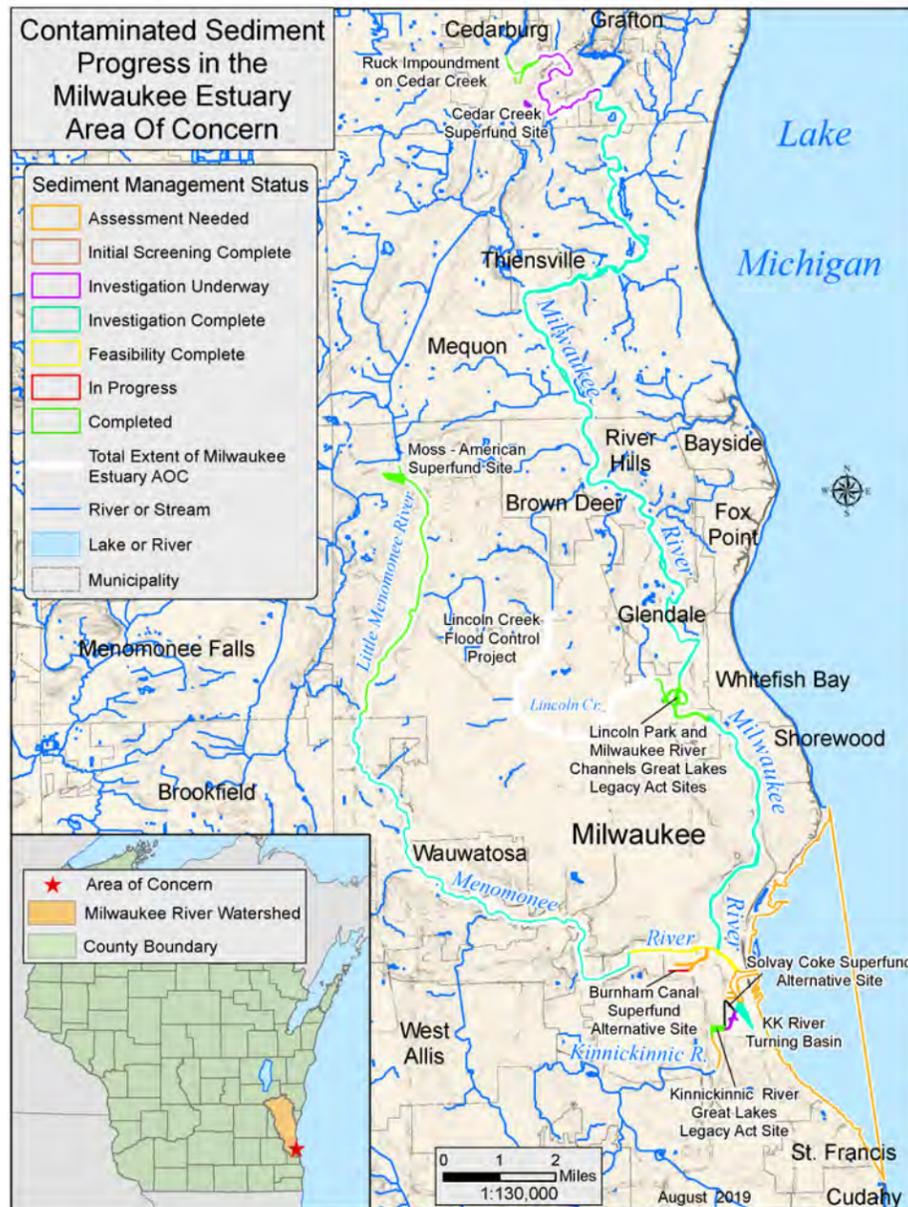


Milwaukee Estuary Area of Concern

Reaching our targets will lead us to our goal of delisting the AOC, which means the ecological benefits of the Milwaukee Estuary have been restored to an acceptable level. We will achieve this when public uses are no longer impaired by pollution, and when fish and wildlife and their habitats are sustainably restored. As toxic sediments are removed and habitat restoration continues, the rivers and lakeshore are becoming ever more valuable resources for recreation and the local economy.



To learn more about Milwaukee Estuary AOC projects and progress visit <http://dnr.wi.gov>, search "[Milwaukee AOC](#)." For more details, refer to the Area of Concern Remedial Action Plan Updates.



River cleanups remove toxins contaminating fish and habitat. Above: Dredging at Lincoln Park. Photo: Duane Thomas, EA Engineering.

Milwaukee Estuary Area of Concern

BENEFICIAL USE IMPAIRMENT RESTORATION REPORT

Fall 2019

The Milwaukee Estuary

was designated an Area of Concern (AOC) in the 1980s because contaminated river sediment impaired public benefits such as fish consumption, healthy fisheries, boat access and wildlife habitat.



Dave Turigiano

Juvenile Lake Sturgeon

Pamela A. Garzone



Fishing in the harbor



Pierhead Lighthouse

Center Photo: Greg Hall

Kristine Hinrichs

Gail Epping Overholt



Kayaking the Milwaukee River

The Wisconsin Department of Natural Resources and citizen groups identified 11 Beneficial Use Impairments (BUIs) to target here for improving the rivers and estuary.

[See the progress report inside](#) ➔

Gail Epping Overholt



Milwaukee River



Children playing at Bradford Beach.

Marc Ponto

Milwaukee Estuary— part of the largest fresh surface water resource in the world— the Great Lakes ecosystem



Wisconsin Department of Natural Resources, Office of Great Waters

Brochure developed by the University of Wisconsin-Extension Regional Natural Resources Program and the Wisconsin Department of Natural Resources, Office of Great Waters. Graphic design by Jeffrey J. Strobel, UW-Extension Environmental Resources Center.



Milwaukee Estuary AOC – Restoration Status Update

Tackling AOC problems, known as Beneficial Use Impairments in the Area of Concern program, requires several steps. We must understand the causes and define the extent of the impairments through monitoring, assessment, and data analysis. We then determine the necessary actions to address the problems, and implement them.

Actions to address AOC problems can be large and complex, requiring the coordinated efforts of many partners over multiple years.

After completing the necessary actions, we must verify through monitoring that we have achieved our goals for cleanup and restoration. Once the goals have been met and the problems have been addressed, the AOC designation can be removed.

This update shows the current status of the removal process for 11 impairments in the Milwaukee Estuary AOC – *complete, underway, or not started* – and next steps. Dates in parentheses indicate the anticipated project completion.

BUI Removal Phases:

- MA MONITOR & ASSESS:** define the problem, gather data and review literature, consult with experts.
- DP DEVELOP AOC PROJECTS:** engage stakeholders to develop the set of projects that are necessary for reaching AOC goals.
- IP IMPLEMENT PROJECTS:** take action to improve conditions within the AOC if monitoring data shows goals are not being met.
- VR VERIFY RESULTS:** after actions have been taken, monitor to determine if target has been met.
- RM FORMAL BUI REMOVAL:** targets have been met. BUI removal documentation is being prepared or reviewed, or has been submitted.

Status of Each Phase:
 Not Started (circle) Underway (arrow) Complete (star)

There are health concerns with eating fish and wildlife

NEXT STEPS:

- Continue cleanup of riverbed sediments containing polychlorinated biphenyls (PCBs) and other toxins which contaminate fish and wildlife.
- As contaminated sediments are cleaned up, consumption concerns for fish and wildlife will be reassessed until goals are met.

MA DP IP VR RM

Fish & wildlife populations are degraded

NEXT STEPS:

- Worked with the Fish and Wildlife Technical Advisory Committee in 2019 to identify 15 projects and 21 metrics for improving populations. Work continues with this group to implement projects.
- Continue cleanup of polluted sites which contribute to population decline.

MA DP IP VR RM

There are increased rates of fish tumors and deformities

NEXT STEPS:

- Continue cleanup of sites that contain polycyclic aromatic hydrocarbons (PAHs), PCBs, metals and other substances that cause fish tumors.
- Reassess rates of fish tumors and deformities following sediment cleanup actions.

MA DP IP VR RM

There is increased potential for bird and animal deformities and reproductive problems

NEXT STEPS:

- Results of the United States Geological Survey tree swallow study (an indicator species) confirm impairment (2019).
- Continue cleanup of riverbed sediments to remove harmful toxins known to cause deformities and reproduction problems.

MA DP IP VR RM

Communities of sediment-dwelling organisms are degraded

NEXT STEPS:

- Evaluate results of USGS study and local agency data on sediment-dwelling organisms to determine health of the benthic community.
- Identify additional studies to fully understand benthic conditions in the AOC (2020).
- Continue cleanup of polluted riverbed sediments.

MA DP IP VR RM



Left: Young sturgeon. Lower Left: Restored Menomonee River channel. Below right: Fish consumption and water contact health advisories. Photos: DNR



Dredging activities for commerce or navigation are restricted

NEXT STEPS:

- Complete cleanup of harmful PCBs, PAHs, and heavy metals in contaminated hotspots.
- Assess other sites with polluted sediment and begin planning cleanup projects in Milwaukee, Menomonee and Kinnickinnic Rivers, Inner and Outer Harbors, and nearshore waters of Lake Michigan.

MA DP IP VR RM

Excessive nutrients cause undesirable algae

NEXT STEPS:

- The Milwaukee River watershed pollution reduction plan needed to improve water quality (Total Maximum Daily Load or TMDL Plan) was completed in 2018. The TMDL Plan will assist in determining next steps for this BUI.
- Determine management actions that are needed in the Estuary (2020).

MA DP IP VR RM

Water contact through beach use or other recreation is limited

NEXT STEPS:

- Conduct beach closings and bacteria-related studies, review results and determine management actions in consultation with stakeholders (2020).
- Support Milwaukee County and other partners to address high bacteria levels and beach closings at South Shore beach.

MA DP IP VR RM

Appearance of rivers and waterfront needs improvement

NEXT STEPS:

- Volunteer monitoring results were used to assess this impairment. Results showed that goals have been met (2018).
- Reviewed status of this BUI with stakeholders; the group confirmed this impairment can be removed (2019).
- BUI removal package will be prepared in 2020.

MA DP IP VR RM

Communities of small organisms living in the water are degraded

NEXT STEPS:

- Evaluate results of USGS plankton study to determine the health of the community of small organisms in the AOC.
- Determine if excessive nutrients and/or toxic water conditions are causing impairment (2020).

MA DP IP VR RM

Loss of fish and wildlife habitat

NEXT STEPS:

- Continue cleanup of polluted riverbed sediments which degrade habitat.
- Continue to implement the list of eleven habitat projects that address the impairment in cooperation with local partners.

MA DP IP VR RM

