

# Summary

Monitoring and assessment

## Hawk Creek-Yellow Medicine River

To view the full report, visit: <http://www.pca.state.mn.us/yhizdd8>



### Description

The Minnesota River - Yellow Medicine River watershed (1,306,502 acres) has been managed as two separate watersheds, Hawk Creek to the north and the Yellow Medicine River to the south. Both enter the Minnesota River downstream of Granite Falls.

Hawk Creek begins at Eagle Lake north of Willmar and flows approximately 65 miles to the Minnesota River. The watershed drains 612,822 acres (958 square miles). It is unique among the other major watersheds in that it is composed of a main tributary (Hawk Creek) and several other streams that flow directly into the Minnesota River.

The headwaters of the Yellow Medicine River lie on the edge of the Northern Glaciated Plains, also called the Prairie Couteau region, a series of rolling hills formed by glacial deposits. Lake Shaokatan is considered the start of the river, which flows through parts of Lincoln, Lyon, and Yellow Medicine Counties. Other streams include Mud Creek, Spring Creek, Hazel Creek, Boiling Spring Creek, Echo Creek, and Stoney Run Creek.

Originally covered by prairie, today cropland and rangeland are the primary land uses (approximately 86.3%). The soils are silty or loamy, resulting in high rates of infiltration in undeveloped areas. Significant portions have been drained to increase agricultural and non-agricultural development. Overall land cover percentages in the watershed are: Forest (1.7%), rangeland (6.3%), wetland (4.4%), cropland (80%), developed (5.9%), barren (0.1%) and open water (1.5).

### Highlights

In 2010, a holistic approach was taken to assess all of the watershed's surface water bodies for aquatic life, recreation and fish consumption use support, where data were available. Sixty-nine streams were assessed for aquatic life or recreation support, and twenty-one lakes were assessed for aquatic recreation. There was a total of 90 non-supporting assessments for aquatic life and/or recreation in the Minnesota River-Granite Falls Watershed, and only six supporting assessments.

In 2009 and 2010, between 36 and 57 mid-stream grab samples were collected at the Hawk Creek site near Granite Falls, focusing the sampling frequency greatest during periods of moderate to high flow. For the Yellow Medicine River near Granite Falls, there were between 27 and 46 samples collected in 2008, 2009 and 2010 (Figure 14). In 2007, 16 samples were collected.

### Key issues

While measures have been taken to reduce legacy land use impacts in the watershed, streams still are recovering from land use practices implemented during watershed settlement and continuing today. Most of the upland areas have been extensively modified, while the downstream portions of many of the streams retain their natural state and wooded buffer corridors. Nonpoint source pollution from agricultural land use is likely negatively impacting immediate and downstream water quality uses for aquatic life, recreation, and drinking water.

Within the Yellow Medicine River watershed there are 15 stream listings for E. coli,



five listings for turbidity, seven listings for low macroinvertebrate IBI scores, seven listings for low fish IBI scores, and seven lakes listed for nutrient eutrophication.

Within the Hawk Creek watershed there are 13 stream listings for E.coli, seven listings for turbidity, four listings for low macroinvertebrate IBI scores, three listings for low fish IBI scores, one listing for dissolved oxygen, and four lakes listed for nutrient eutrophication.

Impairment of aquatic recreation is widespread across the watershed. High bacteria levels could be attributed to failing septic systems which are not well quantified across the watershed, and an abundance of livestock feedlots. The Upper Hawk Creek and Chetomba Creek watersheds did not have any aquatic recreation impairments because the majority of these subwatersheds are class 7 limited resource waters and are not assessed for aquatic recreation.

Aquatic life use impairments within the Minnesota River-Granite Falls are complex. Macroinvertebrate impairments surpass fish impairments. Biotic impairments are likely a result of nonpoint source pollution and localized stress linked to poor habitat. High nitrogen levels likely are impacting macroinvertebrate communities, as seen in other watersheds across southwestern Minnesota.

Turbidity concerns are widespread. As improvements have been made to reduce overland erosion by implementing soil conservation efforts and restoring natural vegetation along bluff slopes and in riparian zones, high levels of turbidity are likely stemming from stream bank erosion as streams cut into banks of alluvial sediment. Increased volumes of water entering streams from artificial drainage may exacerbate this condition. Poor habitat conditions observed across many biological stations may be linked to turbidity and sedimentation issues, as well as poor riparian land use.

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## Recommendations

While waterbody impairment is prevalent across the watershed, efforts to restore water quality and bring surface waters into attainment for designated uses are not futile, and some progress has been made. Future efforts to control sediment should include measures to stabilize stream bank channels. Based on the large number of impairments that are likely due to the intensive agriculture practices and development in the watershed, stressors to be examined should include: nutrients, turbidity, low dissolved oxygen, decreased habitat, and altered hydrology.

Addressing nonpoint source pollution would benefit from a targeted approach to Best Management Practice (BMP) placement, identifying areas in the watershed that are likely more prone to be sources and pathways of contamination, and working with those landowners to limit potential contaminants from being discharged from those sensitive areas. Collaborating with landowners will enable the agricultural economy of the region to move forward in a sustainable way that does not neglect water quality.

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## Contact

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