



2022 Water Quality Summary Report

OVERVIEW

In 2021, Lake Poinsett Association partnered with SD DANR Watershed Protection Program for volunteer training and oversight with water quality sampling. We collect water samples for eight parameters: Total Phosphorous, Total Nitrogen, Nitrites/Nitrates, Ammonia, Chlorophyll-a, E.coli, Algal Toxins (Microcystin), and Water Clarity.

Each year lake conditions affect all water quality samples differently such as lake water temperatures, cooler or warmer summers, high or low water levels, wet or dry years, and calm or windy days. Additional and consistent monitoring over a longer period will provide a clearer picture of water testing results.

Our WQ Volunteers sampled once a month, May – September. Samples are then processed by the state lab in Pierre. The resulting data can provide vital public health information to the community when water advisories are needed.

2021 - 3 Volunteers took 38 samples at 5 locations, Lake Poinsett

2022 - 8 Volunteers took 74 samples at 9 locations, Lake Poinsett and Lake Albert

WQ Testing Summaries

Total Phosphorous

SUMMARY: Average Total Phosphorous decreased 6% (0.18 mg/L in 2021 to 0.17 mg/L in 2022). Overall, since 1989 Total Phosphorous had been increasing, however starting in 2010 it shows a decreasing trend.

WHY TEST FOR IT? High levels of phosphorus lead to excessive algae growth which produces harmful toxins to human and animal health and reduces water recreation due to unpleasant odors and unappealing water.

Total Nitrogen

SUMMARY: Average Total Nitrogen increased 26% (1.29 mg/L in 2021 to 1.62 mg/L in 2022). Overall, since 1989 Total Nitrogen had been decreasing. Since 2010 its still decreasing. NOTE: It is common for Nitrogen levels to fluctuate with a decreasing trend overall. The short-term increase is not concerning.

WHY TEST FOR IT? Excess Nitrogen contributes to algal blooms, excess plant growth, and low dissolved oxygen. Lower dissolved oxygen levels make it harder for fish and other aquatic life to breathe and it weakens growth rates.

Ammonia, Nitrates/Nitrites

SUMMARY: None were detected in samplings.

WHY TEST FOR IT? Ammonia most often comes from fertilizers. High levels of ammonia is toxic to aquatic life.

Chlorophyll-a

SUMMARY: Three samples collected from Lake Poinsett exceeded the standard safe level of 37.8 micrograms/L. The maximum detected was 156.2 mg/L on 8/10/2022. (*The World Health Organization high risk range- over 50 micrograms/L – for recreation.*) Overall, since 1989 Chlorophyll-a had been decreasing. Since 2010, however, there is a slight increasing trend. The elevated samples collected in 2022 contribute significantly to the increasing trend.

WHY TEST FOR IT? It is a major pigment in algae that is used to estimate the amount of algae growing in the water.

E.coli (Escherichia coli)

SUMMARY: No samples collected in 2022 exceeded the daily maximum WQ standard of 235 #/100mL.

WHY TEST FOR IT? E. coli is a bacteria found in fecal waste from humans and animals. It can cause illness in people.

Algal Toxin (Microcystin, Blue-Green Algae)

SUMMARY: No samples collected from Lake Poinsett in 2022 exceeded WQ standard of 8 micrograms/L of microcystin.

WHY TEST FOR IT? Microcystin is a toxin that is released by some species of blue-green algae, or cyanobacteria. Humans, pets, livestock, and wildlife can get sick from contact with it.

Water Clarity (Transparency)

SUMMARY: Transparency improved in Lake Poinsett from an average of 1.6 meters in 2021 to 2.0 meters in 2022. That's a 26% increase.

WHY TEST FOR IT? A low clarity reading reflects excess algae or suspended sediment. Excess nutrients and sediment pollution are the main causes of poor water clarity. The clarity of lake water is measured with a secchi disk.

Data Not Collected – we need volunteers to help.

Large Algae Blooms Data

Document frequency and severity of Algae Blooms. Warming waters, heavy rainfall, and nutrient pollution are driving factors.

Lake Ice Duration

Ice-In and Ice-Out documents lake seasonal cycles. The formation and break-up of ice are important milestones for a lake each year.

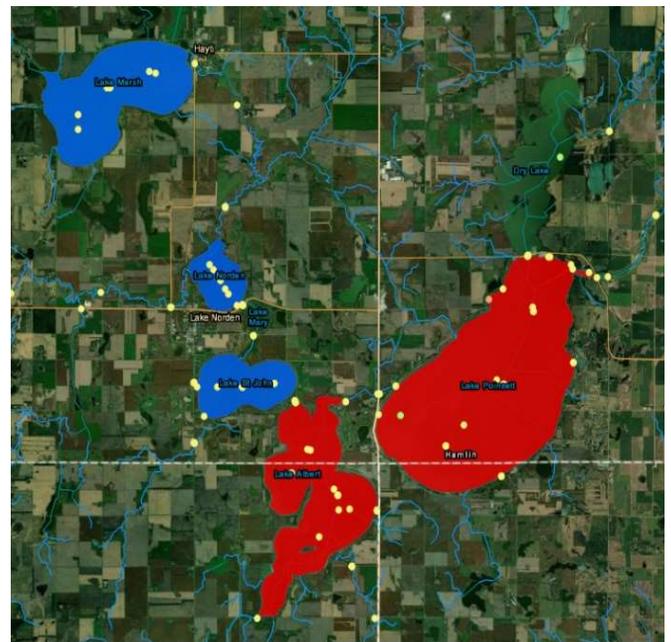
Rainfall Events

Total Moisture Documentation

SD DANR – Water Quality Monitoring Access Portal

For those who enjoy technical data, additional Lake Albert and Lake Poinsett's water quality data can be found on the SD DANR's website.

Maps and charts identify waterbodies WQ Monitoring Stations and data. Copy and paste link to the Water Quality Monitoring Access Portal <https://apps.sd.gov/NR92WQMAP>



Waterbody: Lake Poinsett

Assessment Unit ID: SD-BS-L-POINSETT_01

Waterbody monitoring statistics for the past 5 years:

Total Nitrogen (mg/L)

Total Phosphorus (mg/L)

Chlorophyll- α (ppb)

E. Coli (#/100mL)

Transparency Secchi (m)

Lake Mean: 1.286

Lake Median: 1.350

Lake Max: 2.740

Lake Min: 0.100

Region Mean: 1.489

Region Median: 1.340

Region Max: 9.250

Region Min: 0.013

Total Nitrogen All Northeast Lakes All Northeast Lakes Moving Average

