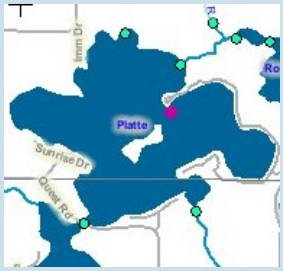
Environmental Services
CROW WING COUNTY
BRAINERD, MINNESOTA 56401

Crow Wing County Water Quality Factsheet Series



Platte Lake

DNR ID: 18-0088

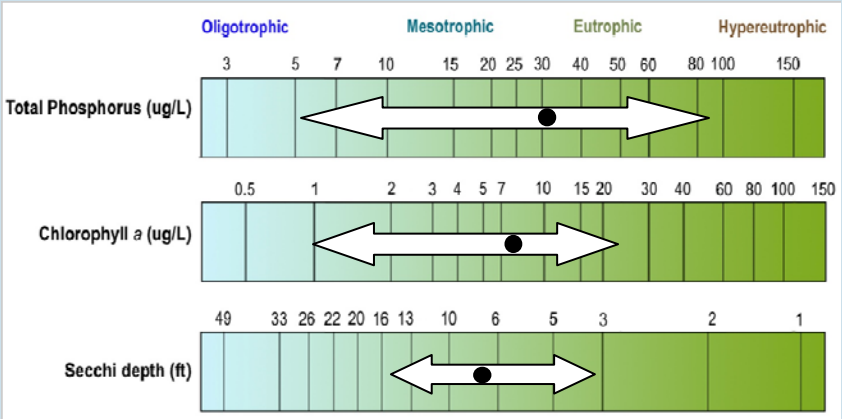
Vitals		Physical Characteristics		
MN Lake ID:	18-0088-00	Surface area (acres):	1,661	
County:	Crow Wing and Morrison	Littoral area (acres):	1,611	
Lake Classification:	General Development (GD)	% Littoral area:	97%	
Major Watershed:	Mississippi River—Sartell	Max depth (ft):	23	(m): 7.0
Latitude/Longitude:	46.16666667/-93.91694444	Mean depth (ft):	8	
Water Body Type:	Public	Lakeshed : lake area ratio	6:1	
Invasive Species	Curly-leaf pondweed	Inlets / Outlets / Accesses	3 / 1 / 1	

Total Phosphorus

Platte Lake is phosphorus limited, which means that algae and aquatic plant growth is dependent upon available phosphorus. Total phosphorus was evaluated in Platte Lake at the primary site in 1981, 1996-1997, and 2004-2006. The data show that phosphorus concentrations increase throughout the summer. Most of the data points fall between the mesotrophic and eutrophic 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 Platte Lake at site 213 in 1981, 1996-1997, and 2004-2006. Chlorophyll *a* concentrations above 10 ug/L occurred 9 times over the 6 years of sampling indicating minor algae blooms.



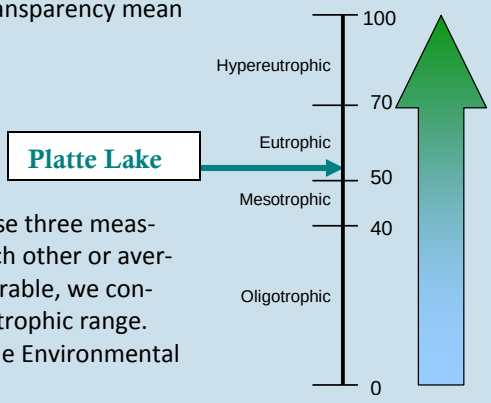
Platte Lake total phosphorus, chlorophyll *a* and transparency historical ranges. The arrow represents the range and the black dot represents the historical mean (Primary Site 213). Figure adapted after Moore and Thornton, [Ed.]. 1988. Lake and Reservoir Restoration Guidance Manual. (Doc. No. EPA 440/5-88-002)

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. The annual means for Platte Lake range from 5.3-12.3 ft. Platte Lake transparency is highest in May and June and then declines steadily throughout the summer, and then rebounds somewhat in late September, which is typical of a MN lake. Platte Lake shows evidence of a decreasing water quality trend in transparency. In addition to the annual transparency mean decreasing, the annual spring maximum is decreasing as well.

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 to make them directly comparable, we convert them to a trophic state index (TSI). The mean TSI (52) for Platte Lake falls in the eutrophic range. Eutrophic lakes (TSI 50-70) are characterized by "green" water most of the summer. The Environmental Protection Agency (EPA) has listed Platte Lake on the "Impaired Waters" list.



Local association info: Platte Lake Property Owners Association