2024 Skogman Lake Monitoring Report

Lake: LID volunteers collected Total Phosphorus (TP), Chlorophyll-a, and transparency information 2x per month from May through October. SWCD staff collected dissolved oxygen and temperature profiles 1x per month during sample events.

Tributary: The SWCD had a goal of collecting up to 2 samples at the SE residential inlet. Due to flow, we collected one sample. The samples was analyzed for Total Phosphorus (TP), Ortho-Phosphorus, and Total Suspended Solids.

Why: While the lake has been monitored for Secchi depth transparency regularly since 1988 there is limited nutrient data to help lake managers make educated decisions to improve the lake's health. The new information will help diagnose areas of concern and provide evidence for the need to implement lake improvement projects (great for grant applications).

Quick Facts

Township	Cambridge
MN Lake ID	3002200
# of Public Boat Access	1
Aquatic Invasive Species	Eurasian Watermilfoil, Curly-leaf Pondweed, purple loosestrife
Surface Area	228
Littoral Area (<15ft deep)	135
Maximum Depth	36
Lake Depth Classification	Deep
Lake Health Status	Impaired
SWCD Priority Lake	Yes

Monitoring Locations

Definitions

Total Phosphorus (TP): An essential plant nutrient in which an excess can cause severe algae blooms.
Chlorophyll-a (Chl-a): A pigment found in green plants, used to estimate quantity of algae in a lake.
Secchi Transparency: A measure of light penetration in water, an indication to the amount of algae in the water.
Ortho-phosphorus The amount of phosphorus that is immediately available for algae and plant growth.
Total Suspended Solids: Tiny particles of soil and other matter that remain suspended in water making it cloudy. Particles include sediment and organic matter.

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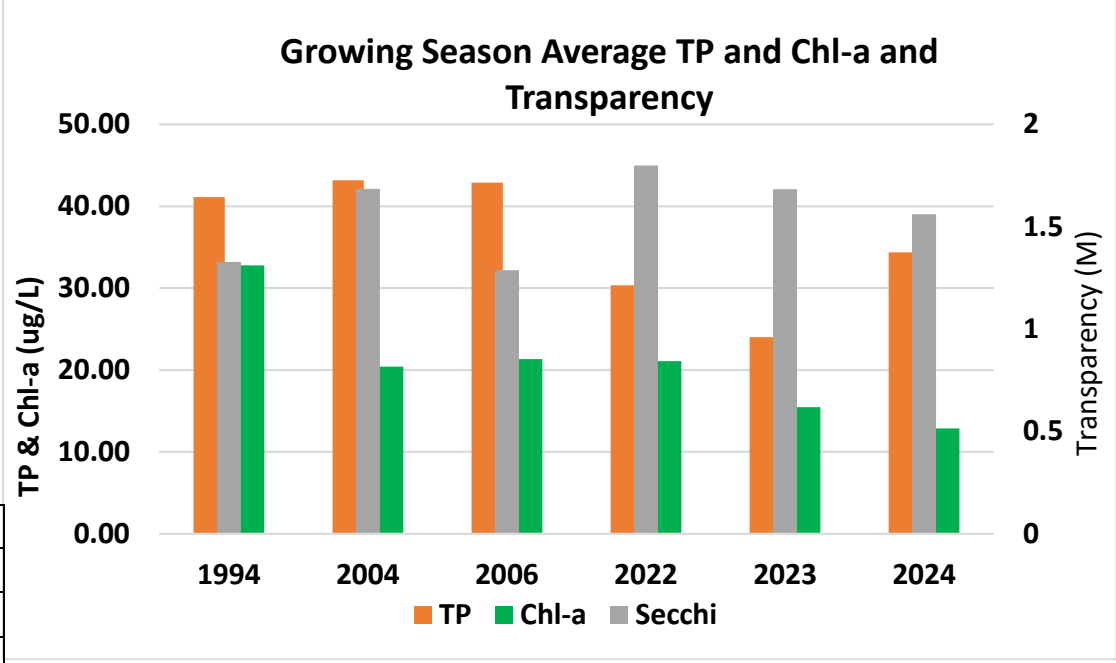
MN Clean Water Goals for Skogman Lake		
Total Phosphorus (TP): ≤ 40 ug/L	Chlorophyll-a: ≤ 14mg/L	Secchi Depth: ≥ 1.4 meter

2024 Growing season average (June-September)	34.4 ug/L (TP)	12.84 mg/L (Chl-a)	1.6 ft. (Secchi)



Year	Grade
2004	C
2006	C
2022	C
2023	B
2024	C

⇒ The lake was listed as impaired in 2013 because both Phosphorus and chlorophyll-a exceeded state standards for deep lakes.

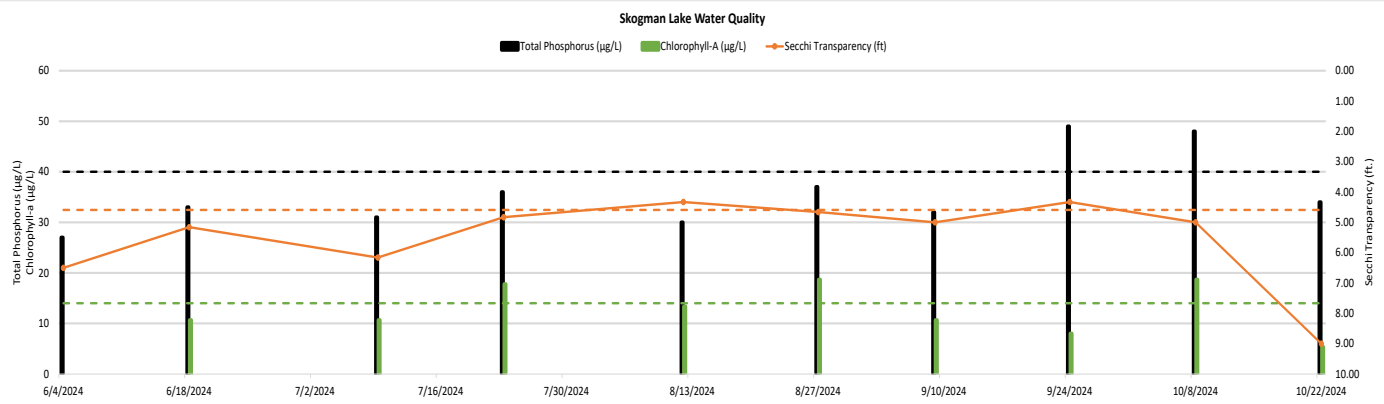
⇒ In 2022-2023 the lake met water quality standards for Phosphorus and Transparency and in 2024 for all parameters (this is good!)

⇒ Available data indicates there is an improving trend in water health (this is good!)

⇒ The lake will likely be removed from the impaired waters list in 2026 (this is good!)

⇒ Lake protection projects are key to maintaining lake health as land use continues to change. The SWCD is targeting a project at the NW inlet and assisting landowners with small projects to reduce stormwater inflow. We have funds to cover 75% of projects costs.

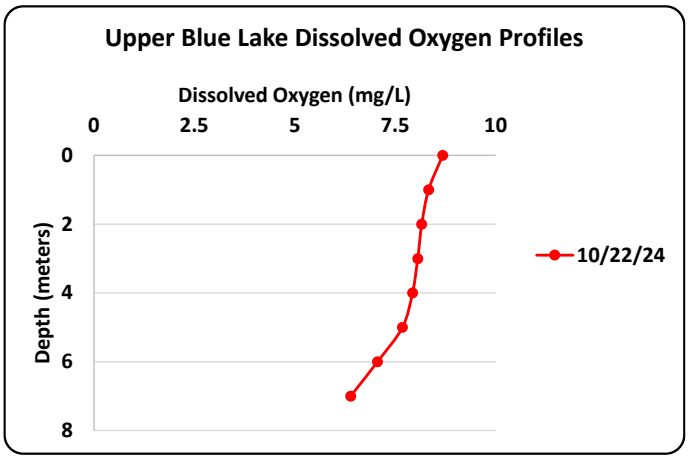
2024 Lake Samples

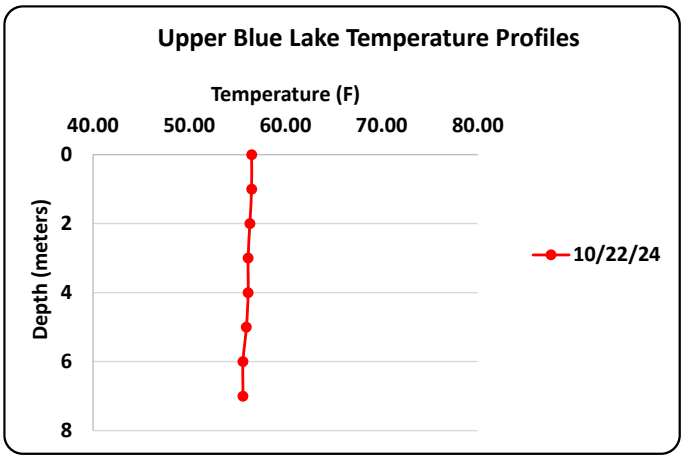


The dashed lines indicate the standard or limit for each parameter sampled

While some fluctuation in water health is normal, larger changes may be due to weather conditions (i.e. drought or extreme rain events), lake mixing, and curly-leaf pondweed die-off.

Dissolved Oxygen and Temperature Profiles





This information helps lake managers understand water fluctuations in water health; it is also helpful for future lake diagnostic studies. In 2024, we measured the profiles at the end of the season to test the hypothesis that late-season phosphorus increases are influenced by lake mixing (maybe an indicator of internal nutrient loading). We also suspect the warm, dry spell in September caused the increase in nutrients late in the season.

SE Inlet sample: one sample was taken in June 2024 after a 2.5 inch rain event. The phosphorus was 100 ug/l. Anything over 100ug/L would be targeted for treatment. Treatment options in the drainage area should be investigated.

Future Lake Monitoring: based lake monitoring plan (2022-2031) the next time the lake is scheduled for monitoring is 2028. The SLID should determine monitoring frequency.