

Minnesota River Headwaters Watershed



Why is it important?

The Minnesota Pollution Control Agency (MPCA) watershed monitoring strategy uses an effective and efficient integration of agency and local water monitoring programs to assess the condition of Minnesota's surface waters. The report provides a summary of all water quality assessment results in the watershed and incorporates all data available for the assessment process.

The Minnesota River Headwaters Watershed begins in South Dakota and is the farthest upstream major watershed in the Minnesota River Basin. Total watershed area is 2,132 square miles, of which Minnesota's portion totals 784 square miles. It is dominated by small, shallow basins with the exceptions of Big Stone and Lac qui Parle lakes.

Key issues

Big Stone and Lac qui Parle lakes are both impaired for recreation use. Big Stone Lake is also vulnerable to aquatic life from watershed disturbances. These large dynamic basins provide recreational use to the local citizen and visitors that support local economies. As recreational water quality degrades, appeal to potential users will wane, negative consequences result (property value, small business success, quality of life, state park usage, recreational fishing).

A majority of the streams impaired for aquatic life are due to impaired fish or macroinvertebrate assemblages. Bacteria in streams is also a watershed wide issue. All stream reaches that were assessable for bacteria were found to be impaired.

Highlights of report

Of the stream reaches monitored and assessed in this effort, 80% failed to meet aquatic life use criteria, while 88% of stream reaches failed aquatic recreation use criteria. Water chemistry data showed high nutrient concentrations and some elevated total suspended solid concentrations.

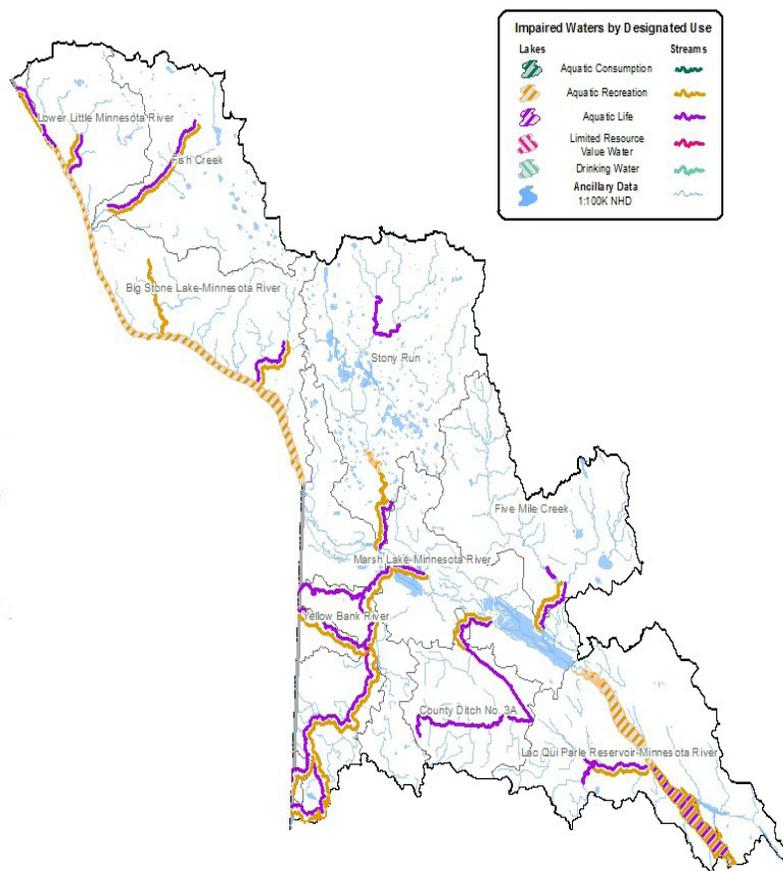
Fish communities in the streams were significant drivers of aquatic life impairments. Of the streams in the watershed, 75% had fish groups and 38% had macroinvertebrate groups not meeting aquatic life use standards. Fish and macroinvertebrate groups both indicated impairment on 33% of the streams. For macroinvertebrate groups, several streams met aquatic life standards, but were not fully supporting aquatic life due to failing fish groups and/or water chemistry impairments.

Groundwater protection concerns within the watershed include both quantity and quality. Quality concerns include high levels of naturally occurring elements, and high levels of nitrate from human activities. Groundwater withdrawals, and especially surface water withdrawals have increased.

Recommendations

Altered hydrology, sediment, and excess nutrients considerably affect the quality of the aquatic resources of the watershed. Implementation of best management practices, such as conservation tillage, cover crops, and other practices would aid in protecting, and improving the groundwater, wetlands, streams, and lakes of the watershed.

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About this study

The watershed approach is a 10-year rotation for monitoring and assessing waters of the state on the level of Minnesota's 80 major watersheds. This was implemented in the Minnesota River-Headwaters Watershed beginning in the summer of 2015. It includes an interagency Watershed Pollutant Load Monitoring Network, intensive watershed monitoring, and citizen monitoring. They collect water quality and flow data to calculate nitrogen, phosphorus, and sediment pollutant loads, and aquatic life conditions.

Full report

To view the full report, go to www.pca.state.mn.us/water/watersheds/minnesota-river-headwaters, or search for "Minnesota River-Headwaters watershed" on the MPCA website: www.pca.state.mn.us.

Contact person

Katherine Pekarek-Scott
Minnesota Pollution Control Agency
Katherine.pekarek-scott@state.mn.us
320-444-7186