Welcome

Today's Schedule

4:30 pm - Open House Begins
5:15 pm - Program Begins
6:30 pm - Open House Resumes
7:00 pm - Open House Ends

Panel Discussion

Heather Williams, US Environmental Protection Agency (EPA)
David Misky, Redevelopment Authority of the City of Milwaukee (RACM)
Brennan Dow, (Wisconsin Department of Natural Resources (DNR)
Moderated by **Cheryl Nenn**, Milwaukee Riverkeeper

Who is here?

Who is the Milwaukee Blue Crew?

The Milwaukee Blue Crew (MBC) is the community voice in the process of cleaning up the Milwaukee Estuary AOC. To this end, the MBC provides a structured way for individual citizens to share their opinions and perspectives on cleanup efforts, and on how policies and programs affect citizens who live and work in the watersheds.

The MBC:

- Provides a forum for meaningful and appropriate resident and local stakeholder input into remediation and restoration efforts;
- Provides comment on proposed projects;
- Devises and assists in implementation of strategies for building public and community support for clean-up projects;
- Advises state and federal agencies on Milwaukee Estuary AOC remediation and restoration.

MBC meetings are open to the public and all interested individuals are encouraged to join. Sign up to receive information on MBC meetings via email. More information available at **www.MilwaukeeEstuaryAOC.com**.

What can I expect today? What do I do?

Today's meeting is an opportunity to learn about the Milwaukee Estuary Area of Concern (AOC) and efforts to clean up and improve our Milwaukee area waterways **AND** share your thoughts about these issues and efforts. Today's meeting is focused on contaminated sediment. Future meetings will focus on other topics important to the AOC.

Open up a web browser on your phone and go to bit.ly/BlueCrew to begin on online survey on today's meeting. While you go through the stations that follow, look for the symbol to the left. Wherever you see it, there will be a question in the online survey (or on your worksheet) to respond to.

We also encourage you to talk to anyone wearing a nametag to ask questions, share your thoughts, and learn more about the effort to

Next Meetings

Our next meeting will be on February 12, 2020 to focus on habitat projects in the AOC.

To stay informed on all future meetings, activities, and updates be sure to include your email address on your worksheet and follow the Milwauke Blue Crew online at **MilwaukeeEstuaryAOC.com** and on social media.

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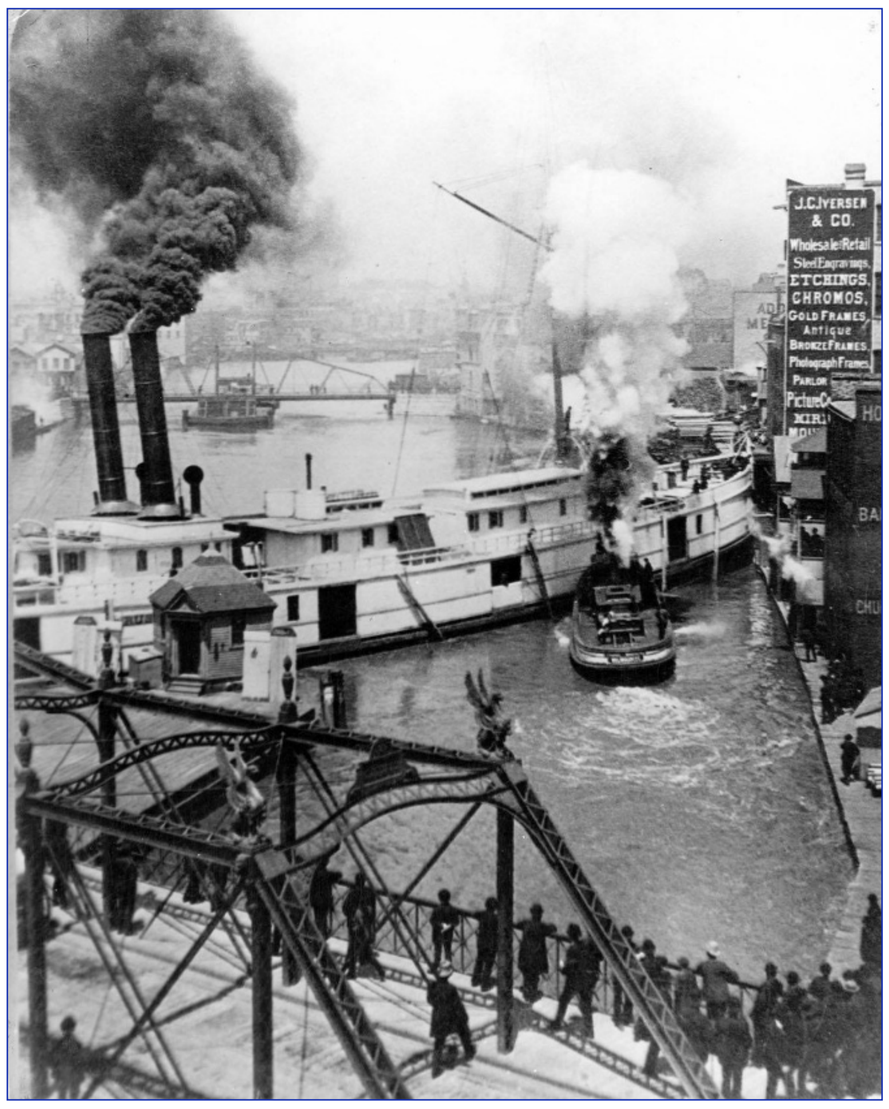
History of our Waterways

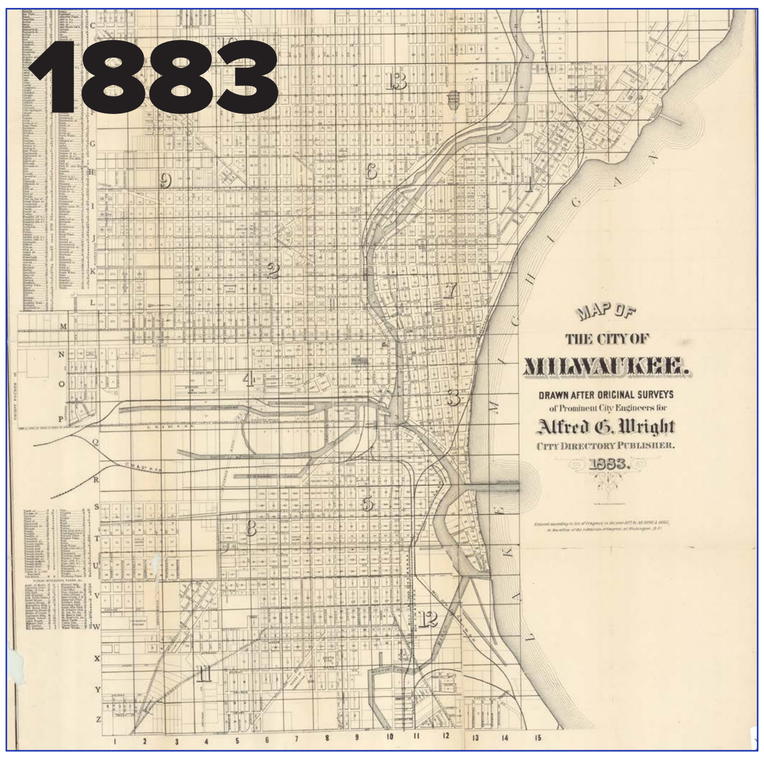


Toxic Chemicals

For many decades, Milwaukee used its rivers as a sewer. Not just homes, but also industries - tanneries, fuel plants, paint manufacturers, and many others - dumped their waste water directly into the river. Toxic chemicals in that wastewater attached to particles of sand and silt in the river water and settled at the bottom, leaving deposits of contaminated sediment. Today, the contaminated sediment causes tumors in fish and makes them unsafe for people to eat.

Altering the River

In the 200 years since European settlers first arrived here, Milwaukeans have dramatically changed our rivers. What were shallow, rocky, fast-flowing steams with gentle banks have become deep, slow moving channels with straight sides and sometimes concrete bottoms. Where we had vast shallow marshes, we have filled them in and built hard walls. These and other changes have significantly changed the amount and quality of habitat available for species from the tiny organism at the bottom of the food chain, to fish, to shorebirds and otters.



Continuing Challenges

Today, industrial discharges to our rivers are carefully regulated. Runoff from rain and snow still carries pollutants to our rivers, though: fertilizers and manure from farms; road salt and parking lot grime from cities. The ongoing water quality issue of stormwater runoff will not be solved by work to clean up our AOC - other efforts are working to address that.

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AOC Program Overview

What is an Area of Concern (AOC)?

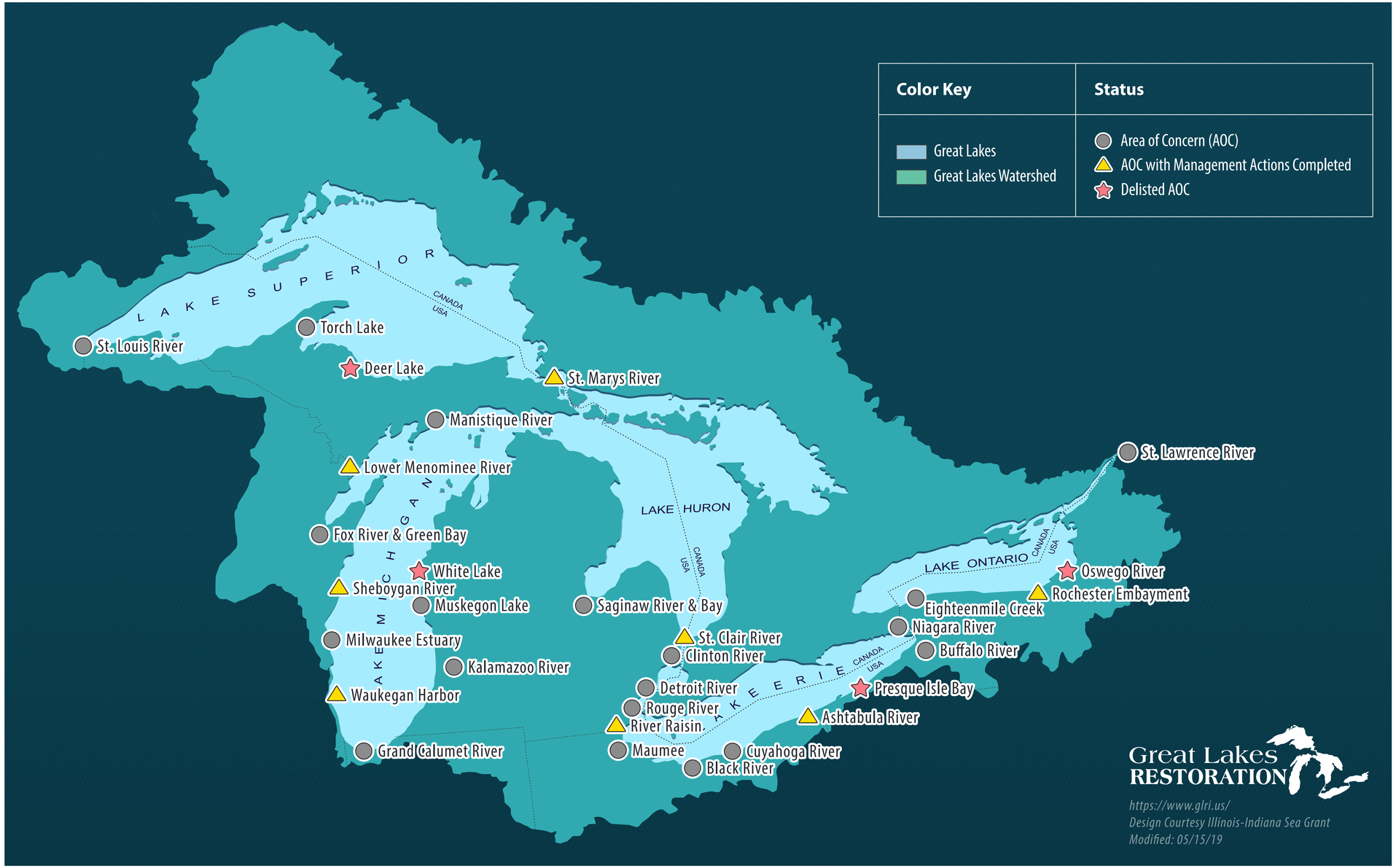
Areas of Concern are designated by the International Joint Commission as geographic areas in the Great Lakes basin having severe environmental degradation. There are 43 Areas of Concern with 26 in the United States, 17 in Canada, and 5 shared by the two countries.

An Area of Concern must have at least one beneficial use impairment (BUI), which means a reduction in the chemical, physical, or biological integrity of the water body.

Why is this concerning?

We are working to address the beneficial uses that have been degraded as a result of pollution and large-scale, human-induced changes in the landscape. Together, through the Areas of Concern (AOC) program, we seek to reverse some of this damage so that:

- Fish and wildlife caught in the area may be safe to eat.
- Local fish and wildlife populations may thrive in habitat that is suitable and isn't contaminated.
- People can safely enjoy the area's waterways and beaches.
- Commercial or navigational dredging can be done without additional costs from contamination.
- The beauty of the area's waterways is enhanced and preserved.



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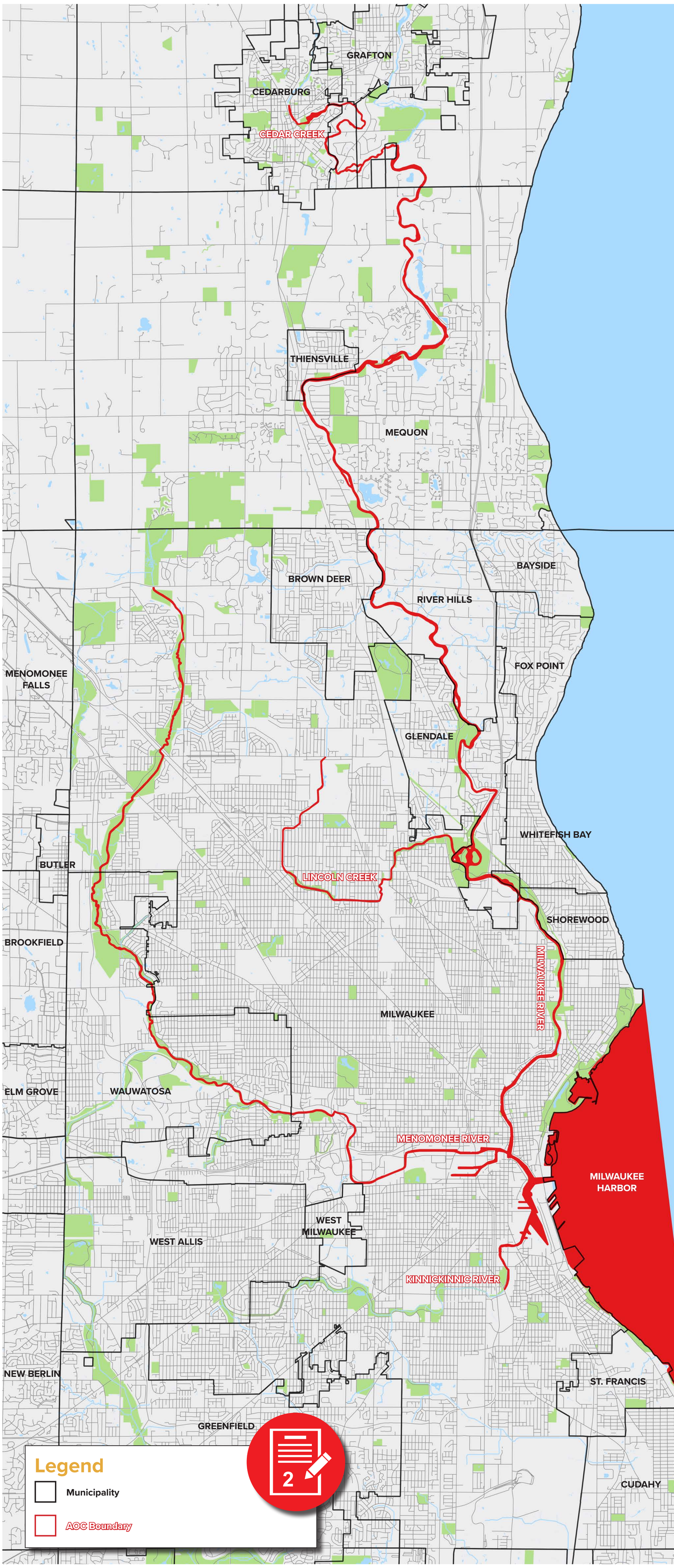
Milwaukee AOC Overview



The intersection of Milwaukee's three rivers with Lake Michigan creates the Milwaukee Estuary. The rich natural resources of the Milwaukee Estuary sustained native cultures, and later drew European immigrants to settle its shores. As the area grew into a center for shipping, commerce and industry, many of the important ecological functions, or "beneficial uses," of the rivers and estuary were severely compromised or lost altogether. These Beneficial Use Impairments resulted in the Milwaukee Estuary's designation as an Area of Concern.

- **There are health concerns with eating fish & wildlife**
- **Fish & wildlife populations are degraded**
- **There are increased rates of fish tumors & deformities**
- **There is increased potential for bird & animal deformities & reproductive problems**
- **Communities of sediment-dwelling organisms are degraded**
- **Dredging activities for commerce or navigation are restricted**
- **Excessive nutrients cause undesirable algae**
- **Water contact through beach use or other recreation is limited**
- **Appearance of rivers & waterfront needs improvement**
- **Communities of small organisms living in the water are degraded**
- **Loss of fish & wildlife habitat**

Contaminants Common in the Milwaukee AOC

Polychlorinated Biphenyl (PCB)
Synthetic oils used as industrial coolants and lubricants. These chemical does not break down naturally and accumulates in the body fat of humans, fish, and other animals. It can cause cancer and developmental problems in children. The most significant risk of exposure is from eating fish that live in areas with contamination.

Polycyclic Aromatic Hydrocarbon (PAH)
Generated by burning and refining fossil fuels. PAHs can cause cancer and skin rashes, and may affect the eyes, kidneys and liver.

Metals
Examples include chromium, mercury, cadmium and arsenic. Used in tanning, metal plating, and junkyards. Toxic to humans and aquatic life.

Non-Aqueous Phase Liquids (NAPL)
Liquid solution contaminants that do not dissolve in or easily mix with water like oil, gasoline and petroleum products. NAPLs tend to contaminate soil and groundwater.

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Milwaukee River

In-Stream Restoration Projects

These projects include some of the following elements: removing barriers to fish movement; adding rocks, gravel and woody debris to provide better spawning areas for fish and habitat for other aquatic life like mussels, crayfish, and insects.

1. Adding rocks, gravel, and woody debris
2. Fish passage
3. Improving hydrology for better circulation of water
4. Removing barriers to fish
5. Fish shoals

Land-Based Restoration Projects

These projects include some of the following elements: removing invasive plants and reintroducing native plants; construction of ephemeral (seasonal) ponds; restoring grasslands; and stabilizing eroding streambanks.

6 7 8 9 10 11 Removing invasive plants and re-introducing natives

Lincoln Park 12

Nearly 200,000 cubic yards of PCB- and PAH-contaminated sediments removed. Contaminants came from an unidentified former industry on Lincoln Creek.

Estabrook Dam Removal 13

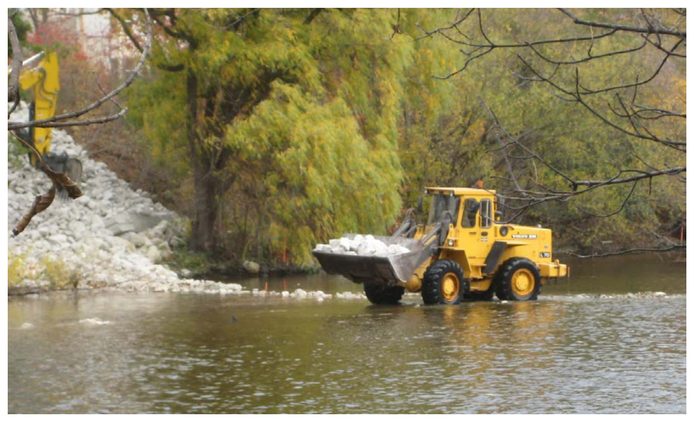
Placeholder Text

Estabrook Park to North Avenue Floodplain Contamination 14

PCB contamination, mostly in the floodplain in scattered deposits. Access to contaminated sites will be challenging and may disturb portions of the Greenway. Still to be completed.

North Avenue Fish Shoals 15

DNR expanded rock shoal built in 2006 that provides habitat for fish and other aquatic life.



Contaminated Sediment Removal

Placeholder Text

16 Mercury Marine
17 Downtown Milwaukee
18 Estabrook Park
12 Lincoln Park
14 Milwaukee River Greenway

Legend/Key

- Area of Concern Boundary
- 1 Completed Projects
- 2 Current Projects
- 3 Future Projects

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Menomonee River

In-Stream Restoration Projects

These projects include some of the following elements: removing barriers to fish movement; adding rocks, gravel and woody debris to provide better spawning areas for fish and habitat for other aquatic life like mussels, crayfish, and insects.

1 2 Removing barriers

3 Adding woody debris

Land-Based Restoration Projects

These projects include some of the following elements: removing invasive plants and re-introducing native plants; construction of ephemeral (seasonal) ponds; restoring grasslands; and stabilizing eroding streambanks.

4 5 6 7 Removing invasive plants and re-introducing natives

Moss-American Co., Inc. Superfund Site 8

PAH contamination removed over 37 years. Work is largely completed but site is being monitored.

Concrete Channel Removal Miller Brewery to Miller Park 10

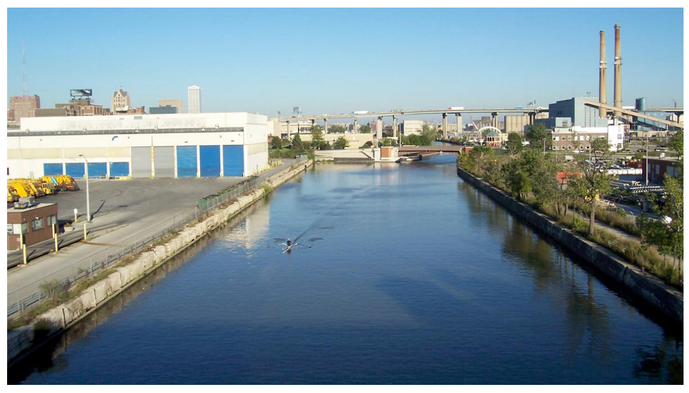
2,900 feet of concrete channel was removed to renaturalize streamflow and allow for fish to migrate up the Menomonee River.

Burnham Canal Superfund Site 9

Clean-up of contamination is will be completed on land and in the canal. The canal will be built into a wetland habitat after clean-up is complete.

Contaminated Sediment Removal City Lights Brewery to the Confluence 11

Contaminated sediment will be removed. The channel was previously dredged to 25’ but will now be maintained to a depth of 16’ to allow clean sediments to deposit over time on top of low-level contamination in the river.



Legend/Key

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Kinnickinnic River

Sediment Cleanup Becher Street to Kinnickinnic Avenue 1

Total Cost: $22 million (65% federal through the Great Lakes Legacy Act, 35% state & local)

Removed: 167,000 cubic yards of sediment contaminated with PCBs and PAHs.

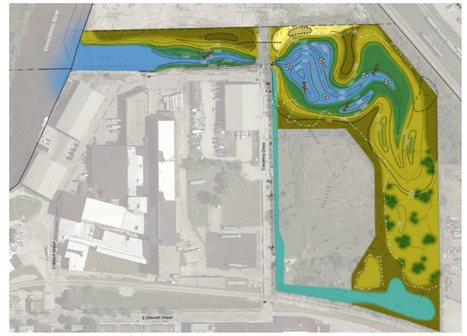
The cleanup of this urban river was the result of many years of planning and collaboration between U.S. EPA, U.S. Army Corps of Engineers, Wisconsin Department of Natural Resources, the City and Port of Milwaukee, U.S. Coast Guard, and local stakeholders including Business Improvement District No. 35. As a result, the area saw new private investments and increased recreational use of the waterfront.

Solvay Coke & Gas Co. Superfund Alternative Site 2

The Solvay Coke company manufactured industrial fuel. The current property owner, WE Energies, is removing and/or stabilizing contaminants on the site. Future use of this site includes a new manufacturing facility and North American Headquarters for Komatsu Corp. and a new riverwalk.

Grand Trunk Wetland Restoration 3

One of the only remaining wetlands in our estuary, this area will be restored with the specific goal of creating northern pike spawning. Additional benefits are anticipated for other fish, amphibians, and birds. The site will include well-defined public access to protect sensitive habitat, as well as education about its history and ecology.



Upstream Work 4

MMSD is removing concrete lining from the river channel. The primary goal of this work is to reduce flooding, but the effort will have many benefits for wildlife and the local community as well.

In-stream Habitat 5

Conditions in this section of the Kinnickinnic are challenging for all species due to slow moving water with low oxygen levels and lots of solids (muck) in the water. Partners are evaluating strategies to improve the Kinnickinnic's ability to support life.

Legend/Key

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Milwaukee Harbor

Inner Harbor Sediment Cleanup

TEXT NEEDED

Dredge Material Management Facility (DMMF) 1

Extension of Confined Disposal Facility (CDF) where contaminated sediment will be placed. Existing facility cannot hold all that needs to be removed.

Beach Closings

Bacterial contamination in water is the biggest reason for beach closings. A working group for beaches was recently established to advise on improvements to the following beaches.

2 South Shore Beach has been rated as one of the worst on the Great Lakes for water quality. Milwaukee County and DNR have been designing solutions that will improve water circulation and result in fewer closings.

3 McKinley Beach Rehabilitation
4 Bradford Beach Rehabilitation
5 Bay View Beach Rehabilitation

Legend/Key

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