



Minnesota  
Pollution  
Control  
Agency

# Minnesota River Basin

## Environment and Water Quality Achievements

Water Quality/Basins 3.42 • February 2009

Studies suggest that at least some aspects of water quality in the mainstem of the Minnesota River have improved and continue to improve.

Over the past two decades many people and organizations have worked hard to improve the water quality of the Minnesota River and its tributaries. Achievements toward making the river “fishable and swimmable” are summarized in the January 2007 report, [“Progress on a Long Voyage.”](#) Pollutants identified in the Minnesota River Assessment Project (1989-93) include: sediment, nutrients, bacteria, and oxygen demanding materials. Some say that we haven’t made enough progress. In reality, the job is much more complicated and challenging than many people realized. It is also challenging to detect change at the basin scale due to climate variability.



### MPCA Offices:

**Rochester:**  
507/285-7343

**Mankato:**  
507/389-5977

**Marshall:**  
507/537-7146

**Willmar:**  
320/214-3786

**Detroit Lakes:**  
218/847-1519

**Brainerd:**  
218/828-2492

**Duluth:**  
218/723-4660

**Metro:**  
651/296-6300

**Toll-Free Number:**  
800/657-3864

The importance of improving and protecting the Minnesota River goes beyond water quality. Better wastewater treatment benefits public health. Land and water conservation practices protect and sustain the basin’s rich farmland. Reducing levels of nutrients such as nitrogen entering the river helps in the campaign to limit the hypoxic zone in the Gulf of Mexico. The river has great potential for recreation and tourism.

### Partnerships

In nearly every major watershed in the basin, local watershed projects work closely with communities and landowners. Thousands of best management practices (BMPs) have been installed. Monitoring occurs at the mouth of every major watershed. Much of this has been in place since the mid to late 1990s. The State of the Minnesota Report documents levels of sediment and nutrients from each

watershed. Citizen groups are actively engaged in efforts to restore and protect the basin’s waters. Public involvement is a key component of [Total Maximum Daily Load](#) projects, now numbering nine completed and 23 under way in the basin.

### Pollutants

Preliminary results from on-going work by the [Water Resources Center at Minnesota State University-Mankato](#) indicate that the Minnesota River at St. Peter is showing statistically significant decreases in the levels of two key water pollutants, total suspended solids (TSS) and total phosphorus (TP), for the period 1998-2008. No trend was observed for nitrate-nitrogen over the same time period. Over a longer time period (1967-2007), the Minnesota River at Mankato showed a statistically significant decrease in suspended sediment (similar to TSS)

concentration. Previous trend analysis by the University of Minnesota and the Minnesota Pollution Control Agency at downstream locations on the river (Jordan, Fort Snelling) for the late-1970s through 2001/2002 showed decreasing concentrations of TSS and TP.

These studies suggest that at least some aspects of water quality in the mainstem of the Minnesota River have improved and continue to improve. It is important to note that the trend picture may be more mixed for the tributaries of the Minnesota River. Early results from the Water Resources Center suggest that some pollutants could be increasing in some tributaries.

## Biology

In 2001, fish communities at 31 stream sites, originally sampled for 1990-1992 as part of the Minnesota River Assessment Project, were re-sampled to evaluate change in stream biological condition. The index of biological integrity (IBI) was used to evaluate change in stream biological conditions between the two periods. A comparison of mean IBI scores indicated that there was not a significant change in stream biological condition in the decade between sampling periods.

Given the pervasiveness of land use modifications in the basin, the existing level and elapsed time of restoration activities in selected watersheds may not have been sufficient to improve stream biological conditions. However, a significant change in biological condition did occur in small unchannelized areas under 100-square-miles that contained some BMP implementation. Research is underway to better define sediment sources beyond the traditional upland vs. near channel categories. Results will be available beginning in 2009. Anecdotal, fishing enthusiasts report improvements in the quality and variety of catches, including catfish, bass, northern, and walleye.

## Summit Meetings

Since January, 2007 two Minnesota River Summit meetings have been held, the first attended by 200 stakeholders from every major sector of the watershed. Attendees agreed that improved collaboration and communication are the most critical needs. To that end, a communication strategy has been developed and now is at the implantation stage. Also, plans have been laid by a stakeholder steering committee for using the tools of system dynamics to better integrate and focus water



quality efforts. The summit meetings also called out the need for fuller engagement of citizens and communities, and much stronger emphasis on the social aspects of water quality improvement. If improved outcomes expected by Minnesotans are to be achieved, the approach must be more strongly stakeholder-driven.

## Minnesota River Basin Milestones

- 9 Total Maximum Daily Load reports approved and 23 underway (as of February 2009), addressing bacteria, nutrient, and turbidity impairments.
- 35 projects currently active with watershed groups.
- Municipal wastewater treatment installed in at least 25 small communities in past 12 years.
- Phosphorus general permit: Issued in December 2005, sets phosphorus limits on 40 largest treated wastewater dischargers, requires phosphorus management in smaller communities.
- Basin Plan completed in 2001, cites milestones, action strategies.

For more information contact Larry Gunderson, 651-757-2400, [larry.gunderson@state.mn.us](mailto:larry.gunderson@state.mn.us).

On the Web:

[www.pca.state.mn.us/water/basins/mnriver/index.html](http://www.pca.state.mn.us/water/basins/mnriver/index.html)