

Summary

Watershed Restoration and Protection Strategies (WRAPS)

Mississippi River-Lake Pepin watershed



Why is it important?

The Mississippi River-Lake Pepin watershed in southeast Minnesota is known for its coldwater streams and trout fishing. This watershed extends from Red Wing to Lake City and encompasses 205,747 acres (325 square miles). This watershed is named for Lake Pepin because all the streams drain to the lake. However, this study excludes Lake Pepin, which is the focus of a separate project (www.pca.state.mn.us/zihy97a).

The top of the watershed is rolling cropland interspersed by many small tributaries that drop steeply through forested valleys with scattered goat prairies atop cliffs.

The largest stream in this area is Wells Creek, which winds through 18 miles of bluff lands and joins the Mississippi near Old Frontenac, southeast of Red Wing. Hay Creek is a popular trout stream that flows from south to north, joining the Cannon River bottoms at Red Wing. Three other named streams are all designated trout waters, and drain directly to the Mississippi River: Bullard, Gilbert and Miller creeks.

Frontenac State Park, Lake Pepin, and the coldwater fisheries are significant natural resources that provide recreation and revenue in the region.

Streams in this watershed are generally in good condition, supporting healthy communities of fish and macroinvertebrates (creatures without backbones such as insects). However, bacteria and nitrates threaten the water quality here.

Protecting water quality is the main goal in this fragile landscape. Much of the land is agricultural, which can negatively affect water quality through runoff and leaching of pollutants. Also, this watershed is only about 50 miles southeast of downtown St. Paul, increasing the chances of development pressures that can lead to negative impacts.

Key issues

The MPCA and several local partners are completing an intensive study of this watershed. This study is part of Minnesota's watershed approach, a holistic way of gauging the health of lakes and streams in the state's 81 major watersheds.

Local partners played a key role in the watershed study and will play a leading role in protecting the waters: Goodhue and Wabasha counties and their Soil and Water Conservation Districts; cities of Red Wing and Lake City; and Wells Creek Watershed Partnership.

Many streams flowing to Lake Pepin in southeast Minnesota offer high water quality and need protection, while a handful of trout streams need reductions in bacteria levels.

Another concern is the level of nitrogen in some waters. Nitrogen can make water harmful for humans and aquatic life. While none of the trout streams violates the standard of 10 parts per million (ppm) of nitrate, concentrations range from 2-8 ppm. Extensive research in Minnesota and other states has found that human impacts are the main reason for higher nitrogen levels in lakes and streams.

- In this watershed, manure and fertilizer leaching from cropland are likely the main sources of nitrogen in streams.
- One study of southeast Minnesota trout streams found that the higher the percentage of row crops in the surrounding watershed, the higher the nitrogen concentrations.

Highlights of report

- The levels of bacteria in the following trout streams violate the state standard – Hay, Bullard, Gilbert, Miller and Wells creeks. The bacteria come from manure applied to cropland, rain and snowmelt runoff, and failing sewer systems.
- While nutrient and sediment levels in these streams allow the waters to meet standards, the pollutants do impact downstream waters from Lake Pepin all the way to the Gulf of Mexico. Because of that impact, the study recommends several strategies to protect the streams in southeast Minnesota and downstream waters.

To protect water quality in the Mississippi-Lake Pepin watershed, the MPCA recommends:

- Managing fertilizer and manure applications to reduce impacts to waters;
- Expanding cover crops to help keep soil in place and enhance soil health;
- Holding back runoff to prevent flooding and erosion while letting pollutants settle out;
- Improving habitat;
- Restoring streams and their banks;
- Upgrading or replacing sewer systems;
- Complying with the Goodhue County mining ordinance that prohibits the use of certain additives for processing silica sand and requires setbacks from streams and other resources; and
- Continued monitoring to detect changes in pollutant levels and watershed conditions.

About this study

Watershed Approach

Phase 1: Monitor and assess health of waters

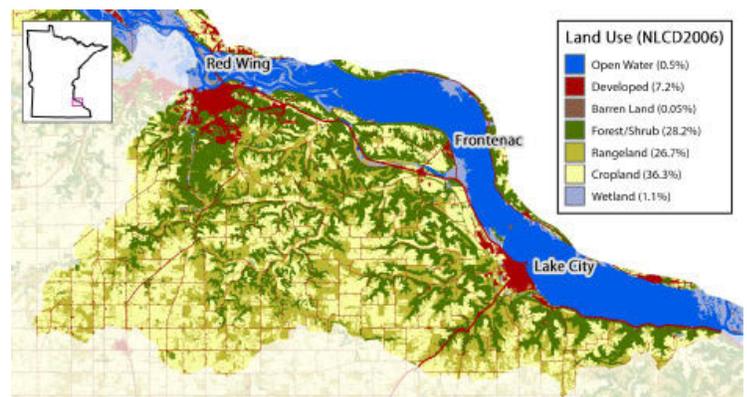
Phase 2: Identify conditions stressing biological life

Phase 3: Determine maximum pollutant loads

Phase 4: Determine Watershed Restoration and Protection Strategies

Start process over every 10 years

The watershed approach incorporates water quality assessment, watershed analysis, civic engagement, planning, implementation, and measuring results into a 10-year cycle that addresses both restoration and protection. The Clean Water Legacy Amendment is funding a large part of this effort.



This approach includes a cost-effective and comprehensive assessment of the watershed's overall health. This report summarizes past assessment and diagnostic work. It also includes Total Maximum Daily Loads, which are the maximum amounts of pollutants that streams can receive and still meet water quality standards.

Full report

To view the full report, go to www.pca.state.mn.us/wfhyde0 or search for "Mississippi-Lake Pepin watershed" on the MPCA website at www.pca.state.mn.us.

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