

Sunfish Lake

2022 Water Monitoring Report



Watershed

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 2022 Lake Grade:** **A** (2021)



Monitoring

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

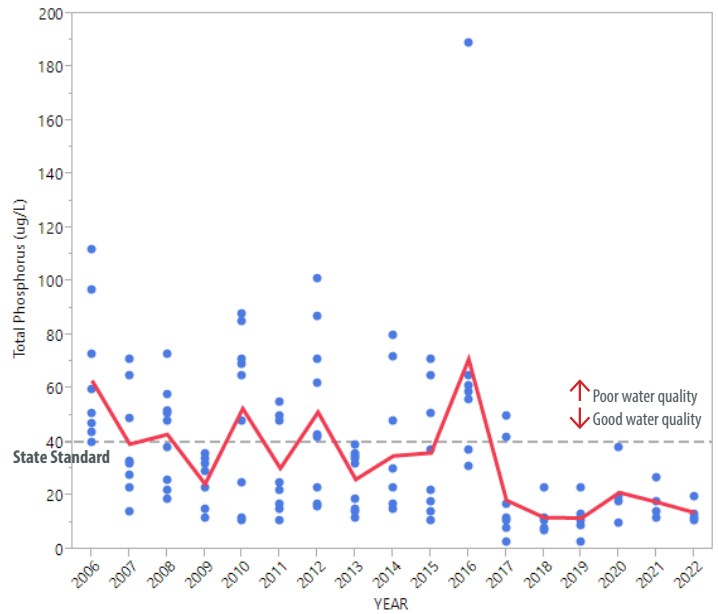
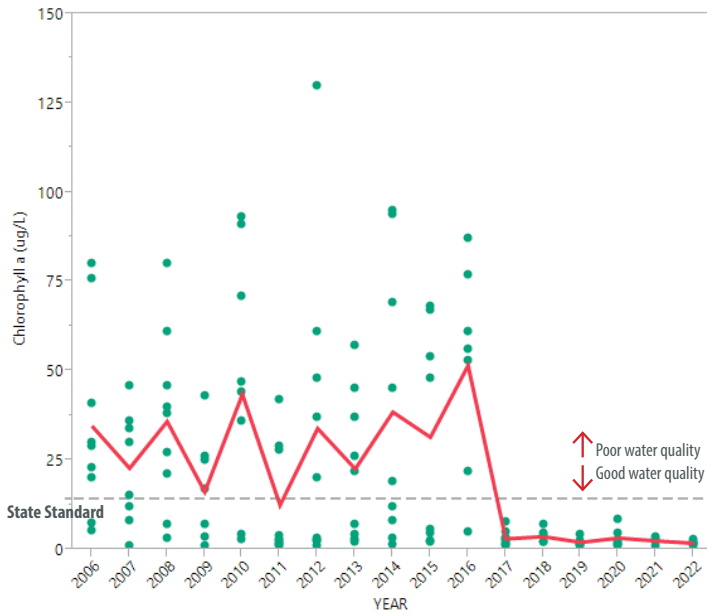
Water Quality

Following the 2017 alum treatment, there were improvements for all three eutrophication parameters when compared to data collected pre-treatment. Lake water quality continues to improve when considering the total phosphorus and chlorophyll-a levels in comparison to historical levels. The secchi readings show improvement from past years, with the minimum value and the average increasing from 2021. The below table shows the 2022 data.

| Water Quality Parameters | MPCA Standard | Minimum | Maximum | Average |
|--------------------------|---------------|---------|---------|---------|
| Chlorophyll-a (ug/L) | 14 | 1.1 | 2.9 | 1.80 |
| Total Phosphorus (ug/L) | 40 | 11 | 20 | 13.80 |
| Secchi Depth (m) | 2.6 | 3.2 | 5.1 | 4.12 |

Water Quality Data 2006-2022

*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 chlorophyll-a levels indicate good water quality. State standard is 14 ug/L (dashed line).

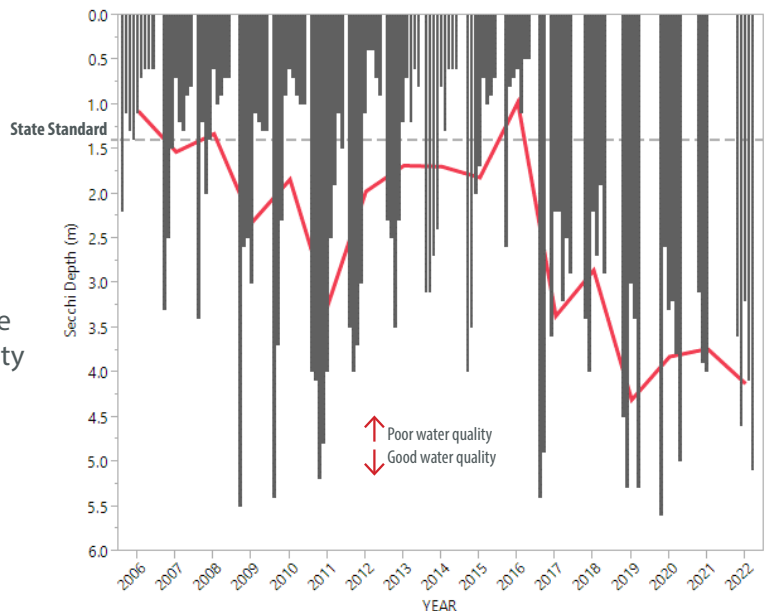
Phosphorus*

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

A 2012 study 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. A significant improvement in water quality has been shown from this treatment, with the lake removed from the impaired waters list in 2022.



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 improve water quality, **anyone can be part of the solution!** Installing a rain garden **increases water infiltration**, decreases lawn maintenance, and reduces pollution runoff that can negatively impact local water quality. The LMRWMO offers grants to residents to install rain gardens or native shoreline plantings as part of the Dakota County Soil and Water Conservation District's **Landscaping for Clean Water** program.

Lake Augusta

2022 Water Monitoring Report



Watershed

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 2022 Lake Grade: **F** (2021)



Monitoring

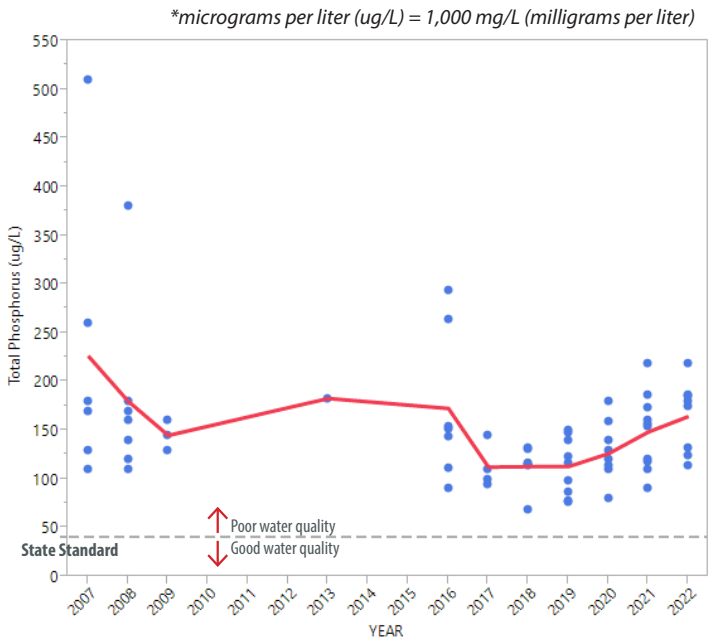
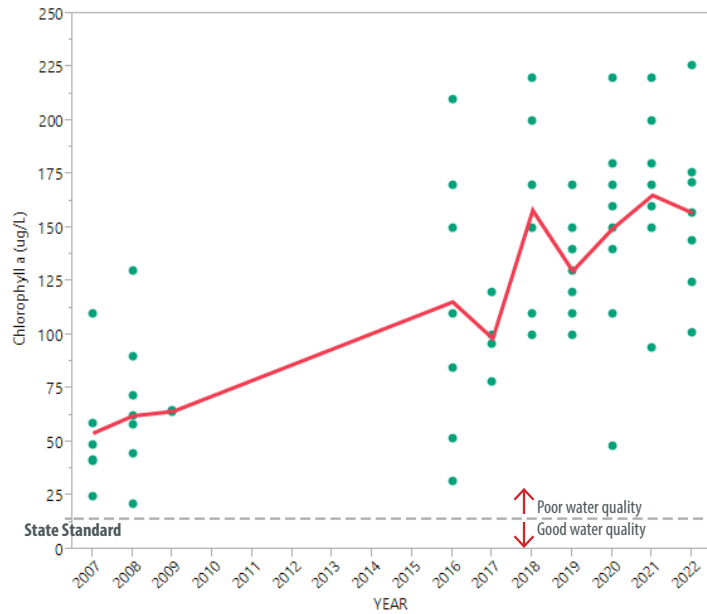
Lake Augusta continues to not meet the deep lake water quality criteria from the Minnesota Pollution Control Agency. Further study of the lake is needed to understand the poor water quality causes. In 2022, the LMRWMO began an intensive water quality study to identify long term action items to improve lake water quality. Water quality monitoring was undertaken by an environmental consulting firm in order to collect a broader set of monitoring parameters (chloride, pH, specific conductance, temperature, total suspended solids, and turbidity) at various depths in the water column.

Water Quality

Monitoring data from 2022 showed an increase in the total phosphorus average, but not the maximum value. The seasonal average for chlorophyll-a decreased, though both the minimum and maximum values increased. The 2022 Secchi reading remained very poor which is consistent with previous monitoring efforts. The below table shows the 2022 data for the three main monitoring parameters.

| Water Quality Parameters | MPCA Standard | Minimum | Maximum | Average |
|--------------------------|---------------|---------|---------|---------|
| Chlorophyll-a (ug/L) | 14 | 101 | 226 | 157.13 |
| Total Phosphorus (ug/L) | 40 | 90 | 219 | 164.50 |
| Secchi Depth (m) | 1.4 | 0.15 | 0.2 | 0.18 |

Water Quality Data 2007-2022



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 chlorophyll-a levels indicate good water quality. State standard is 14 ug/L (dashed line).

Phosphorus*

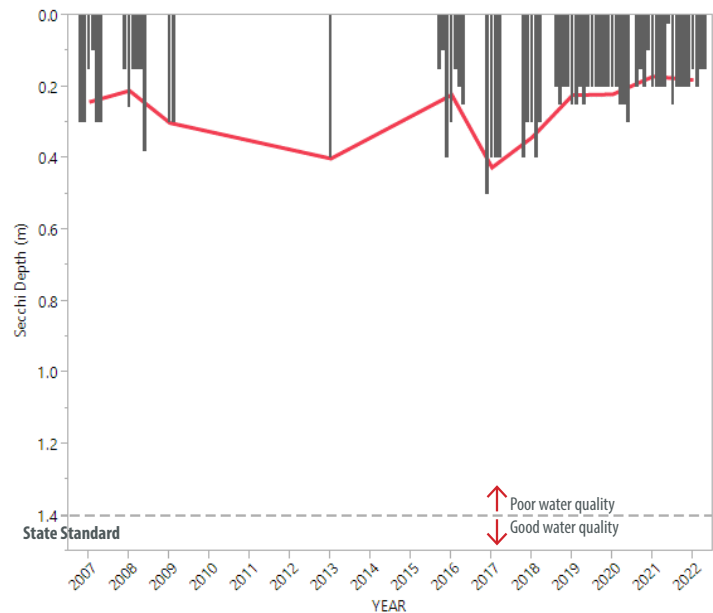
Phosphorus is a nutrient required for plant growth. High phosphorus levels can lead to algae blooms, turning water green. Low phosphorus levels indicate good water quality. State standard is 40 ug/L (dashed line).

Watershed Studies and Projects

The LMRWMO has been studying the poor water quality of Lake Augusta since 2012.

In 2017, the LMRWMO implemented an aluminum sulfate treatment (shown below) to improve water quality which provided slight phosphorus reductions.

The LMRWMO is undergoing a comprehensive study of the lake to identify long term implementation actions to improve lake water quality and a lake outlet and water quality improvement report will be complete in 2023.



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?

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Thompson Lake

2022 Water Monitoring Report



Watershed

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 2022 Lake Grade:** **C** (2021)



Monitoring

Thompson Lake is monitored on an annual basis as part of the LMRWMO’s participation in the Metropolitan Council’s Citizen Assisted Monitoring Program volunteer water monitoring program. The lake is the center of Dakota County’s highly used 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).

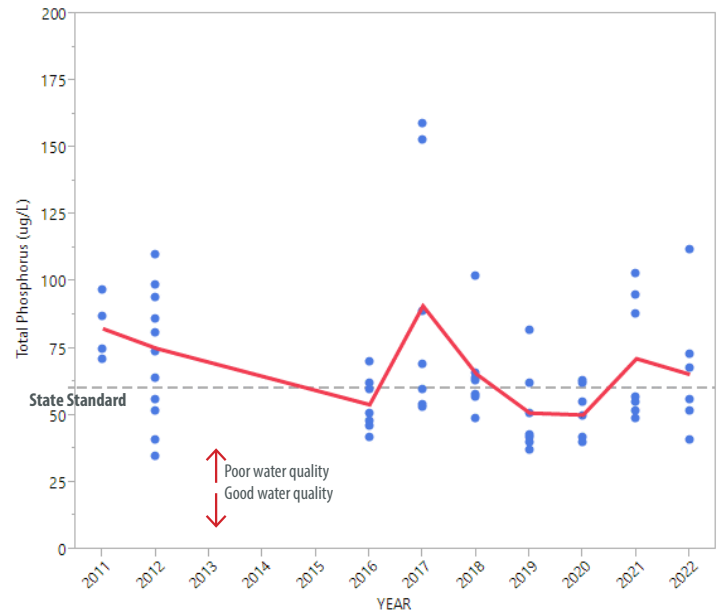
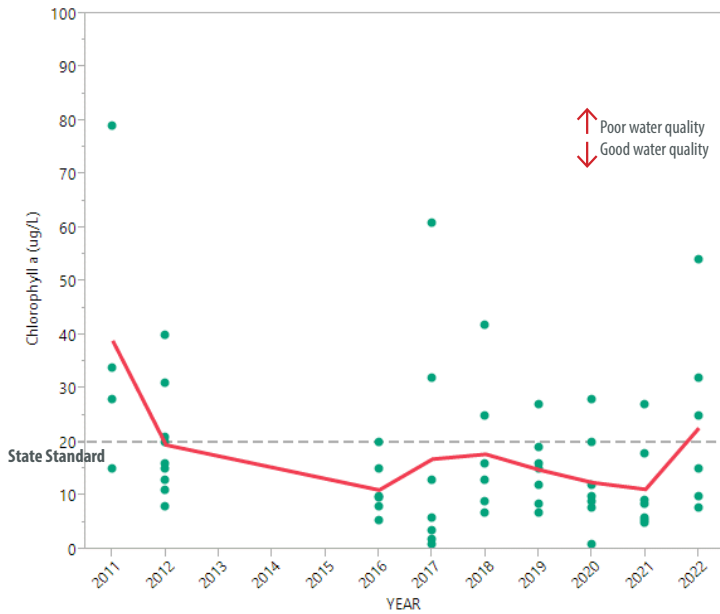
Water Quality

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. In 2021, both chlorophyll-a and secchi disc readings showed poorer water quality relative to past years. Phosphorous levels decreased in comparison to 2021 (still higher than 2019 and 2020). The below table shows the 2022 data.

| Water Quality Parameters | MPCA Standard | Minimum | Maximum | Average |
|--------------------------|---------------|---------|---------|---------|
| Chlorophyll-a (ug/L) | 20 | 7.8 | 54 | 22.69 |
| Total Phosphorus (ug/L) | 60 | 41 | 112 | 65.43 |
| Secchi Depth (m) | 1 | 0.6 | 1.6 | 1.07 |

Water Quality Data 2011-2022

*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 chlorophyll-a levels indicate good water quality. State standard is 20 ug/L (dashed line).

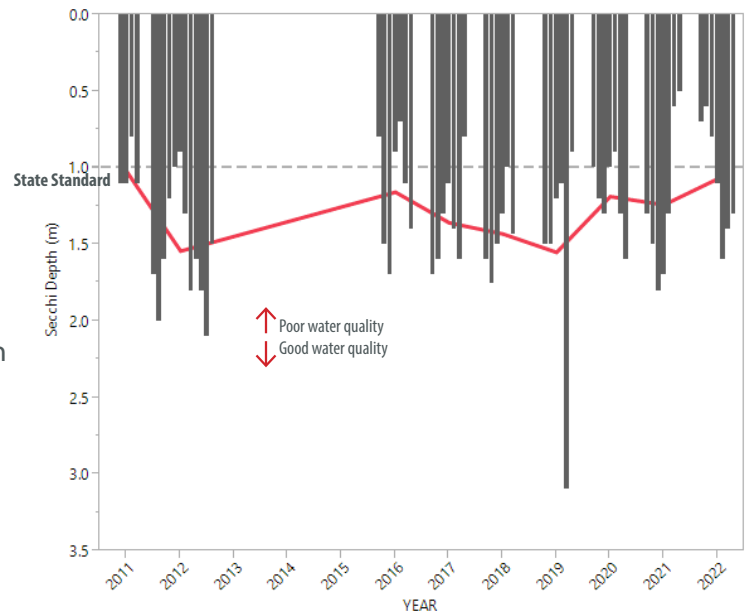
Phosphorus*

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 Dakota County and the City of West St. Paul on the 2018-2019 installation of stormwater projects at Thompson Lake. 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 will be sought out and implemented as they arise.



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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Seidls Lake

2022 Water Monitoring Report

Watershed

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 covered by a 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

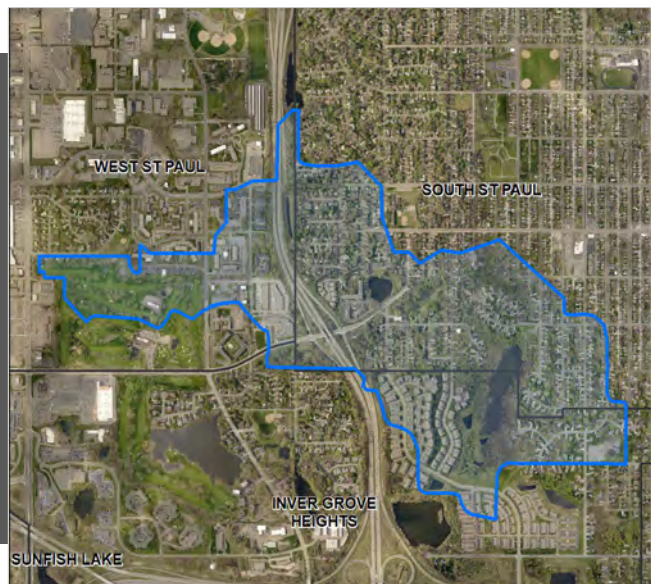
Max Depth: 17 feet

Watershed Size (shown): 420 acres

Major Watershed: Mississippi River

MPCA Lake Classification: Shallow

Met Council 2022 Lake Grade: **C** (2021)



Monitoring

Seidls Lake is monitored as part of the LMRWMO's participation in the Metropolitan Council's Citizen Assisted Monitoring Program (CAMP) volunteer water monitoring program. The lake is surrounded by parkland and is identified as a priority waterbody by the Cities and LMRWMO. Due to the lack of a natural outlet, high lake water levels have been observed in the last 15 years compared to historic levels.

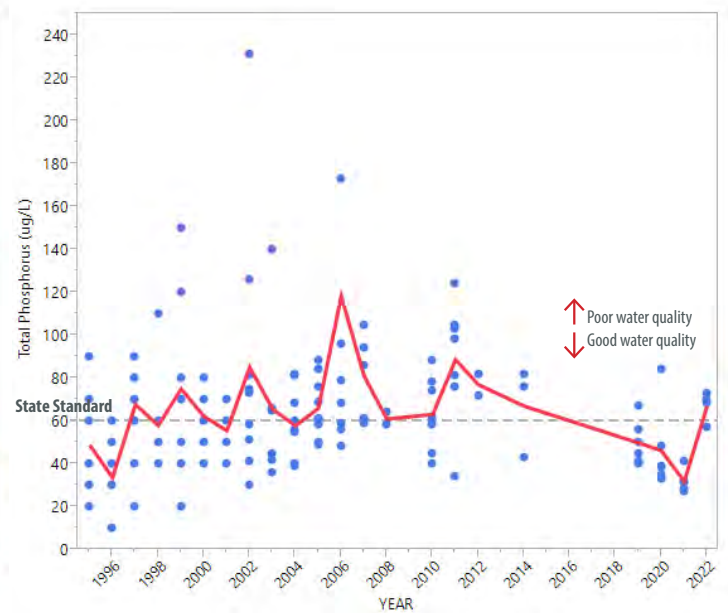
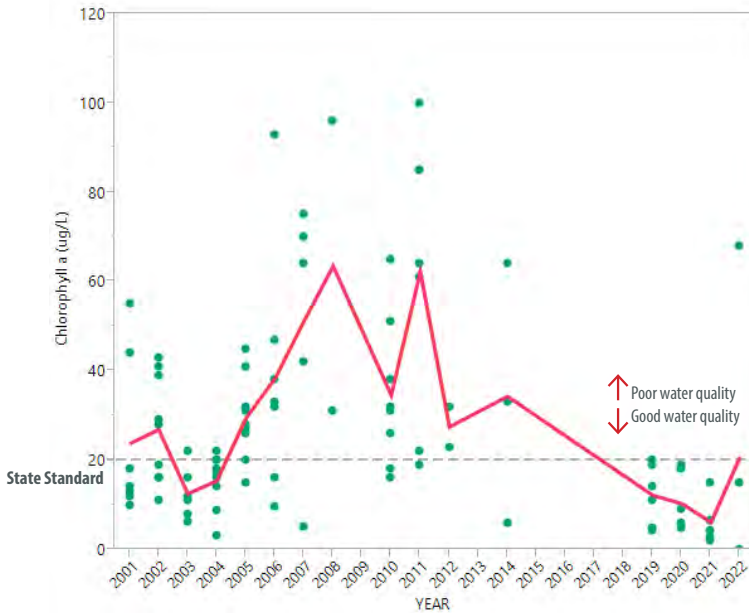
Water Quality

Water quality was drastically reduced in 2022 compared to sampling results from 2021. Due to construction in the near shore area, in-lake water quality may have been impacted as bottom sediment was disturbed or runoff entered the lake. Lake access issues also limited the number of samples collected, reducing the dataset and preventing a holistic picture of Seidl's current water quality. The below table shows the 2022 data.

| Water Quality Parameters | MPCA Standard | Minimum | Maximum | Average |
|--------------------------|---------------|---------|---------|---------|
| Chlorophyll-a (ug/L) | 20 | 15 | 68 | 41.5 |
| Total Phosphorus (ug/L) | 60 | 57 | 73 | 67 |
| Secchi Depth (m) | 1 | 1.5 | 1.5 | 1.5 |

Water Quality Data 1995-2022

*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 chlorophyll-a levels indicate good water quality. State standard is 20 ug/L (dashed line).

Phosphorus*

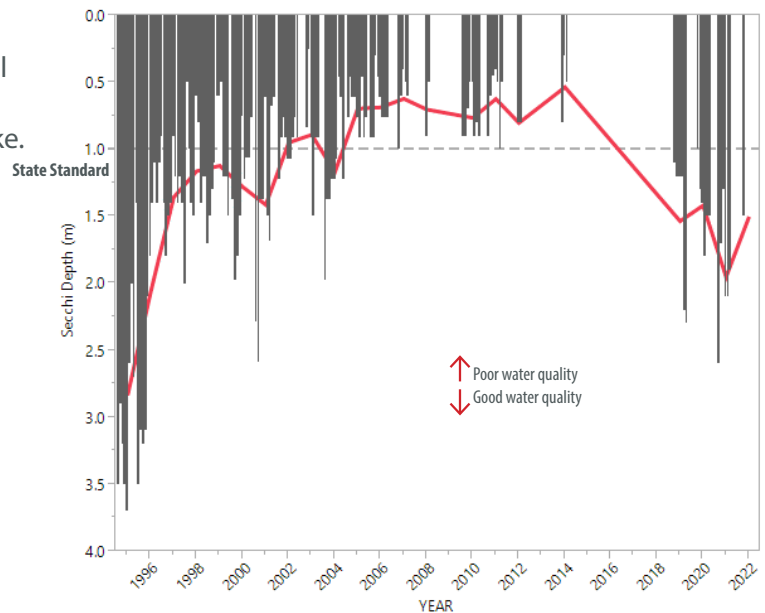
Phosphorus is a nutrient required for plant growth. High phosphorus levels can lead to algae blooms, turning water green. Low phosphorus levels indicate good water quality. State standard is 60 ug/L (dashed line).

Watershed Projects

The LMRWMO partnered with the City of South St. Paul to install large buried pipes (shown below) in 2018 to clean and infiltrate stormwater before entering the Lake.

A lake outlet project to maintain consistent water levels was completed in 2022 and a natural shoreline restoration project is planned for 2023.

The lake will continue to be monitored to track water quality.



Secchi Depth

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Interstate Valley Creek



2022 Water Monitoring Report

LOWER MISSISSIPPI RIVER
WATERSHED MANAGEMENT ORGANIZATION

Watershed

The Interstate Valley Creek watershed is located in the cities of Mendota Heights, West. St Paul, and Sunfish Lake within the Lower Mississippi River Watershed Management Organization (LMRWMO). Land use within the watershed is primarily low density residential, with pockets of commercial/institutional, and parkland. Interstate Valley Creek was placed on Minnesota's 303(d) List of Impaired Waters in 2014 for impacts to aquatic life due to excess *E. coli* bacteria.

Stream Details

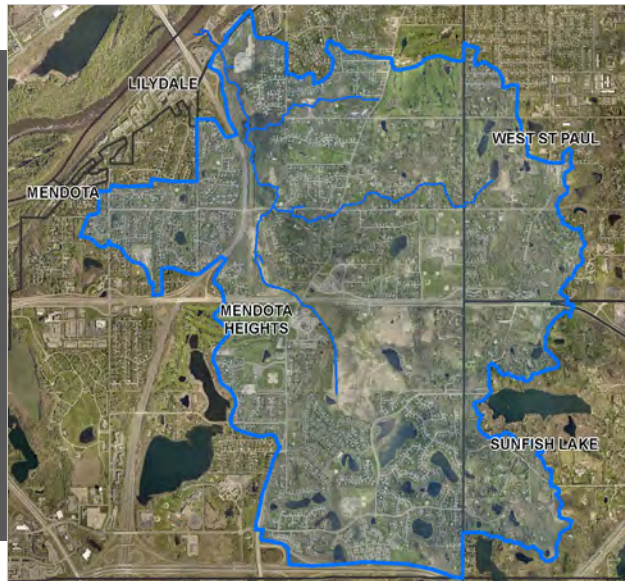
Mainstem Length: 2.5 miles

Watershed Size (shown): 3,272 acres

Major Watershed: Mississippi River

Impairment: *E. coli* (2014)

Years monitored: 3



Monitoring

A volunteer takes water samples from Interstate Valley Creek for lab analysis. The purpose is to identify stream reaches that contribute pollutants and establish baseline stream water quality conditions. Monitoring also helps track the impact of future watershed projects that stabilize banks or treat stormwater in the watershed to reduce the in-stream pollutant load (sediment and phosphorus).

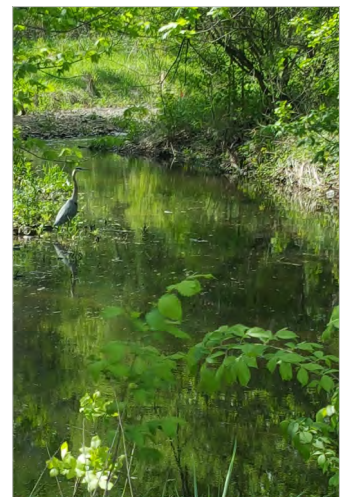
Interstate Valley Creek was monitored seven times in 2022 - monthly in April through October. The water was tested for levels of the following pollutants: chloride (salt), phosphorus (nutrients), total suspended solids, and *E. coli*. It was also tested for chlorophyll-a, nitrates, temperature, total phosphorus, total suspended solids, and water transparency.

Water Quality

Interstate Valley Creek shows low levels of chloride, below the state standard. Phosphorus levels have average below the standard since 2020, though were higher in 2019. Total suspended solids are consistently below the standard. E-coli levels are consistently above, and not meeting state standards.

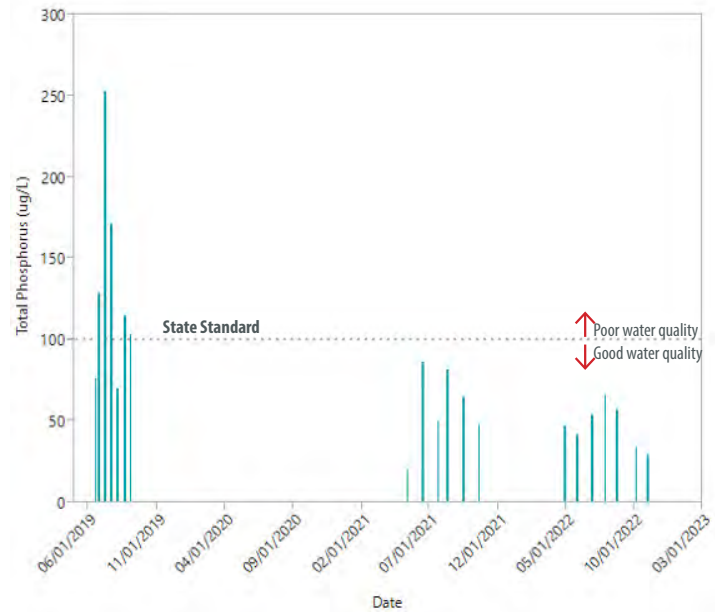
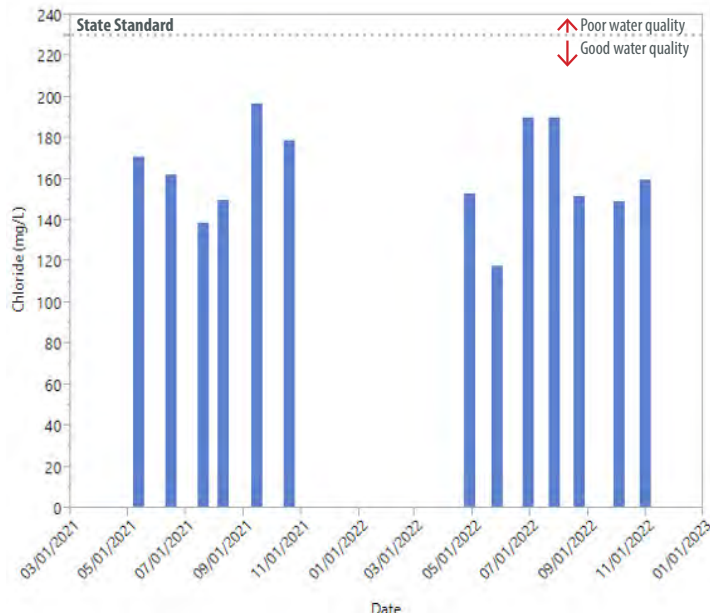
Water temperature is below 61 degrees all season and transparency is high during baseflow (low flow) conditions, though (the unnamed tributary shows some variability). Chlorophyll-a and Nitrate levels are consistently below applicable standards.

See the following page for more detailed monitoring results.



Water Quality Data 2019-2022

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

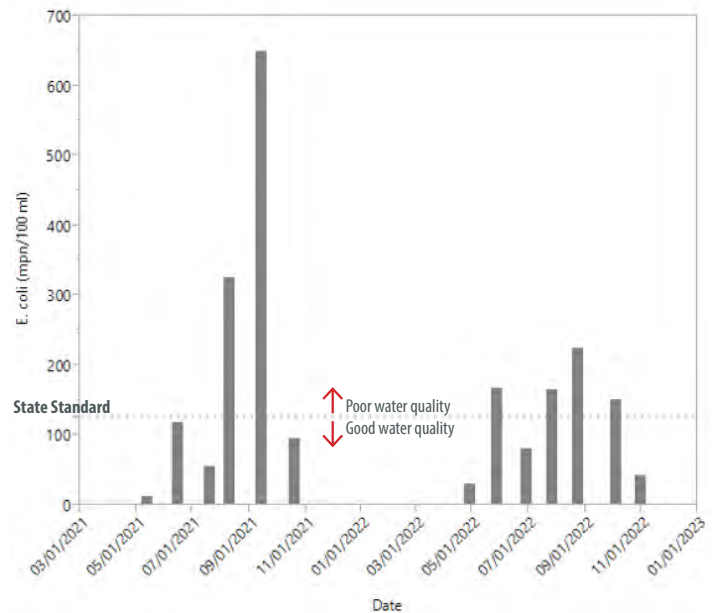
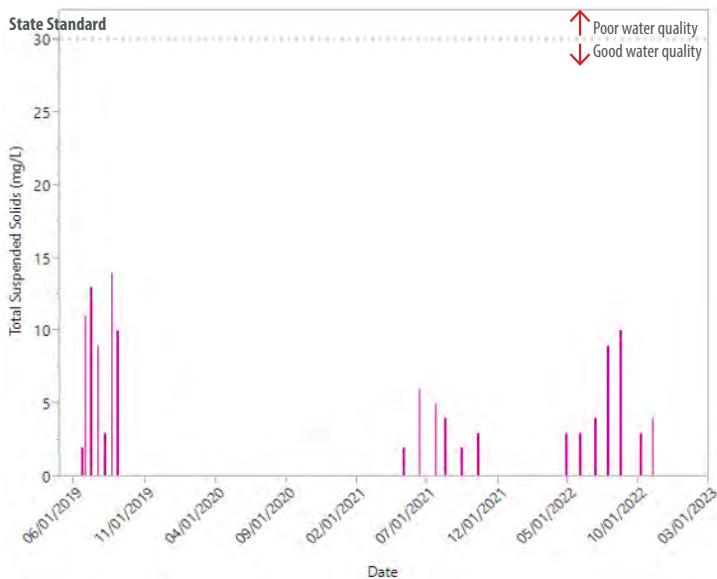


Chloride

Elevated chloride concentrations can be toxic to some aquatic life – altering community composition, as well as affecting mortality and reproduction capabilities. State standard for acute toxicity is ≤ 230 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 ≤ 100 ug/L (dashed line).



Total Suspended Solids

A measurement of all suspended particles in the water. Potential sources include field and streambank erosion and stormwater runoff. Excessive levels can impair water quality and usability. State standard is ≤ 30 ug/L (dashed line).

E. coli

Escherichia coli (E. coli) bacteria is a good indicator that disease-causing pathogens may be present in water. A standard of ≤ 126 MPN/100mL (dashed line) has been established (MPN = most probable number of organisms).

How can you get involved?

You don't have to live on a river or stream to help improve water quality, **anyone can be part of the solution!** Installing a raingarden **increases water infiltration**, decreases lawn maintenance, and **reduces pollutant runoff** that can negatively impact local water quality. The LMRWMO offers grants to residents to install raingardens or native plantings as part of the **Dakota County Soil and Water Conservation District's Landscaping for Clean Water program**.

Ivy Falls Creek

2022 Water Monitoring Report

Watershed

The Ivy Falls Creek watershed is in the cities of Mendota Heights and West St. Paul within the Lower Mississippi River Watershed Management Organization (LMRWMO). The watershed consists of the mainstem of Ivy Falls Creek and a small tributary that joins just above the falls. Land use within the watershed is primarily residential with some parkland golf course property.

Stream Details

Mainstem length: 1.2 miles

Unnamed tributary length: 0.2

Watershed Size (shown): 746 acres

Major Watershed: Mississippi River

Impairment: None

Years monitored: 2



Monitoring

A volunteer takes water samples from Ivy Falls Creek and the main tributary for lab analysis. The purpose is to identify stream reaches that contribute pollutants and establish baseline stream water quality conditions. Monitoring also helps track the impact of future watershed projects that stabilize banks or treat stormwater in the watershed to reduce the in-stream pollutant load (sediment and phosphorus).

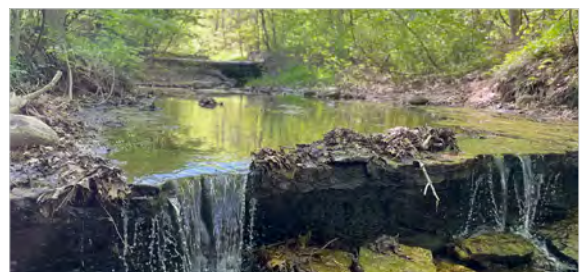
Ivy Falls Creek and the unnamed tributary were monitored seven times in 2022 - once per month April- October. The water was tested for levels of the following pollutants: chloride (salt), phosphorus (nutrients), total suspended solids, and *E. coli*. It was also tested for chlorophyll-a, nitrates, temperature, total phosphorus, total suspended solids, and water transparency.

Water Quality

Both stream reaches show levels of chloride below the state standard. Phosphorus levels average just at the standard. Total suspended solids are typically below the standard, though with spikes of concentrations above the standard. E-coli levels are consistently not meeting state standards.

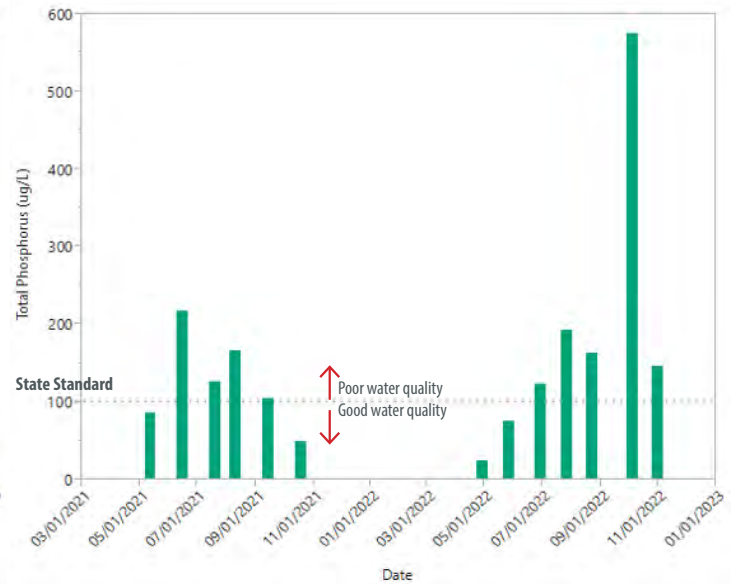
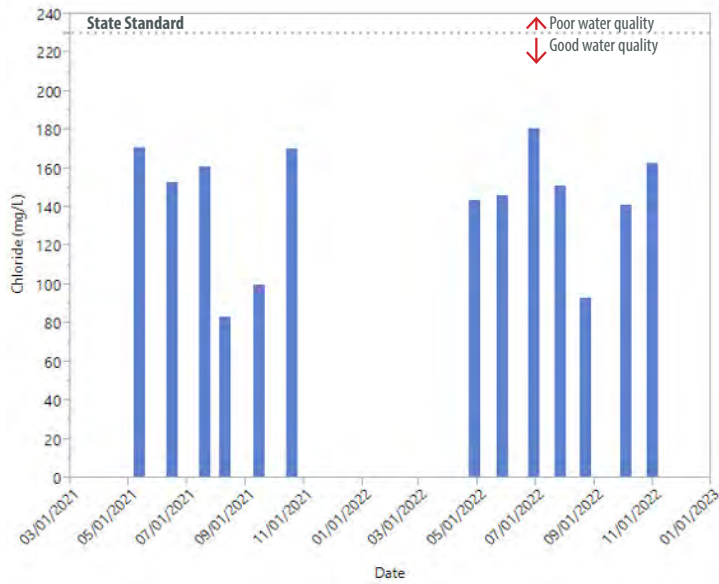
Water temperature is below 66 degrees all season and transparency is high during baseflow (low flow) conditions, though (the unnamed tributary shows some variability). Chlorophyll-a and Nitrate levels are consistently below applicable standards.

See the following page for more detailed monitoring results.



Ivy Falls Creek Mainstem

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

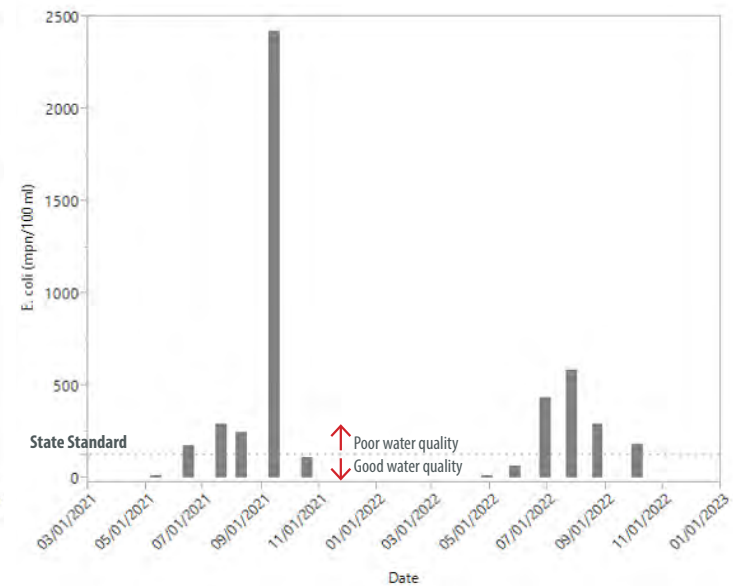
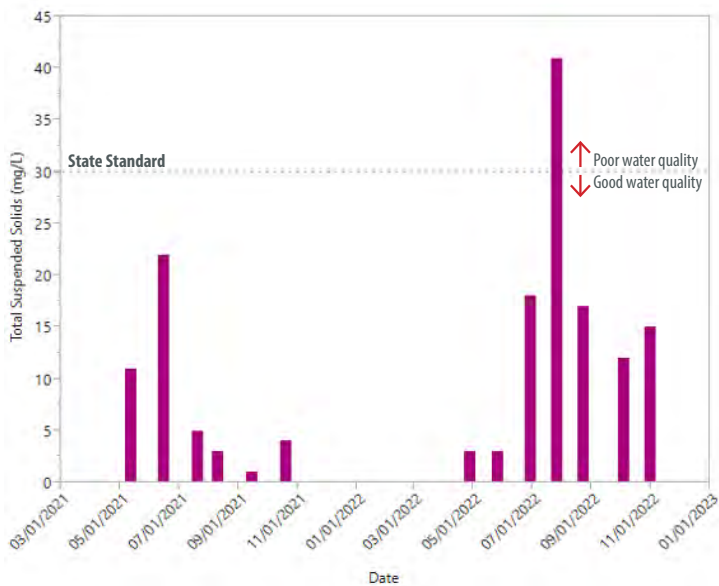


Chloride*

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Phosphorus*

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Total Suspended Solids

A measurement of all suspended particles in the water. Potential sources include field and streambank erosion and stormwater runoff. Excessive levels can impair water quality and usability. State standard is ≤ 30 ug/L (dashed line).

E. coli

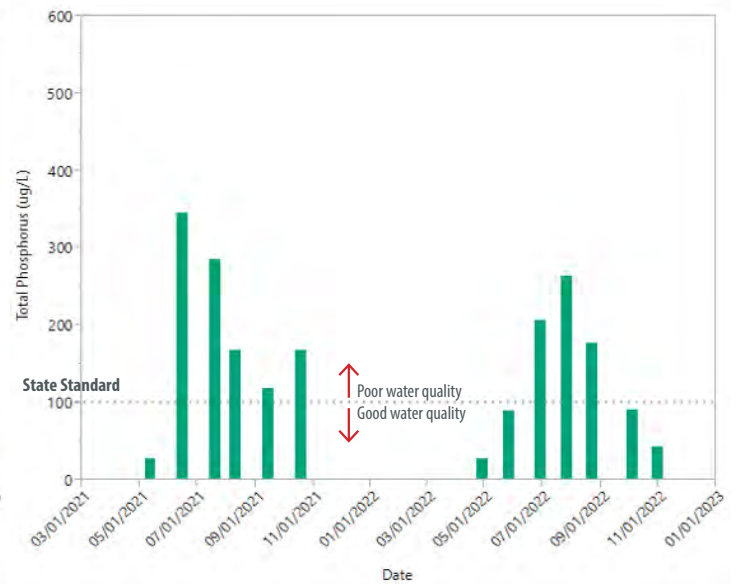
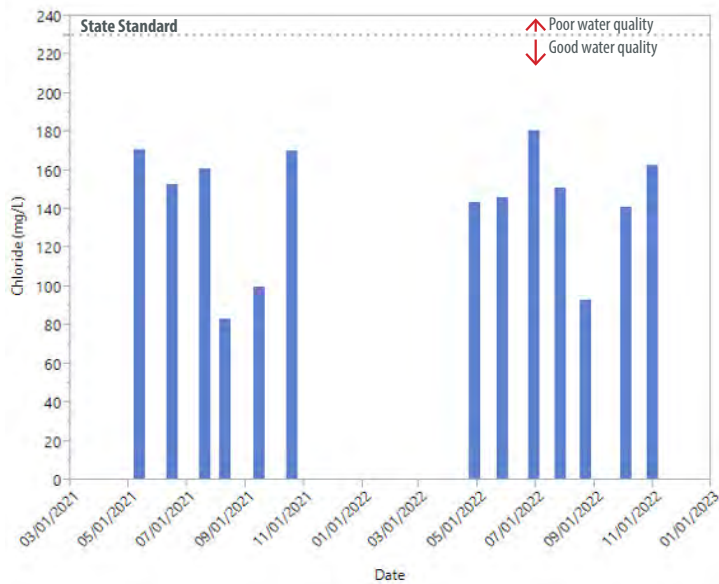
Escherichia coli (E. coli) bacteria is a good indicator that disease-causing pathogens may be present in water. A standard of ≤ 126 MPN/100mL has been established (MPN stands for most probable number of organisms).

How can you get involved?

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Unnamed Tributary - Ivy Falls Creek

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

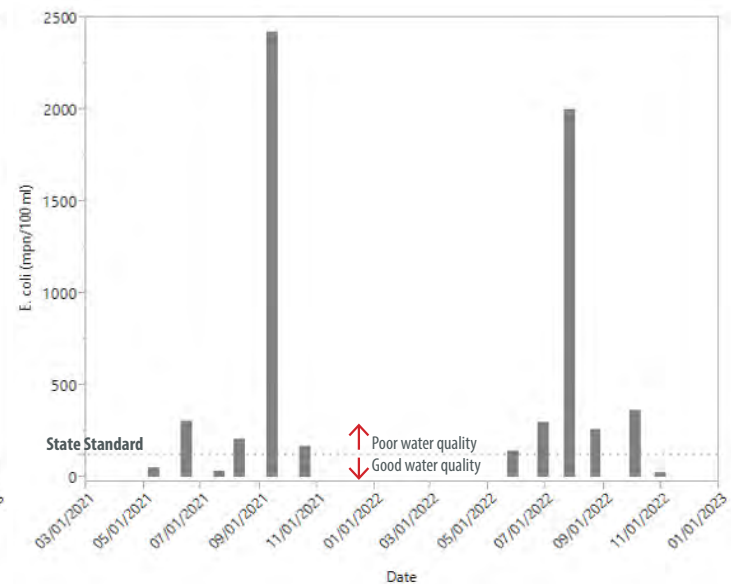
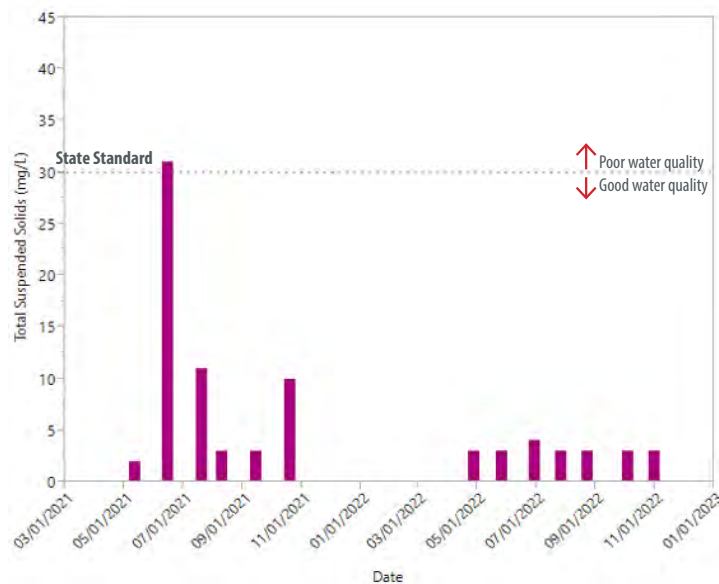


Chloride*

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Total Suspended Solids

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E. coli

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Additional Information:

MN Impaired Waters Map: <https://www.pca.state.mn.us/water/impaired-waters-viewer-iwv>

Contact Information:

LMRWMO Website: www.lmrwmo.org

LMRWMO Administrator: Joe Barten - joe.barten@co.dakota.mn.us - 651-480-7784

