

PELICAN LAKE

MN Lake ID: 61-0111-00



POPE SOIL & WATER



SUMMARY

Pelican Lake is a moderately deep eutrophic lake and is on the MPCA Impaired Waters List. Algae concentration results (chlorophyll-a) show that the lake experiences algae blooms every summer. There are no significant trends in water clarity over the past 22 years. This means that the lake is stable, with no indications of declining water quality. Pelican Lake has adequate historical monitoring data, which makes a lake evaluation like this possible. Continued monitoring will enable future water quality analyses such as nutrient loading and runoff analysis.

LAKE VITALS

ECOREGION:	North Central Hardwood Forest
MAJOR WATERSHED:	Chippewa River
SURFACE AREA (ACRES):	517.77
LITTORAL AREA (ACRES):	421.87
% LITTORAL DEPTH:	81.5%
MAX DEPTH (FT):	34
AQUATIC INVASIVE SPECIES:	Zebra Mussels



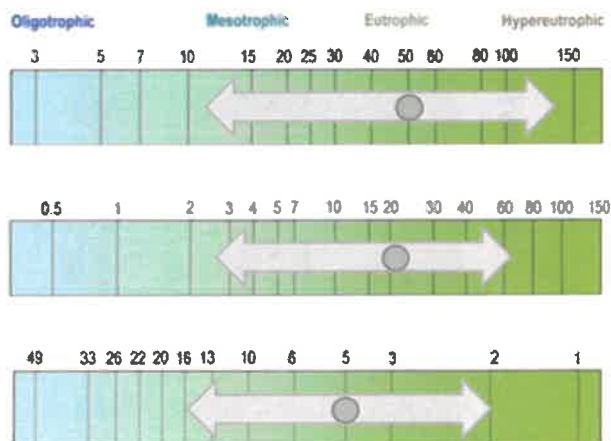
WATER QUALITY CHARACTERISTICS

YEARS MONITORED: 1996 - 2021

PARAMETERS	204
TOTAL PHOSPHORUS MIN (UG/L):	12
TOTAL PHOSPHORUS MAX (UG/L):	133
NUMBER OF OBSERVATIONS:	141
TOTAL PHOSPHORUS MEAN (UG/L):	51.8
CHLOROPHYLL-A MIN (UG/L):	2.7
CHLOROPHYLL-A MAX (UG/L):	62
NUMBER OF OBSERVATIONS:	129
CHLOROPHYLL-A MEAN (UG/L):	21.8
SECCHI DEPTH MIN (FT):	2
SECCHI DEPTH MAX (FT):	16
NUMBER OF OBSERVATIONS:	140
SECCHI DEPTH MEAN (FT):	5.1

TROPHIC STATE INDEX

Eutrophic (57.9)



ECOREGION COMPARISONS

ECOREGION: North Central Hardwood Forest

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

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



2021 WATER QUALITY CHARACTERISTICS

SITE 204

PARAMETERS	TOTAL PHOSPHORUS (UG/L)	CHLOROPHYLL-A (UG/L)	SECCHI DEPTH (FT)
MIN:	26	6	5
MAX:	42	24	14
NUMBER OF OBSERVATIONS:	5	5	5
MEAN:	33.2	12.6	7.4

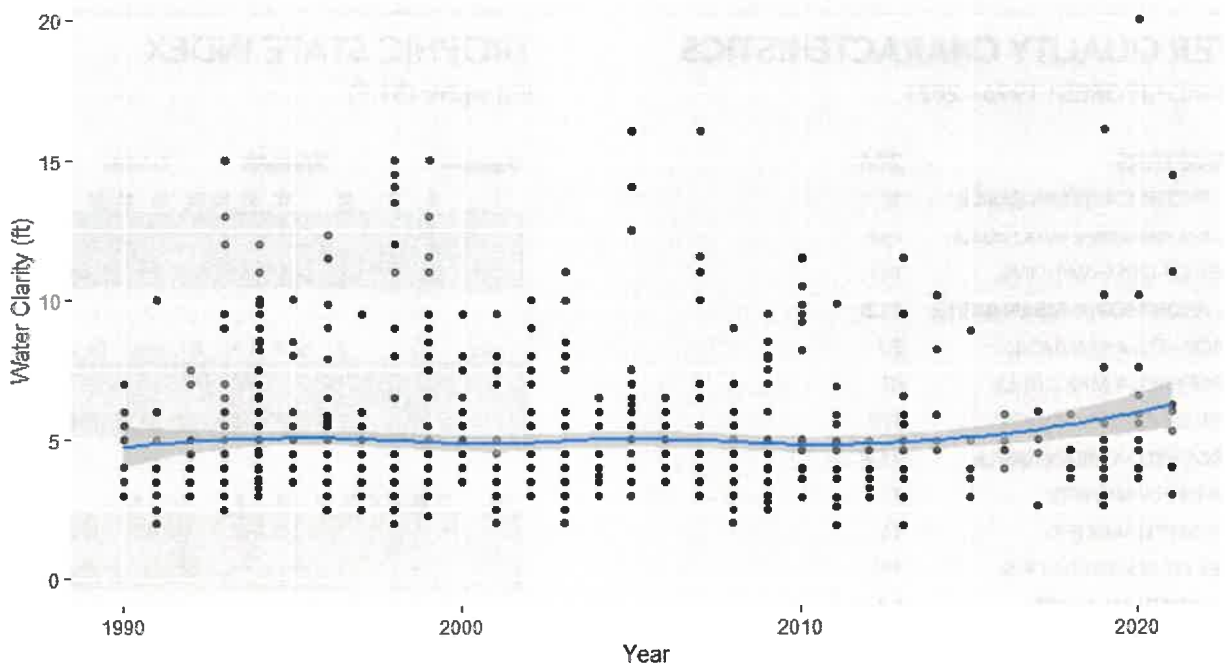
TROPHIC STATE INDEX: 52.6

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
204	Transparency	1996-2021	No significant trend exists
204	Total phosphorus	1996-2021	Improving with 90% confidence
204	Chlorophyll-A	1996-2021	No significant trend exists

PELICAN LAKE TRANSPARENCY TREND



GRAPH SOURCE: MINNESOTA POLLUTION CONTROL AGENCY

Pelican Lake's data shows evidence of an improving trend in phosphorus levels. This means that the amount of total phosphorus is decreasing. No other water quality trends are apparent for any of the parameters monitored over the past 22 years. Overall, these trend results show that Pelican Lake is stable, with no indications of declining water quality. Although no significant transparency trend exists right now, there is a potential improving trend that should be tracked in future years. Monitoring should continue to enable future water quality analyses, such as assessing the long term impact of zebra mussels in Pelican Lake.