The tide is turning

for the Milwaukee Estuary. Toxic sediments are being removed and habitat restoration is underway in much of the AOC. The river is becoming a more valuable resource for recreation and the local economy, as fish and wildlife benefit and public enjoyment opportunities improve.

WDNR

Matt Steiger and brook trout caught during an electrofishing survey on a Milwaukee River tributary.

Arrowhead, kingfisher and great blue heron illustrations by Cindie Brunner

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

For more details about AOC progress and projects, refer to the Area of Concern Remedial Action Plan Updates, available at **http://dnr.wi.gov/topic/greatlakes/aoc.html**

UW Extension Regional Natural Resources Program
Wisconsin Dept. of Natural Resources
Great Lakes Restoration
Environmental Resources Center

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http://fyi.uwex.edu/aocs/milwaukee

Milwaukee Estuary Area of Concern

BENEFICIAL USE IMPAIRMENT RESTORATION REPORT

Summer 2013

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.

The former North Avenue Dam walkway provides access for families to Milwaukee River trails on both shores.

Urban Ecology Center

WDNR

A DNR Fisheries crew captures a sturgeon returning to the Milwaukee River.

Kinnickinnic River restoration improves access and aesthetics while creating fish habitat.

Milwaukee Metropolitan Sewerage District

Ozaukee Fish Passage Program

Newly-released salmon.

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

See progress report inside

Urban Ecology Center

Kayakers enjoy a river paddle downtown.

Volunteers perform beach assessment.

Gail Epping Overholt/UW-Extension

Milwaukee Estuary AOC – Restoration Status Update

Summer 2013

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

Joshua Hastings

Kayaking the Milwaukee River.

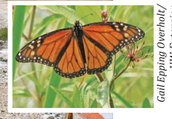
Actions to address AOC problems can be large and complex, requiring the coordinated efforts of many partners over multiple years. Upon completing the necessary actions, we must verify through monitoring that we have achieved our goals for cleanup and restoration. Once the goals have been met and the problems have been addressed, the AOC designation can be removed.

This update shows the current status (Summer 2013) of the removal phases for 11 impairments of the Milwaukee Estuary AOC – *complete, underway, not started,* or *not required* – and the next steps.

Urban Ecology Center

Human and machine power work to rehabilitate habitat for flora and fauna, like the monarch butterfly.

WDNR



Gail Epping Overholt / UW-Extension

BUI Removal Phases:

- **MA** **MONITOR & ASSESS:** define the problem, establish baseline, gather data.
- **DR** **DATA UNDER REVIEW:** literature searches, lab results not yet analyzed/summarized, understanding the data by consulting with experts, etc.
- **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:** this phase includes the step of monitoring to check conditions after action has been taken. Once targets are reached, prepare a proposal to remove the BUI with input from stakeholders.

Status of Each Phase:

not required (X) · not started (○) · underway (➲) · complete (★)

There are health concerns with eating fish & wildlife

NEXT STEPS:

- Continue contaminated sediment cleanups.
- Reassess fish and waterfowl tissues to make sure fish/wildlife don't exceed statewide consumption criteria.
- Identify other sources of contamination if fish/wildlife fail to meet targets.

MA: ➲ · DR: ➲ · DP: ➲ · IP: ➲ · VR: ○

Fish & wildlife populations are degraded

NEXT STEPS:

- Continue contaminated sediment cleanups.
- Complete fish and wildlife population assessments and identify/prioritize projects.
- Implement select fish and wildlife rehabilitation projects.

MA: ➲ · DR: ➲ · DP: ➲ · IP: ➲ · VR: ○

There is increased potential for fish tumors & deformities

NEXT STEPS:

- Continue contaminated sediment cleanups.
- Complete analysis for fish tumor incidence (impairment is suspected).

MA: ➲ · DR: ➲ · DP: ➲ · IP: ➲ · VR: ○

There is increased potential for bird & animal deformities & reproduction problems

NEXT STEPS:

- Continue contaminated sediment cleanups.
- Evaluate ongoing work with tree swallows to determine extent of impairment (impairment is suspected).

MA: ➲ · DR: ➲ · DP: ➲ · IP: ➲ · VR: ○

Populations of sediment-dwelling organisms are degraded

NEXT STEPS:

- Continue contaminated sediment cleanups.
- Evaluate USGS and other data to determine next steps.

MA: ➲ · DR: ➲ · DP: ➲ · IP: ➲ · VR: ○

Dredging activities for commerce or navigation are restricted

NEXT STEPS:

- Continue contaminated sediment cleanups.

MA: ➲ · DR: ➲ · DP: ➲ · IP: ➲ · VR: ○

Excessive nutrients cause undesirable algae

NEXT STEPS:

- Complete the phosphorus total maximum daily load study for the Milwaukee Estuary.
- Implement the recommendations from the phosphorus total maximum daily load study for the Milwaukee Estuary.

MA: ➲ · DR: ➲ · DP: ➲ · IP: ○ · VR: ○

Water contact through beach use or other recreation is limited

NEXT STEPS:

- Complete bacteria source analysis assessment to identify unrecognized sanitary sewage contamination and determine the contribution of sewage to pathogen and fecal loads.
- Implement the recommendations from the bacteria total maximum daily load study for the Milwaukee Estuary.
- Implement actions to reduce South Shore Beach closures.

MA: ➲ · DR: ➲ · DP: ➲ · IP: ○ · VR: ○

Appearance of rivers & beaches needs improvement

NEXT STEPS:

- Continue citizen-based aesthetics monitoring program.
- Where feasible, implement actions for areas that the monitoring program demonstrate need attention.
- Continue river and beach trash cleanup events.

MA: ➲ · DR: ➲ · DP: ○ · IP: ○ · VR: ○

Small organisms living in the water are degraded

NEXT STEPS:

- Continue assessments of the organisms to determine if they are degraded in the Milwaukee Estuary.
- Determine causes if degraded; remove impairment if not degraded.

MA: ➲ · DR: ➲ · DP: ○ · IP: ○ · VR: ○

Fish & wildlife habitat is poor

NEXT STEPS:

- Continue contaminated sediment cleanups.
- Use fish/wildlife population/habitat assessments to identify/prioritize habitat projects.
- Implement select fish and wildlife habitat projects.

MA: ➲ · DR: ➲ · DP: ➲ · IP: ➲ · VR: ○

Monitor and Assess (MA) → Data Under Review (DR) → Develop AOC Projects (DP) → Implement Projects (IP) → Verify Results (VR)

← RETURN TO PROCESS STEPS IF TARGETS NOT REACHED

TARGETS REACHED → SUBMIT FORMAL BUI REMOVAL APPLICATION