

PIKE LAKE-EAST: 2024 Water Quality Report Card



Quick Facts

Surface Area: 50 acres

Average Depth: 7 feet

Watershed Area: 21,770 acres

Maximum Depth: 9 feet

Pike Lake comprises two distinct bays: the east and west bays. Water flows from Prior Lake through the Prior Lake Outlet Channel (PLOC) into the western bay of Pike Lake before emptying into the Minnesota River. The east bay, in contrast, is stagnant as no water flows through it. The lake is situated north of County Road 42 and east of County Road 21, with a bald eagle pair nesting on its island.

Pike Lake is listed as impaired for excess nutrients, with both bays failing state water quality standards. The east bay is particularly poor, with phosphorus over ten times the standard, chlorophyll-a exceeding three times the limit until 2023, and clarity about a third of the standard. Runoff, historic land use, and carp overpopulation are key factors driving these issues. See the back of this page to learn why the bays differ.

**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.	D		 No Trend
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.	D		 No Trend
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.	D		 No Trend

Grading Scale					Graph Explanation	
Excellent	Good	Average	Marginal	Poor		<p>The solid blue line shows the annual change in water quality from 2012-2019. The lower the line, the healthier the lake.</p> <p>The District's goal is for the blue line to be below the red line, which is the water quality standard.</p> <p>The blue dotted-line is the trend line. Decreasing trend line shows improvement in the health of the lake over time.</p>
A All or most samples meet the desired threshold.	B Many samples meet or are near the desired threshold.	C Some samples meet or are near desired threshold.	D Many samples do not meet the desired threshold.	F Most samples do not meet the desired threshold.		

PIKE LAKE-EAST: Water Quality Story

The Basin Difference Explained

Pike Lake, with a maximum depth of 9 feet, is a shallow lake highly sensitive to changes. Light penetrates the entire water column, wind stirs up sediment, and the low volume limits nutrient dilution, making it prone to water quality issues.

This lake highlights how water external influences shape water quality. Despite similar depth, sediment composition, size, and surrounding land use, the east and west bays differ dramatically. Separated by a short channel and an island, their contrasting conditions are even visible from aerial photographs.

The western bay benefits from clean water flowing in from Lower Prior Lake via the Prior Lake Outlet Channel (PLOC), which exits from the same bay toward the Minnesota River. This consistent flush of high-quality water helps keep the bay clear, allowing aquatic plants to thrive and compete with algae. During droughts, reduced PLOC flow diminishes water quality in the western bay.

The eastern bay, on the other hand, remains largely stagnant, receiving primarily nutrient-rich runoff. This fosters frequent algal blooms, which outcompete plants and further degrade the water quality.

