



Cottonwood River Watershed

Watershed approach

Minnesota has adopted a watershed approach to address the state’s 80 major watersheds. This approach looks at the drainage area as a whole instead of focusing on lakes and stream sections one at a time, thus increasing effectiveness and efficiency. This watershed approach incorporates the following activities repeated on a regular basis:

1. Monitoring water bodies and collecting data over two years on water chemistry and biology (2017-2018).
2. Assessing the data to determine which waters are impaired, which conditions are stressing water quality, and which factors are fostering healthy waters (2019-2020).
3. Developing strategies to restore/protect the watershed’s water bodies and report them in a document called Watershed Restoration and Protection Strategies (WRAPS) (2021-2022).
4. Coordinating with local One Watershed, One Plan (1W1P) efforts for implementation of restoration/protection projects (2022-beyond).

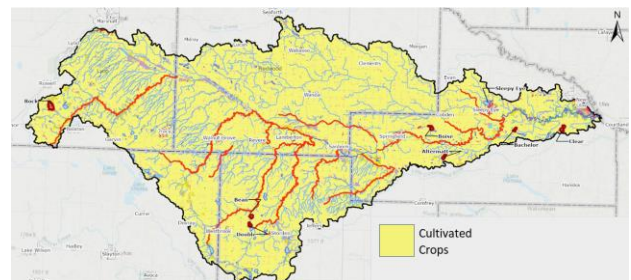


The Minnesota Pollution Control Agency (MPCA) leads the technical work and coordinates and supports strategy development with local, state, and federal partners. Watershed partners are leaders in implementing strategies to restore and protect waters. Their past and current work provides opportunities for watershed improvement and will continue to be a critical component to overall water quality. The main purpose of the WRAPS report is to summarize all the technical information so that local partners such as the Redwood-Cottonwood Rivers Control Area (RCRCA) and county soil and water conservation districts can use it for planning and implementing the best strategies in prioritized locations.

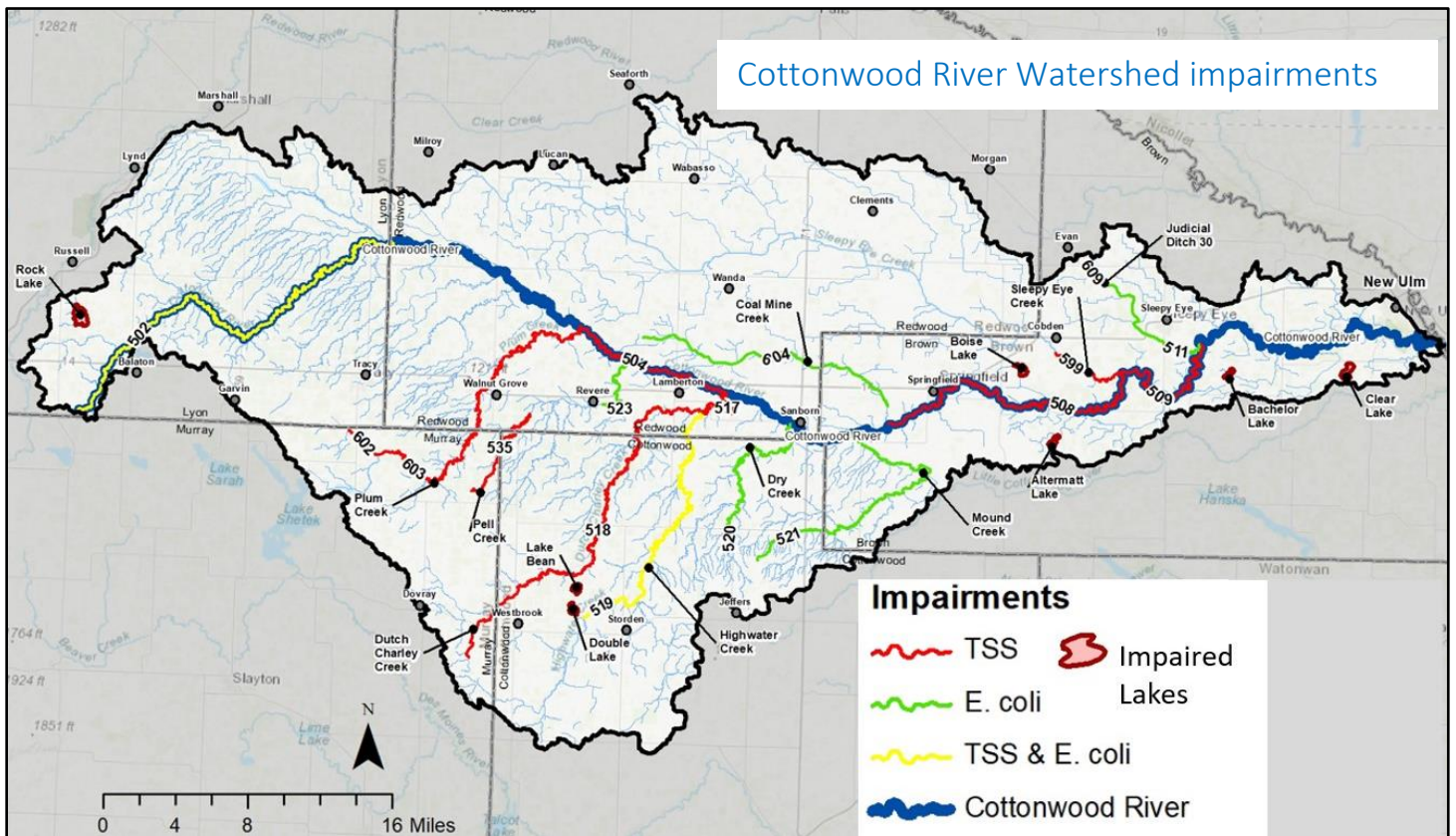
Watershed characteristics

- Size: 840,000 acres
- Counties: Brown, Cottonwood, Lyon, Murray, Redwood
- Ecoregions: Western Corn Belt Plains, Northern Glaciated Plains of Southwest Minnesota
- Major streams: Cottonwood River, Plum Creek, Upper/Lower Sleepy Eye Creek, Dutch Charley Creek, Mound Creek, Highwater Creek, Pell Creek
- Towns: New Ulm, Marshall, Sleepy Eye, Tracy, Springfield, Walnut Grove, Westbrook
- Land cover: Approximately 84% cropland, 92% of which is dedicated to corn and soybeans
- The 8-digit hydrologic unit code (HUC): 07020008.

Land cover in the Cottonwood River Watershed



Assessments: Are waters meeting standards and providing beneficial uses?



From 2017 to 2018, intensive watershed monitoring (IWM) was conducted across the Cottonwood River Watershed.

Streams -- Seventy of the 75 stream reaches in the watershed were assessed for aquatic use (aquatic life [fish and insect communities] and/or aquatic recreation). Only 19 stream reaches fully supported aquatic life, and no stream reaches fully supported recreation due to high bacteria levels. Factors affecting aquatic communities include poor habitat, low dissolved oxygen levels, excessive amounts of sediment in the water, and barriers to fish passage such as dams and perched culverts.

Factors affecting habitat include stream/landscape alterations that include the straightening of streams and extensive ditching that can increase sedimentation. In addition, high flows associated with spring runoff and summer storms, and extended periods of low flows can negatively affect habitat. The impacts of higher intensity storms and more severe droughts are amplifying these conditions.

Lakes -- Of 25 lakes in the watershed greater than 10 acres in size, 7 do not support aquatic recreation due to excessive amounts of nutrients, mainly phosphorus, which can cause nuisance algae blooms. Excessive nutrients can also have detrimental effects on fish and insect communities. Sleepy Eye Lake was previously listed as having impaired aquatic recreation, but the lake now meets standards thanks to implementation activities including septic system upgrades, sediment control practices, and education.

A Total Maximum Daily Load (TMDL) study was completed for the watershed, which establishes the amount of each pollutant that a water body can accept and still meet water quality standards, and the amount of reductions needed to meet the standards. The Cottonwood River Watershed TMDL addresses stream and lake aquatic recreation impairments (8 *E. coli* and 8 lake nutrients) as well as stream aquatic life impairments (11 total suspended solids/turbidity impairments).

Restoration and protection strategies

Priority resources and strategies for the Cottonwood River Watershed were determined based on input and professional judgement from local partners, previous planning work, recreational use priorities, and comparing findings with existing priorities outlined in county water plans. Some of the top priorities that were identified for the watershed include:

- Grade stabilization structures and practices (e.g., water and sediment control basins, grassed waterways) in high-sloped areas
- Soil health education and outreach
- Restoration and protection of lakes and stream reaches with high recreational use and value
 - Includes Sleepy Eye Lake, Lake Laura, Wellner-Hageman Reservoir
- Restoration and protection of lakes and stream reaches that are nearly impaired or barely impaired
 - Includes Dutch Charley Creek (reach 518, see map) Dutch Charley Creek (reach 517, see map) Bean Lake, Double Lake, Round Lake, Hurricane Lake, Sleepy Eye Lake, Wellner-Hageman Reservoir, Lake Laura
- Protection of vulnerable and sensitive groundwater areas
 - Marshall and Marshall Dudley Drinking Water Supply Management Areas (DWSMAs) and Wellhead Protection Areas (WHPAs), Red Rock Rural Lake Augusta DWSMA

Restoration strategies for addressing issues in the Cottonwood River Watershed include: implementing stream buffers, tillage/residue management, adopting cover crops and other strategies to improve soil health, rural water storage, implementing designed erosion control and trapping best management practices, nutrient management, pasture management, feedlot runoff controls, septic system improvements, urban stormwater runoff controls, and managing internal loading of phosphorus in lakes (preventing phosphorus contained in lake sediments from becoming resuspended in the water column).

Strategies were also identified for lakes and streams that are currently meeting water quality to maintain and improve current conditions and protect these resources from becoming degraded or impaired. These include protecting groundwater and drinking water, wildlife management areas, and lakes and wetlands with rare and/or sensitive species.



Although residential shoreline development is very low around East Twin Lake, agricultural land use adjacent to the shoreline is relatively high and may have contributed to shoreline habitat degradation and bank erosion in some areas. Recent high-water levels are also exacerbating bank erosion and other shoreline habitat concerns.

Next steps

The restoration and protection strategies listed in the WRAPS report will assist in developing comprehensive local water management plans that include implementation efforts to restore and protect water resources. The Cottonwood River Watershed was awarded 1W1P planning funding by the Board of Water and Soil Resources (BWSR) in 2022. The WRAPS report lays out goals, strategies, and targets to address protection and restoration opportunities in the watershed. The targets are intended to provide guidance and “measuring sticks” to assess the watershed’s health and success of actions taken.

Full report

To view the full WRAPS report, search “Cottonwood River Watershed” on the MPCA website at www.pca.state.mn.us.

Contact

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