Buffalo River, New York
Great Lakes Restoration Initiative (GLRI) Dredging

Partners:
U.S. EPA
New York State DEC
Buffalo Niagara Riverkeeper
U.S. Army Corps of Engineers

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Introduction

- Buffalo River, New York
  - Federally (USACE) maintained deep-draft harbor
  - Situated within designated Great Lakes Buffalo River Area of Concern (AOC)
    - Priority AOC targeted by U.S. EPA for completion of management actions in 2012
  - GLRI-funded USACE removal of sediments within Federal navigation channels that contribute to the restriction on dredging activities BUI
The Buffalo River Area of Concern (AOC) consists of 6.2 miles of river (beginning at the river mouth at Lake Erie) and the 1.4-mile long City Ship Canal.

The center portion of the river and canal within most of the AOC is designated as a Federal Channel and has historically been dredged to depths of over 20 feet by the USACE to accommodate ship traffic.
Introduction

- Restriction on Dredging Activities

Beneficial Use Impairment (BUI)

- Sediments in harbor Federal navigation channels that do not meet Federal guidelines for open-lake placement or unrestricted upland use

- These sediments do not meet open-lake placement guidelines (Great Lakes Dredged Material Testing and Evaluation Manual) due to the risk of PCB, Hg, PAHs, and heavy metals
Introduction

- Project Objectives
  - Delist AOC restriction on dredging activities BUI
  - Create channel depths favorable to commercial and/or recreational navigation
  - Provide structural fill for the closure of a former industrial wastewater lagoon
  - Complete Navigation Channel Dredging in Conjunction with a broader sediment remediation project within the AOC
Introduction

- Why GLRI Funding
  - Ongoing impacts from upstream contaminated sediments on actively maintained channel
  - Sediment is within the authorized navigation channel
  - Upstream shoaling areas not in active commercial navigation areas
    - Not a priority for O&M Dredging funds
  - Navigation channel and adjacent side channel areas both impact additional BUIs
"The Buffalo River is a repulsive holding basin for industrial and municipal wastes, it is devoid of oxygen and almost sterile..."
“In places the river's surface is a boundless mosaic of color and patterns resulting from the mixture of organic dyes, steel mill and oil refinery wastes, raw sewage, and garbage.”

Statement by the Federal Water Pollution Control Administration, United States Department of the Interior, 1968.
Preferred Alternative
Enhanced Protectiveness Dredging
Dredge Management Units

- Contiguous areas inside and outside of Federal Navigation Channel
How can we maximize our resources?

- Apply USACE O&M and USEPA GLRI resources to Federal Navigation Channel dredging

- Side slopes addressed under GLLA Partnership
- Driven by risk assessments and science
Coalesce GLLA DMUs in Federal Channel

- GLRI Dredging = 450,000 cy, $4.61M (done)
- Regular O&M = 150,000 cy, $1.24M

- USACE to dredge 6 inches to 1 foot below typical O&M prism
- Infilling creates clean sediment buffer
2011 O&M and 2012-13 GLLA Dredging

Confirmatory sampling defines contaminant capture and GLLA dredging completion.

SECTION 7
SCALE: 1" = 30'-0"

SECTION 12
SCALE: 1" = 30'-0"
Will we make matters worse?

- Mechanical Dredging Only
- No overflow dredging
- Closed Clam Shell

Other Items:
- Oil Booms
- Productivity Restrictions
- No CDF Weir Discharges
Confined Disposal Facility #4

- Constructed in 1977
- 107 Acres
- Initial Capacity = 6.9M CY
- Current Capacity = ~2M CY
- DMU progression confines highest-risk sediments at bottom
- Balance of sediments cap high-risk DMUs
CDF #4 Improvements

- Segments of original sheet-pile cutoff wall heaved
- Restore wall by injecting flowable fill into structure
- Supernatant flows through slag sand to filter sediment, allow outflow
GLRI Dredging

- More than 450,000 cubic yards of material dredged in 2012
- Mechanical dredge
- Extensive debris encountered (approximately 1.5% of total volume)
Questions?...