



January 7, 2022

To Whom It May Concern:

Monitoring was completed on Europe Lake (WBIC 93100) in Door County as part of the DNR Directed Lakes Monitoring Program. The purpose of this monitoring is to assess overall lake health. Monitoring was conducted in 2020 and 2021. This report summarizes the water quality monitoring results.

The Directed Lake Monitoring protocols is available on our webpage at:  
<https://dnrx.wisconsin.gov/swims/downloadDocument.do?id=163086662>

Water samples were collected three times in both 2020 and 2021 for chlorophyll *a* and total phosphorus. Water temperature and dissolved oxygen profile data was collected as well as water clarity (secchi disc depth) during each site visit. All data can be found on the DNR website at:  
<https://dnr.wi.gov/lakes/lakepages/LakeDetail.aspx?wbic=93100>

## **Results**

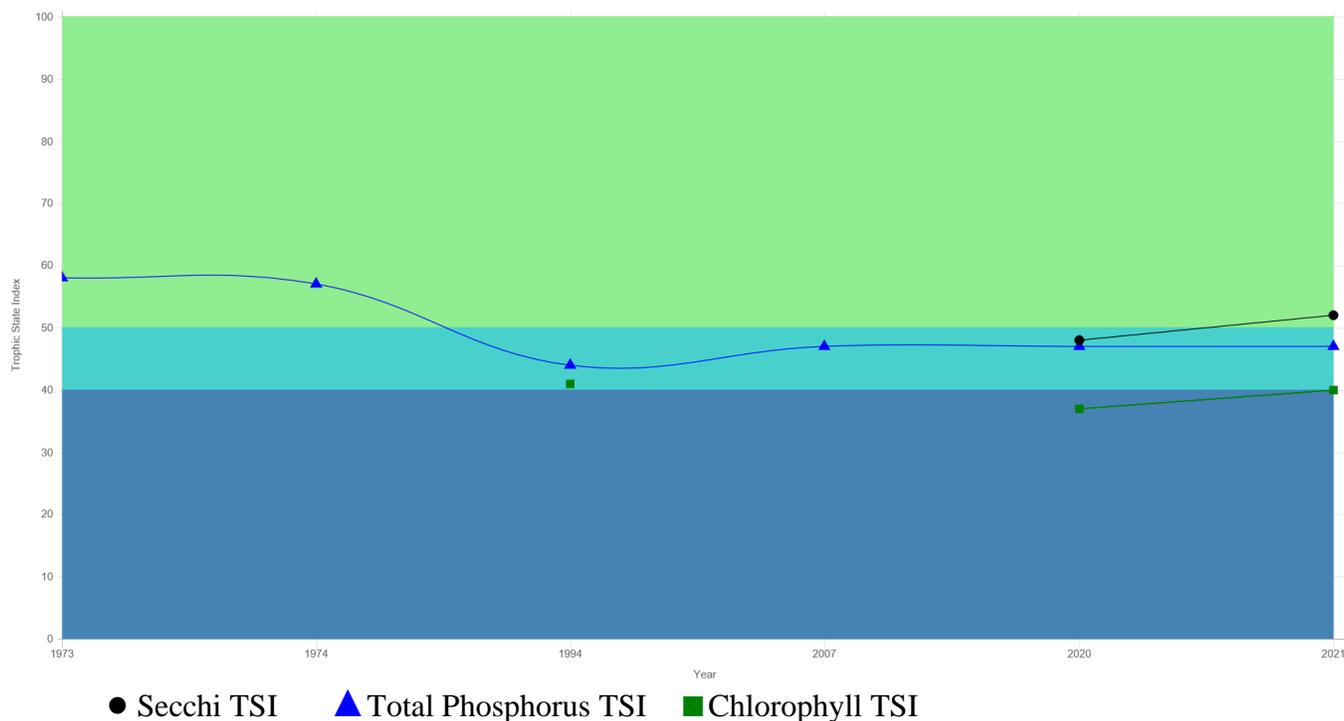
The average summer chlorophyll was 1.7 µg/l (compared to a Southeast Georegion summer average of 20.9 µg/l). The summer total phosphorus average was 11.7 µg/l. Lakes that have more than 20 µg/l of total phosphorus may experience noticeable algae blooms. Europe Lake has clear water where the secchi disc could be seen to the bottom of the lake during each sampling event. Europe Lake is completely mixed (polymictic) in the summer with uniform water temperature and dissolved oxygen values throughout the lake water column.

The overall Trophic State Index (TSI) based on chlorophyll for Europe Lake was 38.5. The TSI suggests that Europe Lake is Oligotrophic. Oligotrophic lakes are characterized by clear water, little plant growth and low algal abundance.



TSI is determined using a mathematical formula (Wisconsin has its own version). The TSI is a score from 0 to 110, with lakes that are less fertile having a low TSI.

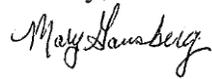
## Trophic State Index 1973 – 2021



TSI	TSI Description
<b>TSI &lt; 30</b>	Classical oligotrophy: clear water, many algal species, oxygen throughout the year in bottom water, cold water, oxygen-sensitive fish species in deep lakes. Excellent water quality.
<b>TSI 30-40</b>	Deeper lakes still oligotrophic, but bottom water of some shallower lakes will become oxygen-depleted during the summer.
<b>TSI 40-50</b>	Water moderately clear but increasing chance of low dissolved oxygen in deep water during the summer.
<b>TSI 50-60</b>	Lakes becoming eutrophic: decreased clarity, fewer algal species, oxygen-depleted bottom waters during the summer, plant overgrowth evident, warm-water fisheries (pike, perch, bass, etc.) only.
<b>TSI 60-70</b>	Blue-green algae become dominant and algal scums are possible, extensive plant overgrowth problems possible.
<b>TSI 70-80</b>	Becoming very eutrophic. Heavy algal blooms possible throughout summer, dense plant beds, but extent limited by light penetration (blue-green algae block sunlight).
<b>TSI &gt; 80</b>	Algal scums, summer fish kills, few plants, rough fish dominant. Very poor water quality.

This report summarizes the 2020 and 2021 monitoring results. This completes the two-year Directed Lakes Monitoring effort on Europe Lake. If you have any questions regarding the survey results, please feel free to contact me at 920-662-5489 or at [Mary.Gansberg@Wisconsin.gov](mailto:Mary.Gansberg@Wisconsin.gov)

Sincerely,

A handwritten signature in cursive script that reads "Mary Gansberg".

Mary Gansberg  
Water Resources Management Specialist  
Wisconsin Department of Natural Resources