

2023 Update

Lake Lucy

Lake Lucy is the headwaters to Riley Creek. Water flows out of Lucy to Lake Ann and then to Riley Creek. On its way south to the Minnesota River, Riley Creek passes through Susan, Rice Marsh, and Riley lakes.

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 Lucy is classified as a "Shallow 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 1.0 meter (3.3 feet) or greater. See summary below. Additional details are located on the next page.



Total Phosphorus: No significant trend since monitoring began. In 2023, the lake met the MPCA shallow lake standard (<0.06 mg/L) with average level of 0.028 mg/L.



Chlorophyll-a: Levels have declined the last few years, which is likely linked to a winterkill events in 2018/2019 and 2022/2023. In 2023, the average reading for chlorophyll-a was 11.3 μg/L, well within the MPCA standard (<20 μg/L).



Water clarity: Lake clarity has improved since 2019, and the lake consistently meets the MPCA standard (>1.0 meters). The average reading in 2023 was 2.0 meters.



Fish: Small mesh trap netting was conducted in 2023 to see if successful reproduction of Common Carp occurred following the partial winterkill. No young of year carp were captured during the survey indicating carp are not a problem in Lucy. About 300 bluegills were stocked in the spring to ensure a breeding population was established to prevent carp recruitment from occurring.

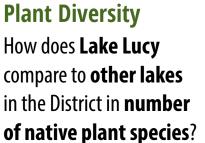
Lake & watershed characteristics

Lake size	88 acres
Average lake depth	6.5 feet
Maximum lake depth	20 feet
MPCA lake classification	Shallow lake
Watershed size	988 acres
Impervious surface	14% of watershed
Impaired Waters listing	Mercury
Common fish	Bluegill, Northern Pike, Yellow Bullhead, Black Crappie, Pumpkinseed Sunfish
Invasive species	Curly-leaf Pondweed, Eurasian Watermilfoil, Common Carp



Watershed Boundary

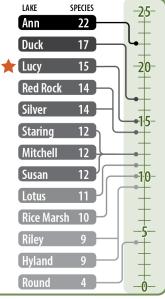




Native Aquatic



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Lake Lucy Water Quality by the Numbers

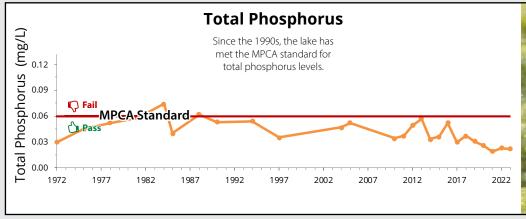
Over the last few years, **Lake Lucy** has met the clean water standards set by the MPCA. The graphs below show water quality trends over time with the red line representing the MPCA standard for **shallow lakes**.

Water Quality Report Card

rpbcwd.org/grades



Trends Over Time: 1972-present

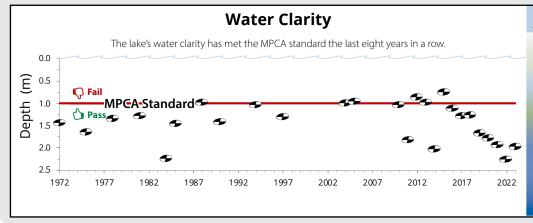


Phosphorus is a nutrient plants and algae need to grow. Too much phosphorus may cause algae blooms.

Filamentous algae bloom

Chlorophyll-a Historically the lake has failed to meet the MPCA standard for chlorophyll-a, but it has Chlorophyll-a (µg/L) met the standard the last few years. 60 40 MPCA Standard 1977 1982 2002 2007 2012 2022 1972 1987 1992 1997 2017

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





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! 250 Average Chloride (mg/L) 🕏 Values above this red line are toxic to aquatic life. 🕏 200 150 Chloride levels have remained steady over the last 10 years. 100 50 2015 2018 2019 2020 2021 2013 2014 2016 2017 2022 2023

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

one TEASPOON
of SALT
POLLUTES
5 GALLONS
of WATER
FOREVER

Learn more <u>rpbcwd.org/salt</u>