

# Summary

Stressor Identification



## Crow Wing River Watershed

### Why is it important?

The Crow Wing River watershed is located in north central Minnesota, with its headwaters just northwest of Park Rapids, and its confluence with the Mississippi River just south of Brainerd. The watershed includes many well-known lakes of the Akely/Nevis, Park Rapids, and Brainerd lakes areas. One of the state's best trout streams, the Straight River, runs near Park Rapids. The Crow Wing River itself provides a large volume of water to the Mississippi River.

The watershed includes 627 lakes of ten or more acres in size, and more than 1,600 stream and river miles. The Crow Wing River flows into the Mississippi River at Crow Wing State Park. Land use in the watershed is mostly forested and agriculture, and the largest cities include Park Rapids, Staples, and Nisswa.

### Key issues

Based on intensive watershed monitoring, which began in 2010, results indicate that a handful of lakes and tributaries do not meet water quality standards for beneficial uses such as:

- Aquatic recreation
- Drinking water
- Swimming and fishing

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

### Highlights of report

- The stressor identification report documents efforts taken to identify causes, and to some degree sources of those causes, of the impairments to aquatic biological communities in the Crow Wing River watershed.
- Agriculture is primarily livestock oriented. Much of the soil is sandy and does not produce significant crops without irrigation. Though there are two areas in the northern part of the watershed with dense irrigation systems that produce corn, potatoes, and soybeans.
- There are large tracts of managed forest, owned by a large forest products company, and harvest is common.
- Common factors causing stress to aquatic life are low dissolved oxygen, and elevated phosphorus concentrations.
- Eight streams were studied because they were determined to have substandard biological communities during the monitoring and assessment phase of the WRAPS process
- Shell River unnamed tributary has low dissolved oxygen due to heavy wetlands, but also could be influenced by area wild rice and waterfowl production.

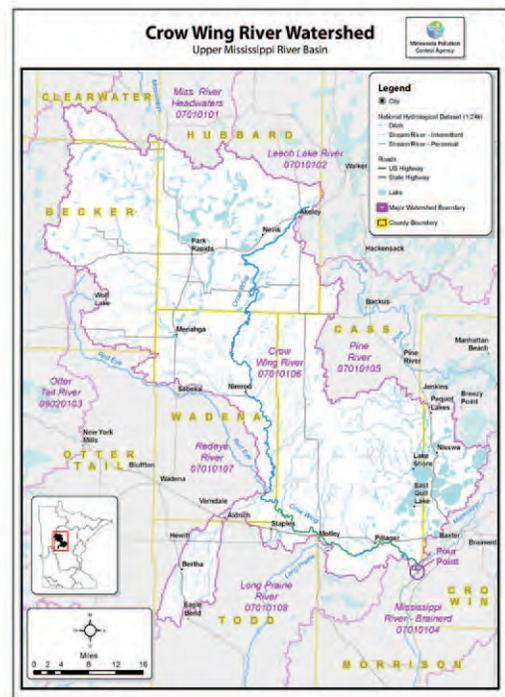
## Highlights continued

- Crow Wing River unnamed tributary and Tower Creek are still undetermined as to its stressors. Further study is required to determine why there are fish migration, low dissolved oxygen, and phosphorus issues present.
- Upper Shell River, Farnham Creek, and Swan Creek impairments are considered human related (or anthropogenic). Potential causes include numerous culvert road crossings, livestock production, and extensive channelization (or altered watercourses).
- Intensive watershed monitoring and assessment, and stressor identification have allowed for a much better understanding of the condition of aquatic life and unique hydrologic characteristics of the watershed. The next round of intensive monitoring is set to begin in 2020.

## About this study

Monitoring of many of the lakes and streams began in 2010, as part of the MPCA's intensive watershed monitoring effort. Those results can be found in the Crow Wing 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/crow-wing-river.html#overview>

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