Lake Augusta

Citizen Assisted Monitoring Program (CAMP)

2020 Water Monitoring Report

LMRWMO
LOWER MISSISSIPPI RIVER
WATERSHED MANAGEMENT ORGANIZATION

Lake Summary

Lake Augusta is located in the City of Mendota Heights, within the Lower Mississippi River Watershed Management Organization (LMRWMO). Land use within the watershed is primarily institutional (cemetery), commercial, and residential (low and high density). Lake Augusta was placed on Minnesota's 303(d) List of Impaired Waters in 2010 for aquatic recreation due to excess nutrients (phosphorus).

Lake Details

Max Depth: 33 feet

Watershed Size (shown): 420 acres

Major Watershed: Minnesota River

MPCA Lake Classification: Deep

Met Council 2020 Lake Grade: F

Water Quality Monitoring Need

Lake Augusta is monitored on an annual basis as part of the LMRWMO's participation in the Met. Council's Citizen Assisted Monitoring Program (CAMP) volunteer lake water monitoring program. The lake continues to not meet the deep lake water quality criteria set forth by the Minnesota Pollution Control Agency (MPCA).Further study of the lake is needed to understand the poor water quality causes. The LMRWMO will undertake an intensive study in 2021-2023 to identify long term action items to improve lake water quality.

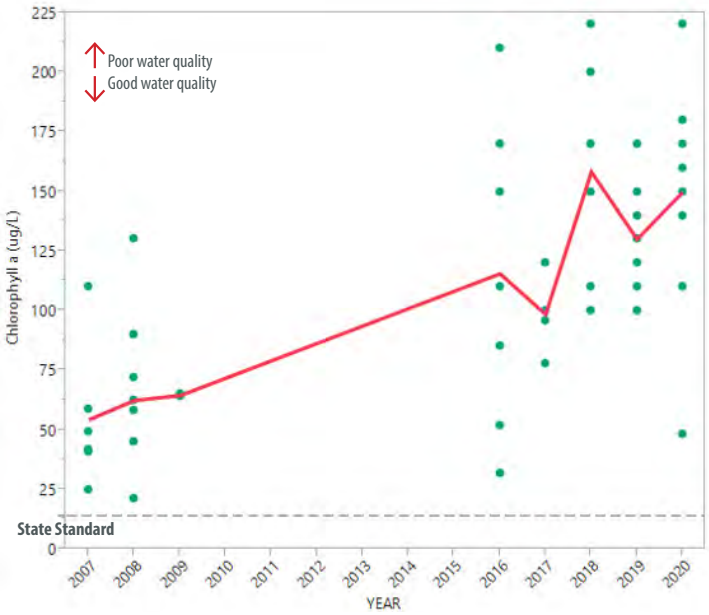
2020 Monitoring Summary

Following an aluminum sulfate (alum) treatment in 2017, there were improvements for all three eutrophication (aging process by which lakes are fertilized with nutrients) parameters compared to data collected in 2016 (pre-treatment). Monitoring data from 2020 showed little to no change across the three parameters in comparison to data collected in previous years. The below table shows the 2020 data.

Eutrophication Parameters	MPCA Standard	Minimum	Maximum	Average
Chlorophyll-a (ug/L)	14	48	220	149.80
Total Phosphorus (ug/L)	40	80	180	126.3
Secchi Depth (m)	1.4	0.2	0.3	0.22

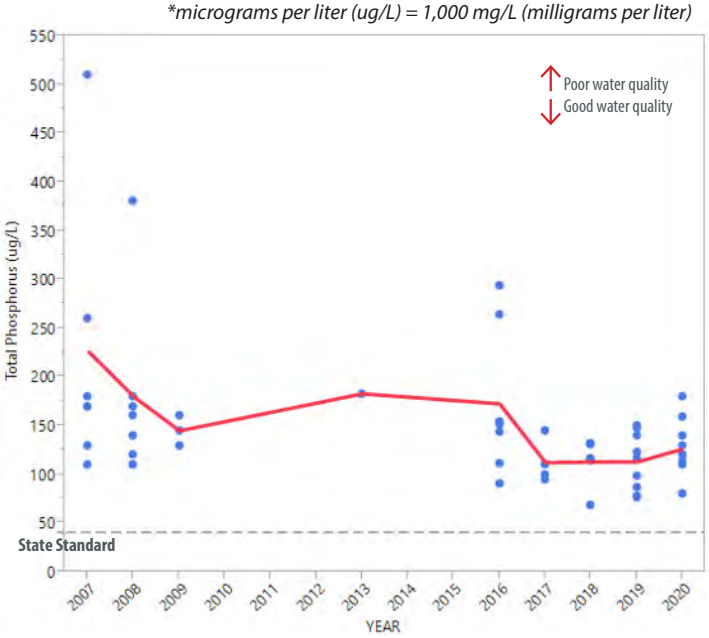
Water Quality Data 2007-2020

**micrograms per liter (ug/L) = 1,000 mg/L (milligrams per liter)*



Chlorophyll-a*

Chlorophyll-a is the pigment that gives plants their green color. High levels indicate excessive algae from high nutrient levels in the lake. Low chlorphophyll-a levels indicate good water quality. State standard is 14 ug/L (dashed line).



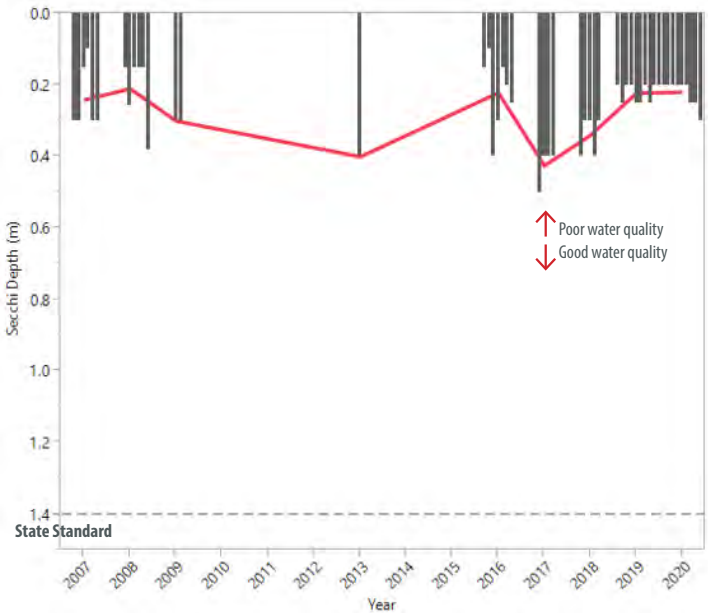
Phosphorus*

Phosphorus is a nutrient required for plant growth. High phosphorus levels can lead to algae blooms, turning water green. Low phosphorus levels indicate good water quality. State standard is 40 ug/L (dashed line).

Watershed Projects

Recent studies conducted by the LMRWMO identified internal phosphorus from the lake bottom as the primary source of phosphorus in Lake Augusta.

In 2017, the LMRWMO implemented an in-lake aluminum sulfate (alum) treatment to improve water quality. Upon application, the alum binds with phosphorus as aluminum phosphate and settles to the lake bottom. It is believed that long term high water levels impacted the effectiveness of the alum treatment.



Secchi Depth

A black and white secchi disc is lowered into the water until no longer visible and measures water clarity. High secchi disc depths indicate good water quality. State standard is 1.4 m (dashed line).

How can you get involved?

You don't have to live on a lake to help protect water quality, **anyone can be part of the solution!** Landscaping with native plants or installing a raingarden **increases water infiltration,** decreases lawn maintenance, and reduces pollution runoff that can negatively impact local water quality. The LMRWMO has partnered with the Dakota County Soil and Water Conservation District to offer grants to residents who install a native planting, raingarden, or shoreline planting or stabilization as part of their **Landscaping for Clean Water** program.

Additional Information:

DNR Lake Finder: https://www.dnr.state.mn.us/lakefind/index.html
Landscaping for Clean Water: https://dakotaswcd.org/services/landscaping-for-clean-water/
LMRWMO Website: www.lmrwmo.org
LMRWMO Contact: Joe Barten - joe.barten@co.dakota.mn.us 651-480-7784

DAKOTA COUNTY SOIL & WATER CONSERVATION DISTRICT

Seidls Lake

Citizen Assisted Monitoring Program (CAMP)

2020 Water Monitoring Report

LMRWMO
LOWER MISSISSIPPI RIVER
WATERSHED MANAGEMENT ORGANIZATION

Lake Summary

Seidls Lake is located in the Cities of Inver Grove Heights and South Saint Paul, within the Lower Mississippi River Watershed Management Organization (LMRWMO). Land use within the watershed is primarily residential with a portion of the west watershed in institutional land use (golf course) and a portion of Highway 52. The lake is not currently listed on Minnesota's 303(d) List of Impaired Waters.

Lake Details

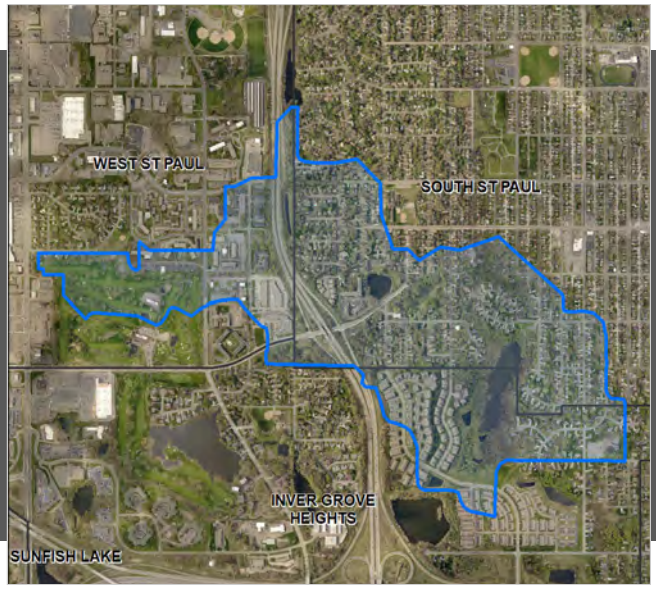
Max Depth: 17 feet

Watershed Size (shown): 420 acres

Major Watershed: Mississippi River

MPCA Lake Classification: Shallow

Met Council 2020 Lake Grade: C



Water Quality Monitoring Need

Seidls Lake is monitored as part of the LMRWMO's participation in the Metropolitan Council's Citizen Assisted Monitoring Program (CAMP) volunteer lake water monitoring program. The lake is surrounded by City parkland and is identified as a priority waterbody by the Cities and LMRWMO. High lake water levels compared to historic levels have been observed in the last 15 years; likely due in part to the lack of a natural lake outlet. A water quality improvement project to intercept and infiltrate stormwater prior to entering the lake was implementd in 2018.

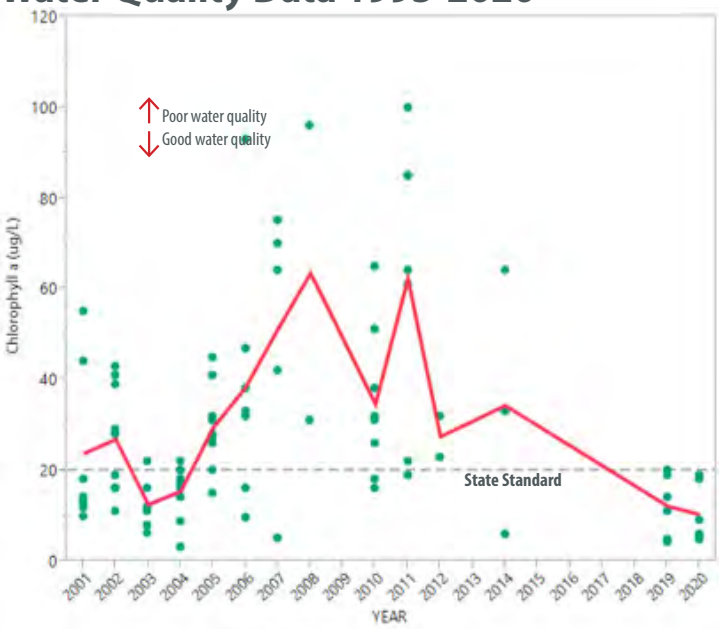
2020 Monitoring Summary

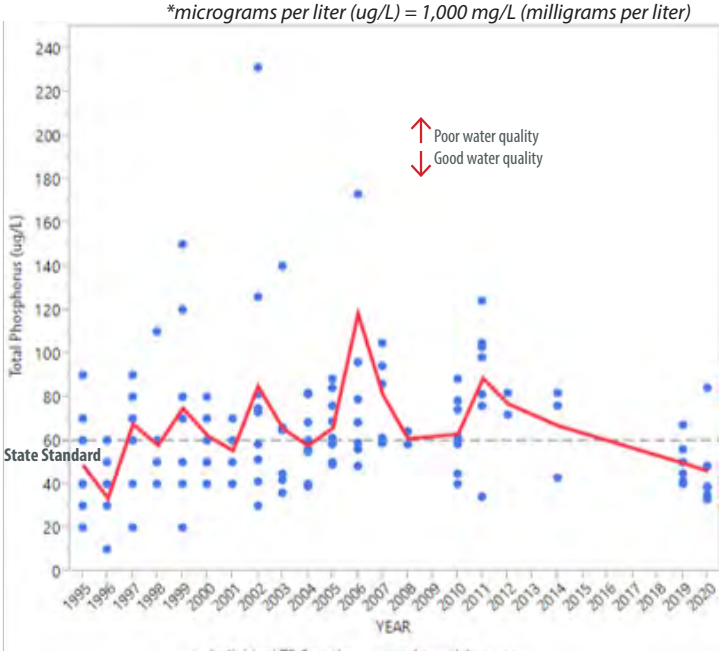
Following the 2018 water quality project, there are marked improvements for all three eutrophication parameters (aging process by which lakes are fertilized with nutrients) when comparing 2020 data to 2010-2014 data. The below table shows the 2020 data.

Eutrophication Parameters	MPCA Standard	Minimum	Maximum	Average
Chlorophyll-a (ug/L)	20	4.7	19	10.3
Total Phosphorus (ug/L)	60	33	84	46.17
Secchi Depth (m)	1	1	1.8	1.42

Water Quality Data 1995-2020

*micrograms per liter (ug/L) = 1,000 mg/L (milligrams per liter)





Chlorophyll-a*

Chlorophyll-a is the pigment that gives plants their green color. High levels indicate excessive algae from high nutrient levels in the lake. Low chlorphophyll-a levels indicate good water quality. State standard is 20 ug/L (dashed line).

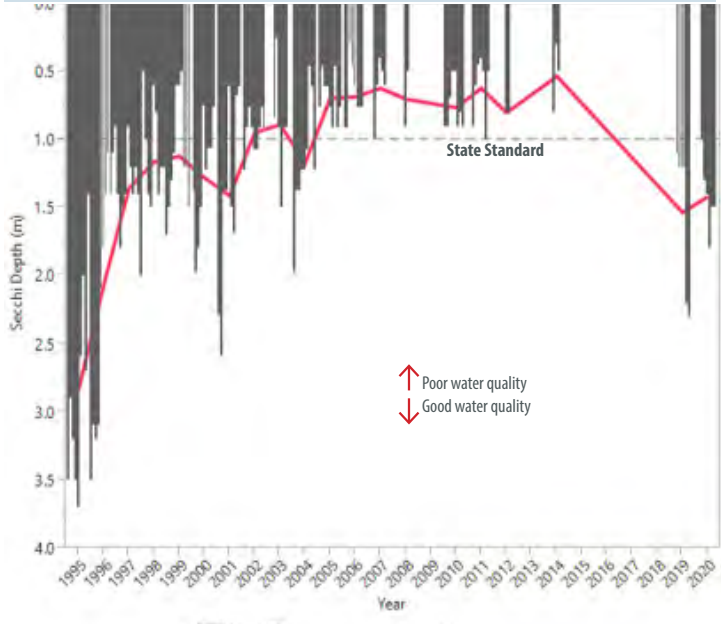
Phosphorus*

Phosphorus is a nutrient required for plant growth. High phosphorus levels can lead to algae blooms, turning water green. Low phosphorus levels indicate good water quality. State standard is 60 ug/L (dashed line).

Watershed Projects

The LMRWMO partnered with the City of South St. Paul to install large underground pipe chambers to infiltrate stormwater before it enters Seidls Lake. The project was implemented with a street reconstruction project.

The lake will continue to be monitored to track further water quality improvements. A feasibility study is in progress to determine whether constructing a lake outlet can maintain a stable lake level and reduce erosion.



Secchi Depth

A black and white secchi disc is lowered into the water until no longer visible and measures water clarity. High secchi disc depths indicate good water quality. State standard is 1 m (dashed line).

How can you get involved?

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Additional Information:

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Landscaping for Clean Water: https://dakotaswcd.org/services/landscaping-for-clean-water/
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DAKOTA COUNTY SOIL & WATER CONSERVATION DISTRICT

Sunfish Lake

Citizen Assisted Monitoring Program (CAMP)

2020 Water Monitoring Report

LMRWMO
LOWER MISSISSIPPI RIVER
WATERSHED MANAGEMENT ORGANIZATION

Lake Summary

Sunfish Lake is located in the City of Sunfish Lake, within the Lower Mississippi River Watershed Management Organization (LMRWMO). Land use within the watershed is primarily low density residential. Sunfish Lake was placed on Minnesota's 303(d) List of Impaired Waters in 2010 for aquatic recreation due to excess nutrients (phosphorus).

Lake Details

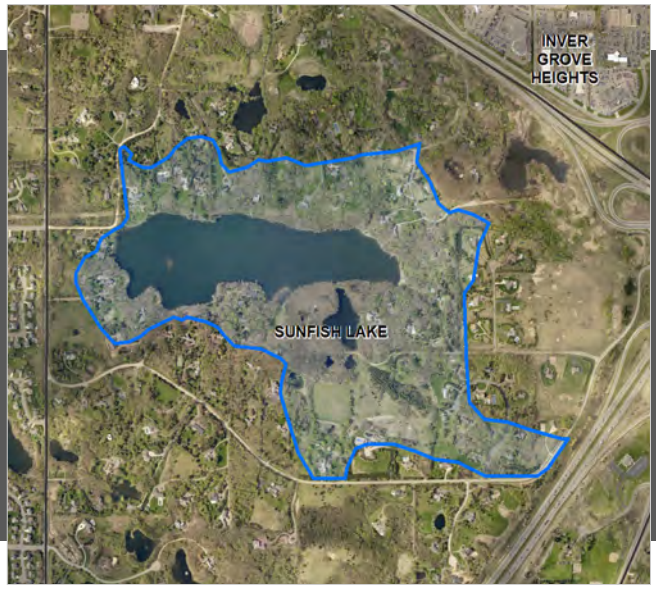
Max Depth: 32 feet

Watershed Size (shown): 235 acres

Major Watershed: Mississippi River

MPCA Lake Classification: Deep

Met Council 2020 Lake Grade: **A**



Water Quality Monitoring Need

Sunfish Lake is monitored on an annual basis as part of the City of Sunfish Lake's participation in the Met. Council's Citizen Assisted Monitoring Program (CAMP) volunteer lake water monitoring program. The lake has been meeting the deep lake water quality criteria set forth by the Minnesota Pollution Control Agency (MPCA) since 2017, following an aluminum sulfate treatment by the LMRWMO.

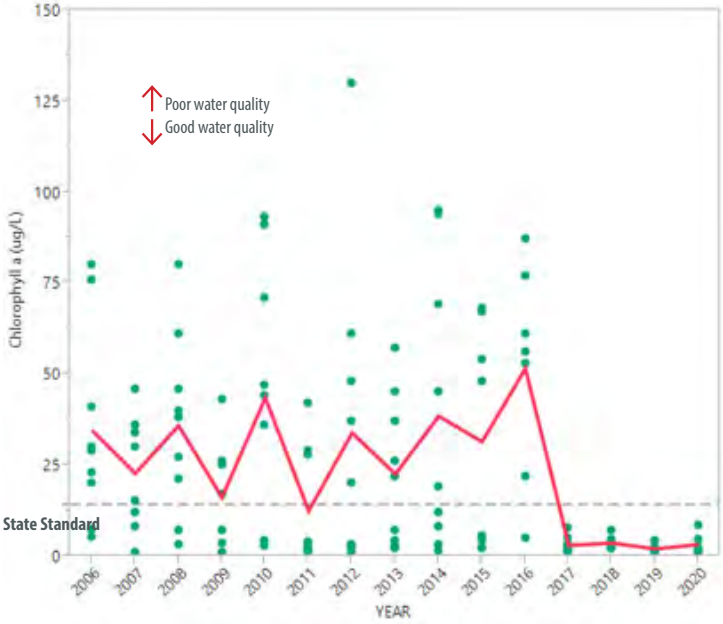
2020 Monitoring Summary

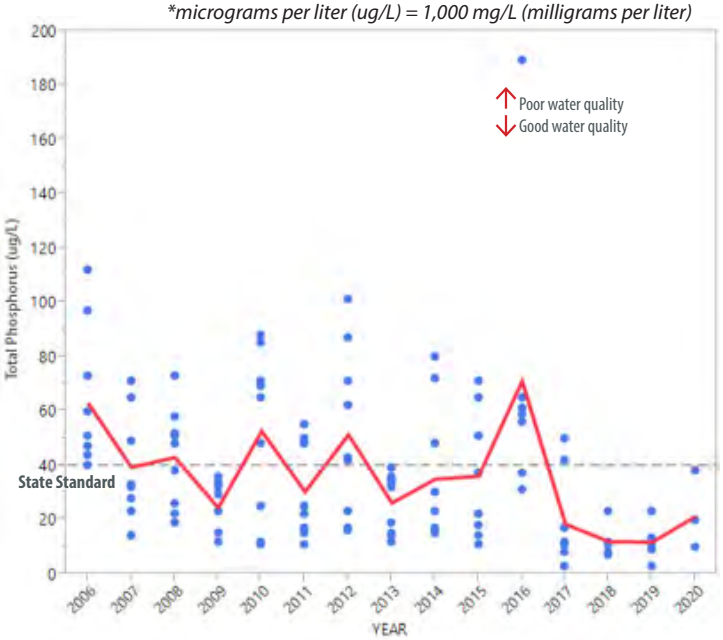
Following the 2017 alum treatment, there were improvements for all three eutrophication parameters when compared to data collected in 2016 (pre-treatment). When comparing 2019 monitoring data with 2020, there is increased variability in both the total phosphorus and secchi readings whereas chlorophyll-a remained low. The below table shows the 2020 data.

Eutrophication Parameters	MPCA Standard	Minimum	Maximum	Average
Chlorophyll-a (ug/L)	14	1.1	83	3.25
Total Phosphorus (ug/L)	40	10	38	21.33
Secchi Depth (m)	1.4	2.6	5.6	3.82

Water Quality Data 2006-2020

*micrograms per liter (ug/L) = 1,000 mg/L (milligrams per liter)





Chlorophyll-a*

Chlorophyll-a is the pigment that gives plants their green color. High levels indicate excessive algae from high nutrient levels in the lake. Low chlorphophyll-a levels indicate good water quality. State standard is 14 ug/L (dashed line).

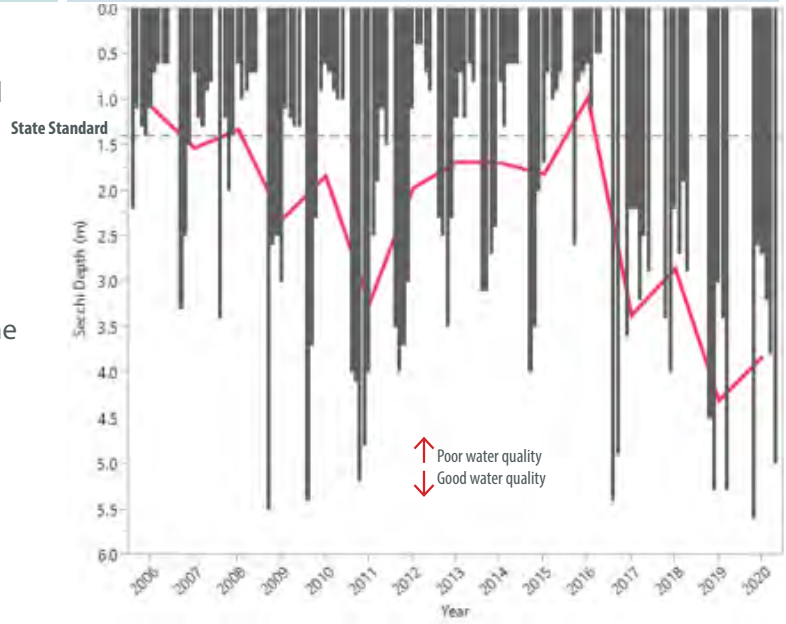
Phosphorus*

Phosphorus is a nutrient required for plant growth. High phosphorus levels can lead to algae blooms, turning water green. Low phosphorus levels indicate good water quality. State standard is 40 ug/L (dashed line).

Watershed Projects

Recent studies conducted by the LMRWMO identified internal phosphorus from the lake bottom as the primary source of phosphorus in Sunfish Lake.

In 2017, the LMRWMO implemented an in-lake aluminum sulfate (alum) treatment to improve water quality. Upon application, the alum binds with phosphorus as aluminum phosphate and settles to the lake bottom.



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DAKOTA COUNTY SOIL & WATER CONSERVATION DISTRICT

Thompson Lake

Citizen Assisted Monitoring Program (CAMP)

2020 Water Monitoring Report

LMRWMO
LOWER MISSISSIPPI RIVER
WATERSHED MANAGEMENT ORGANIZATION

Lake Summary

Thompson Lake is located in the City of West Saint Paul within the Lower Mississippi River Watershed Management Organization (LMRWMO). Land use within the watershed is primarily commercial, institutional, low density residential, and parkland. Thompson Lake was placed on Minnesota's 303(d) List of Impaired Waters in 2014 for aquatic recreation due to excess nutrients (phosphorus).

Lake Details

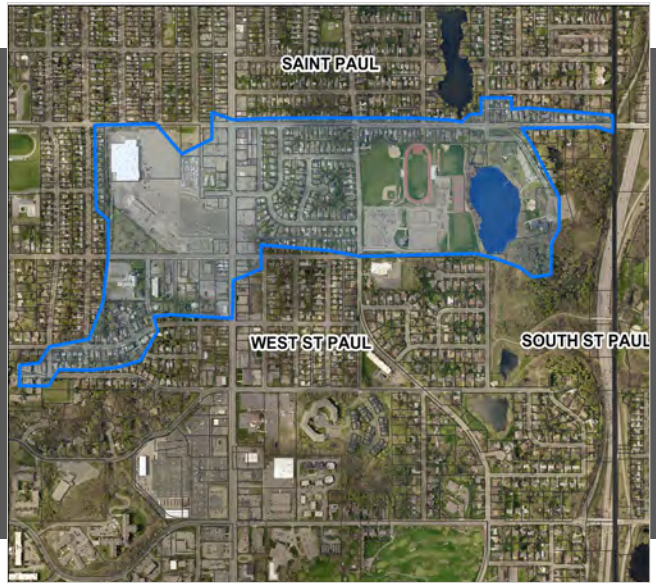
Max Depth: 8 feet

Watershed Size (shown): 180 acres

Major Watershed: Mississippi River

MPCA Lake Classification: Shallow

Met Council 2020 Lake Grade: C



Water Quality Monitoring Need

Thompson Lake is monitored on an annual basis as part of the LMRWMO's participation in the Met. Council's Citizen Assisted Monitoring Program (CAMP) volunteer lake water monitoring program. The Lake is the center of the highly used and valued Dakota County Thompson Lake Regional Park. Currently, the lake does not meet the shallow lake water quality criteria set forth by the Minnesota Pollution Control Agency (MPCA).

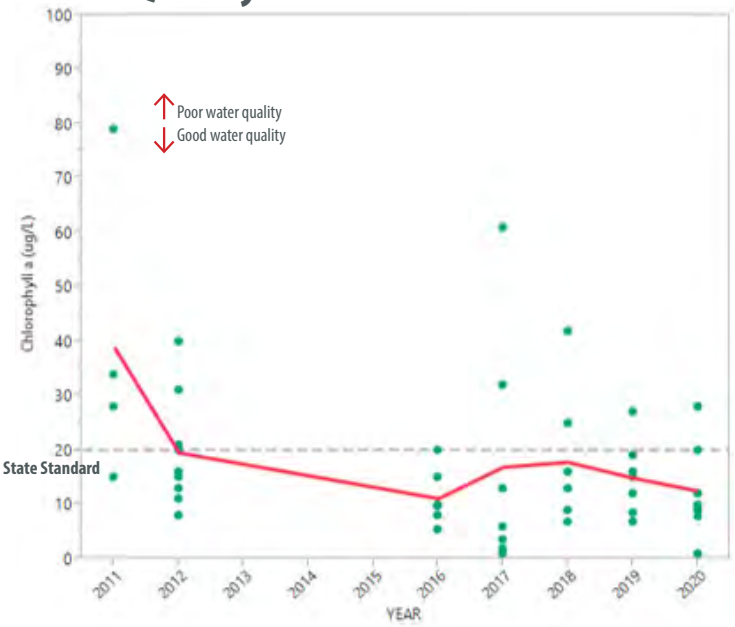
2020 Monitoring Summary

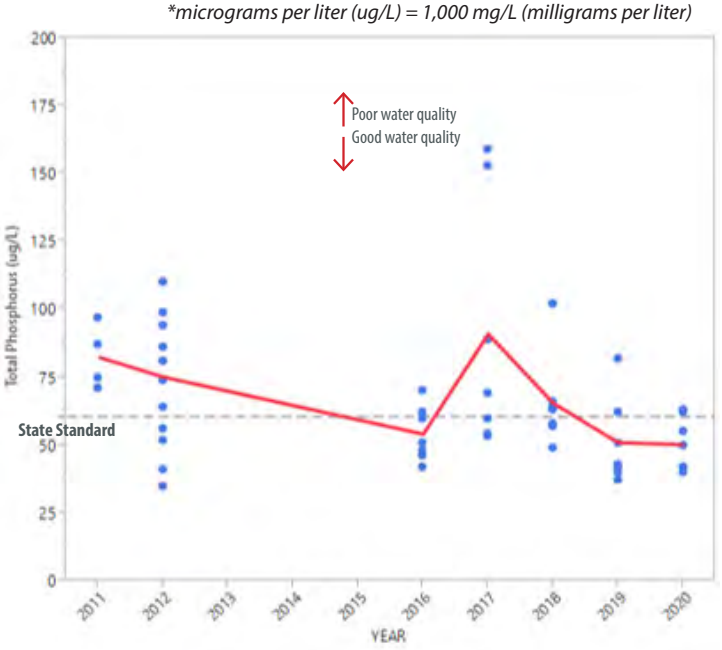
In 2018 and 2019, the LMRWMO led the installation of a comprehensive "treatment train" stormwater improvement project. This included installation of two underground sediment capture chambers, a stormwater settling treatment pond, a stormwater treatment wetland, and raingarden. Post project installation, slight improvements in chlorophyll and phosphorous levels have been observed in 2019 and 2020 with a degredation in the secchi depth reading in 2020. The below table shows the 2020 data.

Eutrophication Parameters	MPCA Standard	Minimum	Maximum	Average
Chlorophyll-a (ug/L)	20	1	28	12.53
Total Phosphorus (ug/L)	60	40	63	50.29
Secchi Depth (m)	1	0.9	1.6	1.19

Water Quality Data 2011-2020

micrograms per liter (ug/L) = 1,000 mg/L (milligrams per liter)





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Phosphorus*

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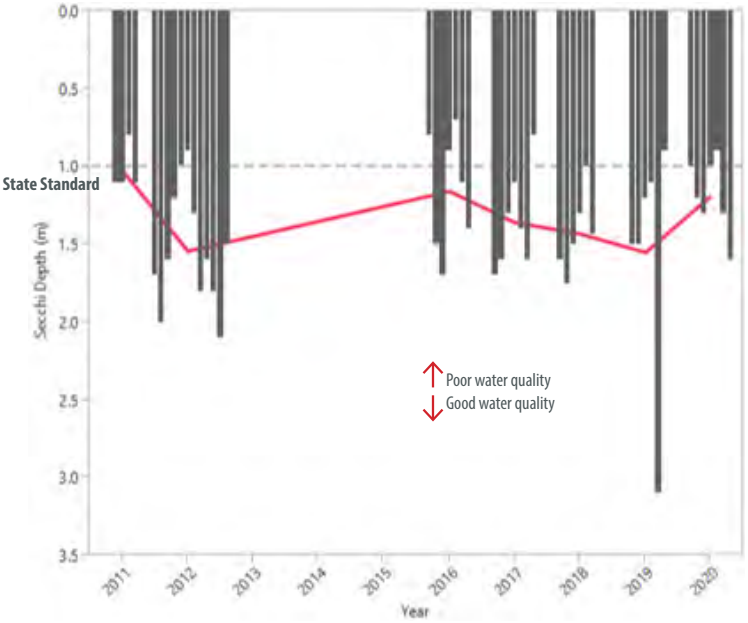
Watershed Projects

The LMRWMO partnered with Dakota County and the City of West St. Paul on the 2018-2019 installation of stormwater projects at Thompson Lake (shown below). These projects are expected to provide long term, incremental water quality improvements which will be tracked with continued water monitoring.

Additional opportunities for stormwater treatment and infiltration of stormwater in the watershed of Thompson Lake should be sought out and implemented.



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