

# SPRING LAKE: 2024 Water Quality Report Card



## Quick Facts

**Surface Area:** 587 acres

**Average Depth:** 18 feet

**Watershed Area:** 12,430 acres

**Maximum Depth:** 34 feet

Spring Lake is located near the center of the Prior Lake-Spring Lake Watershed District and receives most of its water from the south. Its main tributaries are County Ditch 13 and the Buck Lake channel. It is the second largest lake in the District and flows into Upper Prior Lake.

Spring Lake once had a reputation for poor water quality and remains on the stat's impaired waters list for excess nutrients. Since 2013, three alum treatments have significantly reduced algae blooms, and 33 tons of carp have been removed since 2017. Additional projects, including a ferric chloride treatment facility, flood storage, and nutrient-reduction farming practices, have further improved water quality by reducing nutrients and sediment. These efforts have all contributed to improving water quality on Spring Lake and, because Spring Lake flows directly into Upper Prior Lake, water quality in Upper Prior should also improve.

\*\*statistically significant

Water Quality Indicator	Risk to Water Quality	Grade (2022-2024)	10-Year Water Quality Avg (2015-2024)	10-Year Trend
<b>PHOSPHORUS</b>	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.	<b>B</b>		 No Trend
<b>CHL-A</b>	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.	<b>C</b>		 Improving **
<b>CLARITY</b>	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.	<b>B</b>		 Improving **

Grading Scale					Graph Explanation
<b>Excellent</b>	<b>Good</b>	<b>Average</b>	<b>Marginal</b>	<b>Poor</b>	<p>The <b>solid blue line</b> shows the annual change in water quality over a ten year span. The lower the line, the healthier the lake.</p> <p>The District's goal is for the blue line to be below the <b>red line</b>, which is the water quality standard and the point at which the waterbody is not considered polluted.</p> <p>The <b>blue dotted-line</b> is the trend line. A decreasing trend line shows improvement in the health of the lake over time.</p>
<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>	
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.	

# SPRING LAKE: Project Highlight

## Ferric Chloride Treatment System

In 1998, the PLSLWD constructed a ferric chloride ( $\text{FeCl}_3$ ) treatment system to precipitate phosphorus out of stormwater from County Ditch 13, the main inflow to Spring Lake.

The system has had ongoing improvements since 1998, including installation of a carp barrier, capacity increases, and shed retrofits planned for 2025. At present, it prevents 60% of dissolved phosphorous from flowing into into Spring Lake.

**The photos to the right walk us through each step of the system.**

Photo 1: Staff, Board Members, and Citizen Advisory Committee Members stand in front of the shed where  $\text{FeCl}_3$  is stored and pumped from.

Photo 2: The weir is located upstream of the “injection point”. A sensor at the weir tells the pumps how much water is coming through, which informs the dosage. A carp barrier is located underneath the weir.

Photo 3: This is the “injection point” where the  $\text{FeCl}_3$  enters the water through the top of a culvert.

Photo 4: Water is rerouted into this “de-siltation pond,” where the  $\text{FeCl}_3$  binds to phosphorous and settles out before flowing into Spring Lake.

