Lower Wild Rice River Turbidity TMDL Project

Non-point source reductions seen as key

wq-iw5-03a • September 2008

The TMDL Process

The Clean Water Act requires that states develop Total Maximum Daily Loads (TMDLs) for surface waters that do not meet standards. To meet this requirement, the MPCA will:

Assess lakes and river reaches.

List those that do not meet standards.

Identify pollution sources and reductions needed through a TMDL report that must be completed within 15 years of a water body being listed as impaired.

Allocate to each of those sources how much they may contribute to the overall load and, if they are exceeding that allocation, what they need to do in order to help meet the water quality standard.

Implement restoration activities. An implementation plan must be done within one year of the study but implementation can take place over several years.

Evaluate water quality to see if actions are having the desired effect.

Lower Wild Rice impaired for turbidity

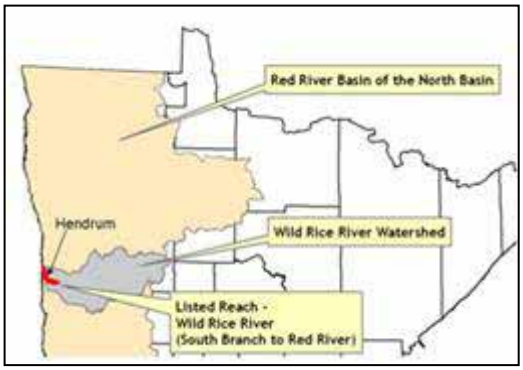
In 2006 the Minnesota Pollution Control Agency (MPCA) listed the lower reach of the Wild Rice River as impaired for excess turbidity (suspended or dissolved particles) based on monitoring conducted in 2001 and 2003.

The impairment is located from the river's confluence with south branch of the Wild Rice River near Hendrum to the Red River and is about 30.5 miles in length. Land use is dominated by cropland and is extensively drained.

The primary contributing sources of the turbidity impairment appear to be upland soil erosion and stream-bank erosion. The turbidity impairment can also be directly correlated with higher flows, with sediment reductions near 90% needed to achieve the turbidity water quality standard during wet conditions and high flows.

The turbidity standard for aquatic life is currently set at 25 Nephelometric Turbidity Units (NTUs). All of the turbidity readings taken during the open water season were 25 NTU or higher. The only turbidity measurements that were less than 25 NTU, of which there were five, were sampled during the winter season (December – March).

Dissolved and suspended particles together are considered a pollutant that can affect the growth and development of fisheries by reducing spawning areas and food sources. Accelerated sedimentation can also increase stream channel width/depth ratios and cause bank erosion and failure.



Sediment sources

In an agricultural watershed setting, such as the Wild Rice River watershed, non-point sources dominate the sediment load and are the primary areas designated for load reduction activities. Non-point sources can include soil erosion from the stream channel and upland areas. Both sources are known to contribute with the more significant source varying depending on precipitation, flow and time of year.

There is also runoff from both agricultural lands and more urban areas.

Minnesota Pollution Control Agency • 520 Lafayette Rd. N., St. Paul, MN 55155-4194 • www.pca.state.mn.us
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Point sources are facilities that discharge solids to surface water. In this case, point sources include municipal wastewater treatment facilities (WWTFs), industrial facilities, concentrated animal feeding operations and construction activities.

There are 10 WWTFs located within the watershed: Bejou, Borup, Felton, Gary, Hendrum, Mahnomen, Ogema, Twin Valley, Ulen, and Waubun.

There are two industrial facilities: Ames Sand & Gravel and Border States Paving.

There are two Concentrated Animal Feeding Operations (CAFOs) in the watershed: Burkel Turkey Farms, Inc. and Maple Leaf Enterprises, Inc.

Monitoring for effectiveness

There are several monitoring activities occurring in the Wild Rice River watershed to track water quality trends and to monitor the effectiveness of improvement projects. These monitoring activities include the Red River Basin's River Watch, the United States Geological Survey flow monitoring and sediment analysis study, and the MPCA's Milestone and condition monitoring.

Implementing strategies for improving WQ

The Wild Rice Watershed District and its Flood Damage Reduction Project Team are the major stakeholders in creating and implementing a plan to achieve water quality standards for the lower Wild Rice River. The Project Team consists of representatives from the watershed district, state, federal and tribal agency personnel, local government officials, affected landowners and interested citizen groups.

The Wild Rice Watershed District and its Flood Damage Reduction Project Team will utilize existing water management plans to develop the implementation plan. An initial focus of the plan will be to identify spatially the sources of sediment loading to the Wild Rice River. The District will seek funding through existing programs for implementation activities. Some of the funding programs include the Clean Water Legacy Act, Section 319 or other EPA grants, Clean Water Partnership/State Revolving Fund Phase II program, Board of Water and Soil Resources Challenge Grants, the Natural Resource Conservations Service's Environmental Quality Incentive Program, the Ag BMP loan program, the Conservation Reserve Enhancement Program, and the Conservation Reserve Program.

Best management practices for WQ Improvement

A group of best management practices (BMPs) will be the tools used to achieve reductions in turbidity. These could include filter strips, natural vegetation buffers, grassed waterways, cover crops and conservation tillage. Structural practices could include water and sediment control basins and grade control structures.

For more information

After putting the Lower Wild Rice Turbidity Total Maximum Daily Load study on public notice in September 2008, the study was revised to include additional information regarding turbidity. The public comment period for the revised portion of the report is April 20 – May 20, 2009. Comments should be directed to: Jack Frederick, Project Manager, 714 Lake Ave., Suite 220, Detroit Lakes, MN 56501 or email john.frederick@pca.state.mn.us

Review the *Lower Wild Rice River Turbidity Total Maximum Daily Load* full report on the MPCA Web site at http://www.pca.state.mn.us/water/tmdl/index.html

Visit this MPCA Web page for facts sheets and publications on various issues related to TMDLs and impaired waters: http://www.pca.state.mn.us/water/tmdl/tmdl-publications.html

Direct questions, comments and requests for additional information to Jack Frederick at john.frederick@pca.state.mn.us or by phone 218-847-1519.