



**Minnesota
Pollution
Control
Agency**

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Rock River TMDL for Turbidity and Fecal Coliform Bacteria

Water Quality/Impaired Waters 7.11a • December 2007

The list of impaired waters developed by the Minnesota Pollution Control Agency includes the Rock River in southwestern Minnesota, which fails to meet the standard for human contact due to excessive amounts of fecal coliform bacteria, and also the water quality standard for turbidity. Minnesota State University-Mankato Water Resources Center has prepared a Total Maximum Daily Load (TMDL) report documenting the impairments.



A TMDL study calculates the maximum amount of a pollutant a water body can receive (known as the “loading capacity”) without violating water quality standards. The TMDL process identifies all sources of pollutants causing impairments and allocates reductions necessary to meet the water quality standard.

Turbidity is recognized as an indicator of water quality. Increased turbidity levels limit light penetration and inhibit healthy plant growth. High turbidity can make it difficult for aquatic organisms to find food, affect gill functions and cause spawning habitat to become covered. There are three turbidity impaired reaches addressed in this TMDL assessment.

MPCA Area Offices:

Rochester area:

507/285-7343

Mankato area:

507/389-5977

Marshall area:

507/537-7146

Willmar area:

320/214-3786

Detroit Lakes area:

218/847-1519

Brainerd area:

218/828-2492

Duluth area:

218/723-4660

Metro area:

651/296-6300

Toll-Free Number:

800/657-3864

Description of Water Body

The Rock River begins about 13 miles northeast of Pipestone and flows southward through Rock County and into Iowa. The project area includes about 355,000 acres of the Rock River watershed located in portions of Murray, Nobles, Pipestone and Rock counties. Agriculture is by far the greatest land use at about 95 percent.

Water Quality Impairments

Turbidity is a measure of water clarity. A decrease in water clarity is caused by suspended and dissolved matter such as clay, silt, organic matter, algae and color.

Fecal coliform is a bacteria found in the feces of all warm-blooded animals. The bacteria itself is usually not harmful, but high concentrations can indicate the presence of other harmful bacteria, viruses and/or parasites. Examples include the pathogenic strain of *E. coli* that is often linked to foodborne illnesses, as well as giardia and cryptosporidium. Recreational contact, especially swimming, is not recommended when high concentrations of fecal coliform bacteria are present. The water quality standard for fecal coliform bacteria is an average of 200 colony-

forming units (CFU) per 100 milliliters (ml) of water. There is one fecal coliform bacteria impaired reach addressed in this TMDL assessment.

Pollution Sources

Sources of increased turbidity levels include erosion from fields or construction sites, urban runoff from precipitation, eroding streambanks, bottom feeders such as carp and excessive algal growth.

Fecal coliform pollution in the Rock River is caused by a combination of many sources, including cattle that are allowed access to streams, improper application of manure to agricultural land, runoff from feedlots, illegally discharging septic systems and wildlife. The Rock River Watershed Project estimates that there are about 1,100 non-compliant septic systems. In general, the primary sources during wet conditions are livestock manure and during dry conditions illegally discharging septic systems and wildlife.

Project Partners, Process

This TMDL project is being conducted by the Water Resources Center (WRC) at Minnesota State University, Mankato. Staff from Rock, Nobles, Pipestone and Murray counties, the Minnesota Pollution Control Agency, the United States Fish and Wildlife Service and the Department of Natural Resources are also assisting to identify sources of pollution and possible solutions.

A TMDL implementation plan will be developed. The plan will provide a strategy for implementation of practical management measures needed for the Rock River to meet the water quality standards. Citizen involvement, education and outreach, and pollution prevention are key components of all TMDL implementation plans.

More Information

For more information on the Rock River fecal coliform bacteria and turbidity TMDL project, contact:

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- Rock County Land Management Office, 507-283-8862 ext. 3.

The draft TMDL report will be available on the Web at: www.pca.state.mn.us/water/tmdl/index.html#drafttmdl.

General information on TMDLs can be found on the Web at: www.pca.state.mn.us/water/tmdl/ and www.epa.gov/owow/tmdl/

