

UPPER PRIOR LAKE: 2024 Water Quality Report Card



Quick Facts

Surface Area: 386 acres **Average Depth:** 10 feet
Watershed Area: 16,038 acres **Maximum Depth:** 43 feet

Upper Prior Lake lies between Spring and Lower Prior Lake. Its largest tributary is the Spring Lake connecting channel, with additional inputs from Arctic Lake and Cates Creek. Upper Prior Lake flows into Lower Prior Lake, which ultimately drains into the Minnesota River. A unique feature is its heron and egret rookery on the island in the northernmost bay.

Upper Prior Lake is on the state's impaired waters list for excess nutrients. Historically, water clarity and phosphorus levels have hovered around the state standard, while Chlorophyll-a, a measure of algae, rarely met it. A 2020 alum treatment significantly improved phosphorus levels and clarity. The District's carp removal, flood storage, and nutrient reduction projects have helped the lake meet all three state water quality standards since 2020.

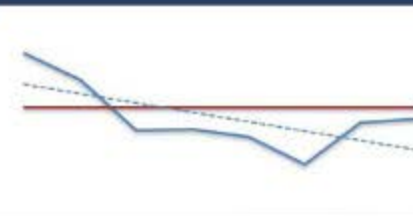
**statistically significant

Water Quality Indicator	Risk to Water Quality	Grade (2022-2024)	10-Year Water Quality Avg (2015-2024)	10-Year Trend
PHOSPHORUS	Phosphorus is needed by plants and animals to survive but can cause algae blooms if there is too much phosphorus available. Sources of high phosphorus include fertilizer, human and animal waste, and soil erosion.	A		 <i>Improving</i>
CHL-A	Chlorophyll-a is a measure of the amount of algae in a lake. Some algae is normal in a healthy lake, but high concentrations threaten aquatic life and can impede on recreation and enjoyment of the lake. Some can even create harmful toxins.	A		 <i>Improving</i>
CLARITY	Water clarity is affected by the abundance of algae and sediment in the water column. It is dependent on factors such as nutrients, temperature, wind, rain, and boat traffic. Low clarity means less sunlight to power photosynthesis in aquatic plants, which help keep the lake healthy.	A		 <i>Improving</i>

Grading Scale

Excellent	Good	Average	Marginal	Poor
A	B	C	D	F
All or most samples meet the desired threshold.	Many samples meet or are near the desired threshold.	Some samples meet or are near desired threshold.	Many samples do not meet the desired threshold.	Most samples do not meet the desired threshold.

Graph Explanation



The **solid blue line** shows the annual change in water quality over a ten year span. The lower the line, the healthier the lake.

The District's goal is for the blue line to be below the **red line**, which is the water quality standard and the point at which the waterbody is not considered polluted.

The **blue dotted-line** is the trend line. A decreasing trend line shows improvement in the health of the lake over time.

UPPER PRIOR LAKE: Program Highlight

Carp Management

Large populations of carp are known to degrade the environment due to the nature of their feeding habits and excretion rates. Their accordion like mouths dig into the mud to eat plants, insects, and crustaceans. This often uproots native and non-native vegetation and releases excess phosphorus when the sediment is disturbed. This leads to blooms of algae that thrive on high levels of phosphorous and low plant density in the water column.

Reducing the population of carp to a manageable level on Upper Prior Lake has been a priority goal to meeting nutrient reduction goals. In 2024, the goal of reducing the carp biomass in the lake below the ecologically damaging threshold of 89 lb/ac was achieved. Upper Prior Lake will transition to the last phase of management: maintenance.

