



Byllesby Reservoir

Report: Nutrient reductions needed to decrease algal blooms

The MPCA has released a report that calls for significant reductions in nutrients in Byllesby Reservoir in order to decrease the frequency and severity of algal blooms in the water body. While essential for plant growth, phosphorus is a nutrient that also fuels algal blooms. Reducing phosphorus levels in Byllesby will require changes in urban and rural areas that drain to the reservoir. Reducing algal blooms will enhance habitat for fish and other aquatic life, as well as enhance aquatic recreation, such as fishing, in the reservoir.

Public Meeting on draft report

Monday, May 13
6-7 p.m.
Phillipo Scout Reservation,
30654 32nd Ave. Way,
Cannon Falls, MN

Background

Created by a dam in 1911, the Byllesby Reservoir is a shallow basin covering 1,400 acres.

The mean depth of Byllesby is estimated at 9 feet, with a maximum depth of 50 feet at a small hole near the north end of the dam. Dam operation controls the output of water from the reservoir. Thus, the volume of the water body varies though the typical volume is 12,400 acre-feet.

The composition of this water is defined and maintained by Byllesby's unnaturally large watershed – more than 730,000 acres, which is 1.3 percent of the state of Minnesota. Relative to the land area it drains, Byllesby holds very little water.

With many boat accesses and two county parks, the reservoir is popular for swimming, boating and fishing. However, because of sediment, nutrients and other pollutants entering the reservoir, Byllesby suffers from cloudy water and algal blooms that harm fish and wildlife habitat (photo above). The lower water quality also decreases recreational opportunities.



Study and site specific standards

The MPCA, with the Cannon River Watershed Partnership, is conducting a study of the reservoir. This study is called a Total Maximum Daily Load, which is the amount of a pollutant that a water body can accept and still meet state water quality standards. The study is part of a nationwide effort under the federal Clean Water Act to identify and clean up water pollution. The Byllesby study report is available on the MPCA website: www.pca.state.mn.us/hqzq978.

This study is part of a larger effort to examine water quality throughout the Cannon River watershed (drainage area), identify conditions that lead to impaired waters as well as healthy ones, and work in a holistic way on protection and restoration of lakes and streams.

As a reservoir, Byllesby has both river and lake characteristics. Its water is a blend of drainage from areas that differ in land use, soils, topography and potential natural vegetation. Because of these factors, along with its relatively small water volume for its vast drainage area, the MPCA set special water quality standards for Byllesby. The U.S. Environmental Protection Agency has approved these standards.

These standards now apply to Byllesby Reservoir:

- 90 parts per billion (ppb) or less of total phosphorus. Total phosphorus includes both the amount dissolved in the water and attached to sediment (soil) particles. Eight summers of measuring the levels in Byllesby found a range of 200 to 250 ppb, well above state water quality standards.
- 30 ppb or less of chlorophyll-a, the main pigment in algae. The water monitoring study found the average level in Byllesby to be 47 ppb. Levels above 30 ppb are associated with severe algal blooms.
- Water clarity of at least 0.8 meter (2.62 feet). Water clarity is an important measurement of a lake or river's health. The study found that water clarity in Byllesby ranged from 0.6 to 0.9 meter (1.97 to 2.95 feet).

The MPCA believes these site specific standards will result in fewer and less severe algal blooms in the reservoir.

The study indicates that significant reductions in nutrients will be needed to meet these standards. Urban changes will include addressing stormwater runoff and reducing wastewater nutrient loads from communities in the watershed. Some cities, including Northfield, Faribault and Owatonna, have already taken steps to reduce phosphorus in their wastewater discharges. Rural changes will include managing manure and fertilizer as well as reducing erosion and runoff to local waters.

Resources

- Byllesby Reservoir TMDL webpage: www.pca.state.mn.us/hqzq978
- Cannon River Watershed Management Project : www.crowp.net/cannon-river-strategy/

Contact

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The Cannon River widens into the Byllesby Reservoir, as created by a dam at the east end in Cannon Falls in southeast Minnesota.

