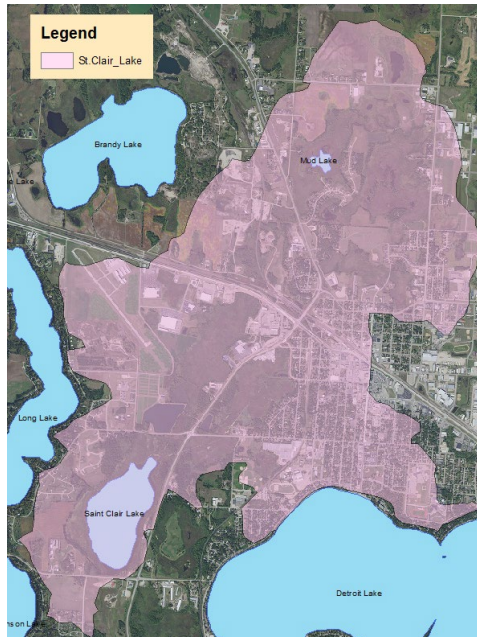


**Overall Strategy:**  
Improve Water Quality

**Impairment:** Impaired for Nutrients

**Subwatershed Lake Cover/Use:**  
4.7% Open Water  
40.8% Developed  
15.0% Wetlands  
12.7% Cultivated Crops  
11.9% Forest  
14.9% Grassland



Water Quality	10-Year Average (2008-2017)	Trend
Secchi (clarity)	2.5 ft.	Degrading
Total Phosphorus	107 µg/L	Degrading
Ortho Phosphate	7.1 µg/L	Degrading
Chlorophyll-a	44 µg/L	Degrading

Not always suitable for swimming and wading due to low clarity and excessive algae caused by excess nutrients

**Short Term Goals - Year 2025**

- Achieve a 5-year mean summer phosphorus concentration at or below 60 µg/L
- Achieve mean summer Secchi depth no less than 3.5 ft

**Long Range Goals – Year 2035**

- Achieve a 5-year mean summer phosphorus concentration at or below 60 µg/L
- Achieve mean summer Secchi depth no less than 3.5 ft

**Basic Facts**

<b>DNR ID/ Becker No</b>	MN03-0382-00 / 382
<b>Township(s)</b>	Lake View, Detroit (Sec 4, 5, 32, 33)
<b>Lake Classification</b>	Natural Environment
<b>Lake Area</b>	142 acres
<b>Littoral Area</b>	Not Recorded
<b>Sub-watershed Area</b>	4430 acres
<b>Shoreline Length</b>	2.5 miles
<b>Inlet(s)</b>	Stream from Long Lake
<b>Outlet(s)</b>	Stream to Ditch 14
<b>Control Structures</b>	None
<b>Highest Recorded*</b>	1338.11 feet (10/26/2004)
<b>Lowest Recorded*</b>	1335.75 feet (9/12/2003)
<b>Ordinary High Water Level*</b>	1337.5 feet
<b>Recorded Range*</b>	2.36 feet
<b>Water Residence</b>	98 days
<b>Maximum Depth</b>	7.5 ft.
<b>Main Fish Species</b>	N/A
<b>Secondary Fish Species</b>	N/A
<b>MN DNR/ Private Fish Stocking</b>	N/A
<b>Aquatic Invasive Species (2015)</b>	None listed
<b>Public Access Sites</b>	None
<b>Marinas</b>	None
<b>Public Beach</b>	None
<b>References</b>	DNR Lake Finder, Becker County, MPCA

\*Elevations NGVD 29

\*\* Elevations NAVD 88

## **Overall Assessment**

Lake St. Clair originally was a 591 acre lake located west of the Detroit Lakes. In about 1915 the lake was drained to its present size of 140 acres because of the “awful stench” is presented to the local residents. This was caused by more than seventy years of untreated sewage from the City of Detroit lakes. A modern sewage treatment plan was constructed in 1976 which reduced phosphorus loadings to St. Clair by approximately 90%. The City continues to discharge treated effluent wastewater on the north side of the lake.

St. Clair is prone to annual winterkill episodes and therefore does not support game fish populations. There is no public access on the lake. The lake is, however, heavily used by waterfowl.

Two ditches bring water to St. Clair, including much of the City of Detroit Lakes stormwater runoff. A natural outlet from Long Lake enters from the West, which contributes only minor amount of water and nutrient load. St. Clair discharges to the southwest via Becker County Ditch 14 to the Pelican River, entering Muskrat and Sallie Lakes. Additional nutrients are picked up from the partially drained wetland which Ditch 14 flows through to the Pelican River.

Lake bottom sediments up are up to 16 feet thick in portions of the lake and are thought to be caused by the lake’s history of receiving sewage prior to modern wastewater treatment.

Developed land accounts for 43% of the land area draining to the lake. Other land uses are comprised of grassland (16%), forests (12%), cropland (13%), and wetlands (16%).

The Pelican River Watershed District applied aluminum sulfate (ALUM) to Lake St. Clair in October 1998. This treatment was a phased approach intended to reduce unacceptable phosphorus level in Lake Sallie. Following the ALUM treatment, in-lake phosphorus concentrations were reduced by over 50% from 131ppb to 72ppb with similar reduction in orthophosphate. Phosphorus level began to trend upward beginning in the early 2010’s showing that the ALUM treatments effectiveness had begun to wear and that another dose will be required to maintain phosphorus level below 80ppb.

In 2016, the MPCA accepted the St. Clair lake Total Maximum Daily Load (TMDL) study. The study showed that...

## **Implementation**

**Planned/Potential Projects:**

**Capital Improvement Projects:**

## **Projects & Programs**

**Ongoing Programs:**

**Past Studies**

- Larson, Peterson, and Ulteig. 2004. Wastewater Treatment Facility Effluent Discharge Feasibility Study; City of Detroit Lakes Preliminary Engineering Report
- Pelican River Watershed District and City of Detroit Lakes. 1971. The Effectiveness of Advanced Waste Treatment Methods and the Recovery Rate of an Enriched Lake following Nutrient Cut-Off
- Instrumental Research Inc. 1984. Aeration Proposal to the Pelican River Watershed District
- Wenck Associates Inc. 2006. Ditch 14 Hydraulic and Water Quality Study
- Minnesota Pollution Control Agency. 2014. St. Clair Lake Total Maximum Daily Load (TMDL) Report