

Great Lakes Dredge Team

Milwaukee Estuary Area of Concern (AOC)

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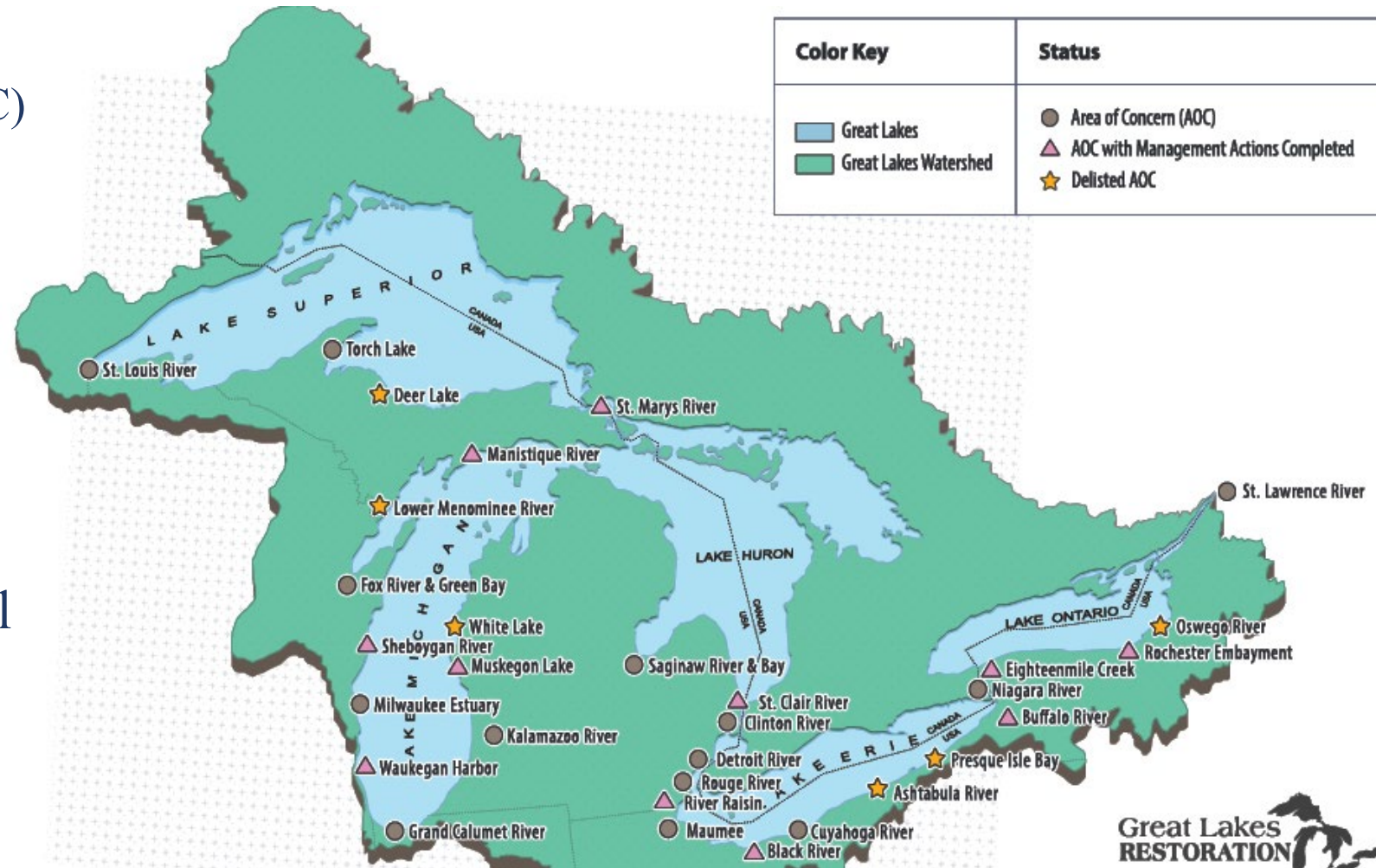
Outline

- Area of Concern (AOC) Background
 - Binational
 - Wisconsin
 - Milwaukee
- History – how we got here
- Current Status
- Where we are going
 - Approach
 - Agreement
 - Example
 - Phases and Benefits
- Summary

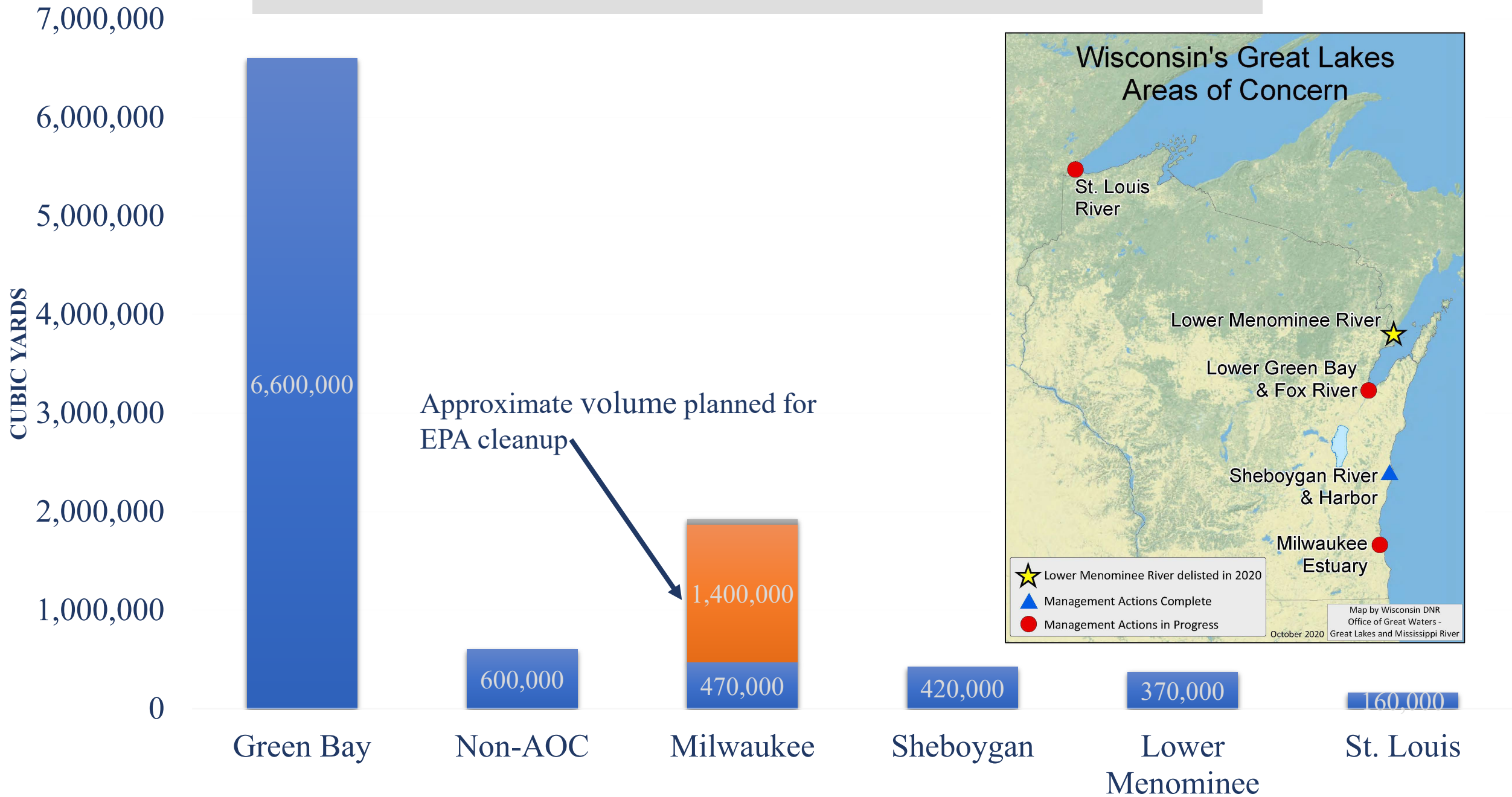


Area of Concern (AOC) Background

- The Boundary Waters Treaty of 1909
 - International Joint Commission (IJC)
- 1972 – 1987 Great Lakes Water Quality Agreement and Amendments established AOCs
- 43 AOCs in Canada and United States
- 31/43 are in the United States
- DNR published the first Remedial Action Plan for the Milwaukee Estuary AOC in 1991
- Beneficial Use Impairments



Volume of Contaminated Sediment removed by Wisconsin AOC



The Milwaukee Estuary Area of Concern is

- Primary tributaries:
 - Milwaukee, Menomonee, and Kinnickinnic Rivers
- Secondary tributaries:
 - Lincoln Creek, Cedar Creek, Little Menomonee
- Inner and outer harbors, and nearshore waters of Lake Michigan (Milwaukee Bay)
- Two counties (Milwaukee and Ozaukee)
- Thirteen Municipalities



The Machine Shop of the World

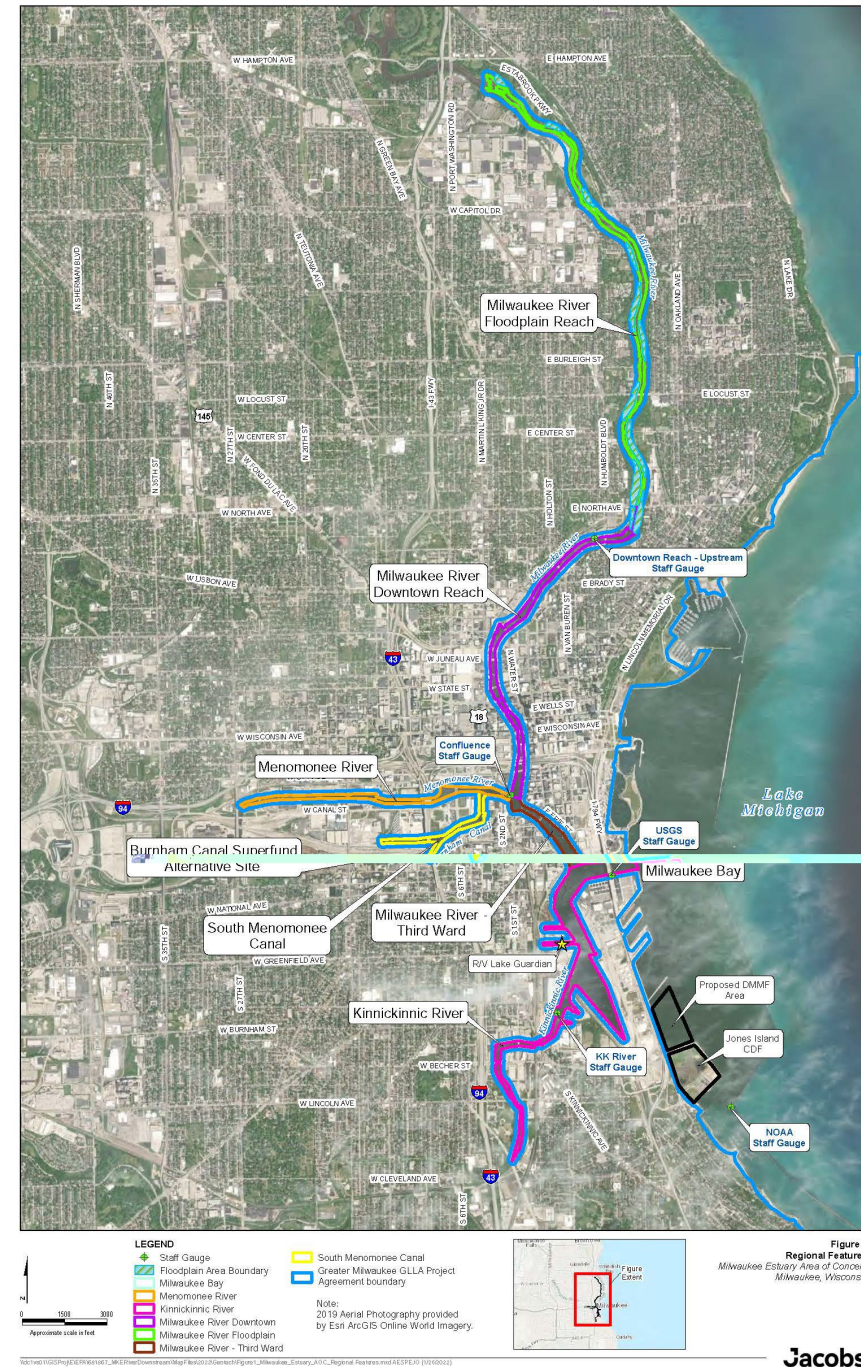
- Former Manufactured Gas Plants powered the City
- Tanneries
 - 1890's largest leather producer in the world
 - 1905 1.7 million hides per year
- Rivers were an open sewer until 1925, when water treatment began
- In the late 1800's, Milwaukee towed its solid waste out to the lake and dumped it overboard
- Manufacturing of farm machinery, rail cars, electric motors, and cranes
 - Milwaukee Road Shops was one of the largest employers in Milwaukee with nearly 3,000 employees
- Breweries, salt warehousing, coal and fuel supply, cement supply, slaughterhouses



TANNERIES ON MILWAUKEE RIVER.

Milwaukee AOC Status

- Lots of contaminated sediment left
- Large area in multiple waterbodies ~ 12 miles
- Milwaukee Bay ~ several hundred acres
- Very few viable Responsible Parties*
- > 95% of sediment contamination is orphan
- Beneficial Use Impairments related to contaminated sediments
 - Fish Tumors or Other Deformities
 - Bird or Animal Deformities or Other Reproductive Problem
 - Restrictions on Dredging Activities
 - Restrictions on Fish and Wildlife Consumption
 - Degradation of the Benthos
- *Wis. Stats. 292 (The Spill Law)



The Approach



Partnerships



AOC-wide thinking
with our legal
agreement



Cost sharing



Sediment Management

Project Agreement Umbrella

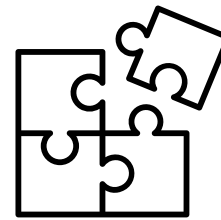
Authority Under the Great Lake Legacy Act 33 U.S.C. § 1268(c)(11)
(Allowable costs per 2 CFR Part 200)



- Cost Sharing 35% Non-Federal / 65% Federal
- Stages: Feasibility Study, Pre-design Investigation, and Remedial Design, Remedial Action
- Waterbodies: Milwaukee, Menomonee, and Kinnickinnic Rivers, and Milwaukee Bay
- Entities: City (includes Port), County, DNR, EPA, MMSD, We Energies
- Projects: 9

Section 118(c)(11) of the Clean Water Act codifies the Great Lakes Legacy Act (GLLA), 33 U.S.C. § 1268(c)(11), and authorizes GLNPO to monitor and evaluate, remediate, or prevent further or renewed contamination of sediment in AOCs.

Under Section 118(c)(11)(D)(iii), 33 U.S.C. § 1268(c)(11)(D)(iii), the Non-Federal Sponsors must enter into a written project agreement under which they agree to carry out their responsibilities and requirements for a project.



Nonfederal Sponsor In-kind Contribution Example

Basin H – PCB source control – MMSD

- MMSD executes project under EPA GLNPO project agreement
- Nonfederal Sponsor (NFS) In-kind contribution \$10 million (35%)
- Generated federal funds \$19 million (65%)
- Total \$29 million (100%)
- Polychlorinated Biphenyl's (PCBs) are removed from sewers to prevent recontamination of sediments



Photo credit: MMSD

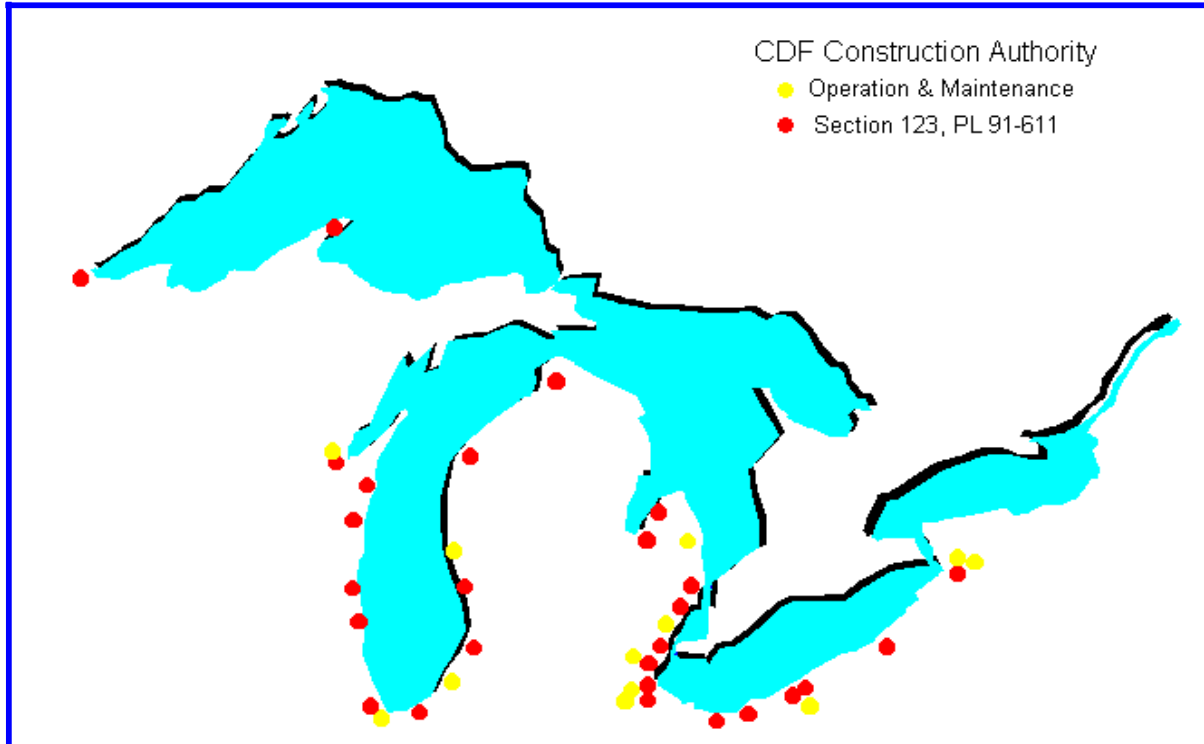


Generating Match– Project Agreement Umbrella

- A NFS In-kind Contribution in one waterbody can generate federal funds that can then be used by EPA GLNPO in another waterbody within the same area of concern
- In-kind Contributions can be aggregated from different entities & projects
- > 99% of the planned Non-Federal Sponsor contributions are In-kind
- EPA GLNPO will use generated federal funds for the larger remediation and habitat work
- EPA GLNPO = Environmental Protection Agency Great Lakes National Program Office



Sediment Management



- 45 Confined Disposal Facilities (CDF) built on Great Lakes through Section 123 of the Rivers and Harbors Act of 1970, as well as project-specific authorities
- Over 90 million cubic yards placed in CDFs
- No new sediment management facilities have been constructed on Wisconsin lakebed since Renard Island in 1987
- Five Legacy Act projects have disposed of contaminated sediments in existing CDFs

Sediment Management



- Existing facility vertically expanded in 2008 for the Kinnickinnic River project
- At 1.9 MCY & 42 acres, the proposed sediment management facility would be:
 - The largest facility on the Great Lakes to be built outside the USACE Federal Navigation Maintenance Mission.
- State law was changed to provide MMSD the authority construct the facility



Project Phases

- Phase 1 – prior to sediment facility construction ~ 3-to-4-year duration
 - PCBs will be removed from sewers (Basin H)
 - Tars will be removed from the river and materials next to walls capped (Third Ward)
 - Combined Sewer Outfall 195 will be relocated
 - Sediment management facility will be constructed (DMMF)
 - Toxic Substance Control Act (TSCA) Material (PCBs > 50 parts per million) will be removed from the rivers and taken to an out of state landfill
 - Feasibility Study and Design of the five major remedial areas will be completed

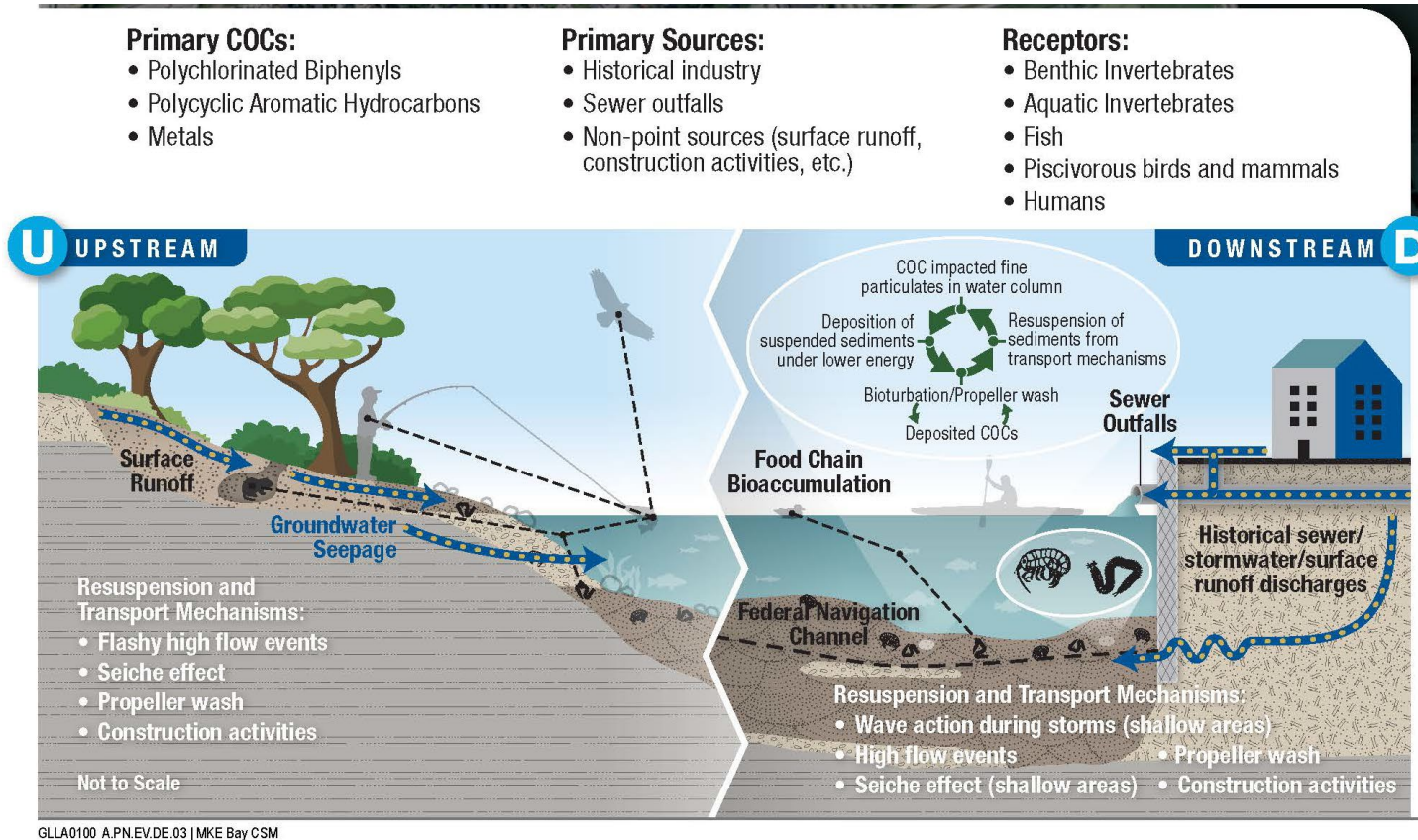
- Phase 2 ~ after sediment facility construction 4-to-5-year duration
 - Sediment management facility filling and water treatment
 - Remedial action of the five remedial areas
 - Incorporated habitat work



Example hydraulic dredging of Wire and Nail Pond – Cedar Creek

Overall Project Benefits

- ✓ Supports to the removal of Beneficial Use Impairments
- ✓ Improved water quality
- ✓ Improved quality of life
- ✓ New and improved wetlands
- ✓ Improved recreational opportunities
- ✓ Safer consumption of fish and waterfowl
- ✓ Improved biodiversity and abundance of benthic community
- ✓ Improved spawning for native fish



Summary

- Milwaukee Area of Concern has a unique approach that relies on partnerships, sediment management, cost sharing, and AOC-wide thinking.
- Significant acceleration in remedial progress
- The multi-party, multi-year effort will lead to significant environmental benefits and contribute to the eventual delisting of the AOC.
- The project will leave the rivers in a much better condition than what we received them. This will benefit those generations that follow us.



Water Restoration Partners