

Developing Delisting Targets for the Sheboygan River Area of Concern

by

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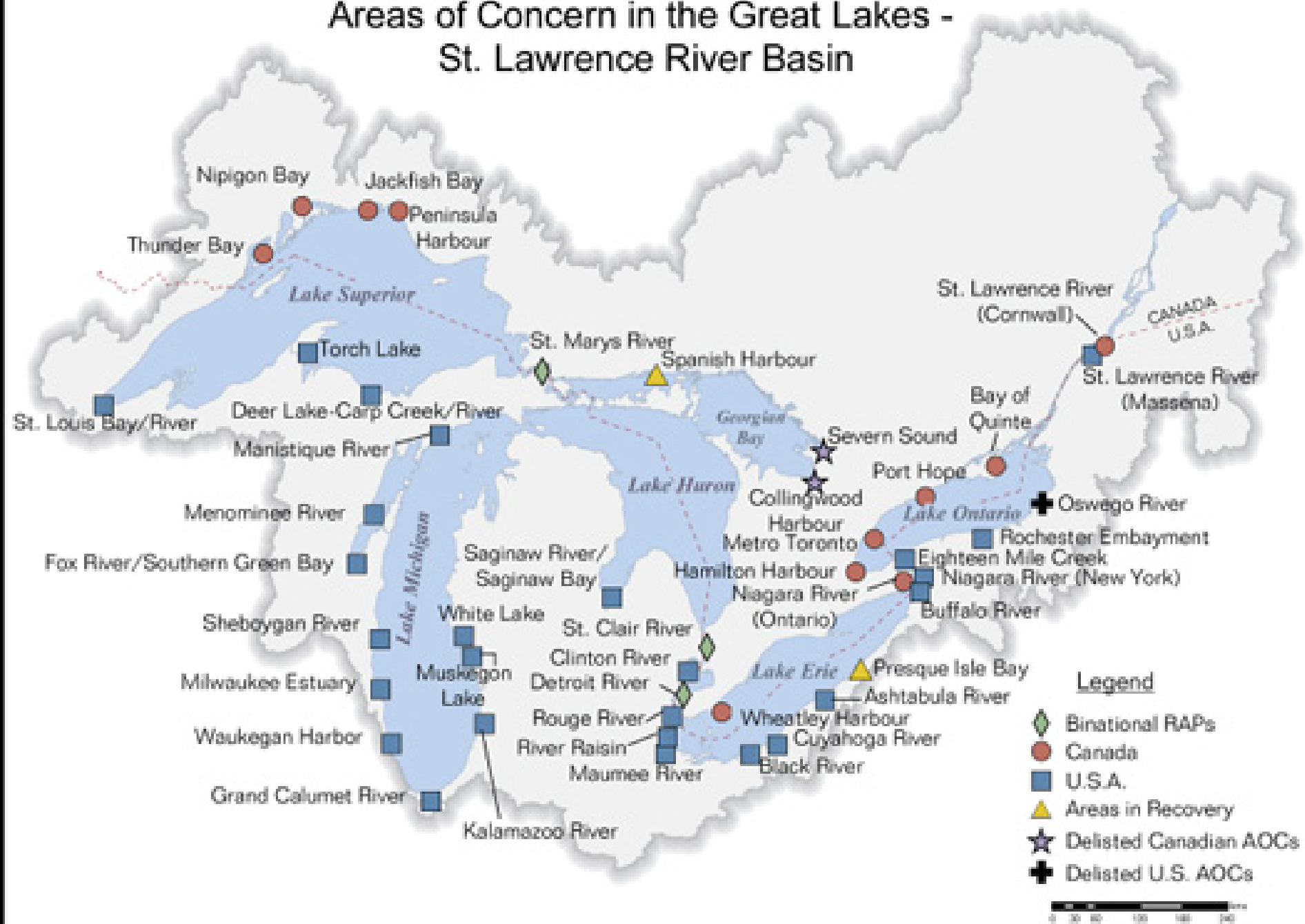
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Preview of Presentation

- Delisting Status/Approach Across the Great Lakes
- Delisting Target Development Process
- Overview of the Sheboygan River AOC
 - Watershed Features
 - RAP Implementation
 - BUIs
- Project Approach and Schedule
- Examples: Milwaukee Estuary AOC Targets

Delisting Status/Approach Across the Great Lakes

Areas of Concern in the Great Lakes - St. Lawrence River Basin



Status of Delisting Target Development Across United States and Canada:

- In the United States:
 - AOCs delisted: Oswego AOC
 - Recovery Stage: To-date, only Presque Isle Bay AOC
 - AOCs with completed delisting targets:
 - St. Louis River AOC, Milwaukee Estuary AOC, Buffalo River AOC, and Rochester Embayment AOC
 - AOCs currently finalizing delisting targets:
 - Waukegan Harbor AOC, Clinton AOC, Cuyahoga AOC, Grand Calumet AOC, etc

Status of Delisting Target Development Across United States and Canada:

- State-wide initiatives in the United States:
 - For the 14 AOCs in Michigan, Michigan Department of Environmental Quality has developed delisting targets for non-habitat BUIs
 - Clinton AOC, Muskegon Lake AOC, White Lake AOC, and Saginaw AOC have locally derived delisting target
 - Work is currently underway to address habitat BUIs
 - Ohio EPA has developed delisting targets that can be used as starting points for Ohio AOCs
 - Black River and Maumee Bay AOCs have adopted Ohio target

Status of Delisting Target Development Across United States and Canada: Examples

■ In Canada:

- Environment Canada is in the process of developing cross-the-board delisting target for all AOCs. In addition:
 - Collingwood Harbour AOC and Severn Sound AOC have been delisted
 - Spanish Harbour is in recovery
 - Detroit AOC on Canadian side has developed delisting target

Delisting Target Development Process

Target Development Process

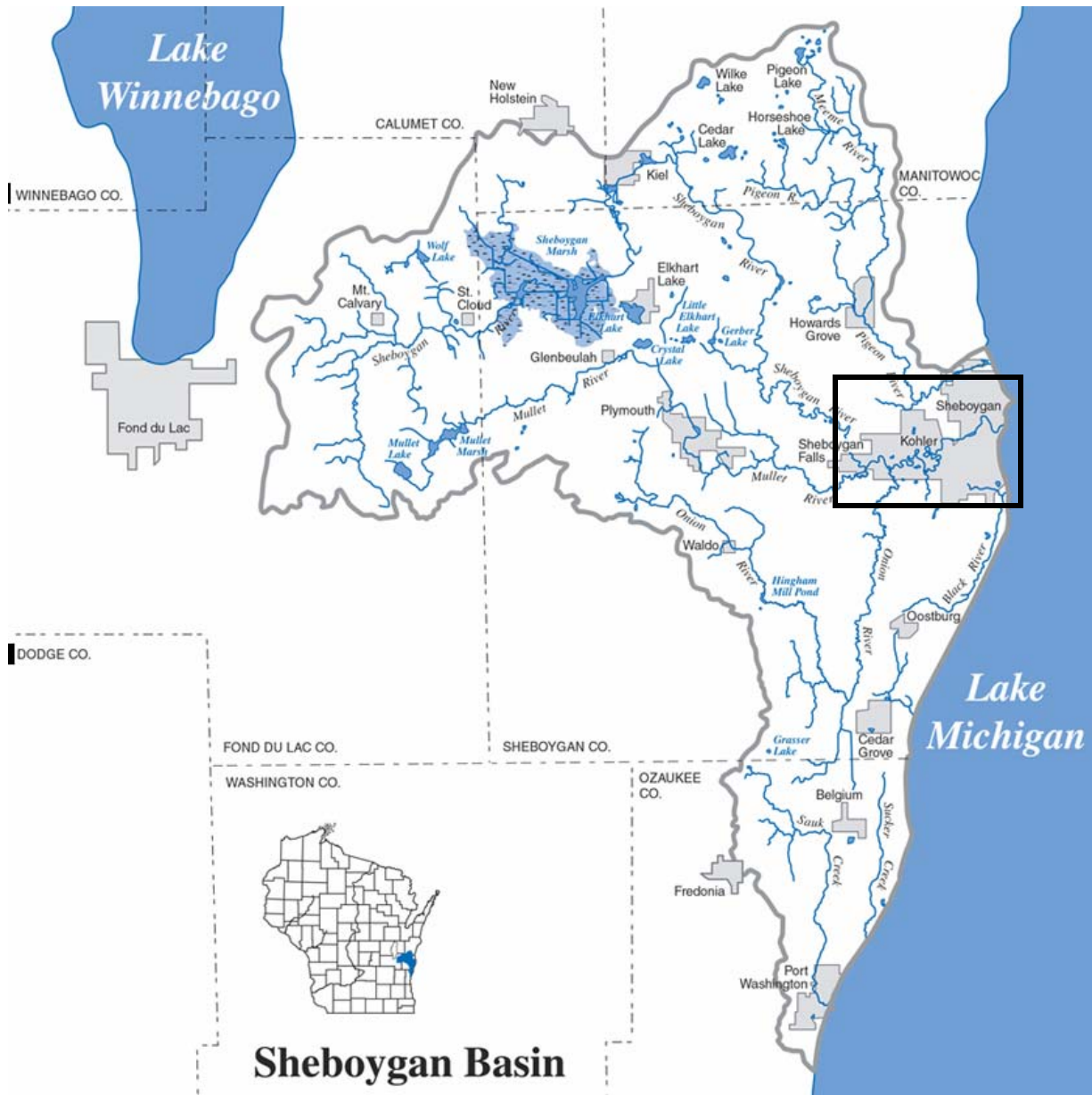
- Similar to watershed management planning process
 - Defines where we are now
 - Defines where you want to be
 - Does not define how to get there
- Establish Project Team and Technical Committee
- Review existing AOC data/conditions
 - Determine what natural resources values and features are important in the AOC
 - Determine the reasons for delisting the beneficial uses as impaired

Target Development Process: Continued

- Review what other AOCs have done
- Review available Federal, State, Provincial guidance
- Define a vision for the watershed (where you want to be)
 - Define how restoration will improve water and ecosystem quality
- Define target and applicability

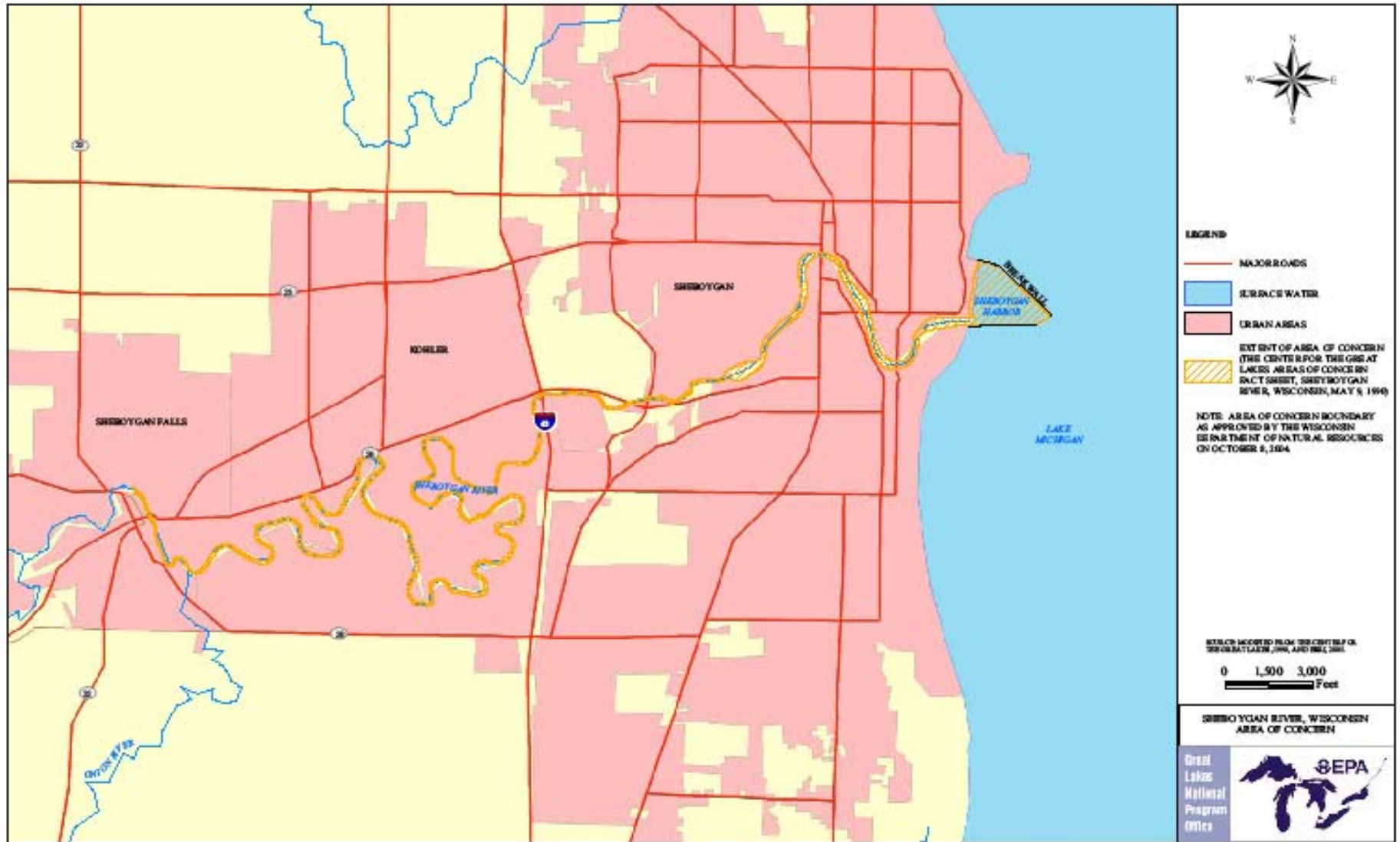
Sheboygan River AOC: Overview

Sheboygan River Watershed



- 6 watersheds
- 615 square miles
- Spans 5 counties
- 130,000 population
- 27 lakes or impoundments
- 400 mi of stream
- 45,000 acre of wetland

Limits to Area of Concern



Delisting Targets for the Sheboygan River AOC

- Why do this project?
 - The RAP goal is to restore the Sheboygan River
 - How do you know if you got there?
 - Focus monitoring efforts in the watershed
 - Focus remedial efforts in the watershed
 - Justification for additional watershed remediation funding

RAP Implementation: Progress & Achievements

- Superfund project remediation
- Kohler Company landfill remediation
- Fish health assessments (*Schrank, et al*)
- Bioaccumulation assessment (*Burzynski*)
- Municipal erosion control and storm water ordinances
- Willow Creek evaluation/protection
- Onion River and wetland restorations
- Strong community involvement

Assessment and Monitoring Projects With a Tie-in to Current Effort

- **WDNR Surface Water Monitoring Program**
- **Self-Help Lake Monitoring**
- **Testing of the Waters**
- **Sheboygan River Priority Watershed Project**
- **National Water Quality Assessment Program**
- **Lake Michigan Mass Balance Study**

Nine Beneficial Use Impairments

- Six non-habitat related BUIs:
 - Restrictions on fish and wildlife consumption
 - Eutrophication or undesirable algae
 - Degradation of phytoplankton and zooplankton populations
 - Fish tumors and other deformities
 - Bird or animal deformities
 - Restrictions on dredging
- Three habitat/populations related BUIs:
 - Degradation of fish and wildlife populations
 - Degradation of benthos
 - Loss of fish and wildlife habitat

Project Approach

Existing AOC Conditions: Where is the AOC “Now”

- Evaluate:
 - Existing BUIs
 - Historic habitat/species identification
 - Trends in water quality/quantity
 - Trends in fisheries
 - Trends in sediment contamination
 - Natural resource values & important AOC features

Delisting Target: Where Does the AOC Want To Be

- Delisting targets should
 - Be consistent with local goals and objectives in RAP
 - Be consistent with applicable federal/state “stuff”, Annex 2, and GLWQA
 - Have measurable indicators and defined actions
 - Be developed on a site specific basis
 - Be periodically reviewed
 - Consider the impact of contaminants originating from outside the AOC

Pathway for Delisting Approach

■ Non-Habitat BUIs

- Evaluate applicability of water quality standards/objectives
- Review applicability of state/provincial/federal guidelines or criteria

■ Habitat BUIs

- Inventory and Assessment
 - Inventory habitats and species and compare to both historical conditions and the vision
 - Determine the important or unique features that need to be preserved
 - Articulate the specific impairments to fish and wildlife populations and habitats and their causes
 - Determine land ownership and ability to influence land management
 - Map the AOC and each potential restoration or protection site, evaluating site conditions and needs
 - Revisit and redefine AOC goals in light of the inventory and assessment

Project Schedule

- Literature Review Tech Memo – June 9
 - Identify Reviewers/Tech Experts (pending)
- First Draft Report – June 27th; Meeting mid-July
- Responsiveness Memo – July 25
- Second Draft Report – August 15
- Public Meeting – Late August/Early September
- Responsiveness Memo – Late Sept/Early Oct
- Meeting with Committee – Mid October
- Final Report – Late October

Examples: Selected Milwaukee Estuary Delisting Targets

Milwaukee AOC Target: Restrictions on Fish and Wildlife Consumption...

Remediation will be determined by the following steps and targets:

- **All known man-made sources of BCOCs (including PCBs, mercury, dioxins, and furans) within the AOC and tributary watershed have been controlled or eliminated; and**
- **A statistically valid sampling program demonstrates that the edible portion of fish tissues do not contain man-made BCOCs at levels exceeding fish consumption advisories for unrestricted consumption (currently identified as 0.05 ppm PCBs, and 10 ppt dioxin and furan congeners – as TCDD toxicity equivalent concentrations); and**
- **Waters within the Milwaukee Estuary AOC are not listed as impaired due to fish consumption advisories in the most recent Clean Water Act 303(d) and 305(b) Wisconsin Water Quality Report to Congress (submitted to U.S. EPA every two years); and**
- **Waters within the Milwaukee Estuary AOC do not have special fish consumption advisories due to mercury in the Healthy Guide for Eating Fish in Wisconsin for two document cycles.**

Milwaukee Restrictions on Fish and Wildlife Consumption (continued)

Or if the above is not achievable within 10 years:

- All known man-made sources BCOCs (including PCBs, mercury, dioxins, and furans) within the AOC and tributary watershed have been controlled or eliminated; and
- A multi-year comparison study of fish tissue contaminant levels demonstrates that there is no statistically significant difference (with a 95% confidence interval) in fish tissue BCOC concentrations in the AOC compared to fish tissue BCOC concentrations in a representative non-impacted control site within the Lake Michigan Basin.

Milwaukee AOC Target: Restrictions on Dredging

Delisting of this BUI can occur when:

- Contaminated sediment hot spots within and upstream from the AOC have been identified.
- Implementation actions to remediate contaminated sites have been completed. As a source control measure and for AOC remediation, known contaminated sites must be addressed before delisting is possible.
- There are no restrictions on routine navigational dredging done by the U.S. Army Corps of Engineers and/or private dredging companies due to contamination originating from controllable sources within the AOC.

Milwaukee AOC Target: Degradation of Phytoplankton and Zooplankton

A stepped approach is needed for delisting for this impairment:

1. The first step toward delisting will be to establish a baseline condition for the estuary to evaluate the extent of this impairment. Phytoplankton and zooplankton community surveys should be conducted and compared to a non-impacted or minimally impacted reference site to set the baseline condition. If the community structure is statistically different than the reference conditions, this BUI should be considered impaired.
2. Identify the factors leading to this impairment.
 - a) Ambient water chemistry sampling should be conducted to determine if nutrient enrichment is the main contributor. If nutrients are the main contributor, sources causing nutrient enrichment to the outer harbor and nearshore waters are identified and controlled.
 - b) If nutrient enrichment is not considered the cause of the impairment, conduct bioassays to determine if ambient water toxicity is causing impairment.
3. The Milwaukee Estuary AOC is not listed as impaired due to phytoplankton and/or zooplankton toxicity in the most recent Wisconsin Impaired Waters list (submitted to U.S. EPA every two years).

Milwaukee AOC Target: Degradation of Benthos

Delisting may occur if:

- Known contaminant sources contributing to sediment contamination and degraded benthos have been identified and control measures implemented, and
- All remediation actions for contaminated sediments are completed and monitored according to the approved plan with consideration to using consensus based sediment quality guidelines and equilibrium partitioning sediment benchmarks; or
- The benthic community within the site being evaluated is statistically similar to a reference site with similar habitat and minimal sediment contamination.

Milwaukee AOC Target: Degradation of Fish and Wildlife Populations

This BUI will be considered delisted when the following have occurred:

- A local fish and wildlife habitat management and restoration/rehabilitation plan has been developed for the entire AOC that:
 - Defines the causes of all habitat impairments within the AOC;
 - Establishes site-specific habitat and population targets for fish and wildlife species within the AOC;
 - Identifies all fish and wildlife habitat restoration programs and activities within the AOC and establishes a mechanism to assure coordination among the programs/activities including identification of lead agencies;
 - Establishes a timetable, funding mechanisms, and lead agency responsibility for all fish and wildlife habitat restoration activities within the AOC.
- The programs and actions necessary to accomplish the recommendations identified in the fish and wildlife management and restoration plan are implemented, and modified as needed to ensure continual improvement.

Questions and Discussion

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