



UMR Clean Water Act Monitoring

2016 Minnesota-Wisconsin (Reaches 0-3) Pilot Project

From 2011-2014, the Upper Mississippi River Basin Association (UMRBA) and its five member states developed a water quality monitoring strategy for the Upper Mississippi River to enable unified and comprehensive monitoring on the main stem. The monitoring strategy consists of a mixed sampling design – probabilistic and fixed site sampling to fulfill four designated uses on the river: aquatic life, fish consumption, recreation, and drinking water use.

Reaches 0-3 Pilot: Interstate Clean Water Act Monitoring Completed

In 2016, coordinated CWA monitoring on the UMR took a major step forward with the implementation of a pilot project in Reaches 0-3 (from the Twin Cities to La Crosse; Figure 1).

Goal: To implement a pilot of the UMR CWA Monitoring Plan in Assessment Reaches 0-3 in order to test the Plan's logistical feasibility and technical effectiveness for providing a shared interstate assessment of aquatic life, fish consumption, recreation, and drinking water use attainment.



Figure 1: Location of the UMR CWA Pilot Monitoring Project (Minnesota-Wisconsin-Shared Reaches)

What Was Sampled?

Following the vision set out in the UMR CWA Recommended Monitoring Plan, samples were collected to evaluate the chemical, physical, and biological conditions of the river (Figure 2).

Parameters:

- Water quality: chemistry, bacteria, metals, and nutrients
- Biological communities: fish, macroinvertebrates, and aquatic vegetation
- Physical habitat and characteristics

Who Participated?

Minnesota Pollution Control Agency, Minnesota Department of Natural Resources, Metropolitan Council, and Wisconsin Department of Natural Resources completed field work and data analysis. UMRBA facilitated and coordinated this effort.

CWA ASSESSMENT-FOCUSED NETWORKS	LOADING-FOCUSED NETWORK
Reach-Based Probabilistic Sampling <i>Aquatic Life, Fish Consumption, Recreation</i>	Tributary Loading Network Nutrient and Sediment Loads
Main Stem Fixed Site Sampling <i>Aquatic Life, Recreation, Drinking Water</i>	
Follow-up Sampling <i>Aquatic Life, Fish Consumption</i>	

Figure 2: The UMR CWA Recommended Monitoring Plan Structure of Constituent Networks and Designated Uses (the yellow text indicates the focal area for the Reaches 0-3 pilot)



Reaches 0-3 Pilot: Condition Assessment Results

The data collected during the pilot were used to assess the water quality condition for each designated use as either good, fair, or poor (Table 1). The three-tiered assessment framework allowed for comparison of the major use categories by reach. Note that drinking water use consumption, typically considered one of the major use categories in CWA assessments, was not evaluated as there are no drinking water intakes in the Reaches 0-3 study area.

Table 1: Summary of Condition Classes Across All Uses

Reach	Recreation	Aquatic Life			Fish Consumption	
	<i>E. coli</i> & Chlorophyll-a	Dual Assemblage (Fish & Macroinverts)	Vegetation	TSS	<i>Overall Aquatic Life</i>	Advisory-Based
0	Good	Good	Poor	Poor	Fair	Fair
1	Good	Good	Good	Fair	Good	Fair
2	Good	Good	Good	Good	Good	Fair
3	Good	Good	Good	Fair	Good	Fair



Photo credit: Met Council

For more information:

Visit UMRBA's water quality web page at: www.umrba.org/wq.htm
 OR
 Contact Lauren Salvato (651-224-2880 or lsalvato@umrba.org)



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Conclusions and Recommendations

The pilot demonstrated that a **shared, provisional UMR CWA condition assessment** that incorporates biology and water chemistry is achievable. This effort represented a **voluntary and collaborative model** of coordinated monitoring that relies on in-kind contributions from participating agencies.

Participating agencies made the following recommendations:

- ✓ Implement coordinated monitoring throughout the UMR before the close of the current 10-year monitoring plan timeframe – from 2013 to 2022
- ✓ Modify the UMR CWA Recommended Monitoring Plan to improve its effectiveness and feasibility
- ✓ Reassess monitoring approaches for macroinvertebrates, vegetation, and HAB events
- ✓ Pursue opportunities to integrate UMR CWA data with other river monitoring programs
- ✓ Maintain and build capacity to support coordinated monitoring



Photo credit: WI DNR