

# Cottonwood River

## HUC: 07020008



### Why is it important?

The MPCA's 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 and incorporates all data available for the assessment process.

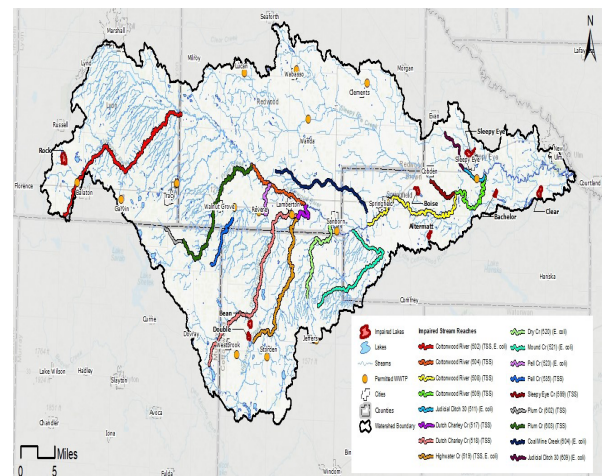
The Cottonwood River Watershed drains an area of 1,312 square miles (840,000 acres) in the southwest corner of Minnesota within the Minnesota River Basin. The watershed includes the Cottonwood River and main tributaries including Charlie Creek, Mound Creek, Sleepy Eye Creek, and Plum Creek.

### Key issues

This watershed has had a significant amount of hydrological alterations in the form of drain tile, straightening of streams and the addition of ditches. These have negative effects on the stream communities due to the lack of habitat, increased sedimentation, and increased large flow events. Turbidity impairments already existed throughout the watershed.

Numerous stream reaches were previously listed for fecal coliform bacteria. Sampling during this assessment period has found elevated levels of E. coli bacteria and added 13 more impairments for aquatic recreation. Elevated levels of bacteria can indicate conditions that are unsafe for swimming or wading, and secondary body contact such as fishing from a boat or shore.

Figure 1. Overview of Cottonwood River Watershed impairments covered in this TMDL.



### Highlights of report

During a two-year intensive watershed monitoring project, 81 stations across 59 stream reaches were monitored for fish, macroinvertebrates, and water chemistry. The biological data indicate that of the reaches assessed, 20% were found to fully support aquatic life and 22% of the reaches did not support aquatic life.

As a whole, scores of biological communities in this watershed had a combination of good to poor: 19 reaches were determined to fully support aquatic life and 37 were determined impaired for both fish and macroinvertebrate. The majority of stations scored poor or fair with only 8% scoring good.

Fish assemblages were collected at 59 stream reaches totaling 81 stations within the Cottonwood River Watershed. Of those reaches, 13 failed to meet the aquatic life standards for fish and are listed as impaired with 9 of those as new listings. Macroinvertebrate communities scored far worse than the fish communities.

The data confirm poor water quality persists throughout the watershed making it difficult for healthy aquatic communities to thrive. Excessive suspended sediment resulting from poor surface water storage through altered hydrology, massive bank sloughing, channel incision and erosion, increases sedimentation. Water chemistry sampling on seven lakes confirms the existing impairments for elevated levels of total phosphorus and chlorophyll-a, and low clarity.

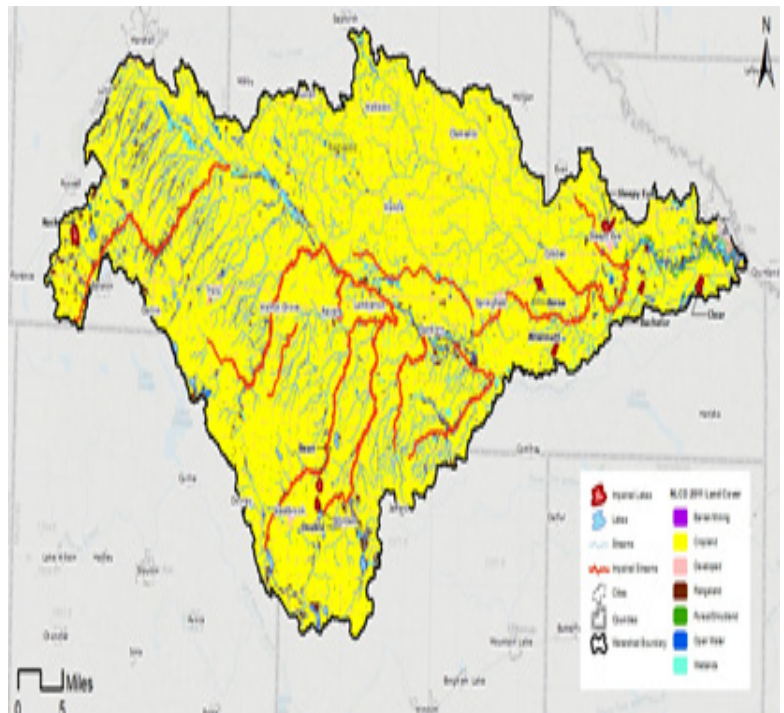
## Recommendations

- Continued restoration efforts need to be made in order to improve and protect this watershed's resources. Encouraging conservation efforts such as preserving stream buffers, using conservation tillage, planting cover crops and improving riparian corridors are important methods that can be used to protect the overall health of the watershed. These best management practices may be even more important in the coming years due climate change causing an increase in severity and frequency of floods.
- While the Cottonwood River Watershed has few lakes, actions to protect those that are in good condition are critical. Sleepy Eye Lake, through dredging activities, was returned to supporting recreation. Reducing nutrient inputs to the system will be necessary to maintain the improved condition.
- Groundwater protection should be considered both for quantity and quality. Concerns for quality are possible high levels of naturally-occurring elements like arsenic in drinking water as well as chloride and nitrate from human activities.

## 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 Cottonwood River Watershed beginning in 2017. It includes an interagency Watershed Pollutant Load Monitoring Network, intensive watershed monitoring, and citizen monitoring. MPCA staff and local partners conducted stream water chemistry sampling at the outlets of the sixteen subwatersheds.

Figure 2. Land cover in the Cottonwood River Watershed (Source: 2011 NLCD).



## Full report

A copy of the full report is available on the Cottonwood River Watershed webpage: <https://www.pca.state.mn.us/water/watersheds/cottonwood-river>

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