



**Minnesota
Pollution
Control
Agency**

Hawk Creek, Beaver Creek

Bacteria and Turbidity TMDL Project Overview

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TMDL

The total amount of a pollutant that a water body can carry without violating water quality standards

Turbidity

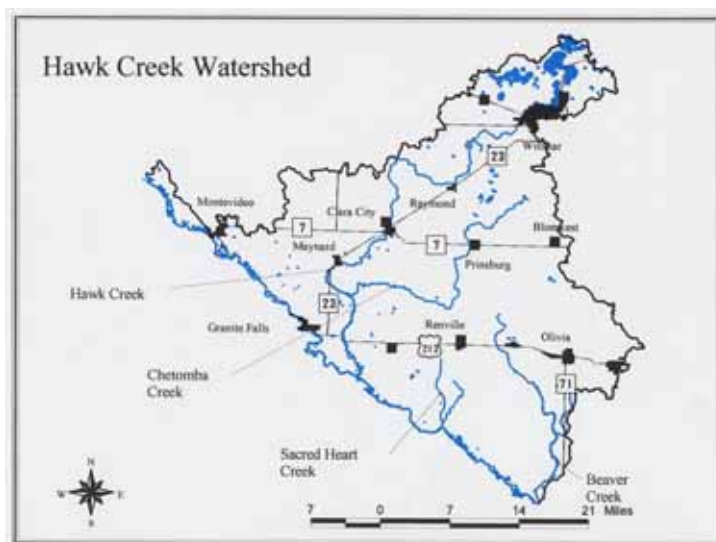
Measures water clarity; related to particles in water (sediment and algae)

Seven reaches in the Hawk Creek and Beaver Creek watersheds were identified in 2006 as not meeting water quality standards for bacteria and turbidity. This project will determine the Total Maximum Daily Load (TMDL) for those impairments, and develop an implementation plan to achieve the water quality standards.

TMDL Background

Under the federal Clean Water Act, states are required to submit a list of impaired waters to the U.S. Environmental Protection Agency every two years. Minnesota's 2008 list identifies 1,475 impairments on 336 rivers and 510 lakes (a water body may have multiple impairments). Approximately 40 percent of water bodies assessed are found to be impaired, comparable with what other states are finding. Only a small percentage of Minnesota's river miles and lakes have been assessed so far.

In addition to submitting the list, states must evaluate impaired waters to determine pollutant sources and make reasonable progress toward cleaning up or restoring listed waters. A Total Maximum Daily Load (TMDL) study must be conducted for each pollutant affecting an impaired water. The study identifies all pollutant sources and determines the amount of reduction needed by each source.



Description of Water Body

Hawk Creek originates in the lakes region of Kandiyohi County and flows approximately 65 miles to its mouth at the Minnesota River about eight miles southeast of Granite Falls. The watershed drains 612,822 acres (958 square miles) of land. Several of 22 cities, towns and small villages are located directly on the river or on a tributary and discharge wastewater treatment plant effluent or stormwater effluent. Agriculture is the dominant land use. It is estimated that nearly 98% of the original wetlands in the watershed have been drained for agriculture. Agriculture depends on the creek and an extensive network of drainage ditches, open tile intakes and sub-surface tile systems to move water off the land and make it suitable for row crop farming. Corn, soybeans and sugar beets are the primary crops grown in the watershed. Livestock production includes dairy, turkey, beef and swine.

Description of Impairments

A Clean Water Partnership diagnostic study and implementation plan were completed in 2000 where sediment was identified as a major pollutant. Much of this can be attributed to the high percentage of intensively farmed land in the area. Many areas lack adequate vegetative cover, which buffers watercourses from cropland. These areas are highly susceptible to erosion. Stream bank and drainage ditch bank erosion are other possible sources of sediment.

Bacteria exceedances also are common. Suspected causes include: failing septic systems, waste water treatment plant bypasses and flushes, unsewered communities, livestock waste from feedlots and livestock waste from land application. Domestic pets and wildlife are lesser possible sources.

Although nutrients aren't included in this TMDL project, nutrient loading is also a concern. Reducing turbidity and fecal coliform bacteria would also reduce nutrients throughout the watershed. A significant portion and potential sources of nitrogen and phosphorus have been identified as coming from storm drain runoff, wastewater treatment plant effluent, livestock, land applied manure, failing septic systems, industrial facility discharges and industrial sugar beet stockpiles.

Water quantity and the speed at which it passes through the system have also proven to be a problem faced by the watershed. With the high amount of drainage and few buffered areas, water tends to move through the watershed at a high speed, causing increased loads of sediments, fecal coliform bacteria, and nutrients.

Water Quality Standards

The impaired reaches are classified as Class 2B waters in which the water quality standard for turbidity is 25 NTU (nephelometric turbidity units). The quality of Class 2B surface waters supports aquatic life and is suitable for aquatic recreation of all kinds, including bathing. *Escherichia coli* bacteria shall not exceed 126 organisms per 100 milliliters as a geometric mean of not less than five samples representative of conditions within any calendar month, nor shall more than ten percent of all samples taken during any calendar month individually exceed 1,260 organisms per 100 milliliters. The standard applies only between April 1 and October 31.

Project Development

The primary goal of the project is to have an EPA-approved TMDL Assessment report and a state-



approved TMDL Implementation Plan by June 30, 2011. Hawk Creek Watershed Project will be primarily responsible for collecting watershed information, promoting the project, and developing an implementation plan. MPCA will provide technical expertise and management of the project. The MPCA will be responsible for analyzing the data, developing the TMDL assessment and completing the review and public notice process. Public participation and outreach will be an integral component of this project. The Hawk Creek Watershed Project coordinator is currently participating and leading the Hawk Creek citizens' advisory committee. This group, along with the agriculture producers and other stakeholders will participate in the TMDL process and through the coordinator's attendance and participation in public meetings and events.

For More Information

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