# Summary

Stressor Identification

## Long Prairie River Watershed

### Why is it important?

The Long Prairie River watershed is located in the central part of the Upper Mississippi River basin in central Minnesota, and covers all or parts of Douglas, Morrison, Otter Tail, Todd, and Wadena counties. The watershed includes more than 240 lakes and 884 miles of rivers and streams, and empties into the Crow Wing River, just south of Motley.

The dominant land use in this watershed is agriculture at 57%. It is also 17% grasslands, 14% forests, 8% surface water, and 4% urban. Biological, chemistry, and flow monitoring began in 2011, and results indicate at least 13 lakes and 16 stream/river reaches have pollution impairments present.

### Key issues

**Based on intensive watershed monitoring, which began in 2011, results indicate that a number of lakes and tributaries do not meet water quality standards for:**

- **Aquatic recreation**
- **Dissolved oxygen**
- **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, especially in the Harris and Venewitz creek areas. Data collected indicates both daily dissolved oxygen fluxuations and overall low levels.
- Excess amounts of bedded sediment is an issue throughout the watershed. Fine material being transported downstream is settling out and filling in pools, smothering rock riffles, and causing a general degredation of in-stream habitat. The loss of coarse stream beds directly affects the biological species that depend on this type of stream bottom.
- Ditching, drain tile, and urban development 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 invetebrates that are dependent on such material for feeding and building shelter. This can directly affect the variety and abundance of invertebrate species. The Spruce and Harris creek areas are lacking in woody material.

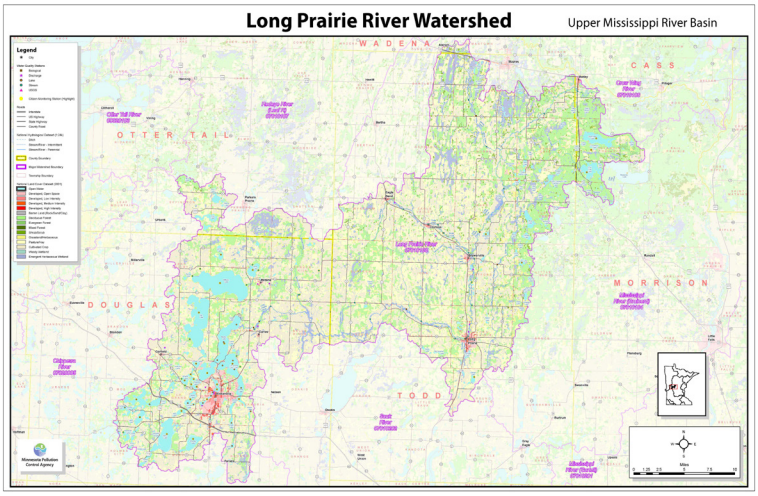
## Highlights
**continued**

- The network of road crossings scattered throughout the Long Prairie 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. Spruce Creek, Harris Creek, and a tributary to Lake Miltona are the most affected areas by loss of connectivity.

## About this study

Monitoring of many of the lakes and streams began in 2011, as part of the MPCA's intensive watershed monitoring effort. Those results can be found in the Long Prairie River Watershed Monitoring and Assessment report, which is is the first step of the watershed restoration and protection strategy (WRAPS) proces, 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/long-prairie-river.html

## Contact person

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