

A dark blue map of the Great Lakes region is centered in the background. The map shows the outlines of the five Great Lakes (Superior, Michigan, Huron, Erie, and Ontario) and the surrounding landmasses. The text is overlaid on this map.

# Lincoln Creek/Milwaukee River Channels Sediment Great Lakes Legacy Act Remediation Project

Public Meeting  
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by

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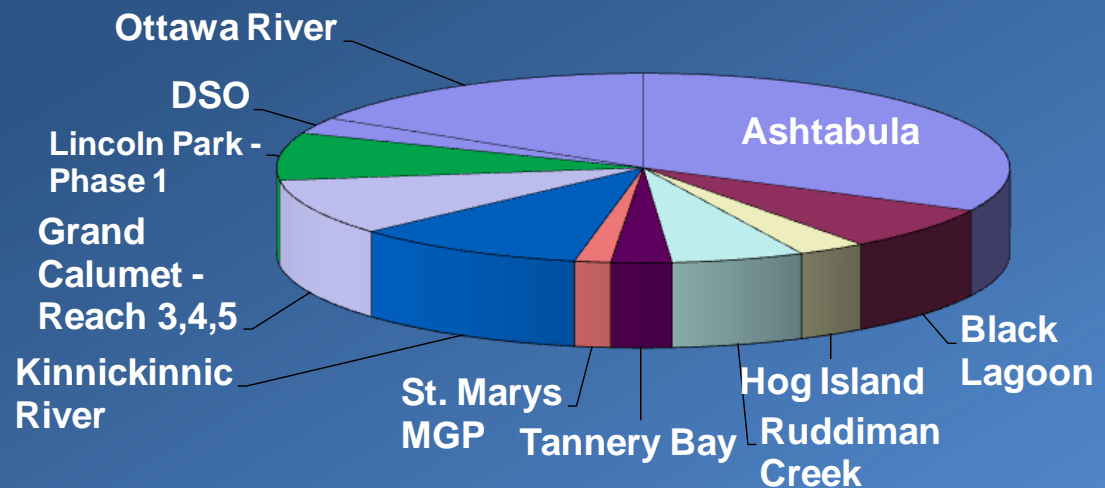
# Presentation Overview

- Great Lakes Legacy Act overview
- Lincoln Park Project
  - What we expected to do
  - What we actually did
- Where we are now
- Next steps



# And now, a bit about the Great Lakes Legacy Act

- Part of the Great Lakes Restoration Initiative (GLRI) – toxics reductions
- Funding Limited to Great Lakes Areas of Concern (AOC)
- Speed up sediment cleanups



# GLLA Project Partners & Stakeholders

- U.S. Great Lakes National Program Office
- Wisconsin Department of Natural Resources
- Milwaukee County Parks
- Other significant participants:
  - State Department of Health Services
  - City of Milwaukee Health Department
  - North Shore Health Department
  - UW-Extension





# Lincoln Creek Project Area





# Circa 1936



# Past PCB Concentrations



- PCB concentrations from <1.0 ppm to 870 ppm
- Estimated 65,000 cubic yards containing over 5,000 lb PCB (WDNR 2005)





# Remediation Priorities

## 1. Blatz Pavilion

- Remediation completed summer 2008 (demo)
- WDNR

## 2. Lincoln Creek and West Oxbow (Phase I)

- Remediation completed Jan. 2012
- Bank stabilization on-going, habitat restoration spring 2012
- GLNPO, WDNR, Milwaukee County

## 3. Milwaukee River from W. Oxbow to Estabrook Dam

- Phase II – in process of applying for Legacy Act
- GLNPO, WDNR, Milwaukee County





# Blatz Pavilion – First Priority



- Public access
- High PCB concentrations - >50 ppm
- 4700 cubic yards sediment removed
- Backfilled with clean materials
- Completed 2008



# Phase 1 area pre-2012 conditions



- Dam under repair or abandon order (7/28/09)
- Impoundment drawn down until action completed
- Sediments exposed but mostly vegetated



# GLLA Project Remedial Action Objectives

- Support removal of Beneficial Use Impairments within AOC
  - Fish and wildlife consumption advisories
  - Degradation of benthos
  - Dredging restrictions
  - Degradation of fish and wildlife habitat
- Minimize human health and environmental exposure
- Improve habitat





# Selected Remedy

Dry Excavation and off-site disposal of all sediments > 1 ppm PCB

- Subtitle C: Heritage Environmental Services
  - Greater than 50 ppm
- Subtitle D: Waste Management
  - Less than 50 ppm
- Habitat restoration (site stabilization)
  - Bank stabilization and vegetation planting



# Project costs to date

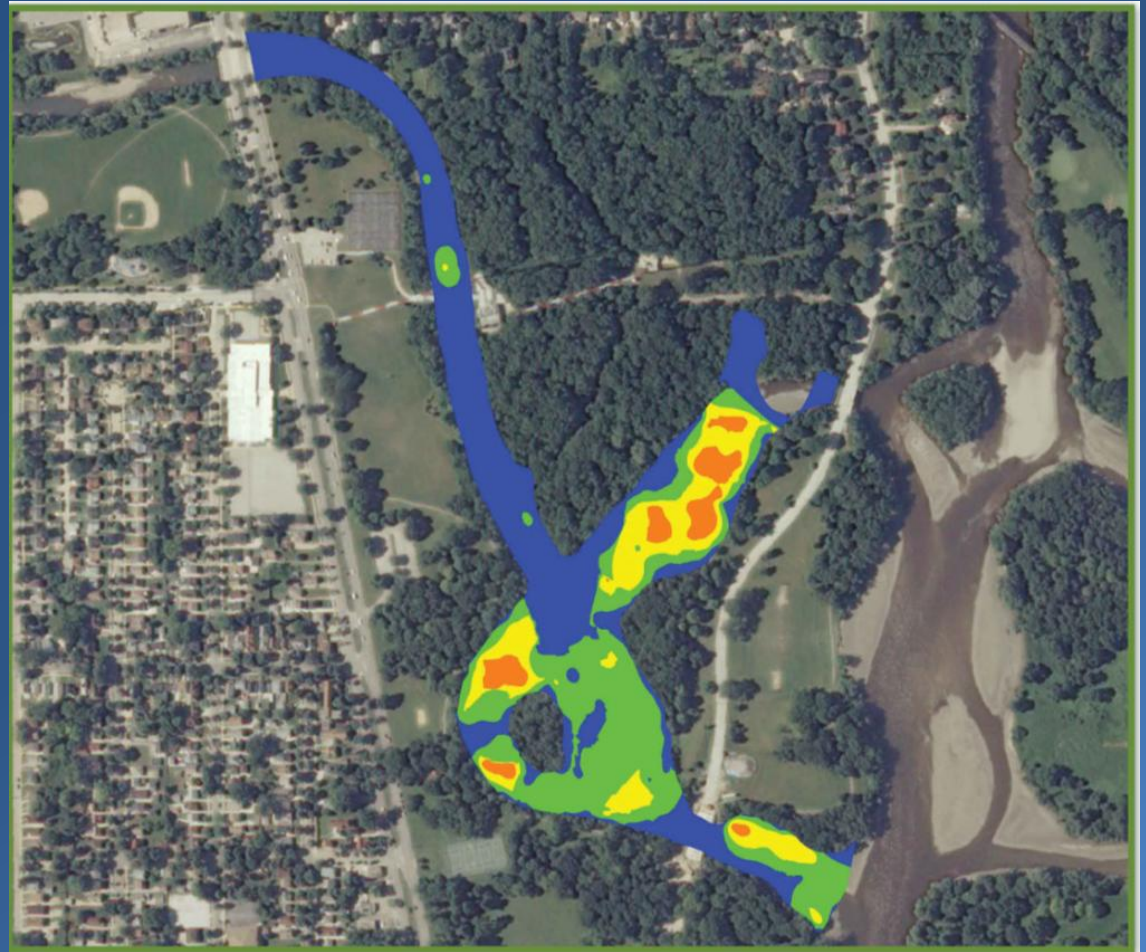
As of January, 2012

- Total Costs - \$24.6 million
- GLNPO 65% - \$16 million
- WDNR 35% - \$8.6 million



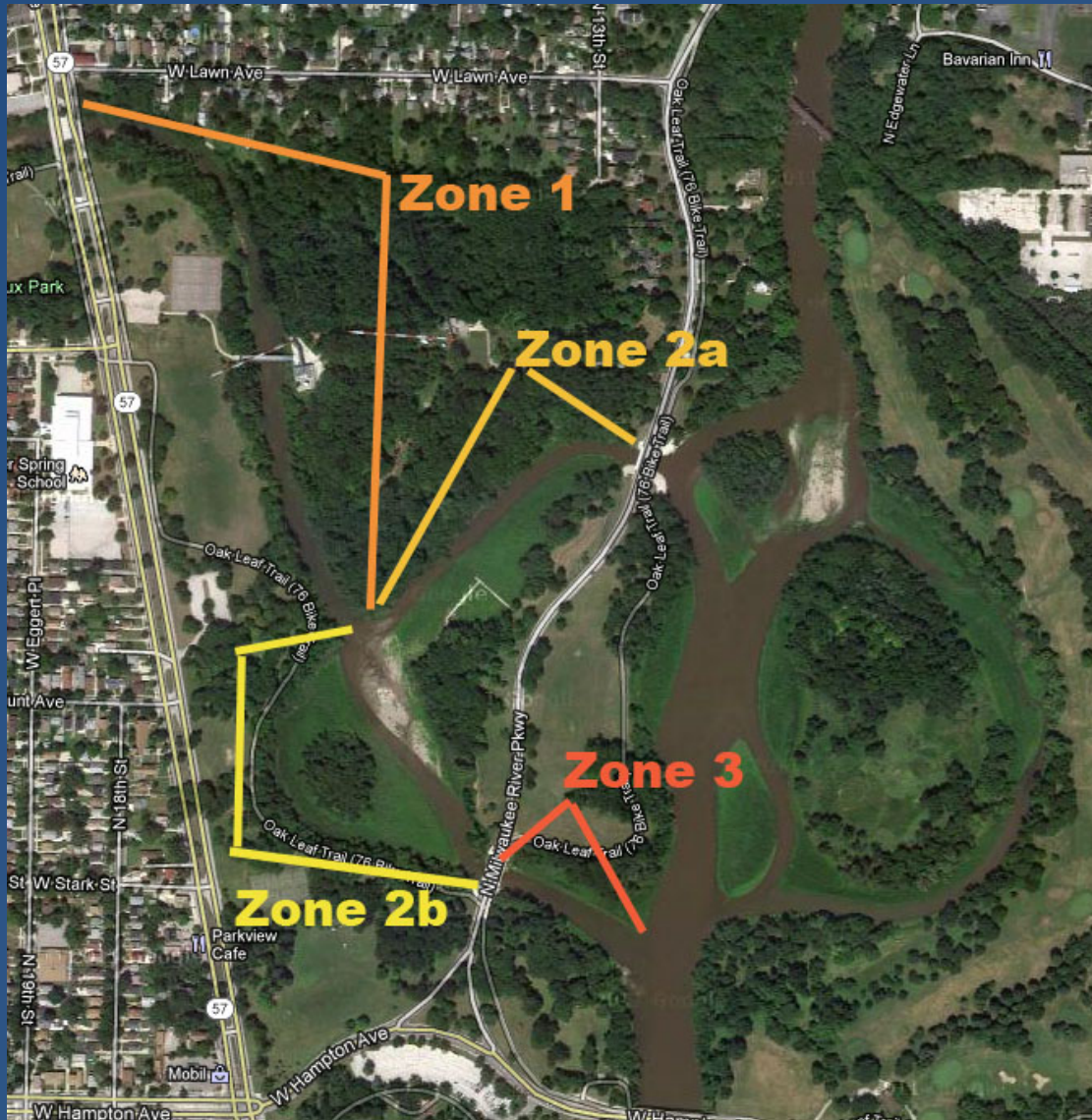
# What we planned to do

- 100,000 cubic yards
- PCB contaminated sediments





# What we actually did



## Staged Excavation:

1. Lincoln Creek
2. Northern Oxbow
3. Southern Oxbow
4. East of southern bridge to river

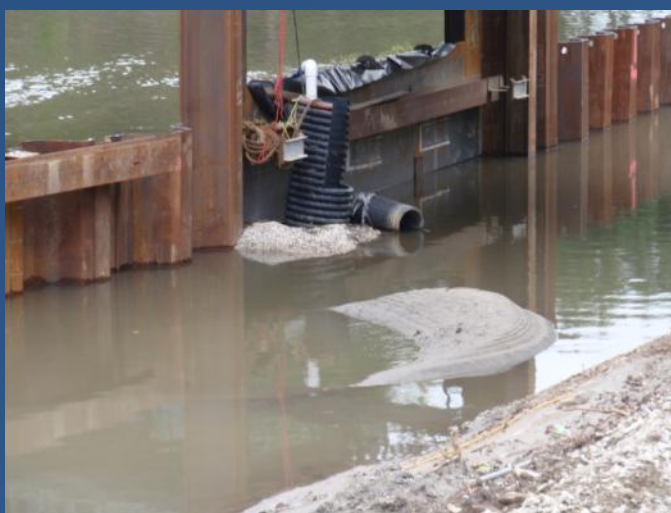




# Construction (Water Bypass)



# Construction (Dewatering and Water Treatment)



- Water pumped to weir tank
- Weir tank water sent to treatment plant
- After treatment – discharged to Milwaukee River





# September Flooding Issues



# Winterize Water Treatment



# Sediment Excavation



- Sediments mixed with Calciment<sup>®</sup> as needed to speed drying process
- Sampled ahead of excavation to evaluate proposed cut lines





# Sediment Excavation (West Oxbow)

Sept. 29, 2011



October 10, 2011



# Sediment excavation (West Oxbow)

- Found contamination we didn't expect...





# Sediment Excavation (West Oxbow)



- Implemented advanced protection measures for workers
- Trucks lined with plastic sheeting





# Site Stabilization



- Streambank stabilization needed to prevent erosion
- Native Plantings
- Stabilization customized to area



# Site Stabilization





# Habitat Restoration





# Verification Sampling

- Entire project area - confirmation sampling locations about 100 feet apart.
- Goals:
  - PCB to be  $\leq 1$  ppm
  - Oily Areas: Area average of  $<20$  ppm PAH
- Areas not meeting goals were re-excavated



# Swamp mats (or how to make your own road)



# Current Status

- Contaminated sediment excavation complete as of January 2012
- Removal Estimates:
  - ~130,000 cu yds of contaminated sediment
  - < 50 ppm PCBs: 3,300 lbs
  - > 50 ppm PCBs: 1,700 lbs
  - Total PCBs: = 5,000 lbs
  - Total PAHs: 4,000 lbs
  - NAPL PAHs (free product) = 360,000 lbs.





# The best made plans...

Item	What we planned to do	What we did
Sediment volume	100,000 cubic yards	140,000 cubic yards
Sediment contamination	PCBs only	PCBs and PAHs
Construction approach	Entire Lincoln Creek at once	First west side, then east side
Bottom Line	<ul style="list-style-type: none"><li>• Found more contamination than expected</li><li>• Cleaned up more sediment than expected</li><li>• Resulted in a better clean up</li></ul>	



# Upcoming Project Timeline

- ✓ Excavation completed in Jan. 2012.
- ✓ Bank and channel stabilization complete for now
- Spring/summer 2012 – complete habitat work
- Phase 2 – received application from WDNR & Milwaukee County for FS & RD



# A FEW INTERESTING THINGS ALONG THE WAY...





# Historical Artifacts found



# Keeping an eye on work





# Contact Information

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