

Summary

Water monitoring and assessment report 2011-'13

Cannon River Watershed



Why is it important?

The Cannon River Watershed in southeastern Minnesota is home to several cities and many species of wildlife and fish. The watershed's wealth of lakes and streams is a valuable resource environmentally and economically. The water's health is essential to human quality of life and to sustaining aquatic life.

As a tributary to the Mississippi River, the Cannon also affects downstream water quality.

The Cannon River Watershed drains 946,440 acres (1,460 square miles) and consists of two river systems: the Cannon River and the Straight River. From west to east, the Cannon River travels 112 miles from Shields Lake, through Northfield, to the Mississippi River north of Red Wing. From south to north, the Straight River flows 56 miles through the cities of Owatonna and Medford before connecting with the Cannon River downstream of the dam in Faribault.

The Cannon River Watershed spans nine counties: Steele, Rice, Goodhue, Dakota, Le Sueur, and Waseca with small portions of Scott, Blue Earth, and Freeborn counties. The vast majority of land is used for agriculture.

Key issues

The MPCA and local partners examined fish populations, water chemistry, and other parameters to determine if lakes and streams are meeting water quality standards designed to ensure that waters are fishable and swimmable. Waters are "impaired" if they fail to meet standards.

Few of water bodies studied in the Cannon watershed fully meet the swimmable and fishable standards. The vast majority fail to meet standards all the time.

High levels of nutrients that cause algal blooms are hurting aquatic life and recreation in many lakes in the Cannon watershed.

For streams, common impairments include:

- Lowers numbers and/or fewer species of fish and macroinvertebrates (bugs) than expected
- Low levels of dissolved oxygen needed to sustain fish and other aquatic life
- High levels of turbidity, meaning soil and other particles are clouding the water
- High levels of bacteria, indicating wastewater or manure in the water that may make the water unsafe for swimming

Of the 45 lakes assessed:

- Five (11%) are fully supportive of water quality standards for aquatic life such as fish and aquatic recreation such as swimming. The five lakes are Beaver, Dudley, Fish, Kelly, and Roemhildts. These lakes need protection strategies to maintain their high quality.
- 36 (80%) are impaired for one or more uses, meaning they fail to meet standards all the time. These lakes need restoration strategies to improve their water quality.
- Four lakes (almost 9%) lack enough information for assessment and will be studied further.

Key issues continued

Of the 70 stream sections assessed:

- 11 (16%) are fully supportive of water quality standards for aquatic life such as fish and aquatic recreation such as swimming.
- 59 (84%) are impaired for one or more uses, meaning they fail to meet standards all the time.

Nitrate levels in four coldwater trout streams are high enough to violate the standard for coldwater streams (the same standard is used for drinking water). Nitrates are a concern because of karst areas in the watershed -- where the bedrock is porous and pollutants can easily reach groundwater.

Fish in the Cannon River between Faribault and Byllesby Reservoir have elevated mercury levels, as do several lakes in the watershed. Fish in the river below the Byllesby Reservoir have elevated levels of PCBs (a class of industrial chemicals now banned in the United States). See the Minnesota Dept. of Natural Resources website for fish consumption advisories (www.dnr.state.mn.us and click on "lake finder.")

Historic flooding occurred in the watershed in 2010 and is partly responsible for the high nutrient and sediment levels that year in the Cannon and Straight rivers. Climate change and increased drainage may lead to more floods of this severity.

While flooding played a role in the high pollutant levels for 2010, data from long-term monitoring also indicate that land management practices, such as intensive cropping, are causing water quality problems.

People have extensively changed the land in the watershed with farming, drainage, building towns and applying fertilizers, which have all taken a toll on lakes and streams. While much has already been done in the Cannon watershed, additional work is needed to restore its lakes and streams.

About this study

Watershed Approach

Phase 1: Monitor and assess health of waters

Phase 2: Identify conditions stressing biological life

Phase 3: Determine Watershed Restoration and Protection Strategies

Phase 4: Implement strategies

Start process over every 10 years

As part of its watershed approach to examine all major river systems in Minnesota, the MPCA and local partners conducted intensive water monitoring in the Cannon watershed from 2011 to 2013. They sampled more than 100 sites for fish and macroinvertebrates (bugs) along with monitoring for nutrients, sediment and other measures of water quality. The agency then convened a group of experts, including local partners, to assess whether 45 lakes and 70 stream sections are meeting water quality standards.



Full report

To view the full report, go to www.pca.state.mn.us/udgxdb2 or search for "Cannon watershed" on the MPCA website at www.pca.state.mn.us.

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