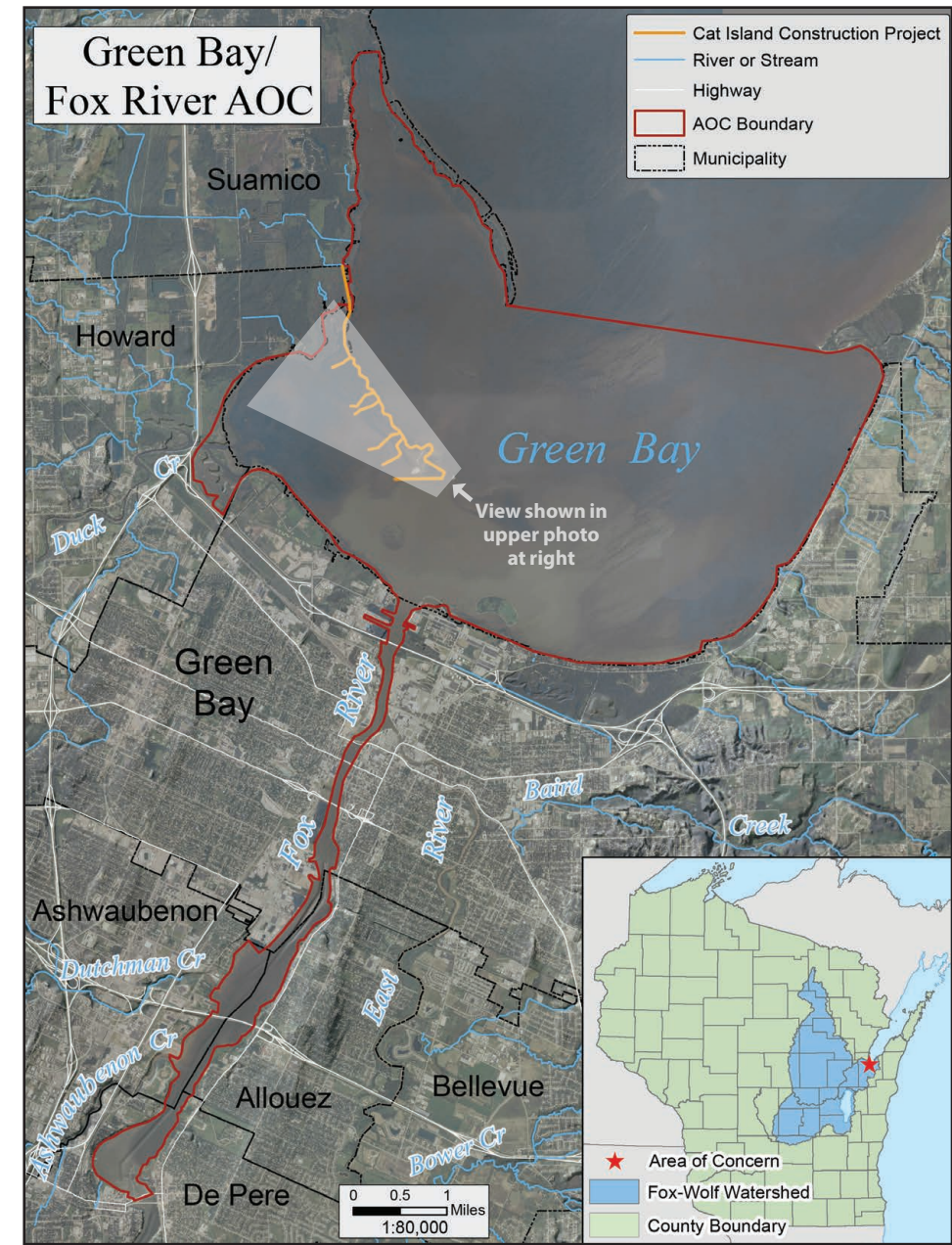


Lower Green Bay & Fox River Area of Concern

The tide is turning for the Lower Green Bay and Fox River AOC. Toxic sediments are being removed and habitat restoration is underway in much of the AOC. While challenges remain for addressing nonpoint source pollution, partners are working together to figure out how to meet water quality goals. The river and bay are becoming a more valuable resource for recreation and the local economy, as fish and wildlife benefit and public enjoyment opportunities improve.



Construction of the rock spine structure of the Cat Island Chain restoration project is expected to be complete in fall 2013.



A nice catch at the Jack Day Center. Fishing in the AOC will continue to improve as habitat is restored and contaminated sediment is cleaned up.



Arrowhead, kingfisher and great blue heron illustrations by Cindie Brunner

Lower Green Bay & Fox River – 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>

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<http://fyi.uwex.edu/aocs/fox-river-green-bay>

Lower Green Bay & Fox River Area of Concern

BENEFICIAL USE IMPAIRMENT RESTORATION REPORT

Summer 2013

Lower Green Bay and the Fox River

below the De Pere Dam were designated an Area of Concern (AOC) in the 1980s because contaminated river sediment impaired public benefits such as fish consumption, healthy fisheries, shipping channels and wildlife habitat.



Liz Tuross, WDNR, on the west shore with northern pike.



Viewing great egrets by kayak on Green Bay.



American white pelicans on the bay.

The Wisconsin Department of Natural Resources (WDNR) and citizen groups identified 13 Beneficial Use Impairments (BUIs) to target here for improving the river.

See progress report inside ➡



Water ski show on the Fox River.



Fishing on the Fox River.



# Lower Green Bay & Fox River 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.



Cat Island Chain restoration.

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 process for 13 impairments of the Lower Green Bay and Fox River AOC – *complete*, *underway*, *not started*, or *not required* – and the next steps.



## 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	not started	underway	complete
X	○	➡	★

## There are health concerns with eating fish & wildlife



### NEXT STEPS:

- Complete waterfowl consumption advisory assessment (2013-2015).
- Complete Lower Fox River contaminated sediment remediation.
- Complete fish consumption advisory assessment.

★	★	★	➡	➡
MA	DR	DP	IP	VR

## Fish do not taste good



### NEXT STEPS:

- Complete survey of AOC anglers (2013) to assess status of this impairment.

★	★	★	★	➡
MA	DR	DP	IP	VR

## Fish & wildlife populations are degraded



### NEXT STEPS:

- Conduct an assessment of sturgeon spawning success below De Pere Dam in 2014.
- Conduct a survey of area trappers to assess the presence of furbearers in the AOC in 2014.
- Conduct a baseline population survey for snapping and painted turtles in Lower Green Bay.

★	★	➡	➡	➡
MA	DR	DP	IP	VR

## There is increased potential for fish tumors & deformities



### NEXT STEPS:

- Use USFWS-USGS “Chemicals of Emerging Concern” study results (available end of 2013) to determine appropriate timing for AOC fish tumors study.
- Conduct AOC fish tumors study using WDNR methods.
- Complete Lower Fox River and MGP contaminated sediment remediations.

★	★	★	➡	➡
MA	DR	DP	IP	VR

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



### NEXT STEPS:

- Use USGS tree swallow monitoring results and other recent data to determine appropriate timing for assessing this impairment.
- Develop a monitoring plan to assess this impairment.
- Conduct necessary monitoring to assess this impairment.

★	➡	★	➡	➡
MA	DR	DP	IP	VR

## Populations of sediment-dwelling organisms are degraded



### NEXT STEPS:

- Use results of 2012 USGS benthos assessment (available end of 2013) to determine whether the study should include additional years or reference locations.
- Expand benthos assessment in 2014 to include sites in Green Bay portion of AOC.
- Continue laboratory and *in situ* studies to test the viability of *Hexagenia* mayflies in Green Bay sediments.

★	★	➡	➡	➡
MA	DR	DP	IP	VR

## Dredging activities for commerce or navigation are restricted



### NEXT STEPS:

- Complete Lower Fox River contaminated sediment remediation.
- Complete manufactured gas plant (MGP) contaminated sediment remediation.

★	★	★	➡	➡
MA	DR	DP	IP	VR

## Excessive nutrients cause undesirable algae



### NEXT STEPS:

- Develop and implement Lower Fox River TMDL implementation plan(s).
- Identify and map tile-drained fields in the watershed in order to better understand soluble P contributions to the AOC.
- Conduct additional blue-green algae monitoring to re-assess the status of this impairment.

★	★	➡	➡	➡
MA	DR	DP	IP	VR

## Waterbody is not recommended as a drinking water source



### NEXT STEPS:

- Consult with local stakeholders and technical experts to identify what information is needed to evaluate the current status of this impairment.
- Collect necessary data and evaluate current status of this impairment.

★	➡	➡	➡	○
MA	DR	DP	IP	VR

## Water contact through beach use or other recreation is limited



### NEXT STEPS:

- Complete Bay Beach Restoration Action Plan project (2012-2015).
- Conduct additional blue-green algae monitoring to re-assess the status of this impairment.
- Develop and implement Lower Fox River TMDL implementation plan(s).

★	★	➡	➡	➡
MA	DR	DP	IP	VR

## Appearance of rivers & beaches needs improvement



### NEXT STEPS:

- Continue Volunteer Aesthetics Monitoring Program until achieve five consecutive years of acceptable results.
- Identify and implement site-specific improvements, such as beach or river clean-ups and small invasive species control projects.
- Develop and implement Lower Fox River TMDL implementation plan(s).

★	★	➡	➡	➡
MA	DR	DP	IP	VR

## Small organisms living in the water are degraded



### NEXT STEPS:

- Use results of 2012 USGS plankton assessment (available end of 2013) to determine whether the study should include additional years or reference locations.
- Develop and implement Lower Fox River TMDL implementation plan(s).

★	★	➡	➡	➡
MA	DR	DP	IP	VR

## Fish & wildlife habitat is poor



### NEXT STEPS:

- Continue Cat Island Chain Restoration Project and complete plans for wildlife monitoring and final habitat design.
- Conduct AOC shoreline and wetland habitat assessment, including invasive species inventory.
- Continue to expand fish habitat connectivity around the AOC by removing fish barriers and replacing culverts.

★	★	➡	➡	➡
MA	DR	DP	IP	VR

Monitor and Assess (MA)

Data Under Review (DR)

Develop AOC Projects (DP)

Implement Projects (IP)

Verify Results (VR)



TARGETS REACHED

SUBMIT FORMAL BUI REMOVAL APPLICATION

← RETURN TO PROCESS STEPS IF TARGETS NOT REACHED