



Minnesota
Pollution
Control
Agency

Mustinka River Turbidity TMDL Report

Non-point source reductions seen as key

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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.

In 2004 the Minnesota Pollution Control Agency (MPCA) listed two reaches of the Mustinka River in west-central Minnesota as impaired for aquatic life due to excess turbidity (suspended or dissolved particles) based on monitoring conducted in 2001 and 2002.

The impairments are located along a 4.7-mile segment or “reach” running from the Grant/Traverse County line to Five Mile Creek and a reach starting at an unnamed creek running to Lake Traverse (8.3 miles) as impaired for exceeding the turbidity standard for aquatic life, which is currently set at 25 Nephelometric Turbidity Units (NTUs).

The primary cause of turbidity in the Mustinka is suspended sediment. This pollutant can affect the growth and development of fisheries by reducing spawning areas and food sources. In addition to affecting aquatic life, accelerated sedimentation can increase stream channel width/depth ratios and cause bank erosion and failure. Sediment can adversely affect drinking water supplies by causing taste and odor problems, foul treatment systems, and fill reservoirs resulting in loss of capacity.

Sediment sources

Sources of sediment that contribute to turbidity come from both point and non-point sources. Point sources include facilities such as waste water treatment plants and industrial sites. Non-point sources include field and stream bank erosion as well as agricultural activity and



other human activities along the river.

The primary contributing sources of the turbidity impairment for both reaches appears to be agricultural land soil erosion and stream-bank erosion in part caused by the extensive hydrologic modifications, or ditching, that has taken place across the watershed in the past. The highest turbidity levels are associated with higher flows (spring runoff and heavy rain events) with sediment reductions near 90 percent needed to achieve the water quality standard during moist and high flow conditions.

Non-point sources of sediment

There are seven wastewater treatment facilities in the watershed serving the communities of Wendell, Dumont, Elbow Lake, Herman, Graceville, Wheaton and the Big Stone County Hutterite community. All are pond systems. Their NPDES/SDS permits include a discharge limit for Total Suspended Solids (TSS) expressed in kilograms per day. The permits allow for two discharge windows between April 1 -and June 30 and between September 1 and December 15. In general, these windows coincide with high flow periods.

There are numerous sand and gravel operations located within the watershed. Industrial stormwater activities are considered in compliance with provisions of the TMDL if they obtain an industrial stormwater general permit or General Sand and Gravel general permit (MNG49) under the NPDES program and properly select, install and maintain all Best Management Practices (BMPs) required under the permit. The pollutant load from industrial stormwater activities such as these are considered to be less than one percent of the TMDL and are difficult to quantify.

There are 98 registered feedlots located within the watershed. Seven of those are Confined Animal Feeding Operations (CAFOs). All the CAFO's have been issued NPDES/SDS permits under the State Of Minnesota General Livestock Production Permit. These facilities are assigned a zero waste load allocation. This is consistent with the conditions of the permit, which allows no discharge of pollutants from the production area of the CAFO.

Implementation Plan

The Bois de Sioux Watershed District with the assistance of its Flood Damage Reduction Project Team and various Soil and Water Conservation Districts (SWCDs) within the watershed will develop a detailed implementation plan within one year of the EPA's approval of the TMDL report currently in draft form. The five SWCDs and the watershed district have identified best management practices (BMPs) and structural controls to reduce erosion in critical areas. BMPs include crop residue management, grass waterways, shelter belts, filter strips, buffer strips, side inlet control structures, stream bank stabilization practices, channel restoration and so on. There are also a

number of state and federal funding programs (e.g. Clean Water Legacy Act, EPA grants, Clean Water Partnership grants, Natural Resource Conservations Service programs, and Conservation Reserve Enhancement Program) that can address a variety of local water quality problems. These plans and programs will continue to play a major role in the protection and restoration of surface waters within the watershed.

Monitoring of water quality changes will occur on an on-going basis by the MPCA, the Red River Water Management Board, River Watch and other local units of government in order to document changes in water quality as elements of the implementation plan are put into action. Continued funding of Minnesota's Clean Water Legacy Act will help ensure there will be adequate future funding for TMDL implementation activities and monitoring.

Public involvement

Public notice of a revised draft TMDL report for the Mustinka River is posted in the State Register and will be open for comment in early 2010. Submit written comments to:

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For more information

Contact Jack Frederick at 218-846-8110 or john.frederick@pca.state.mn.us for more information on the Mustinka River turbidity TMDL report.

General information about TMDLs, as well as the Mustinka draft TMDL report, are available online.

Minnesota Pollution Control Agency:
www.pca.state.mn.us/water/tmdl/

U.S. Environmental Protection
Agency: www.epa.gov/owow/tmdl/

TMDLs.net – America's Clean Water Foundation and the Association of State and Interstate Water Pollution Control Administrators: www.tmdls.org/