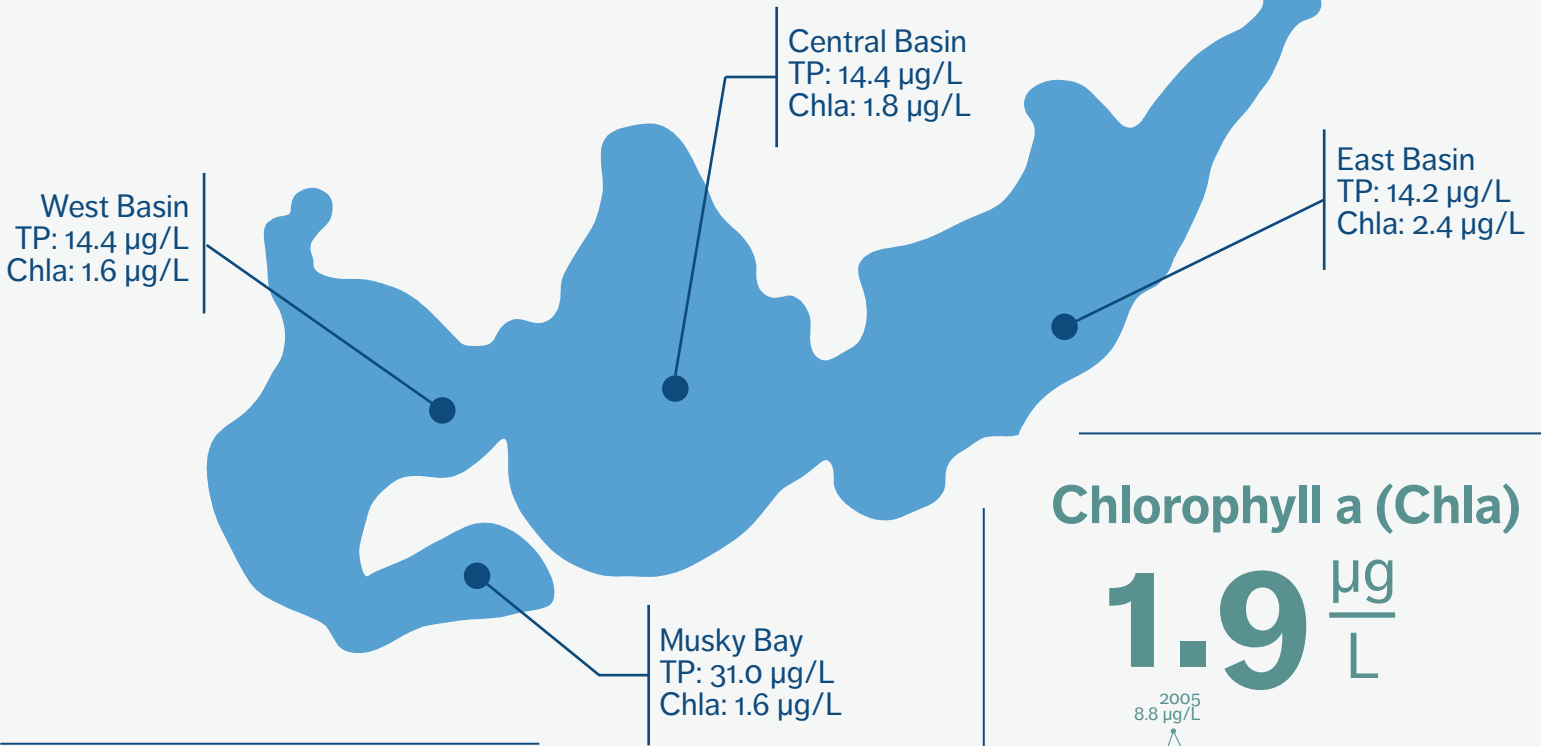
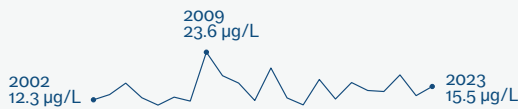


# 2023 Water Quality - Lac Courte Oreilles



## Total Phosphorus (TP)

**15.5**  $\frac{\mu\text{g}}{\text{L}}$



**Phosphorus promotes algal growth.** A new site-specific criterion of 10 µg/L for the protection of fish and aquatic life has been established for Lac Courte Oreilles. The 2023 lakewide average TP concentration was 15.5 µg/L. The five-year average concentration is 15.1 µg/L.

## Chlorophyll a (Chla)

**1.9**  $\frac{\mu\text{g}}{\text{L}}$



**Chlorophyll a is a proxy for algal abundance and productivity.** Algal growth can contribute to oxygen depletion. The Wisconsin chlorophyll a (Chla) standard is 8 µg/L. The 2023 lakewide average concentration was 1.9 µg/L, which is a typical lakewide average concentration in Lac Courte Oreilles. The five-year average concentration is 2.3 µg/L.

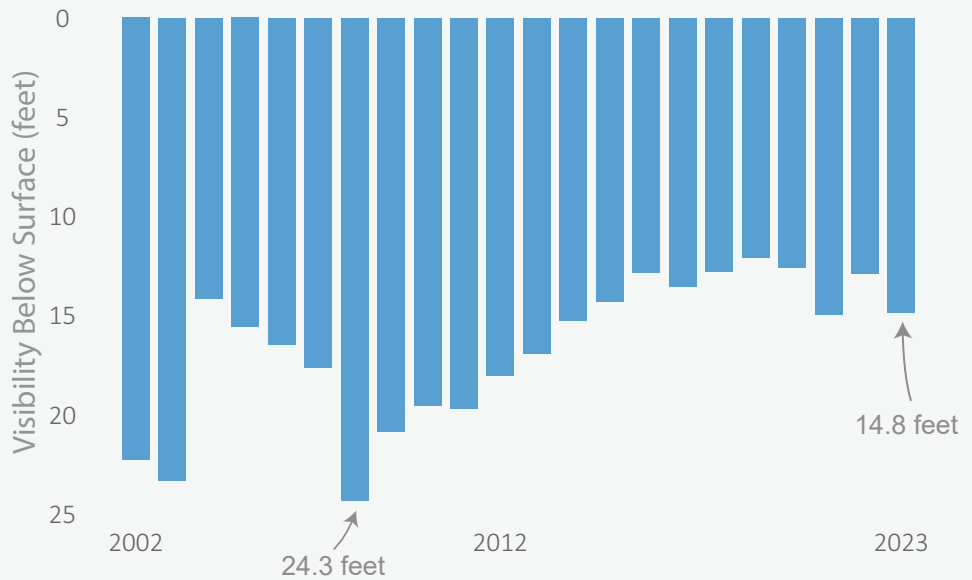
## Water Clarity

At the East Basin deep hole, the average water clarity during the recreational season increased in 2023 compared to the previous year. However, a statistically significant decreasing trend in water clarity has been observed since 2008.

Secchi depth measurements are supported by local volunteers.

## Secchi Depth

**14.8** feet



Average secchi depth from June through September across the lake (East Basin).

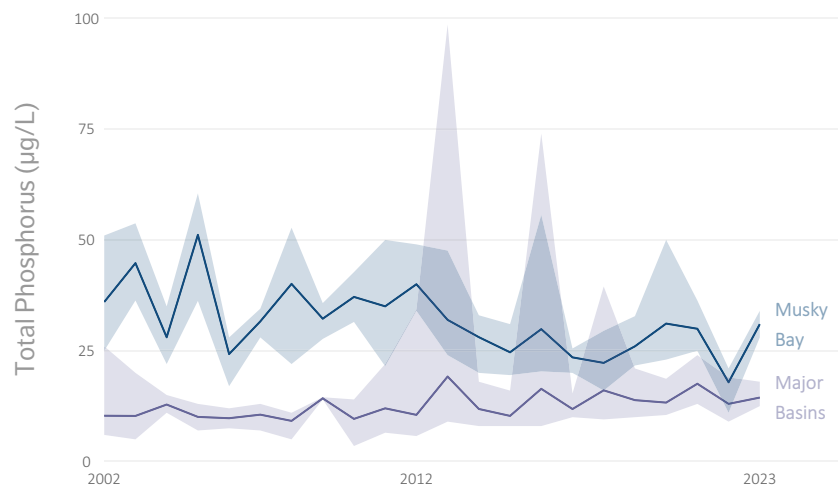
## Phosphorus Trends

Phosphorus concentrations in Lac Courte Oreilles **vary through the year**.

The plot to the right shows the range of concentrations measured over time. The shaded area represents the **minimum and maximum monthly averages measured at any sampling location** for a given year.

Phosphorus concentrations in the Major Basins were in the typical range. Phosphorus concentrations in Musky Bay **increased from 2022 levels** but were in the typical range.

Trends were evaluated for phosphorus data from 2002-2023. Using the recreational seasonal average concentration, a statistically significant increase in concentration was found within the Major Basins, and a statistically significant decrease in concentration was found within Musky Bay.



Solid line represents area-weighted average of monthly means.  
Shaded area represents range of monthly means.

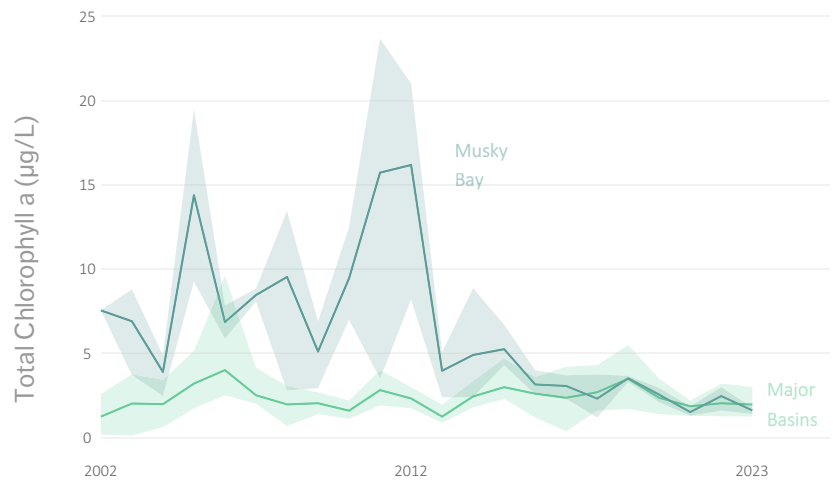
## Chlorophyll a Trends

Chlorophyll a concentrations in Lac Courte Oreilles vary throughout the year with **distinct maximums**, particularly in Musky Bay, due to algal blooms.

The plot to the right shows the range of concentrations measured over time. Here, the **shaded range depicts the minimum and maximum observed values** to highlight peak algal production in a given year.

Chlorophyll a concentrations in 2023 within the Major Basins **were consistent with previous years**, and Musky Bay concentrations were consistent with the last five years. Low maximum concentrations were observed.

Trends were evaluated for chlorophyll a data from 2002-2023. No significant trend was identified within the Major Basins. A significant decrease in chlorophyll a concentrations was identified within Musky Bay.



Solid line represents area-weighted average of monthly means.  
Shaded area represents range of monthly means.

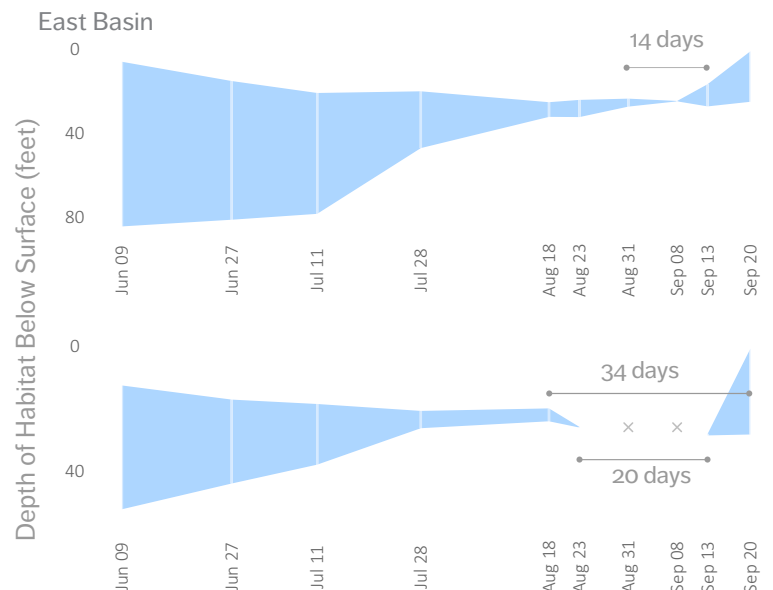
## Fish Habitat

**Cisco and whitefish depend on dissolved oxygen and cool water to survive.** In recent years, fish kills have been caused by extended periods of poor oxythermal habitat. Wisconsin standards to protect these species define suitable habitat as a minimum dissolved oxygen concentration of 6 mg/L and a maximum water temperature of 66 degrees F for at least one vertical meter throughout the summer.

The **East Basin** is the deepest basin and generally has more suitable habitat. However, **suitable habitat was absent for a span of 0 to 14 days** from late August to mid-September.

The **West Basin** is shallower than the East Basin and usually has less suitable habitat. **Suitable habitat was absent for a span of 20 to 34 days** from mid-August to mid-September.

While not shown here, the **Central Basin** had 25-55 days with no suitable habitat from late July to mid-September.



Location of suitable habitat. Blue = suitable habitat. x = no suitable habitat