RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

2023 Update

Lake Riley

At 297 acres and average depth of 23 ft, Lake Riley is the largest lake in the Watershed District. It is located on the boundary of Chanhassen and Eden Prairie and is a popular summer recreation spot.

From June to September every year, District staff visit the lake every two weeks to collect water samples and take readings. Samples are sent to a laboratory to be tested for nutrients and other compounds. Staff also measure water clarity by lowering a Secchi disk into the water and measuring how deep it goes before it is no longer visible. The data indicates the lake's health based on standards set by the Minnesota Pollution Control Agency (MPCA).

Lake Riley is classified as a "Deep Lake" by the MPCA. To be considered healthy, the lake must have very low average phosphorus and chlorophyll-a levels and average water clarity of 1.4 meters (4.6 feet) or greater. See summary below. Additional details are located on the next page.

Total Phosphorus: The lake consistently meets the MPCA deep lake standard (<0.04 mg/L). In 2023, the average TP level was **0.020 mg/L**.

Chlorophyll-a: The lake consistently meets the MPCA deep lake standard (<14 µg/L). In 2023, the average chlorophyll-a reading was **6.1 µg/L**.

Water clarity: The lake consistently meets the MPCA deep lake standard (>1.4 meters). The average reading in 2023 was **3.7 meters**.

Plants: Lake Riley was treated for Curly-leaf Pondweed (9 acres). UMN conducted three plant surveys in 2023 to track aquatic plant populations. In August, 11 species were observed, 9 of which were native species. In all survey years, most plants were in water < 2 meters deep. However, with improved water clarity in 2016-23, plants were observed in sites up to 5 meters deep. Eurasian Watermilfoil greatly decreased in 2023 with <3% frequency of occurrence. Frequency of Curlyleaf Pondweed increased slightly from 2020 (25%) to 2023 (29%) but has not expanded further.

Fish: Electrofishing was used to monitor Common Carp, an invasive species that harms water quality by destroying aquatic vegetation and stirring up lake bottom sediments. Carp numbers have been very low in Lake Riley, indicating carp are not an issue in the lake.

Lake & watershed characteristics

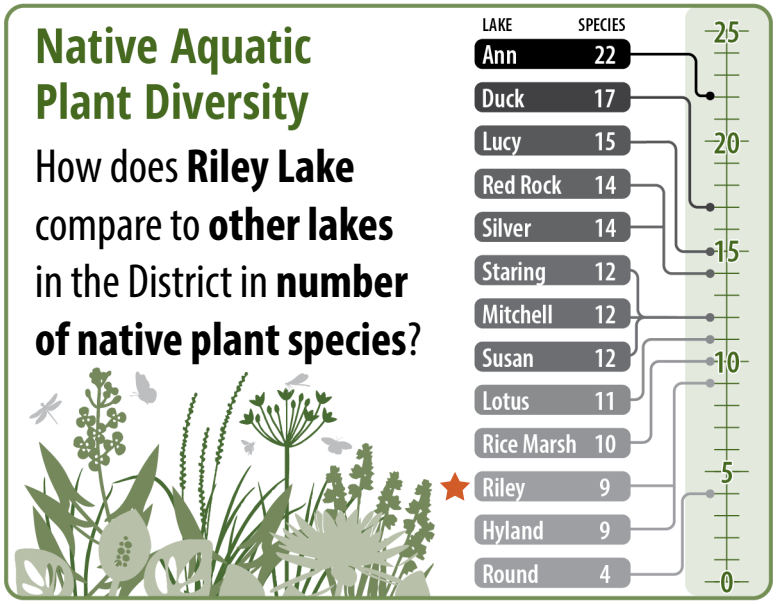
Lake size	297 acres
Average lake depth	23 feet
Maximum lake depth	49 feet
MPCA lake classification	Deep lake
Watershed size	1,776 acres
Impervious surface	18% of watershed
Impaired Waters listing	Mercury, fish, nutrients
Common fish	Bluegill, Northern Pike, Yellow Perch, Yellow Bullhead, Black Crappie
Invasive species	Curly-leaf Pondweed, Eurasian Watermilfoil, Zebra Mussels

Great news!
Because Lake Riley's 10-year water quality averages meet deep lake standards, the District is requesting that the MPCA removes it from the Impaired Waters List for nutrients.

Watershed Boundary

Native Aquatic Plant Diversity

How does **Riley Lake** compare to **other lakes** in the District in **number of native plant species**?



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Lake Riley Water Quality by the Numbers

For the last few years, **Lake Riley** has consistently met the clean water standards set by the MPCA. The graphs below show water quality trends over time with the red line representing the MPCA standard for **deep lakes**.

Water Quality Report Card

rpbcwd.org/grades

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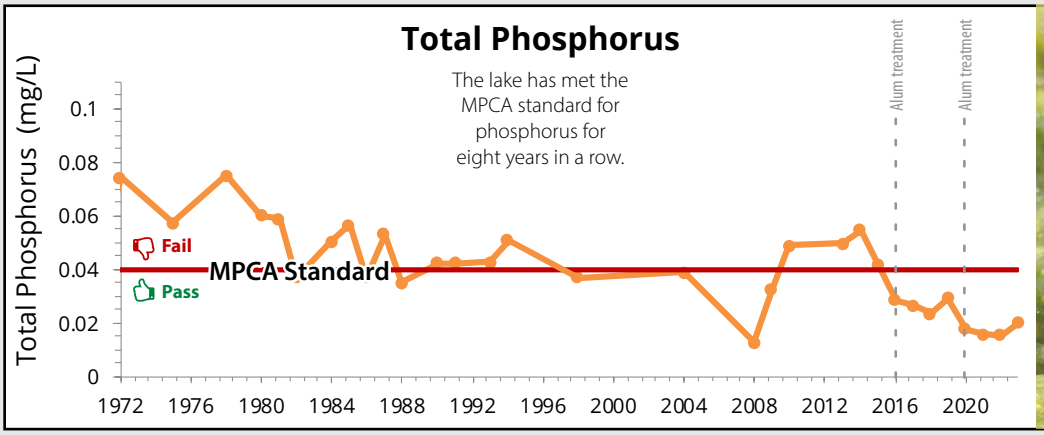
Trends Over Time: 1972-present

Total Phosphorus

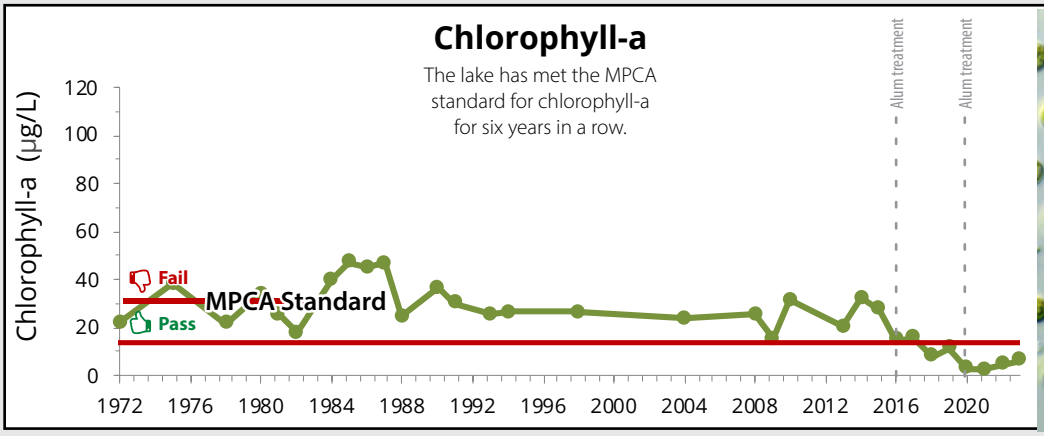


Riley Lake received an alum treatment in 2016 and 2020. Alum limits the availability of phosphorus in lakes to control algae growth & improve water clarity.

Phosphorus is a nutrient plants and algae need to grow. Too much phosphorus may cause algae blooms.

Filamentous algae bloom

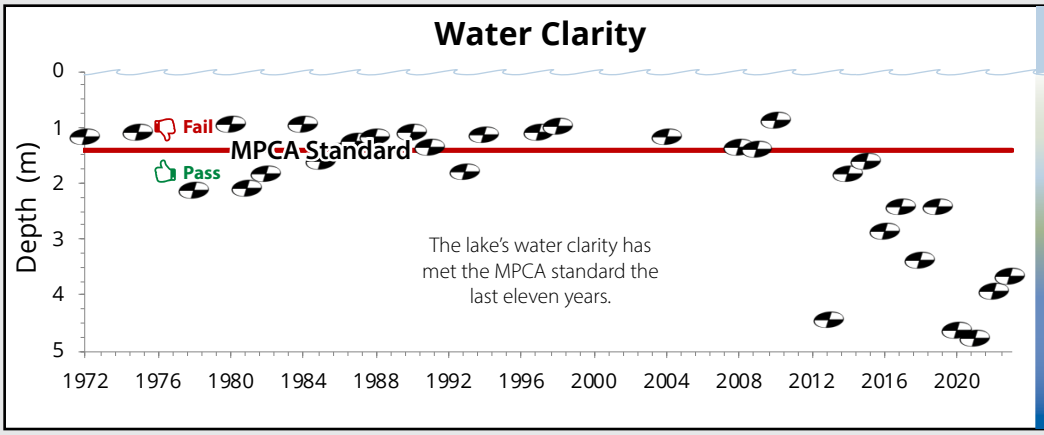
Chlorophyll-a



Chlorophyll-a is the main pigment in algae and indicates how much algae is growing in the water. High levels mean excess growth.

CSIRO

Water Clarity

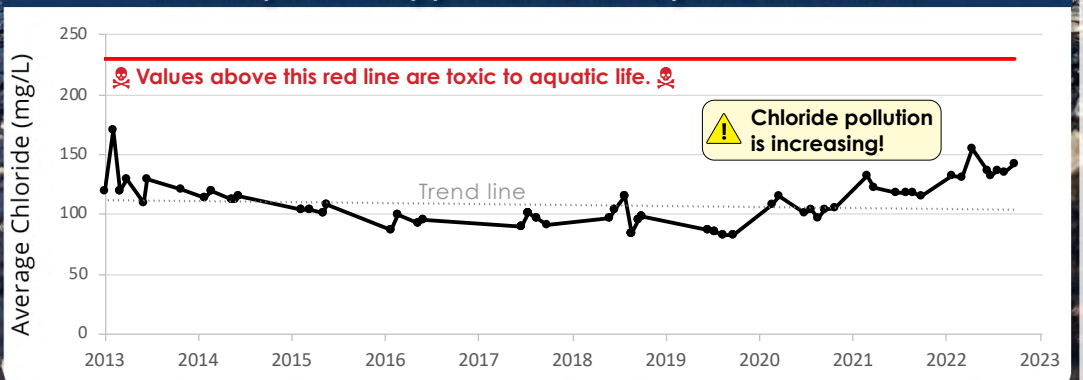


Secchi disk

Water clarity is measured by lowering a Secchi Disk into the water. The depth at which the disk is no longer visible is the water's clarity measurement.

Chloride: A Growing Concern

Chloride permanently pollutes our lakes, ponds, and streams!



What can I use instead of winter de-icers?

All affordable & effective residential de-icing products contain chloride, even those labeled as "eco-friendly" or "pet safe."

Focus instead on reducing build up of ice on your property:

- **Shovel early & often**
- **Prevent ice formation, avoid driving or walking on snow**
- **Pile snow where it won't melt & refreeze on walkways**

Learn more rpbcwd.org/salt