

# CHARLEY LAKE



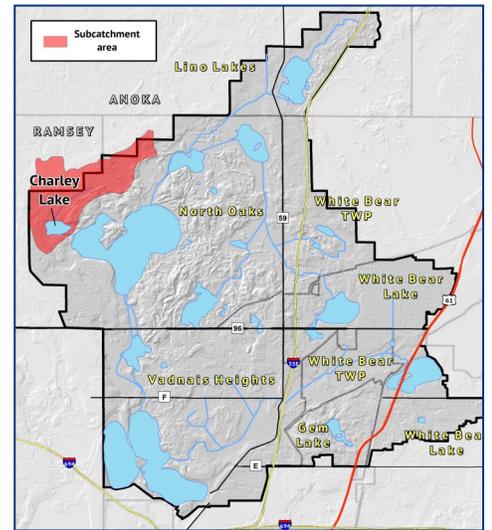
## QUICK FACTS

Lake Catchment Area	638 acres
Surface Area	38 acres
Maximum Depth	21 ft
Average Depth	5 ft

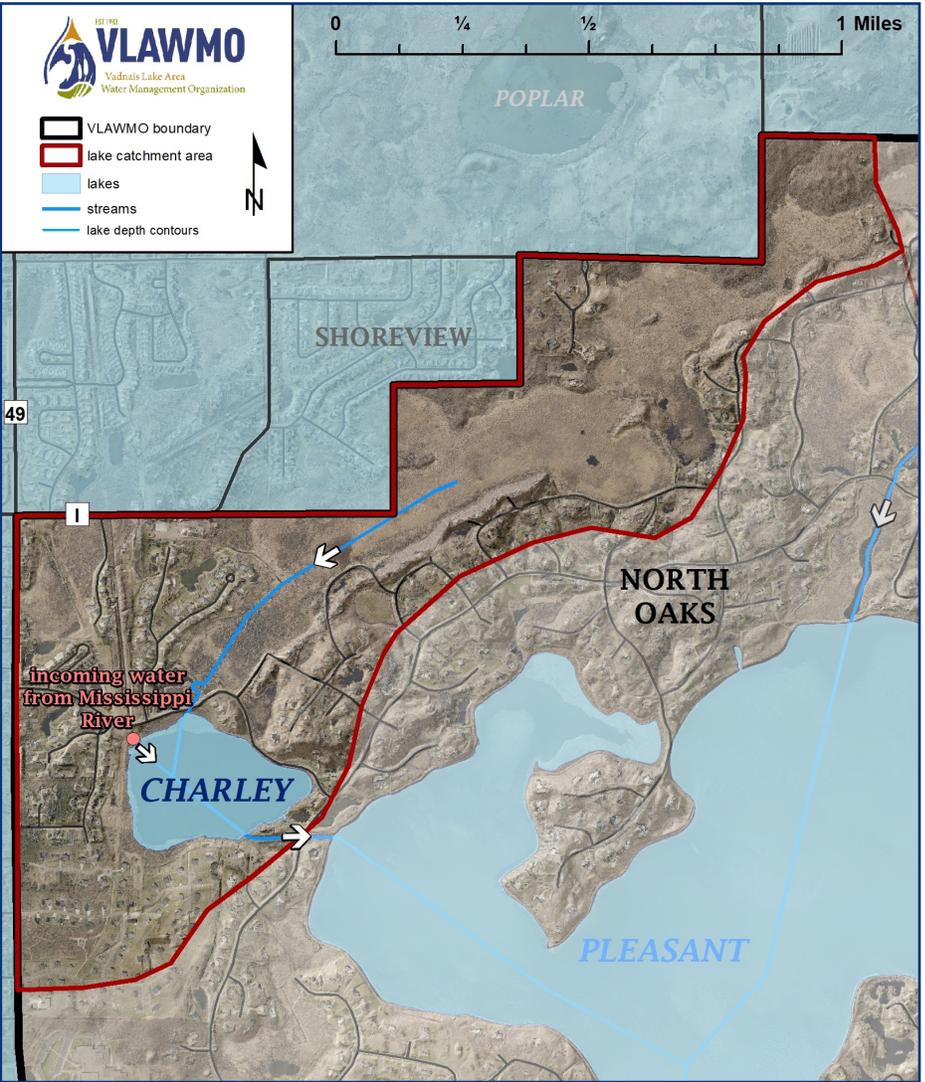
**Common Fish**  
Carp, Bass, Sunfish, Pike, Walleye

**Predominant Vegetation**  
Coontail, Canada waterweed, Northern watermilfoil

**Invasive Species**  
Zebra mussels, Eurasian watermilfoil, Curlyleaf pondweed, Common carp, Purple loosestrife, Reed canary grass



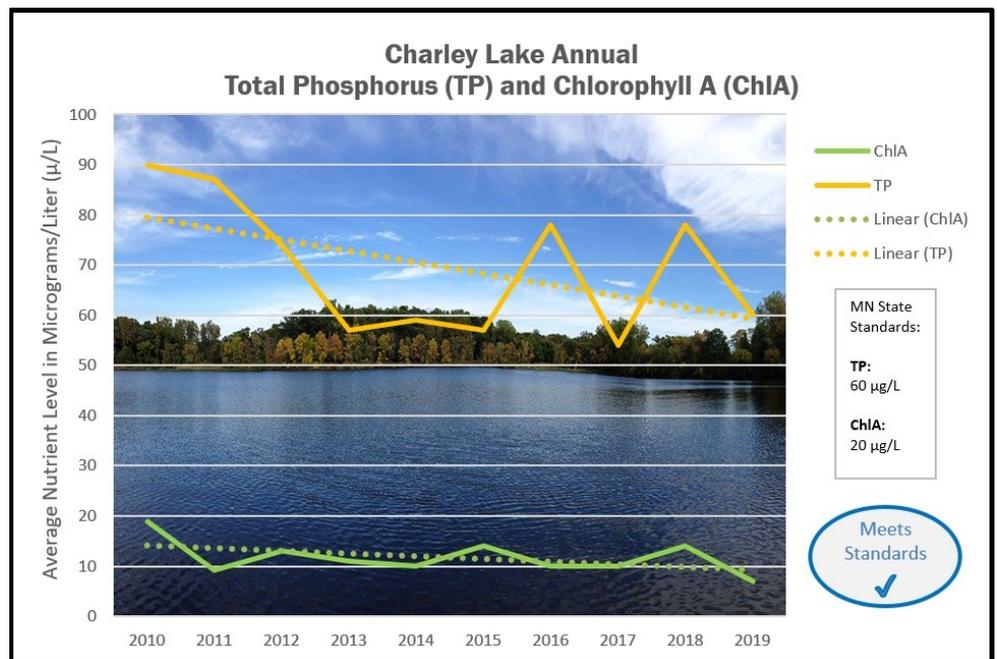
**LOCATION:** Charley Lake is in the City of North Oaks and is the start of the VLAWMO chain of lakes. This chain moves water from the Mississippi River to East Vadnais Lake, which is the drinking water reservoir for the Saint Paul Regional Water Services (SPRWS). River waters enters Charley through two large conduits located at the northwest corner of the lake. The land around Charley Lake is primarily residential.



**LAKE SUMMARY:** VLAWMO began water quality sampling on Charley Lake in 2009. The SPRWS pumps an average of 32 million gallons of water each day from the Mississippi River into Charley, which outlets to Pleasant Lake. The pumped water creates a channel in the lake. Although the maximum depth is sufficient for a deep lake, Charley Lake is classified as a shallow lake due to its lack of stratification from incoming river water. The most recent residential development began in 2016. Between 2015 and 2017, depth and vegetation surveys were conducted and are part of its Sustainable Lake Management Plan (SLMP).

## NUTRIENT SUMMARY:

While Charley Lake's Phosphorus levels can exceed the State standard, the lake is still listed as unimpaired. This is likely due to the large influx of water it receives from the Mississippi. With this incoming water though, the trade-off appears to be that Nitrogen ( $\text{NO}^3$ ) levels are higher than other VLAWMO lakes. This information can be found in the full annual water monitoring report, at [vlawmo.org/reports](http://vlawmo.org/reports).

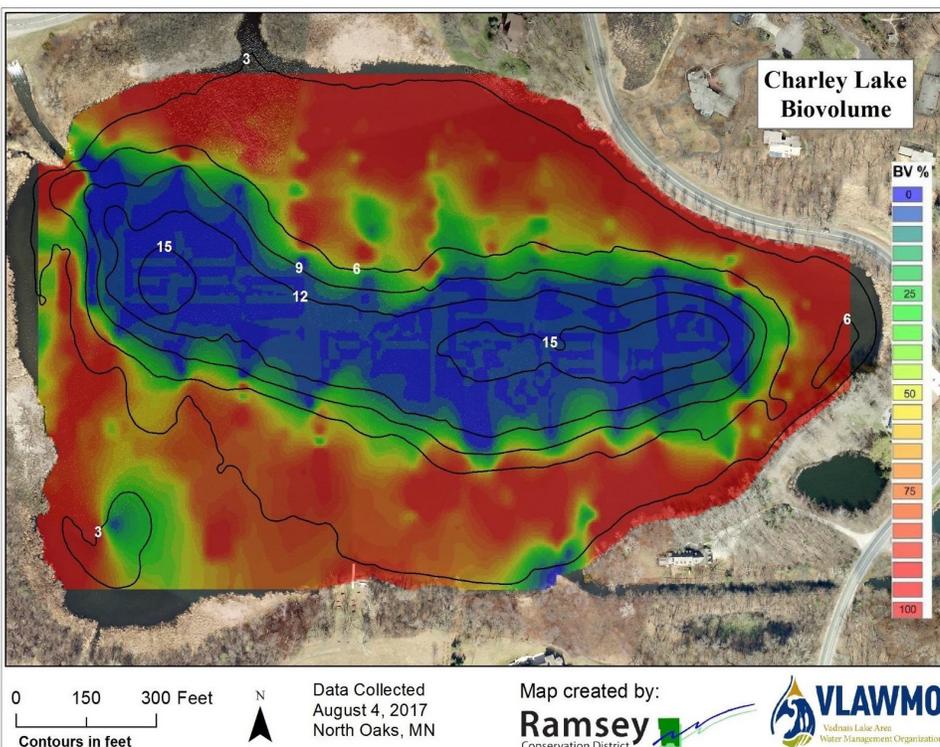


## Trophic State Index (TSI):

A TSI rating is a calculation based on lake data averages. These values are used to compare lakes using a consistent scale.

Charley Lake	2019	Clear Oligotrophic		Moderately Clear Mesotrophic		Green Eutrophic	Very Green Hypereutrophic		
		20	30	40	50	60	70	80	
Trophic State Index (TSI): Overall		[Bar chart showing TSI Overall at ~65]						[Red triangle at 60]	
TSI Transparency: Secchi Disk		[Bar chart showing TSI Transparency at ~65]						[Red triangle at 60]	
TSI Chlorophyll A: ChIA		[Bar chart showing TSI ChIA at ~55]						[Red triangle at 50]	
TSI Total Phosphorus: TP		[Bar chart showing TSI TP at ~65]						[Red triangle at 60]	

## BATHYMETRY & VEGETATION SURVEYS:



In Spring, 2017, VLAWMO and the Ramsey Conservation District completed vegetation and bathymetry (depth) surveys. These reports provide valuable data to inform management actions. As indicated on the diagram, inflow from the Mississippi carves a path through the lake. Aquatic vegetation is present in shallow areas.

Charley Lake has a water volume of 258 acre-feet.

Visit [vlawmo.org/waterbodies](http://vlawmo.org/waterbodies) for more studies and information on Charley Lake.