Summary

Monitoring and assessment report

Lower Minnesota River Watershed

The Lower Minnesota River Watershed in south-central Minnesota covers 87 miles of the Minnesota River, from Ottawa, Minnesota, to its confluence with the Mississippi. The 1,835-square-mile watershed also includes the Minnesota Valley National Wildlife Refuge, 133 lakes larger than 10 acres, and 2,482 miles of tributaries to the Minnesota. Groundwater springs along the Minnesota River bluffs feed both a handful of coldwater streams and calcareous fen wetlands, which host sensitive plant species.

Land use is a major factor affecting water quailty, and in this watershed, it runs the gamut from almost exclusively row-crop agriculture in the west to residential suburbs and urban industry in the northeast. Though four lakes have seen significant water quality improvements due to restoration efforts, the overall watershed still has persistent problems with excess phosphorus, sediment, bacteria, and other contaminants.

Key issues

The Minnesota Pollution Control Agency conducted intensive water monitoring in the watershed, looking at 117 sections of streams and 103 lakes. Elevated levels of nitrogen and phosphorus are fueling nuisance algae blooms in the watershed, which can deter recreation and create public health hazards. Sediment, chloride, and bacteria are also persistent problems in the watershed's streams and tributaries.

Contributions to the water quality problems may include:

- Conventional fertilizers and manure from farming operations
- Streambank, bluff, and ravine erosion
- Urban stormwater runoff that contains nutrients and road salt
- Wastewater treatment plants and failing septic systems

Bacteria may come from animal waste and ill-functioning septic systems and can pose risks to human health. Stormwater brings sediment, which can harm aquatic habitat. Wastewater discharges and farm field runoff contribute phosphorus and nitrogen, which fuel algae growth and low dissolved oxygen conditions in the water. Despite ongoing restoration efforts, more improvements are needed in the watershed.

Highlights of report

- Four lakes — Crystal, McMahon, Mitchell, and Bryant — are now meeting water quality standards that they failed to meet previously. The improvements are the result of successful restoration efforts by state and local entities.
- Impairments — violations of state water quality standards — are common throughout the watershed.
- Of the waters assessed, 84% of streams and 57% of lakes do not protect fish, bugs, and other aquatic life.
- Fifty-five percent of lakes studied failed to meet standards for recreation.
- In lakes tested for mercury in fish, 74% exceeded standards.

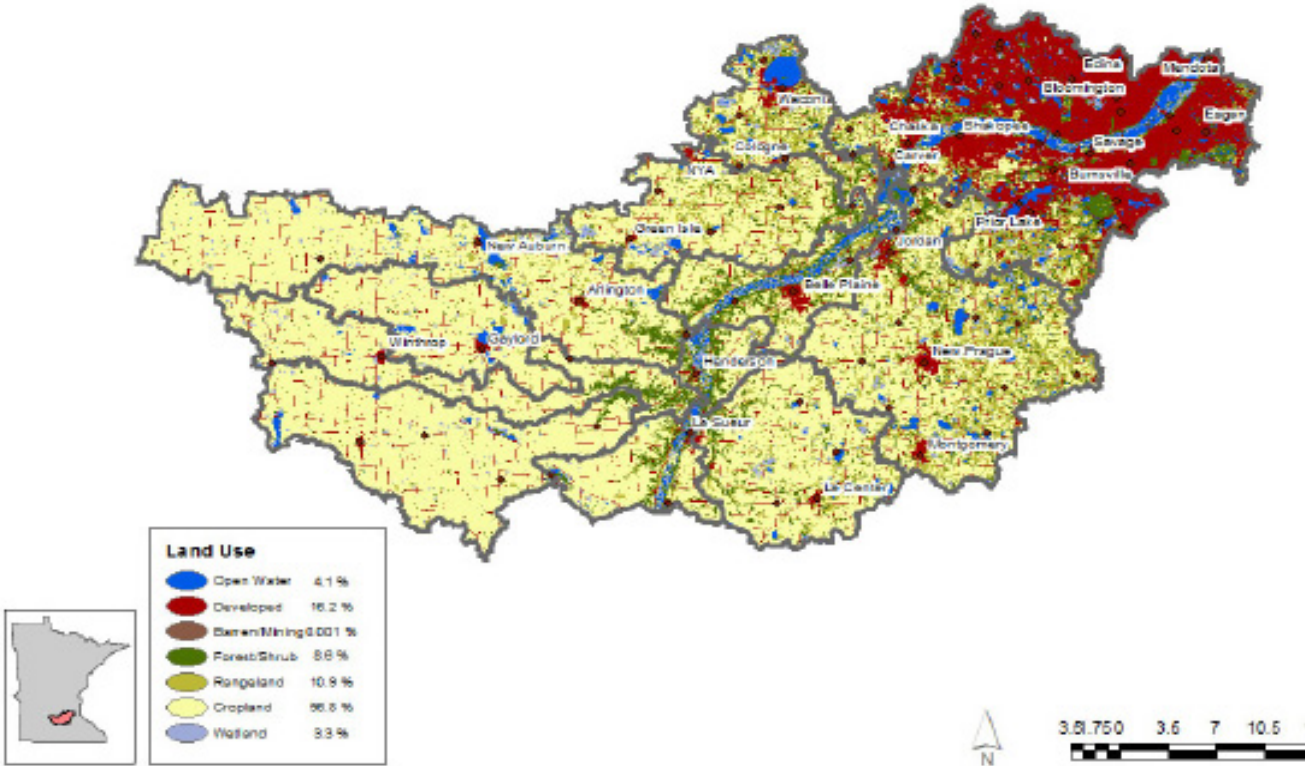
Highlights
continued

- Thirteen of the lakes tested for perfluorooctanesulfonic acid (PFOS) in fish now have new consumption advisories.
- Sections of Rush River and High Island, Buffalo, Bevens, Carver, Sand, and Riley Creeks have sediment levels that surpass thresholds to protect aquatic life.
- Five stream sections in the Sand and Nine Mile Creek systems exceed the water quality standard for chloride.
- Stretches on the Bevens, Carver, and Sand Creek systems do not meet water quality standards for phosphorus.

About this study

As part of its watershed approach to monitoring water quality in Minnesota, the MPCA and local partners conducted intensive water monitoring in the Lower Minnesota River Watershed in 2014. They assessed more than 200 sites, evaluating fish and macroinvertebrates (bugs) and monitoring for nutrients, sediment, and other measures of water quality. The agency analyzed the collected data to determine if the waters are meeting water quality standards.

The next step in the process will be to identify "stressors" — the conditions contributing to water quality problems in the watershed.



Full report

View the full report on the MPCA website: https://www.pca.state.mn.us/sites/default/files/wq-ws3-07020012b.pdf

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