Turbidity

What is Turbidity?

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

What are the sources of high turbidity?

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.

Erosion of soils from farm fields can contribute to increased turbidity in the Rock River.

Streambank erosion can also be a major source of high turbidity in rivers.

For More Information

Who is involved with the TMDL project?

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, and the Department of Natural Resources are also assisting to identify sources of pollution and assess possible solutions.

Where is the Project Located?

Water quality monitoring conducted by the Minnesota Pollution Control Agency has shown the Rock River exceeds state water quality standards at the Minnesota/Iowa border. Thus, the project area includes the entire drainage area upstream, some 355,000 acres in portions of Murray, Nobles, Pipestone and Rock counties.

What Happens After the TMDL is Developed?

A TMDL implementation plan will be developed. The plan will identify sources and causes of each pollutant and provide a strategy for implementation of practical management measures needed for the waterbody to meet water quality standards.

Citizen involvement, education and outreach, and pollution prevention are key components of all TMDL implementation plans.

For More Information

Rock County Land Management Office
311 W Gabrielson Road
Luverne, MN 56156
507-283-8862 ext. 3

Rock River TMDL for Fecal Coliform and Turbidity

Questions and Answers

March 2007
Water Resources Center
Minnesota State University, Mankato

Total Maximum Daily Load (TMDL)

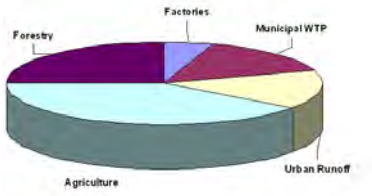
Is the Rock River Polluted?

According to the Minnesota Pollution Control Agency (MPCA) the Rock River is contaminated with high levels fecal coliform bacteria and exceeds limits for stream turbidity, a measure of water clarity.

What is a TMDL?

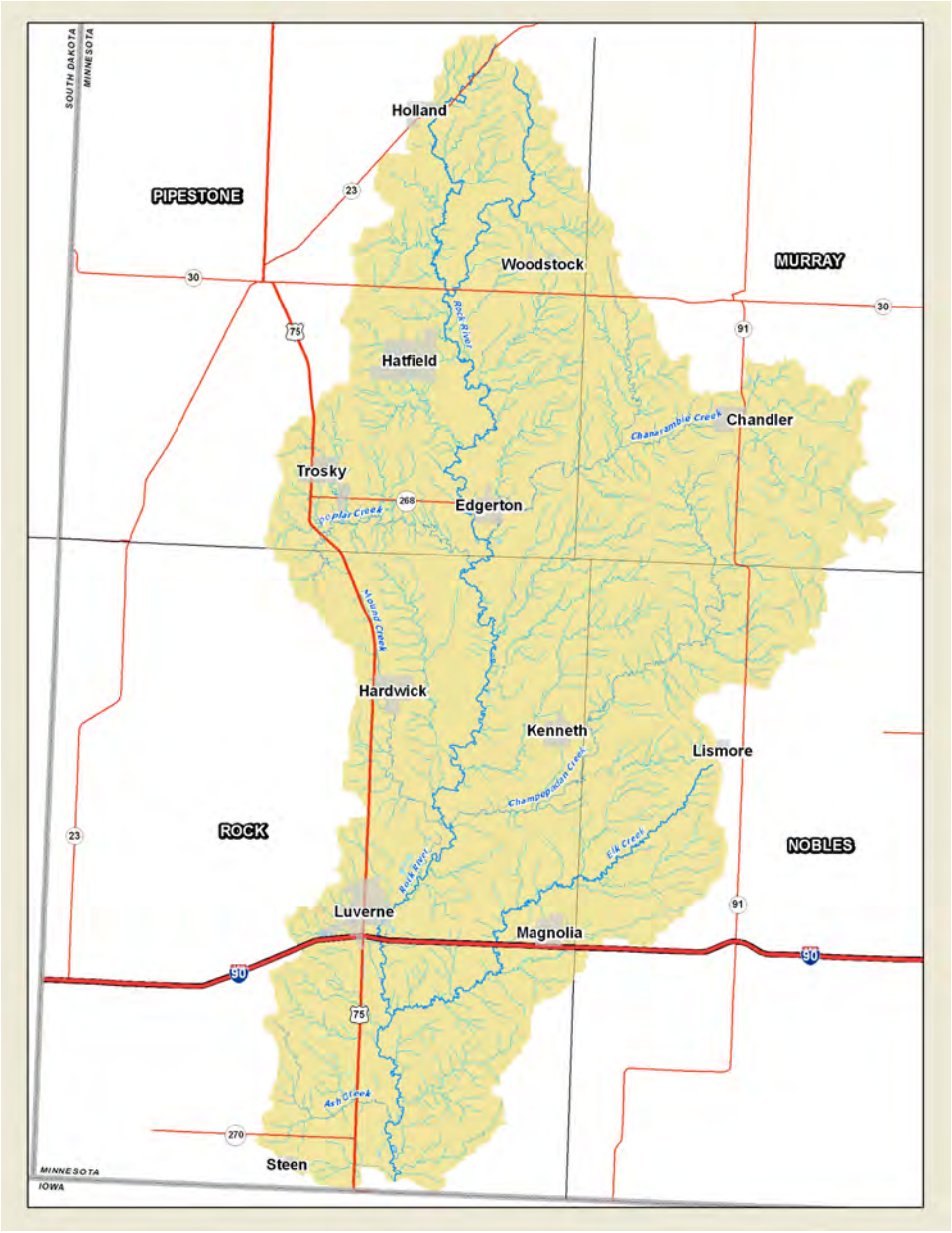
According to the Environmental Protection Agency, a "Total Maximum Daily Load" is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources."

A TMDL identifies sources of each pollutant that fails to meet water quality standards. Water quality sampling and computer modeling determine how much each pollutant source must reduce its contribution to assure the water quality standard is met.



For example, a TMDL is the pie, while load allocations are the pieces of the pie.

Rock River Watershed Project Area



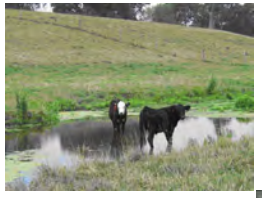
Fecal Coliform

What is fecal coliform?

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.

What are the sources of fecal coliform pollution?

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. In general, the primary sources during wet conditions are livestock manure and during dry conditions illegally discharging septic systems and wildlife.



Cattle that have access to streams can be a significant contributor of fecal coliform bacteria pollution.

The Rock River Watershed project has an estimated 1,100 non-compliant septic systems.