



Minnesota
Pollution
Control
Agency

**Lake Independence
TMDL was
approved by the
Environmental
Protection Agency
(EPA)
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Lake Independence

Total Maximum Daily Load: Excess Nutrients

Water Quality, Impaired Waters 8-03a • April 2007

Lake Independence is an 851-acre lake located approximately 15 miles west of Minneapolis. Land use in the 7,631-acre watershed surrounding Lake Independence is predominantly agricultural and is undergoing rapid development of multi-acre, single-family hobby farms. The watershed includes portions of Medina, Independence and Loretto.

Lake Independence is a Class 2 recreational water. The primary uses include swimming, fishing and boating. Water quality data collected from 1990 to 2003 revealed that the lake's total phosphorus concentration averages 47 ug/L and violates the state standard of 40 ug/L for recreational waters.

TMDL Background

Based on the federal Clean Water Act, waters that do not meet water quality standards are "impaired." The Clean Water Act requires states to develop a clean up plan for each impairment affecting a water body. The clean up plan and the process used to create it is a Total Maximum Daily Load (TMDL).

A TMDL must identify all sources of the pollutant causing a water body to violate standards. The TMDL also determines the amount by which each source must reduce its contribution to ensure a water body meets applicable quality standards.

The following information provides a brief description of the Lake Independence TMDL process and next steps.



The Concern

Over the past 15 years, the water quality of Lake Independence has declined. Excess nutrients, mainly phosphorus, in the water have contributed to a significant increase in the frequency of algal blooms, creating negative impacts for recreational use.

The Nutrient Sources

The existing phosphorus load to Lake Independence from all sources was determined to be 2,381 pounds annually. Of this total, the Lake Independence watershed contributes 1,475 pounds of phosphorus to the lake annually, primarily from feedlots, cropland and urban development. The remaining 906 pounds of phosphorus is from nutrient recycling within the waterbody and from precipitation.

TMDL Process

The Pioneer-Sarah Creek Watershed Management Commission appointed a community stakeholder committee to address concerns about nutrient levels in Lake Independence. The committee included participants from the three municipalities, Independence, Medina and Loretto, in the watershed as well as livestock owners, business owners and representatives from the Pioneer-Sarah Creek Watershed Management Commission, area lake owners-association, representatives from the Three Rivers Park District and the farming community.

TMDL Implementation Strategies

The Lake Independence community stakeholder committee established a Lake Independence water quality goal of 36 ug/L for the mean total phosphorus concentration during the growing season (June through September).

The existing total phosphorus load to Lake Independence from all sources is 2,381 pounds per year. Achieving the desired water quality goal will require a phosphorus load reduction of 1,081 pounds per year, a 45% decrease in the current load.

The TMDL allocates phosphorus load reductions from each municipality in the watershed proportionate to each entity's current contribution. For example, Independence has a much larger livestock concentration than Medina. As a result, the city of Independence would need to achieve a larger reduction of phosphorus loading from manure than Medina. Independence, Medina and Loretto support the recommendations of the TMDL and plan to achieve the following total phosphorus source reductions to meet the water quality standard:

Independence	-535 lbs/yr
Medina	-284 lbs/yr
Loretto	-53 lbs/yr

These reductions will come from the following sources:

Cropland	-284 lbs/yr
Livestock Manure	-370 lbs/yr
Urban Development	-146 lbs/yr
Loretto Wastewater	-53 lbs/yr
Shoreline/Goose Mgmt	-11 lbs/yr
Failing Septic Systems	-8 lbs/yr

The three communities also agreed to work together to reduce the internal loading of phosphorus by 209 lbs/yr.

The communities are permitted municipal separate storm sewer systems (MS4s) under the U.S. Environmental Protection Agency Stormwater Program. MS4s are regulated through state-issued permits and must create and implement Stormwater Pollution Prevention Programs. The SWPPPs for these communities include measures for controlling nutrient loading to Lake Independence.

For More Information

Review the *Lake Independence TMDL: Excess Nutrients* full report on the MPCA Web site at:

<http://www.pca.state.mn.us/publications/reports/tmdl-lakeindependence-phosphorus.pdf>

Direct questions, comments and requests for additional information to:

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