Beneficial Use Opportunities in the St. Louis River Estuary

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Outline

- Beneficial Use- *justifying alternative placement options*
- Design-basis Approach- *addressing BUI objectives*
- Remediation and Restoration- *case study examples*
- In-water placement- *in a management strategy*
Beneficial Use in the Duluth/Superior Harbor
Prioritizing AOC Restoration Opportunities

St. Louis River Area of Concern

Beneficial Use Impairments

Federal and State Funds
GLRI, GLLA and OHC, CWL

Harmonizing Federal and State Regulations

- AOC Program project sites in MN alone covered over 2,000 acres
- Funding and material limitations required a sequential approach

1/25/2019

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Beneficial Use
Minnesota State Guidance
In-water placement-

**Approving Material**
- Sample allocation
- Sediment characterization
- Acceptable Risk

**Approving Placement**
- Ecological/Public benefit
Approving Placement Design-basis approach

• BUI metrics incorporated as design criteria
• Objectives based on reference condition targets
Project Purpose
Addressing Beneficial Use Impairments

Pre-construction aquatic macroinvertebrate community within two St. Louis River zones.

Target value
St. Louis River AOC Program - 40th Avenue West Restoration

- Site = 316 acres
- To Address BUls-
  - Reduce wind/wave energy
  - Further reduce sediment contaminant risk
  - Improve substrate type
  - Create natural shoreline transition

Legend:
- 40th Ave W Aquatic Habitat Restoration Site
- Minnesota/Wisconsin State Boundary

February 2016
Surface-area weighted averaging

- GIS Thiessen technique determined polygon shape
- Sample point values compared to established target
- Regressions provided confidence intervals and categorical rankings

St. Louis River AOC Program - 40th Avenue West Restoration
**St. Louis River AOC Program**

**40th Avenue West Restoration**

- **40th Avenue West Construction Costs**
  - **4%** State
  - **22%** Federal
  - **74%** HMTF

- **$4.5 M from HMTF**
940 acre site

St. Louis River AOC Program - Spirit Lake Remediation and Restoration
Private and Public supported projects utilized over 75,000 CY
Material management options

- Open-Lake disposal
- In-water estuary habitat maintenance
- Land-based Construction
  - Processing and Reuse
- Mine land reclamation
  - State incentives to offset costs for more options
Concepts making beneficial use successful

✓ partnership agreements that define roles and responsibilities
✓ technical experts help identify project goals and objectives
✓ pilot projects to address uncertainty and concerns
✓ data-driven approach to justify opportunities, analyze alternatives, and demonstrates effectiveness
✓ a quality assurance plan to standardize targets and harmonize federal and state regulatory authority

Thank-you

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