DEEP LAKE

VLAWMO — Vadnais Lake Area Water Management Organization

QUICK FACTS

Lake Catchment Area	716 acres
Surface Area	78 acres
Maximum Depth	11 ft
Average Depth	5 ft

Common Fish

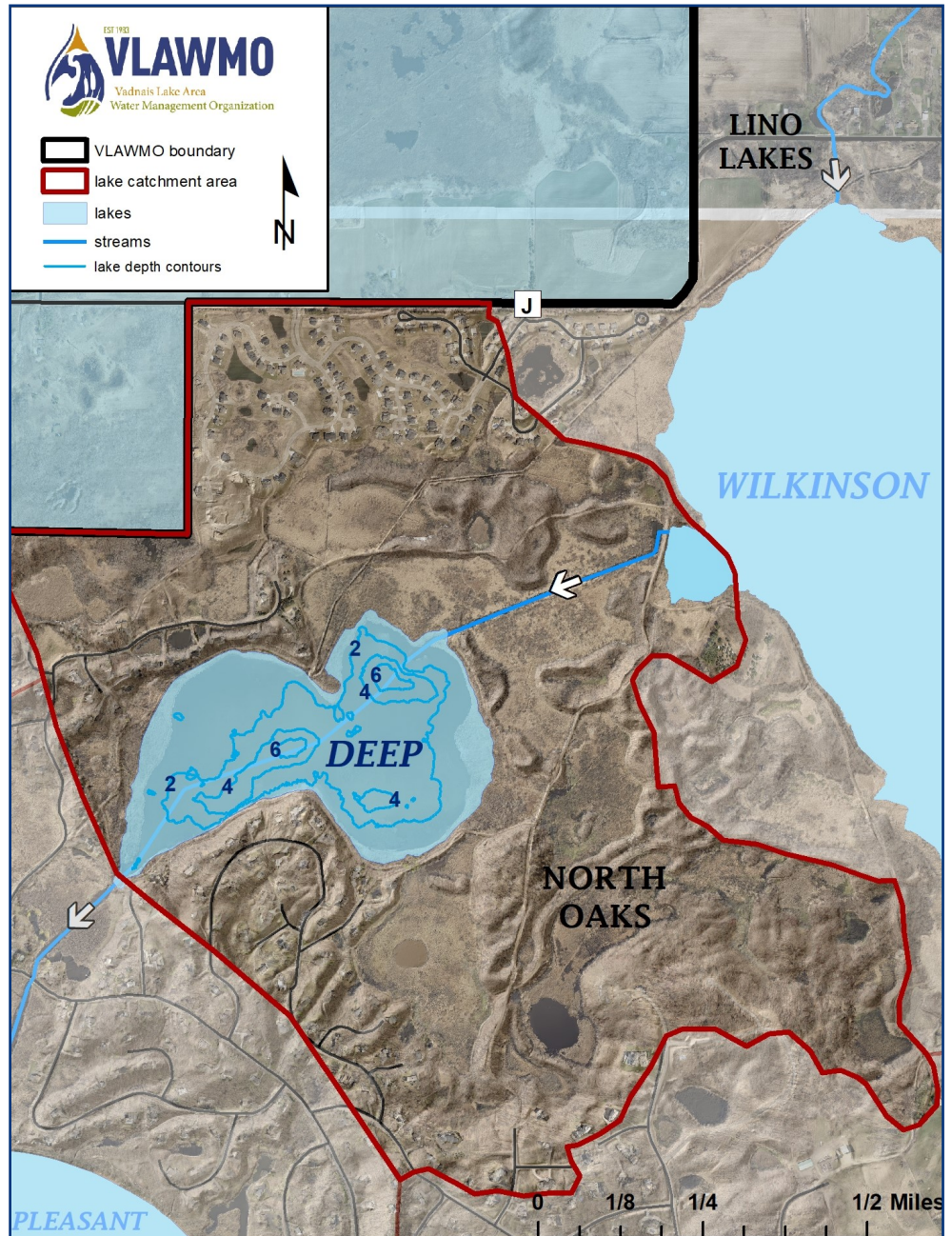Carp, Walleye, Bass, Sunfish, Northern Pike

Predominant Vegetation

Fern pondweed, Coontail, Duckweed, White water lily, Water willow (special of concern)

Invasive Species

Common carp, Curlyleaf pondweed, Yellow iris, Mystery snail, Reed canary grass, Purple loosestrife, Common buckthorn, Bush honeysuckle, White willow, Black locust

LOCATION: Deep Lake is located in the City of North Oaks. Land use around the lake is large lot residential and protected open space. By 2016, much of the land in the northern part of the subwatershed has been developed for residential use.
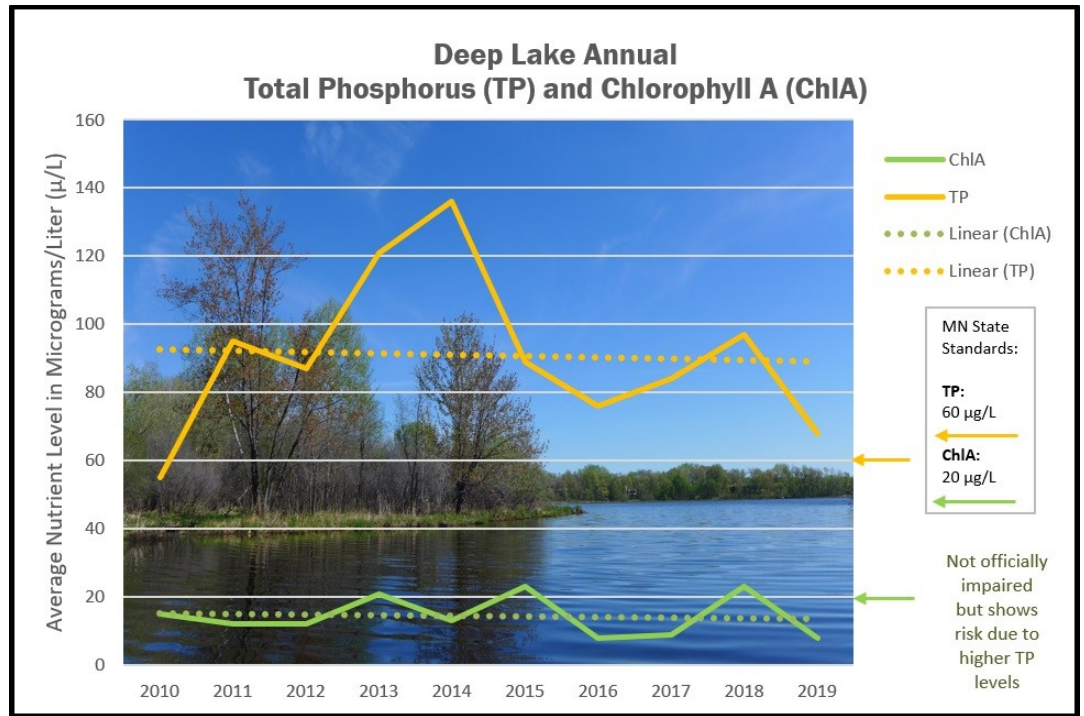

EST 1983
VLAWMO Vadnais Lake Area Water Management Organization

- VLAWMO boundary
- lake catchment area
- lakes
- streams
- lake depth contours

N

LINO LAKES

WILKINSON

DEEP

NORTH OAKS

PLEASANT

0   1/8   1/4   1/2 Miles

Subcatchment area

LAKE SUMMARY: Deep Lake is hydrologically connected to Wilkinson Lake to the north and Pleasant Lake to the south. A channel connects the lakes. Although Deep's nitrogen and ammonia levels are below State standards, it has the highest concentrations in the VLAWMO watershed. Total Phosphorus and Chlorophyll-A have been trending upward since sampling began in 2009. Incoming water from Wilkinson (an impaired water body for nutrients) is a contributing factor to periodic algal blooms.

Nutrients:

VLAWMO measures lake electrical conductivity to gauge levels of sodium, chloride, nitrate, sulfate, calcium, and other metals. High electrical conductivity indicates high levels of minerals that may pose problems for the lake.
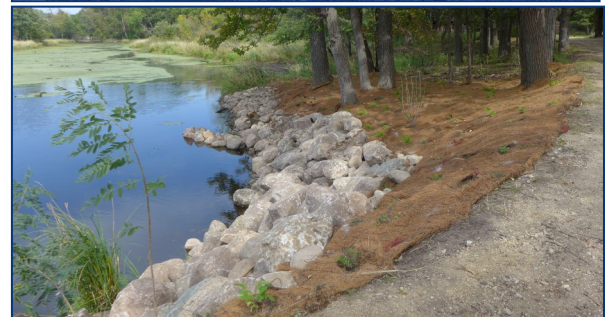
Deep Lake conductivity is high compared to most regional lakes. Deep is also unusual because TP levels are high yet ChlA level are low. Typically in a water body, TP and ChlA mirror each other.

Deep Lake Annual Total Phosphorus (TP) and Chlorophyll A (ChlA)

Y-axis: Average Nutrient Level in Micrograms/Liter (µ/L)

Legend:
- ChlA
- TP
- Linear (ChlA)
- Linear (TP)

MN State Standards:

TP: 60 µg/L

ChlA: 20 µg/L

Not officially impaired but shows risk due to higher TP levels

A pair of flying squirrels were among the many species documented as part of remote-camera surveys at Deep Lake in 2019.

Deep Lake	2019	Clear Oligotrophic		Moderately Clear Mesotrophic		Green Eutrophic	Very Green Hypereutrophic	
		20	30	40	50	60	70	80
Trophic State Index (TSI): *Overall*						▲		
TSI Transparency: *Secchi Disk*					▲			
TSI Chlorophyll A: *ChlA*				▲				
TSI Total Phosphorus: *TP*							▲	

Trophic State Index (TSI): A TSI rating is a calculation based on lake data averages. These values are used to compare lakes on a consistent scale.

Deep Lake aerial, 1940

PROJECT HIGHLIGHT:

In the fall of 2015, VLAWMO worked with the Ramsey Conservation District and the North Oaks Homeowners' Association (NOHOA) to restore a portion of the channel between Deep and Pleasant Lake that was eroded. A combination of rip rap and native vegetation was used to secure the bank and prevent further erosion with help from Conservation Corps of Minnesota. NOHOA provides maintenance with Natural Shore Technologies.

Visit VLAWMO.org/waterbodies for more studies and reports on Deep Lake.