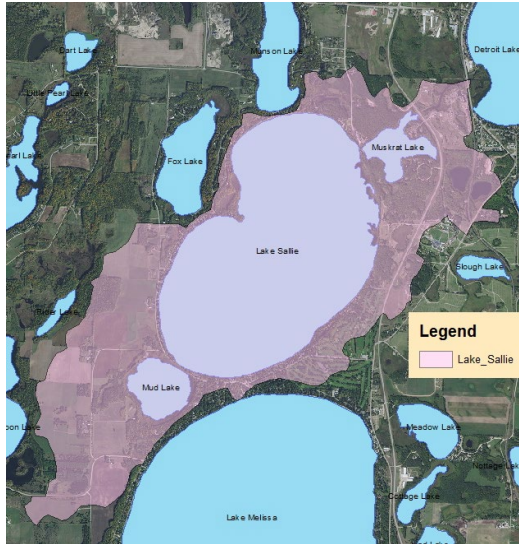


**Overall Strategy:**  
Improve Water Quality

**Impairment:**  
Listed as impaired for mercury

**Subwatershed Lake Cover/Use:**  
46.2% Open Water  
10.0% Developed  
3.7% Wetlands  
7.6% Cultivated Crops  
18.0% Forest  
14.4% Grassland



Water Quality	10-Year Average (2008-2017)	Trend
Secchi	7.5 feet	Stable
Total Phosphorus	35 µg/L	Stable
Ortho Phosphate	7 µg/L	Stable
Chlorophyll-a	13 µg/L	Stable

*Note: Zebra Mussel infested water listing in 2016*

**Short Term Goals – Year 2025**

- Achieve a 5-year mean summer phosphorus concentration at or below 30 µg/L
- Achieve mean summer Secchi depth no less than 6 ft

**Long Range Goals – Year 2035**

- Achieve a 5-year mean summer phosphorus concentration at or below 27 µg/L
- Achieve a mean summer Secchi depth no less than 8 ft

**Basic Facts**

<b>DNR ID/ Becker No</b>	MN03-0359-00 / 359
<b>Township</b>	Lake View (Sec 7-9, 16-20)
<b>Lake Classification</b>	General Development
<b>Lake Area</b>	1272.9 acres
<b>Littoral Area</b>	577 (45%)
<b>Sub-watershed Area</b>	3159 acres
<b>Shoreline Length</b>	5.5 miles / 29,300 feet
<b>Inlet(s)</b>	4 (Pelican River from Muskrat Lake, Wetland Streams from Fox and Munson, Culvert from Mud)
<b>Outlet(s)</b>	Pelican River (to Lake Melissa)
<b>Control Structures</b>	Dunton Rapids (no longer controlled)
<b>Highest Recorded*</b>	1331 feet (8/9/1993)
<b>Lowest Recorded*</b>	1325.42 feet (7/25/1936)
<b>Ordinary High Water Level*</b>	1330.3 feet
<b>Recorded Range*</b>	5.58 feet
<b>Maximum Depth</b>	50 feet
<b>Water Residence</b>	271 days
<b>Main Fish Species</b>	Black crappie, Bluegill, Green sunfish, Largemouth bass, Muskellunge, Northern pike, Rock bass, Walleye
<b>Secondary Fish Species</b>	Bowfin, Hybrid sunfish, Pumpkinseed, Tullibee, White sucker, Yellow perch, Black/Brown/Yellow bullhead
<b>MN DNR/ Private Fish Stocking</b>	Walleye
<b>Aquatic Invasive Species (2016)</b>	Flowering rush, Curly-leaf pondweed, Zebra Mussel
<b>Public Access Sites</b>	NE Shore (DNR)

**Marinas** None

**Public Beach** None

**Overall Assessment**

Lake Sallie is a 1,273-acre polymictic lake which reaches a maximum depth of 50 feet, with 45% of its surface area is considered littoral. Lake Sallie is classified as a borderline eutrophic lake vulnerable to nutrient impairment. The Pelican River passes through the lake, entering on the north end from Muskrat Lake, outlet into on the south end to Lake Melissa.

Historically, Lake Sallie has had poor water quality, partly due in part to the City of Detroit Lakes use the upstream St. Clair Lake as a discharge point for wastewater. Prior to the construction of the original wastewater treatment facility 1929, untreated wastewater was discharged in the Lake St. Clair, which resulted in phosphorus level in Lake Sallie to be approximately 54ppb, nearly 3 times that of nearby and similar lakes. In 1979, the facility was upgraded. Sallie responded with a decline in phosphorus levels ranging from 46 to 48ppb. The current facility, upgraded in 2002, further reduced load to Lake Sallie resulting in the current mean summer levels between 35 and 37ppb.

While it has greatly improved since the 1970's it continues to exhibit moderate to severe algal blooms are common, often continuous in July and August. These appear to be brought on in part by internal nutrient recycling, whereby nutrient rich water from the bottom layers are brought to the oxygen rich upper layers during lake mixing periods, often triggered by storm event and high winds.

Much of the nutrient load comes from upstream sources, specifically from nutrient rich water from partially drained Lake St. Clair via Becker County Ditch 14. A ALUM treatment in Lake St. Clair conducted in 1998 reduced internal loading to the lake, and in effect, reduced nutrient loading to the downstream Muskrat and Sallie Lakes. Stormwater Best Management Practices in the City of Detroit Lake has also aided in Lake Sallie improvements be reducing stormwater runoff loads to Little Detroit Lake, which outlets to Sallie.

A lock and dam system was between during the depression era by a Civilian Conservation Corp (CCC) crew between Lake Sallie and Muskrat Lake. This structure was removed in 2001 and replaced be a constructed rapid outfall at the historic water outlet elevation and no longer allows for any water level manipulation. The Pelican River flows out to Lake Melissa through a culvert under Becker CSAH 22 approximately 200 feet downstream of Lake Sallie. The velocity of flow between the outlet of Sallie and the culvert suggests that the headwater of the culvert may be slightly lower than the true water

**Implementation**

**Planned/Potential Projects:**

**Capital Improvement Projects:**

**Projects & Programs**

**Ongoing Programs:**

level in the Lake. There is also a slight hydraulic restriction that appears to control lake level.

Contributing land area draining to Lake Sallie is composed primarily of forest, 34% (570 acres), and grassland, 27% (455 acres). Developed land accounts for 19% (316 acres), cultivated crops at 14% (241), and 117 acres (7%) or wetlands.

- ZM found in fall of 2016
- Improvement in current 10 year and previous 10year
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