

# Summary

Stressor Identification

## Sauk River Watershed



### Why is it important?

The Sauk River Watershed lies in the heart of rural central Minnesota, encompassing a complex system of streams and 374 lakes. The watershed extends from about three miles from Alexandria to the Mississippi River near St. Cloud. The Sauk River meanders about 120 miles, and flows near the cities of Sauk Centre, Melrose and Cold Spring.

Since the 1860s, the watershed has seen dramatic land use changes including plowing native prairie, harvesting hardwood forests, draining wetlands, and natural stream course alterations. Today, about 77% of the watershed is used for agricultural production. The watershed's abundance of surface waters are a valuable resource for aquatic recreation and its health is essential to resident aquatic life.

### Key issues

**Based on intensive watershed monitoring, which began in 2008, and a holistic assessment in 2010, results indicate that a number of lakes and tributaries do not meet water quality standards for:**

- Aquatic recreation
- Aquatic consumption
- Nutrient eutrophication

**The main lake pollutant is phosphorus, which can cause algae blooms in the warmer months, especially in shallower waters.**

### Highlights of report

- Low dissolved oxygen levels have been identified as a stressor in a number of areas throughout the Sauk River watershed. Data collected indicates both daily dissolved oxygen fluxuations and overall low levels.
- Deposited and bedded sediment is a stressor, especially in Ashley and Stoney creeks, and the Sauk River between Lake Osakis and Getchell Creek. Bedded sediment covers gravel and fills open spaces in stream beds, which is a problem for gravel-dwelling fish and invertebrate species.
- Excessive nutrients cause increased plant and algae growth in lakes and streams, which puts stress on fish and invertebrates because it reduces oxygen in the water. Increased phosphorus and nitrogen levels are indicative of human activities. Wastewater and agriculture are among top sources of these nutrients.
- Ditching and drain tile can lead to increased runoff into streams. As land is drained, it loses its ability to store water and release it slowly over time. This means rain events cause dramatic water level and flow velocity changes which can put fish and invertebrates at risk. The abundance of private and public ditches in this watershed is significant to the loss of stream habitat due to channelization.
- Lack of woody material in streams affects invertebrates that are dependent on such material for feeding and building shelter. This can directly affect the variety and abundance of invertebrate species.

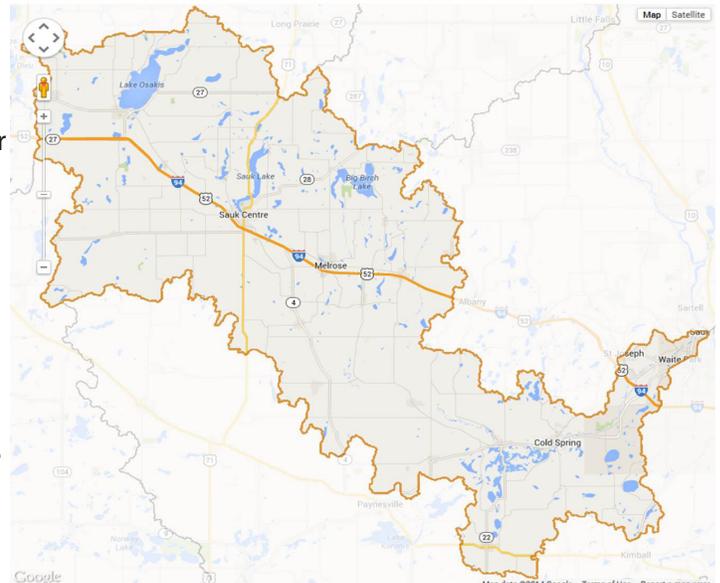
## Highlights continued

- The network of road crossings scattered throughout the Sauk River watershed pose a threat to the connectivity of streams. This network has culverts set at elevations that make fish passage impossible during high flows, or create barriers during mid to low flows that hinder fish and invertebrates as they try to move within streams.
- Total suspended solid readings are often above water quality standards to protect aquatic life in a number of streams throughout the watershed.
- Direct access for cattle to this watershed's tributaries is causing loss of habitat, increased nutrient concentrations, and increased sediment. Moving cattle away from streams and providing riparian buffers of at least 50 feet would allow streambanks to vegetate and stabilize.

## About this study

Monitoring of many of the lakes and streams began in 2008, as part of the MPCA's intensive watershed monitoring effort. Those results can be found in the Sauk River Watershed Monitoring and Assessment report, which is the first step of the watershed restoration and protection strategy (WRAPS) process, and is available on the MPCA website.

This report, the second WRAPS step, or stressor identification, is to find and evaluate factors, natural and human, which are likely responsible for the impaired condition of the fish and macroinvertebrate communities. An important part of stressor identification is to understand the natural features and processes occurring in the watershed, and gaining understanding of the extent of various human activity throughout the watershed that may have potential to degrade streams, rivers, and lakes.



## Full report

To view the full report, go to <http://www.pca.state.mn.us/index.php/water/water-types-and-programs/watersheds/sauk-river.html>

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