

SIMON LAKE

MN Lake ID: 61-0034-00



POPE SOIL & WATER



SUMMARY

Simon Lake is a shallow hypereutrophic lake and is on the MPCA Impaired Waters List. Algae concentration results (chlorophyll-a) show that the lake experiences algae blooms every summer. Simon Lake shows evidence of improving trends for all three parameters monitored over the past 14 years. Continued monitoring will enable future water quality analyses.

LAKE VITALS

ECOREGION:	North Central Hardwood Forest
MAJOR WATERSHED:	Chippewa River
SURFACE AREA (ACRES):	560.44
LITTORAL AREA (ACRES):	N/A
% LITTORAL DEPTH:	N/A
MAX DEPTH (FT):	9
AQUATIC INVASIVE SPECIES:	None



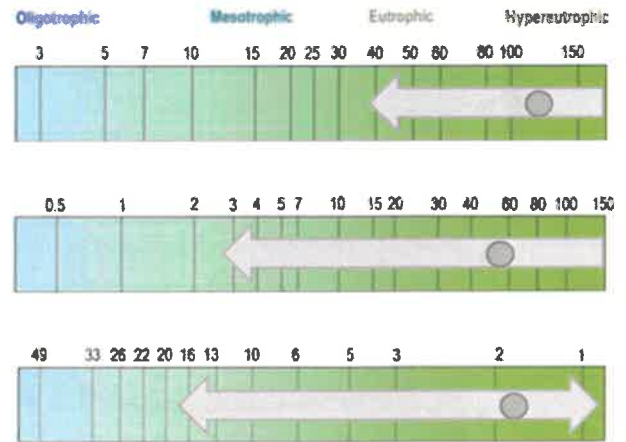
WATER QUALITY CHARACTERISTICS

YEARS MONITORED: 2008 - 2021

PARAMETERS	201
TOTAL PHOSPHORUS MIN (UG/L):	39
TOTAL PHOSPHORUS MAX (UG/L):	49.3
NUMBER OF OBSERVATIONS:	33
TOTAL PHOSPHORUS MEAN (UG/L):	120.1
CHLOROPHYLL-A MIN (UG/L):	2.7
CHLOROPHYLL-A MAX (UG/L):	214
NUMBER OF OBSERVATIONS:	33
CHLOROPHYLL-A MEAN (UG/L):	54.3
SECCHI DEPTH MIN (FT):	0.3
SECCHI DEPTH MAX (FT):	18
NUMBER OF OBSERVATIONS:	32
SECCHI DEPTH MEAN (FT):	1.8

TROPHIC STATE INDEX

Hypereutrophic (70.9)



ECOREGION COMPARISONS

ECOREGION: North Central Hardwood Forest

TOTAL PHOSPHORUS:	Poorer Than Expected Range
CHLOROPHYLL-A:	Poorer Than Expected Range
SECCHI DEPTH:	Poorer Than Expected Range

PRIMARY SITE ONLY. COMPARISONS ARE BASED ON INTERQUARTILE RANGE, 25TH - 75TH PERCENTILE, FOR ECOREGION REFERENCE LAKES.



2021 WATER QUALITY CHARACTERISTICS

SITE 201

PARAMETERS	TOTAL PHOSPHORUS (UG/L)	CHLOROPHYLL-A (UG/L)	SECCHI DEPTH (FT)
NUMBER OF OBSERVATIONS:	1	1	1
MEAN:	75	13	2

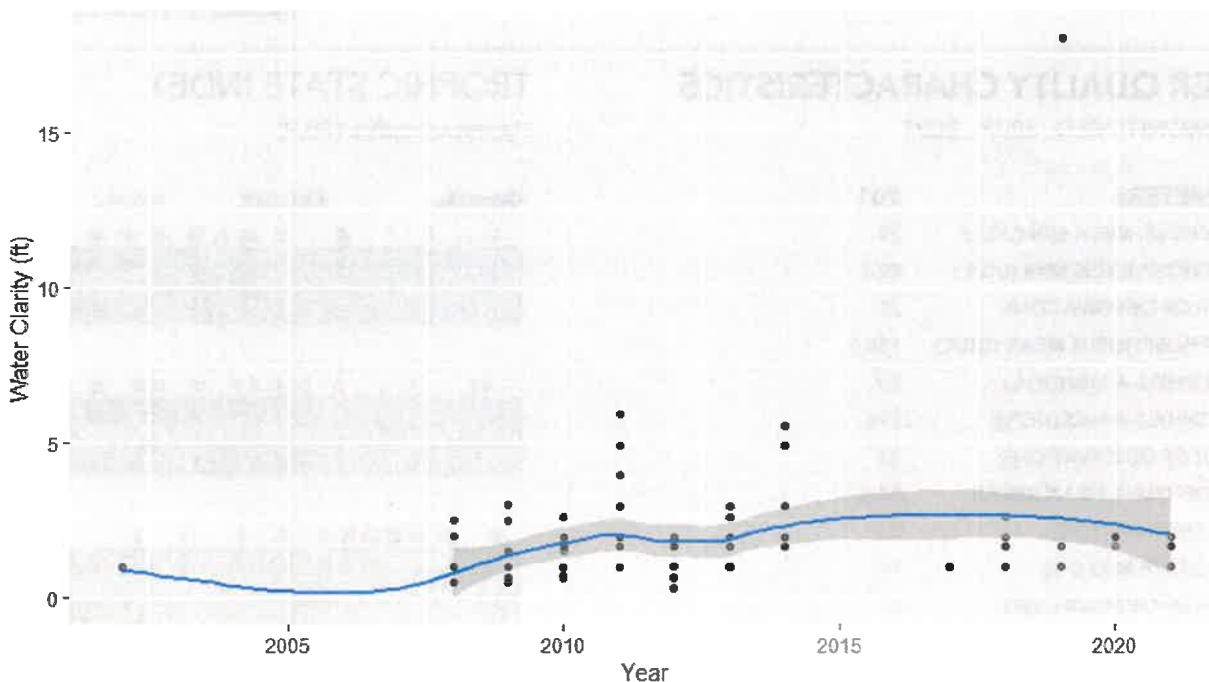
TROPHIC STATE INDEX: 63

TREND ANALYSIS REPORT

For detecting trends, a minimum of 8-10 years of data with four or more readings per season are recommended by the MPCA. Where data does not cover at least eight years or where there are only few samples within a year, trends can be misidentified because there can be different wet years and dry years, water levels, weather, etc., that affect the water quality naturally. The data was analyzed using the Mann Kendall Trend Analysis.

SITE	PARAMETERS	DATE RANGE	TREND
201	Transparency	2008-2012, 2017-2021	Improving with 99.9% confidence
201	Total phosphorus	2008-2012, 2017-2021	Improving with 99% confidence
201	Chlorophyll-A	2008-2012, 2017-2021	Improving with 95% confidence

SIMON LAKE TRANSPARENCY TREND



GRAPH SOURCE: MINNESOTA POLLUTION CONTROL AGENCY

Simon Lake's data indicates poorer than expected water quality for all three parameters. However, there is evidence of improving trends in transparency, phosphorus, and algae concentration (chlorophyll-a). Continued monitoring will allow these trends to be tracked in future years.