



Round Lake

DNR ID: 18-0373

Vitals		Physical Characteristics	
MN Lake ID:	18-0373-00	Surface area (acres):	1,650
County:	Crow Wing	Littoral area (acres):	627
Lake Classification:	General Development (GD)	% Littoral area:	38%
Major Drainage Basin:	Crow Wing River Watershed	Max depth (ft):	51 (m): 15.5
Latitude/Longitude:	46.45833333/-94.2825	Mean depth (ft):	N/A
Water Body Type:	Public	Lakeshed size (acres):	3,515
Invasive Species	Curly-leaf pondweed & Zebra Mussels	Lakeshed : lake area ratio	2:1
		Inlets / Outlets / Accesses	1 / 1 / 1

Total Phosphorus

Round Lake is phosphorus limited, which means that algae and aquatic plant growth is dependent upon available phosphorus. Total phosphorus was evaluated in Round Lake in 1985-1986, 1997, and 2010. The majority of the available data points fall in the mesotrophic range.

Chlorophyll *a*

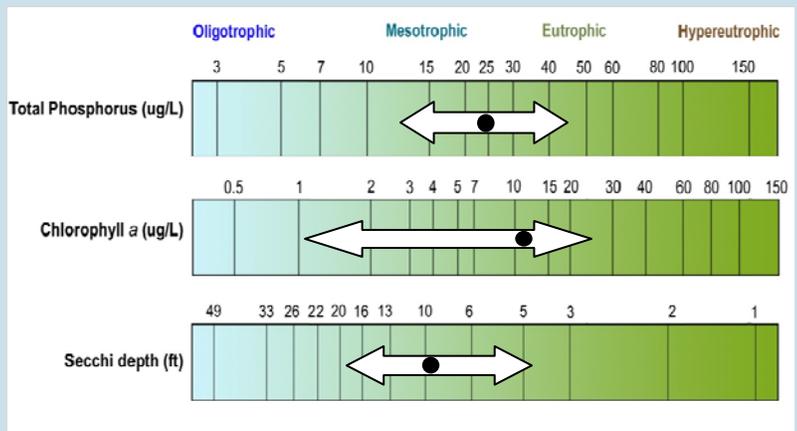
Chlorophyll *a* is the pigment that makes plants and algae green. Chlorophyll *a* is tested in lakes to determine the algae concentration or how "green" the water is. Chlorophyll *a* was evaluated in Round Lake in 1985-1986, 1997, and 2010. Chlorophyll *a* concentrations remained below 10 ug/l for the 1985-1986, and 1997 samples, but were above 10 ug/l in 2010, which indicates that the lake has minor algae blooms in late summer.

Transparency (Secchi Depth)

Transparency is how easily light can pass through a substance. In lakes, it is how deep sunlight penetrates through the water. Plants and algae need sunlight to grow, so they are only able to grow in areas of lakes where the sun penetrates. Water transparency depends on the amount of particles in the water. An increase in particulates results in a decrease in transparency. There is extensive transparency data for Round Lake. This data set shows that the transparency is relatively uniform in most years throughout the different monitoring sites. Round Lake mean transparency ranges from 6.9 to 13.9 ft. Round Lake shows no evidence of a water quality trend for transparency. That means that the water quality is stable.

Trophic State Index (TSI)

Phosphorus (nutrients), chlorophyll *a* (algae concentration) and Secchi depth transparency) are related. As phosphorus increases, there is more food available for algae, resulting in increased algal concentrations. When algal concentrations increase, the water becomes less transparent and the Secchi depth decreases. The results from these three measurements cover different units and ranges and thus cannot be directly compared to each other or averaged. In order to standardize these three measurements, we convert them to a trophic state index (TSI). The mean TSI for Round Lake (50) falls on the border between mesotrophic and eutrophic (49-51). Lakes on the mesotrophic to eutrophic border (TSI 49-51) are characterized by moderately clear water most of the summer. If the water quality becomes more eutrophic the water will start to have extended periods of "green" water.



Round Lake total phosphorus, chlorophyll *a* and transparency historical ranges. The arrow represents the range and the black dot represents the historical mean (Primary Site 211). Figure adapted after Moore and Thornton, [Ed.]. 1988. Lake and Reservoir Restoration Guidance Manual. (Doc. No. EPA 440/5-88-002)

