

Mississippi River- La Crescent Watershed



Why is it important?

This small watershed in southeast Minnesota is defined by wooded bluffs and spring-fed streams that flow to the Mississippi River. The streams are popular for trout fishing. The Minnesota Pollution Control Agency (MPCA) studied three streams in this watershed: Pine Creek, Rose Valley Creek and Dakota Creek. Only one stream, lower Pine Creek, is showing signs of stress to aquatic life. The stressors are sediment and warm temperatures. Pine Creek has fewer cold-water species than expected for a cold-water stream.

The Mississippi River - La Crescent watershed drains 95 square miles in northeast Houston and southeast Winona counties. Pine Creek is the largest cold-water tributary in the watershed, which drains more than half of the entire watershed (58 square miles).

The streams here flow through some of the most unique geology in the world – karst. Here the erosive effects of water have sculpted thick layers of limestone over thousands of years. The landscape is characterized by abundant sinkholes, springs, caverns, and underground waterways. Karst is like the Swiss cheese of rock. As water flows through karst, it mixes above and below ground. This mixing means pollutants on land can easily reach groundwater used for drinking. Protecting the streams are important for ensuring safe drinking water and for the economic impact of tourists visiting this area to fish, hike and camp.

Key issues

In the Mississippi River- La Crescent watershed, water quality conditions are fairly good and can be attributed to the forests, pastures and hayland that dominate the watershed's land cover. This land cover maintains vegetation on the land, helping prevent runoff and erosion. However, lack of stream buffers, stream bank erosion, and cattle over-grazing near streams can contribute to water quality problems, and preventing these problems is a key strategy for water quality protection.

Almost half of the watershed is wooded, helping protect the water quality of trout streams by keeping soil in place, shading streams and keeping them cool, and otherwise providing good habitat. Maintaining this woodland and implementing more stream buffers, which focus vegetation near the stream channel to provide shade and erosion protection, is also a key strategy.

Landowners plant row crops at or near the bluff tops, using contour stripping, field terraces, diversions, water ways and other practices that help prevent erosion and keep fields stable. Maintaining and expanding these practices are also important for protecting water quality, and controlling flow and erosion related to flooding.

The streams in this watershed continue to recover from a devastating flood in 2007 after 8-14 inches of rain fell in this area in 24 hours. The floods washed out roads, buildings and railroad tracks. They also changed or moved streams. Subsequent floods in 2009 and 2010 continued the damage. Addressing climate change, and the potential for flood impacts, will be a key factor for landowners and government entities working to protect water resources.

Highlights

- Karst features make water management in this area quite complex.
- In the impaired section of Pine Creek, where sediment levels tend to be high, there is an abundance of fish that are tolerant to this pollution and a lack of fish more sensitive to sediment.
- The high levels of sediment are also impacting macroinvertebrates, creatures without backbones, such as insects, crayfish, snails and small clams. Like fish, there are more species tolerant of pollution and fewer species that are intolerant. While fish are the only community impaired at this time, macroinvertebrates remain susceptible to impairment, and are responding to high levels of sediment present.
- Pine Creek runs through a steep valley with erodible soils. These natural conditions, coupled with poor pasturing practices, cattle accessing the stream, and higher flows eroding the streambanks, result in sediment clouding the water, decreased habitat availability, and increased temperatures. All these stressors worsen moving downstream.
- The upper part of Pine Creek is doing well and needs to be protected. Similarly, Dakota Creek has good biological scores and warrants protection.

About this study

Watershed Approach

Phase 1: Monitor and assess health of waters

Phase 2: Identify conditions stressing biological life

Phase 3: Determine maximum pollutant loads

Phase 4: Determine Watershed Restoration and Protection Strategies

Start process over every 10 years



In 2015, the MPCA began an intensive watershed monitoring effort of the Upper Iowa, Mississippi River-Reno and Mississippi River-La Crescent watersheds. In 2017, a holistic approach was taken to assess all surface waterbodies within the watersheds for support of aquatic life, recreation and consumption (where sufficient data were available). During this process, data from other agencies, groups and individuals were collected and used in the assessment of designated beneficial uses.

Full report

To view the full report, go to www.pca.state.mn.us/sites/default/files/wq-ws5-07040006a.pdf or search for “Mississippi River - La Crescent” on the MPCA website at www.pca.state.mn.us.

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