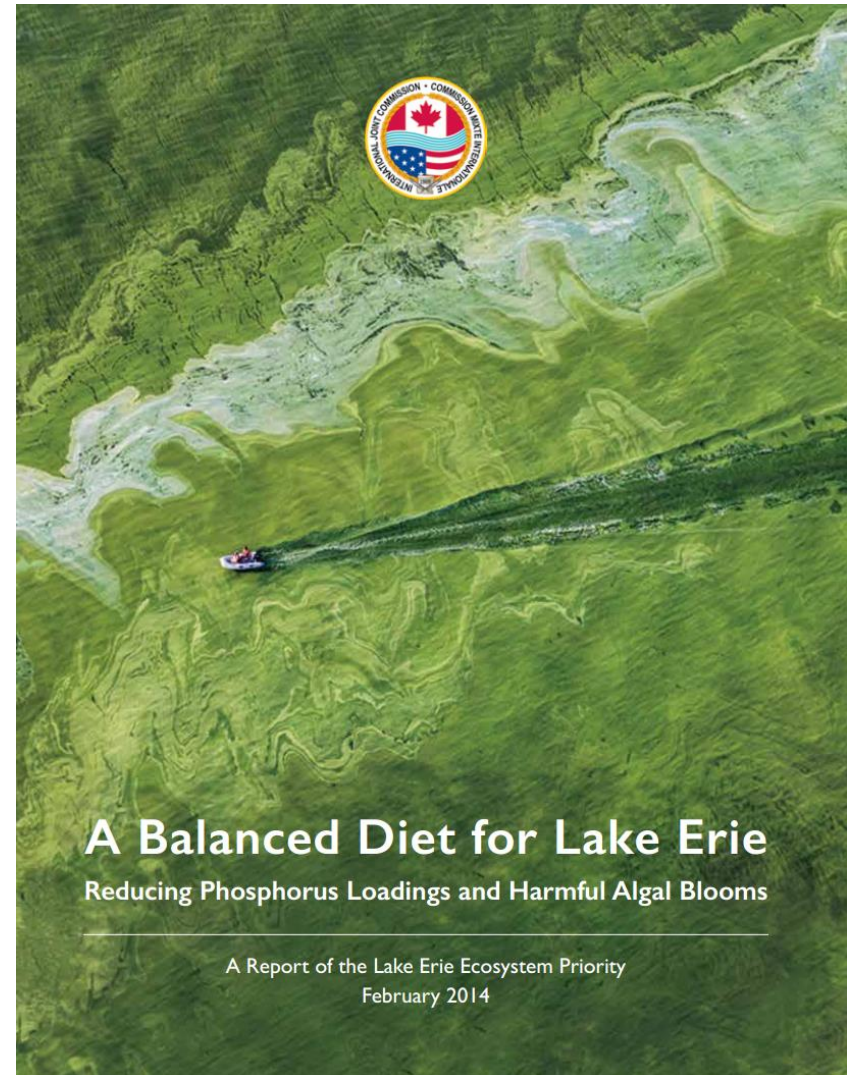
- Navigation channel dredging & dredged material management on individual project basis
  - Assessed
  - Permitted
  - Bid
  - Performed
- Long-term control measures for public wastewater systems
  - Planned, designed, maintained, and upgraded for perpetual life
  - Significant capital investment to reduce O&M costs
  - Recognized need to consider future modifications (e.g., NPDES permits on 5-year basis)





# Challenges Will Always Exist

- As we address sewage and major toxins, other issues present themselves or become apparent (blue-green algae, plastic beads, PFOA/PFOS, pharmaceuticals, lake-bed and legacy issues, etc.)
- Balancing competing goals & issues (economics, recreation, potable water supply, etc.)
- Predicting the next challenge
- Unintended consequences



# Weather and Lake Level Considerations

- Lake levels dictate dredging volumes & frequency (higher is better)
- They can create different storm response kinetics (higher is generally worse)





# Weather and Lake Level Considerations (Cont'd)





# Weather and Lake Level Considerations (Cont'd)





# Weather and Lake Level Considerations (Cont'd)

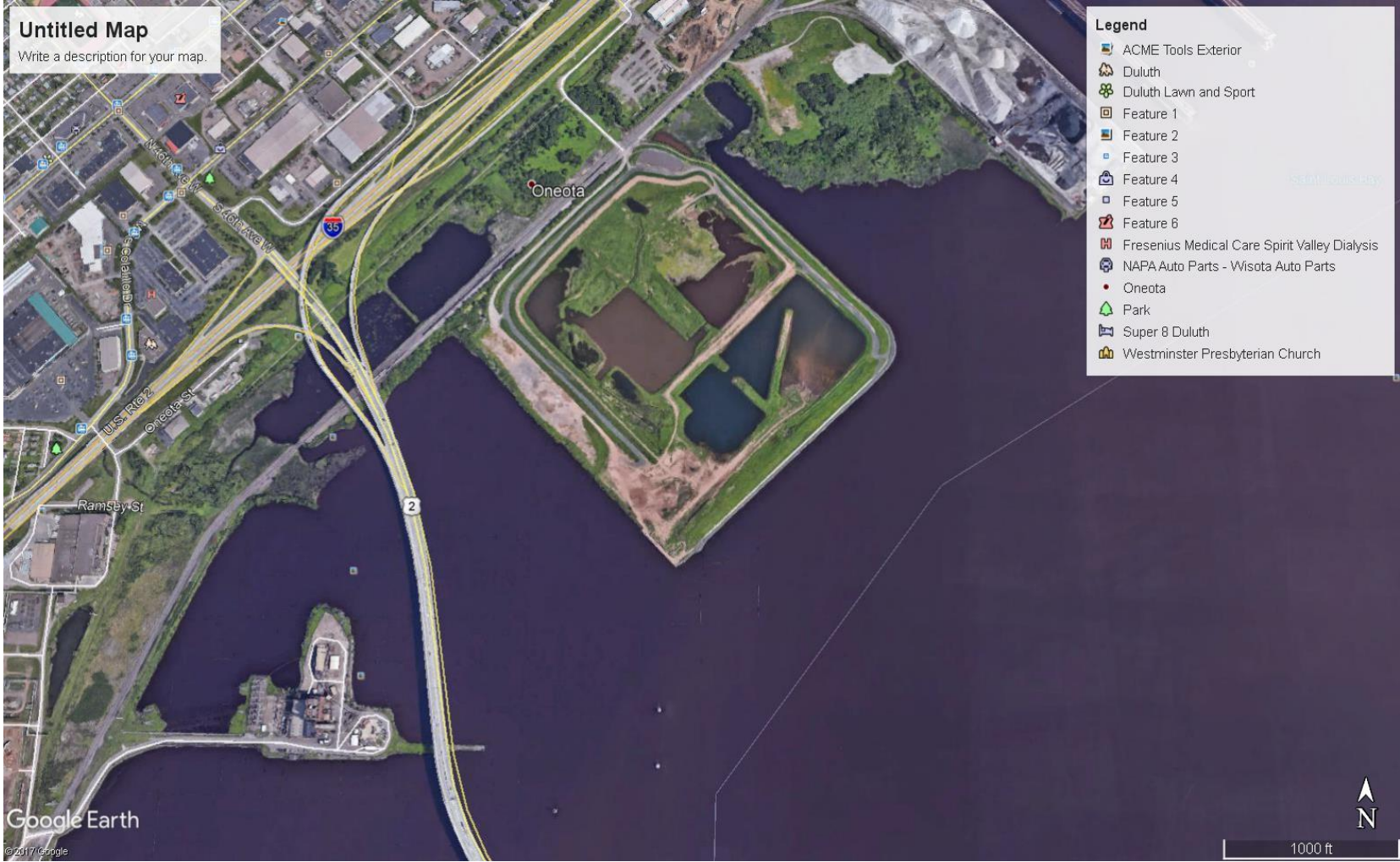




# Erie Pier, Duluth, MN -1956



# Erie Pier, Duluth, MN - 2017



# Longer Term Planning & Implementation

- Lessons learned from multi-year contracts in the past
- Impediments that would need to be addressed
  - Regulatory, programmatic barriers
  - Contract structure
    - In past, risks too high, tight budgets
    - Time period too short – fluctuating fuel costs
- Direct benefits of multi-year contracts & Permitting
  - More predictability
  - Private sector opportunities to reduce costs/provide efficiencies





# Longer Term Planning & Implementation (Cont'd)

- Approaches/agreements that contractors or Port Authorities might be willing to enter into if there were multi-year agreements, for instance:
  - Investments in beneficial use efforts to commercialize materials
    - Equipment to promote material transport, recovery
  - Investments to create final use development of land forms
    - Brownfields
    - Harvest/redevelop CDFs
    - Create habitat (Mitigation banking)



# Beneficial Use Opportunities & Considerations

## ■ In-Water

- Submerged aquatic habitat restoration
- Emergent habitat restoration

## ■ Nearshore

- Wetland restoration
- Shoreline protection
- Beach nourishment

## ■ Upland

- Brownfields, landfill caps, mine reclamation
- Agricultural improvements
- Structural fill

## ■ Products

- Manufactured soil
- Asphalt, concrete & construction materials



# Management Framework – Need for Smart Strategies and Investments

- Long-term capital improvement investments
- More funds for more efficient O&M
- Creative solutions and multiple options
- Nimble plans and management philosophies
- Integrated public programs
  - Federal: CWA, R&HA, etc.
  - State: brownfield redevelopment, infrastructure, etc.
- Collaborative approaches
  - Strong public and private partnerships & relationships
  - Engaged stakeholders



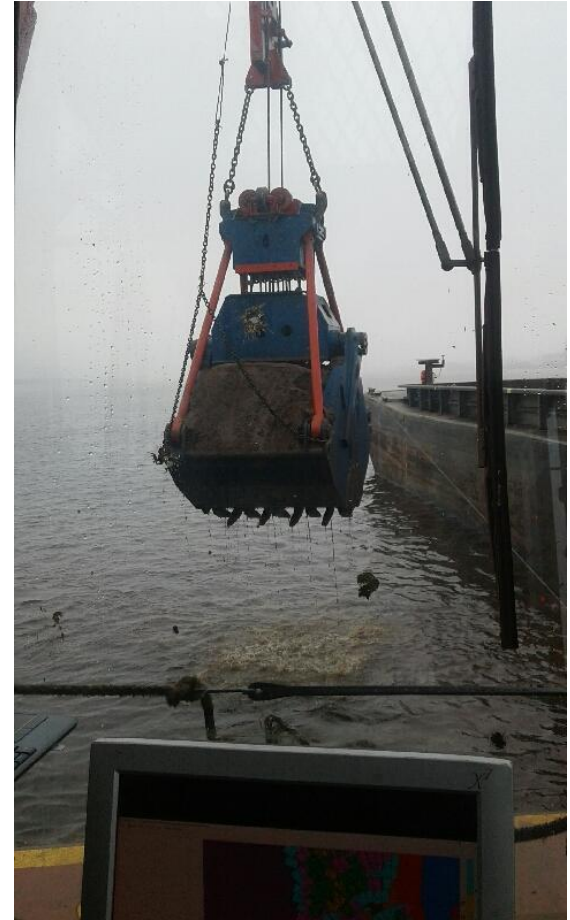
# Management Framework – Need for Smart Project Implementation

- Understand
- Measure
- Implement
- Monitor
- Adjust/adaptively manage
- Be flexible and be ready for surprises – pleasant and not so much...



# Next Steps

- Continue dialogue
- Establish a framework for continued monitoring and research for conditions, issues, solutions
  - Increase understanding of how the lakes work, water level responses, invasive species, etc. (perpetual management)
- Understand better the economic impact of activities
- Better direct funding
  - Identify opportunities, react more quickly





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