

# Long Lake, Ringo Lake Total Maximum Daily Load Project - Nutrients

Long Lake, located about five miles north of Willmar, Minnesota, was identified in 2002, as impaired for excessive nutrients, primarily Nitrogen and phosphorus, resulting in excessive eutrophication. Ringo Lake, a lake within the Long Lake watershed was listed as impaired for excessive nutrients in 2010. This project will determine the Total Maximum Daily Load (TMDL) for nutrients, and develop an implementation plan to achieve the water quality standards for both lakes.

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## TMDL

The total amount of a pollutant that a water body can carry without violating water quality standards

## Nutrients

Phosphorus (P) and nitrogen (N) are the primary nutrients that in excessive amounts pollute our lakes, streams, and wetlands.

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## Total Maximum Daily Load (TMDL) Background

Under the Federal Clean Water Act, states are required to submit a list of impaired waters to the U.S. Environmental Protection Agency every two years. Minnesota's 2008 list identifies 1,475 impairments on 336 rivers and 510 lakes (a water body may have multiple impairments). Approximately 40 percent of water bodies assessed are found to be impaired, comparable with what other states are finding. Only a small percentage of Minnesota's river miles and lakes have been assessed so far.

## Description of Water Body

Long Lake is in the upper 3 percent of lakes in the state for size (1,612 acres). It has a maximum depth of 16 feet, and a watershed of approximately 7,300 acres including the lake. The majority of the watershed is to the northeast. It outlets at the southwest corner, draining south to Hawk Creek and eventually to the Minnesota River. Much of the water entering Long Lake flows from Ringo Lake, a 774-acre lake to the north.



Residential development borders much of the shoreline around Long Lake in Kandiyohi County.

Long and Ringo Lakes are recreational lakes located in a once predominantly agricultural watershed. It now consists of a mix of land uses including cultivation, Conservation Reserve Program, urban, residential, wooded areas, wetlands, and lakes. Water and wetland uses cover 46 percent; cultivation, 13 percent; forest, 9 percent; CRP, 24 percent (1,400 acres); and pasture, 1 percent. A large island in Long Lake has one of the largest heron rookeries in Minnesota. There are an estimated 2,300 nests of cormorants, great egrets, cattle egrets, and great blue herons.

## Description of Impairments

Development has increased tremendously the past few decades, especially around Long Lake with year-round dwellings being built almost all around. Newer development is occurring around other lakes in the area. Septic system conformity is a concern with increasing lakeshore development. Numerous factors combine to determine whether the runoff from a watershed will be nutrient laden and subsequently detrimental to the receiving body of water, or the runoff water entering the lake serves to maintain a quality recreational lake. According to the 1997 Lake Assessment Program report on Long Lake, there were eight feedlots identified in the watershed, including about 50 head of sheep, 15 horses, 25 beef cattle, and a turkey operation with 22,000 birds. At that time, these operations seemed to be well-managed and not adversely affecting the water quality in the watershed. However, a detailed inventory will be conducted to update this information.

## Water Quality Standards

The designated beneficial use for Long and Ringo Lakes is aquatic recreation and the pollutant stressor is nutrient/eutrophication biological indicators. These lakes are shallow lakes located in the North Central Hardwood Forest ecoregion. The new proposed water quality standard thresholds for shallow lakes in this ecoregion are: 60 ug/l for total phosphorus, 20 ug/l for chlorophyll-A, and 1.0 meter for Secchi readings as a summer average.

## Project Development

The goal is to develop a partnership between the local watershed group and Minnesota Pollution Control Agency (MPCA) to collect water quality and quantity data. The Hawk Creek Watershed Project (HCWP) would be responsible for collecting water samples and watershed information for the Long Lake basin in 2008 and 2009. It will also be responsible for promoting the project and developing an implementation plan. The MPCA will be responsible for composing and editing the TMDL assessment with assistance from the HCWP staff. MPCA will provide technical expertise and management of the project. The HCWP staff will bring dedication and coordinated effort to complete the TMDL assessment and development of the implementation plan. They will provide services such as liaison to the citizens, project participants through the Technical Advisory Committee (TAC), and the MPCA project manager. They will conduct or coordinate all data gathering and assessment, public outreach and work with the MPCA on needed reduction scenarios. The coordinator will also be responsible for working with stakeholders to develop an implementation plan. The following parties will be responsible for and participate in the Long Lake Nutrient TMDL Project:

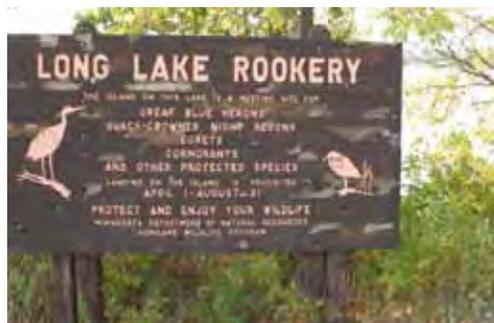
- Kandiyohi County - project sponsor and grant oversight
- Prairie Country Resource, Conservation and Development - fiscal services
- Hawk Creek Watershed Project - day-to-day project coordination, facilitate and carry out task of data collection of monitoring activities and watershed assessment

Completion of the TMDL report and implementation plan is scheduled for June 2011.

## Contact for more information

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## MPCA area offices

Rochester area	507-285-7343
Mankato area	507-389-5977
Marshall area	507-537-7146
Willmar area	320-214-3786
Detroit Lakes area	218-847-1519
Brainerd area	218-828-2492
Duluth area	218-723-4660
Metro area	651-296-6300
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