

# Summary

## Stressor Identification

### Rum River Watershed



#### Why is it important?

The Rum River watershed covers 997,060 acres in east-central Minnesota. It includes parts of Aitkin, Crow Wing, Morrison, Mille Lacs, Kanabec, Benton, Isanti, Chisago, Sherburne, and Anoka counties. The headwaters begin at Mille Lacs Lake, and the river flows 145 miles to its confluence with the Mississippi River at Anoka. The watershed includes 212 lakes over 10 acres in size. Land use in the watershed is 39% agricultural, 24% forested, 18% grass/shrub/wetland, and 15% water.

Only a handful of lakes do not meet water quality standards for beneficial uses, such as aquatic recreation, drinking, and swimming. The main lake pollutant is phosphorus, causing algae blooms in summer months. The upper river valley has one of the highest concentrations of prehistoric sites in Minnesota.

#### Key issues

Based on intensive watershed monitoring, which began in 2013, results overall identify a number of candidate causes of water quality impairments in lakes and streams, including:

- Low dissolved oxygen levels
- Alterations to natural flow
- Elevated phosphorus
- Elevated nitrogen
- Lack of physical habitat

#### Highlights of report

- The report summarizes the key causes, or “stressors”, contributing to impaired fish and aquatic macroinvertebrate communities in this watershed. A comprehensive review of existing biological, chemical, and physical data was performed to create a broad list of candidate causes for impairments. Water bodies with identified impairments include the Estes Brook, Trott Brook, Tibbetts Brook, West Branch Rum River, Vondell Brook, Stanchfield Creek, Isanti Brook, Washburn Brook, and Mahoney Brook.
- The biological stream impairments are located in the southern two-thirds of the watershed. The northern half of the watershed is predominately forest and wetland with scattered agricultural lands. The southern portion of the watershed is opposite, with predominately developed land (both residential and commercial), forest, agricultural lands and scattered wetlands, and small lakes. The biological impairments are located in the transitional zone between forested land and mixed developed and agricultural landuse.
- Flow alteration (channelization, wetland drainage, agricultural tile drainage) is an identified stressor. Changes in landscape vegetation, pavement, and drainage can increase how fast rainfall runoff reaches stream channels, creating a stronger pulse of flow, followed later by decreased baseflow levels. This is affecting all the water bodies listed above, with the exception of Mahoney Brook.

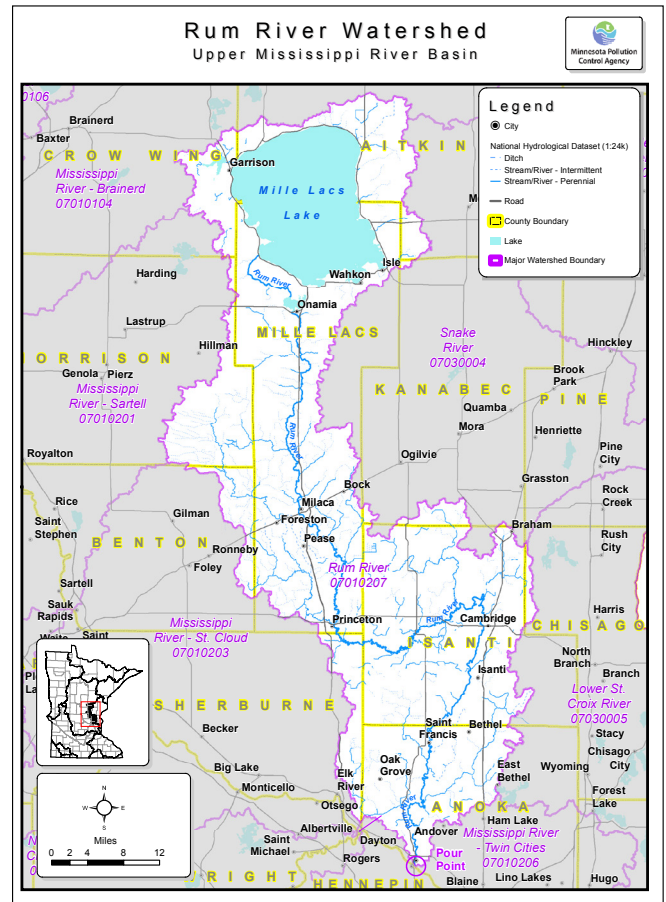
## Highlights continued

- Low dissolved oxygen is an identified stressor to aquatic life in Stanchfield Creek, and Trott, Isanti and Mahoney Brooks.
- Elevated phosphorus is causing problems in the West Branch Rum River, Stanchfield Creek, and Estes, Trott, Vondell and Mahoney Brooks.
- Aquatic life in a tributary to the West Branch Rum River, and Tibbetts, Vondell and Washburn Brooks, are suffering from lack of physical habitat. Changes in land use can alter natural streambed structure, vegetative growth and streambank stability.

## About this study

Monitoring of many of the lakes and streams began in 2013, as part of the MPCA's intensive watershed monitoring effort. Those results can be found in the Rum 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 <https://www.pca.state.mn.us/water/watersheds/rum-river#overview>

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