

Maple Lake Water Quality



Maple Lake Trophic Status

The RMB Environmental Laboratories website has an excellent explanation of the different trophic states that are used to classify the water quality conditions in lakes (<https://www.rmbel.info/lake-trophic-states-2/>): “Scientists like to classify lakes and give names to the different lake types so they can be easily referred to. Trophic states are based on lake fertility. The root “trophy” means nutrients; therefore, lakes are classified based on the amount of available nutrients (phosphorus and nitrogen) for organisms. More fertile lakes have more nutrients and therefore more plants and algae.”

Summer average (June-September) Trophic State Index scores for Maple Lake (2008-2017):

- **Total Phosphorus = 56.43**
- **Chlorophyll-a = 55.27**
- **Secchi = 55.76**
- **Overall Average: 55.53**

A Trophic State Index score that is greater than 50 means that the lake is eutrophic.

From the RMB Website:

““Eu” means true; therefore, eutrophic literally means true nutrients or truly nutrient rich (phosphorus and nitrogen). Eutrophic lakes are found in southern Minnesota where the soils are more fertile and where there is a lot of farmland. Eutrophic lakes are shallow and have murky water and mucky, soft bottoms. They also have a lot of plants and algae.”

Contact Corey Hanson at coreyh@wiktel.com or 218-681-5800 with comments and questions. Visit <http://www.rlwdwatersheds.org/cw-watershed> to learn more about the Clearwater River Watershed.

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2016 and 2018 Water Quality Assessment of Maple Lake

The water quality in Maple Lake (along with the rest of the Clearwater River watershed) was formally assessed by the Minnesota Pollution Control Agency in 2016. Because Maple Lake is classified as a shallow lake (less than 15 feet deep), the state has applied water quality standards that are less strict (higher nutrient concentrations and lower transparency) than the standards that are applied to deeper lakes. The following standards have been applied to Maple Lake water quality data:

- Total Phosphorus should be <60 ug/L.
- Chlorophyll-a should be <20 ug/L.
- Secchi disk depths should be >1.0 meters.

The following numbers are the Maple Lake summer average (June through September) water quality measurements from the 2006-2015 assessment window (for the 2016 assessment):

- Total Phosphorus = 40.03 ug/L
- Chlorophyll-a = 14.45 ug/L
- Secchi = 1.28 m

The Maple Lake Improvement District has continued to collect regular water quality samples. Pollutant levels have slightly decreased, and water clarity has increased in recent data (2008-2017).

- Total Phosphorus = 37.89 ug/L
- Chlorophyll-a = 12.94 ug/L
- Secchi = 1.43 m

The slight improvement in Maple Lake water quality conditions means that the lake not only currently meets the official total phosphorus standard for shallow lakes (60 ug/L) but also meets the standard that is applied to deeper lakes in the Red River Valley ecoregion (40 ug/L). All chlorophyll-a concentrations have been below the 20 mg/L standard during the most recent 10 years of monitoring. The 2008-2017 average chlorophyll-a and Secchi disk values are good enough to meet the more stringent aquatic recreation standards for deeper lakes (<14 µg/L chlorophyll-a and >1.4 m Secchi depth).

Water quality conditions within Maple Lake have shown statistical improvement since monitoring began in the 1980s and 1990s. However, there is still local concern over excess algae and room for improvement in water quality. Even though the lake is meeting the State's goals for water quality, local goals can be established in county water plans, the Clearwater River Watershed Restoration and Protection Strategy (WRAPS) report, and in the Clearwater River One Watershed One Plan for this popular lake. Suggestions for project ideas are welcome.

Project Ideas:

- Wetland restorations
- Improved stream/ditch buffers
- Water and Sediment Control Basins
- Septic system inspections
- Continued sampling
- Lakescaping
- Educational workshops
- (Your idea here)

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