Lake Stewards Report – Aug 2022

Paudash Lake Testing

Since 1997 – Secchi Disk (Water Clarity). Remains roughly the same.

Since 2004 – Phosphorus (Weeds, Algae blooms). Slowly increasing from Septic's, phosphates in detergent, fertilizers, elimination of shoreline natural buffer zone etc.

Since 2008 – Calcium (needed for living organisms). Slowly decreasing. Add Wood Ash from clean burn fires a possible solution.

Since 2012 – Yearly Dissolved Oxygen (Ministry data from 2001). Remains roughly the same

Since 2016 – Chloride (detrimental for lake ecosystem). Increasing from road salt.

PLCA is part of Lake Partner Program. Everything but DO2 testing is in their database.

Covid stopped LPP testing for 2020 and 2021. Results for the 2022 spring testing have not yet been published.

Starting in 2022 - Haliburton Water Quality Pilot Program

Pilot program (6 lakes) to monitor Haliburton Lakes. One of 6 lakes selected for the pilot.

Each lake to be tested 3x/year. Testing is much more extensive with 14 parameters measured. First set of tests was done last week. Fall test and then winter test. Cost to be covered by lake associations.

Why do we test?

To see data trends and comparisons to other lakes.

Lake Stewards meeting in Spring – area lake saw a spike in Phosphorus. Further testing discovered a lakeside greenhouse with fertilizer release problems as well as a full time rental cottage with a failed septic. The continuous monitoring of the lake found the issues well before weeds, algae blooms etc. would occur.

Future Health of the Lake

We will see increasing stress from climate change and the loss of shoreline buffer zone, septic's etc. We are certain to see Algae blooms on Paudash. Even lakes that are not stressed from development are at risk. Scientist recently found a northern lake with an algae bloom that was unexplainable. Discovered that the weather pattern changes had produced lower winds on the lake and allowed surface temperatures to increase, resulting in an algae bloom.

What can you do?

Increase or maintain your shoreline buffer zone

Maintain your septic

Buy products with no Phosphates

Sprinkle Wood Ash from clean burn fireplace in forest around cottage.

Pilot Water Quality Monitoring Program

Final Testing and Sampling Plan - Collection Method

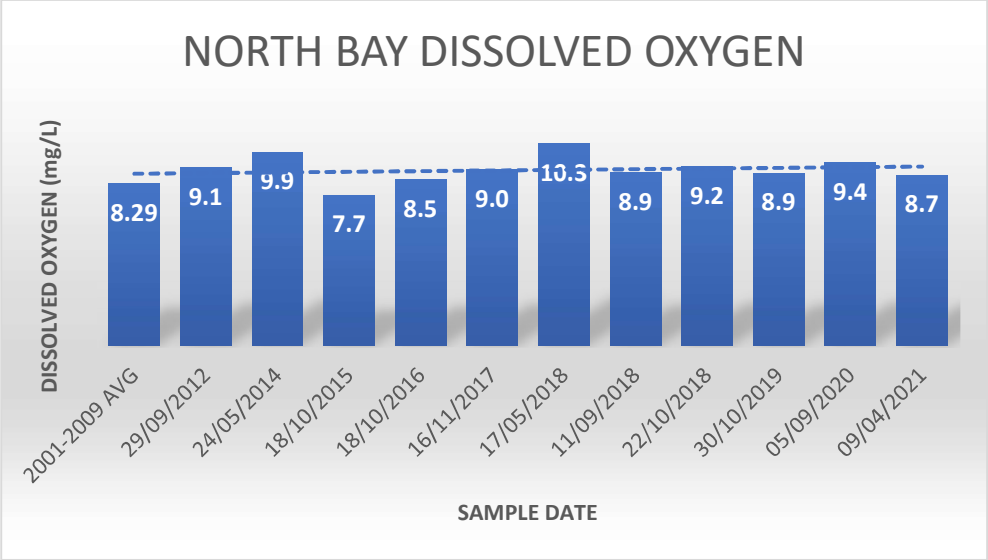
PARAMETER MEASURED	Haliburton WQ Pilot	Test Method
FREQUENCY	3 Times/year	
Secchi Depth (m) (Clarity)	YES	Manual test - sampling day
Total Phosphorus	YES	Water sample collection, commercial lab analysis
Ammonia	YES	Water sample collection, commercial lab analysis
Nitrate+ Nitrite -Nitrogen	YES	Water sample collection, commercial lab analysis
Nitrate	YES	Water sample collection, commercial lab analysis
Nitrate	YES	Water sample collection, commercial lab analysis
Total Kjeldahl Nitrogen	YES	Water sample collection, commercial lab analysis
Sulphate	YES	Water sample collection, commercial lab analysis
pH	YES	pH/Conductivity meter - Provided by U-Links or LA owned
Total Alkalinity	YES	Test Strips - sampling day
Conductivity (uS/cm)	YES	pH/Conductivity meter - Provided by U-Links or LA owned
Hardness	YES	Test Strips - sampling day
Dissolved Oxygen	YES	DO/Temp meter - U-Links/DESC provided or LA Owned
Temperature	YES	DO/Temp meter - U-Links/DESC provided or LA Owned

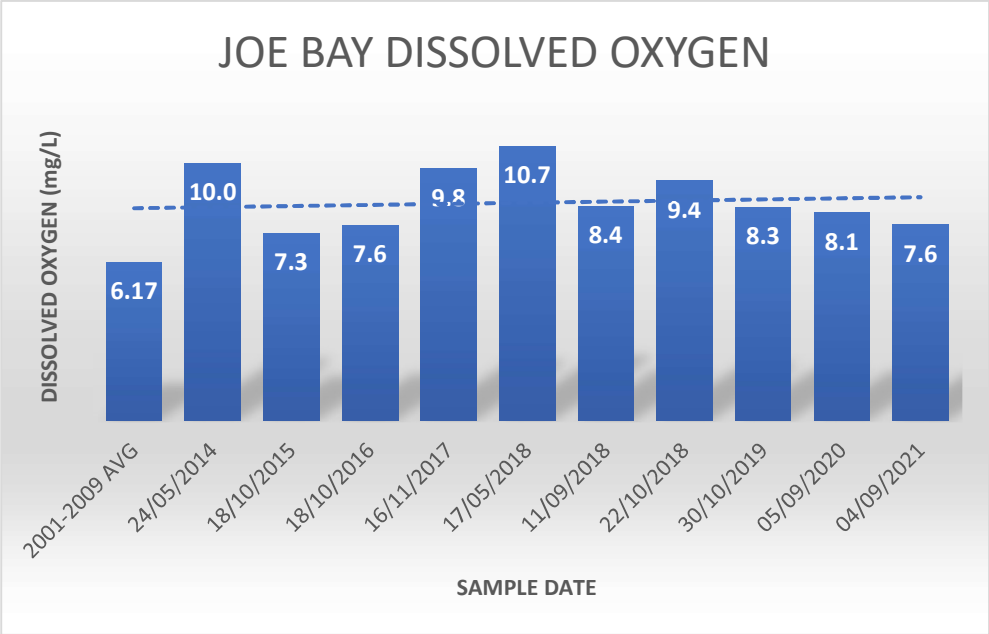
PAUDASH LAKE WATER TESTING – APRIL 2022

Paudash Lake Conservation has been testing Paudash Lake in various forms since 1997. The following are the tests that we perform and an interpretation of the results.

Dissolved Oxygen Testing

Dissolved oxygen is the amount of oxygen that is present in the lake. It is essential to the survival of aquatic life and provides an indicator of our lake health. Prior to 2012 we relied on Ministry testing of the lake which was typically every 5-8 years. In 2012, PLCA purchased our own meter which enabled us to perform yearly fall testing. Although we have test data for all bays (North, Joe, Inlet and Lower), only North and Joe Bay have lake trout classification with the associated data to make the calculation. Normally we test in the early fall, but we have also test data from late fall and the spring. To properly include this data, we have considered all DO2 readings and not just the ones from the Hypolimnion layer. A target of 7mg/L or greater is considered optimum for Lake Trout survival.

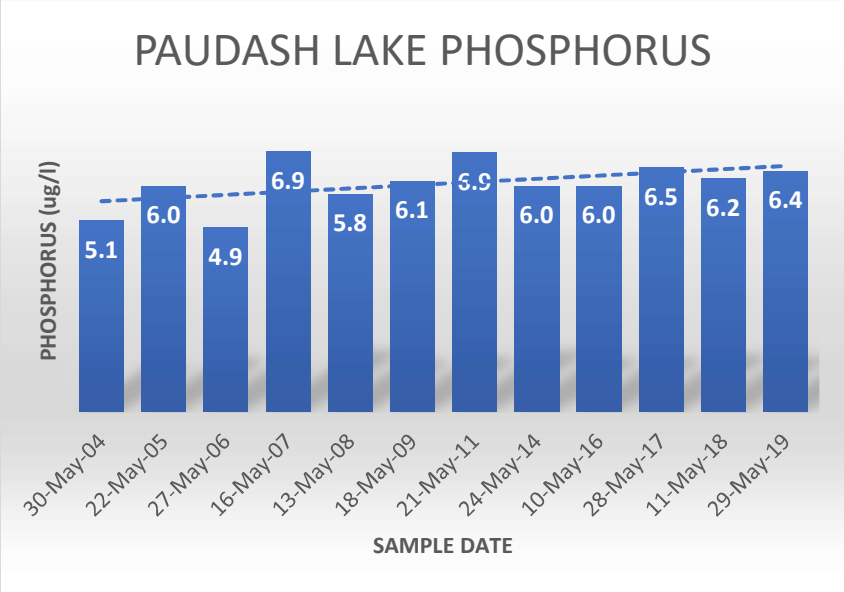




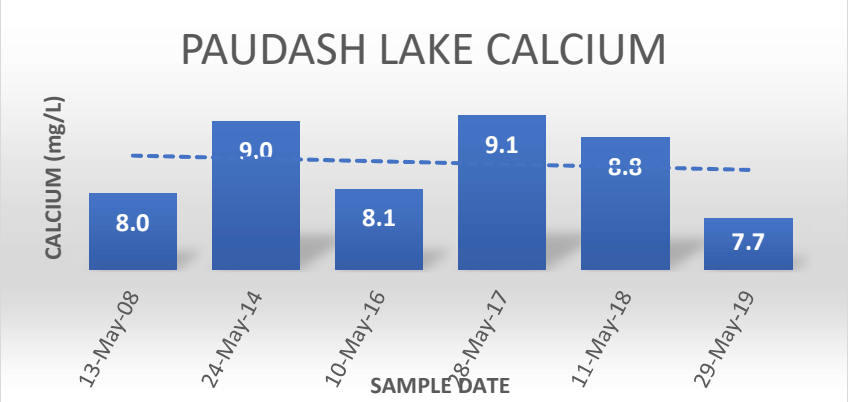
Water Chemistry Testing

Paudash lake is affected by a variety of nutrients that can impact water quality, fish diversity, and algal blooms. In conjunction with the Lake Partner program (foca.on.ca/lake-partner-program-overview) we monitor and analyzes four parameters: phosphorus, calcium, chloride and water clarity.

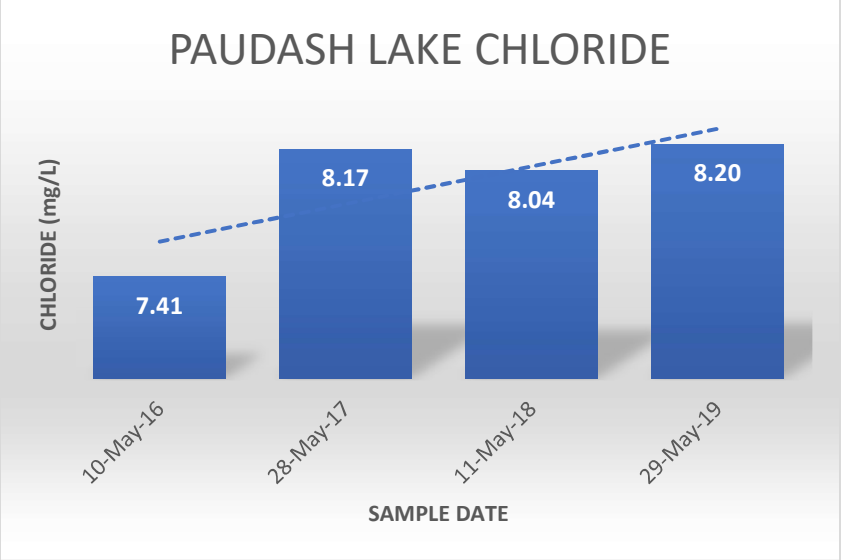
Phosphorus: TP concentrations are used to interpret lake nutrient status since phosphorus is the element that controls the growth of algae in most Ontario lakes. Human impacts, such as septic systems, wastewater treatment plants, fertilizers and laundry detergents can affect phosphorus levels in our Lake. Increases in phosphorus may decrease water clarity by stimulating algal growth. In extreme cases, algal blooms will affect the aesthetics of the lake and/or cause taste and odour problems in the water. Provincial Water Quality Object is 10 µg/L TP or lower.



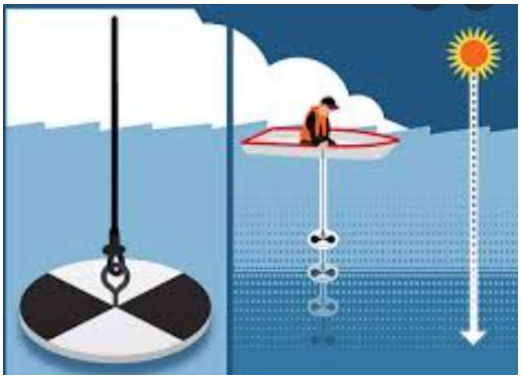
Calcium: Calcium is a nutrient that is required by all living organisms. Some area lakes are showing substantial decreases in calcium concentrations as a result of climate change, forest harvesting, and the residual effects from acid rain. A Provincial Water Quality Object has not been established but readings above 2.0 mg/l are considered acceptable.

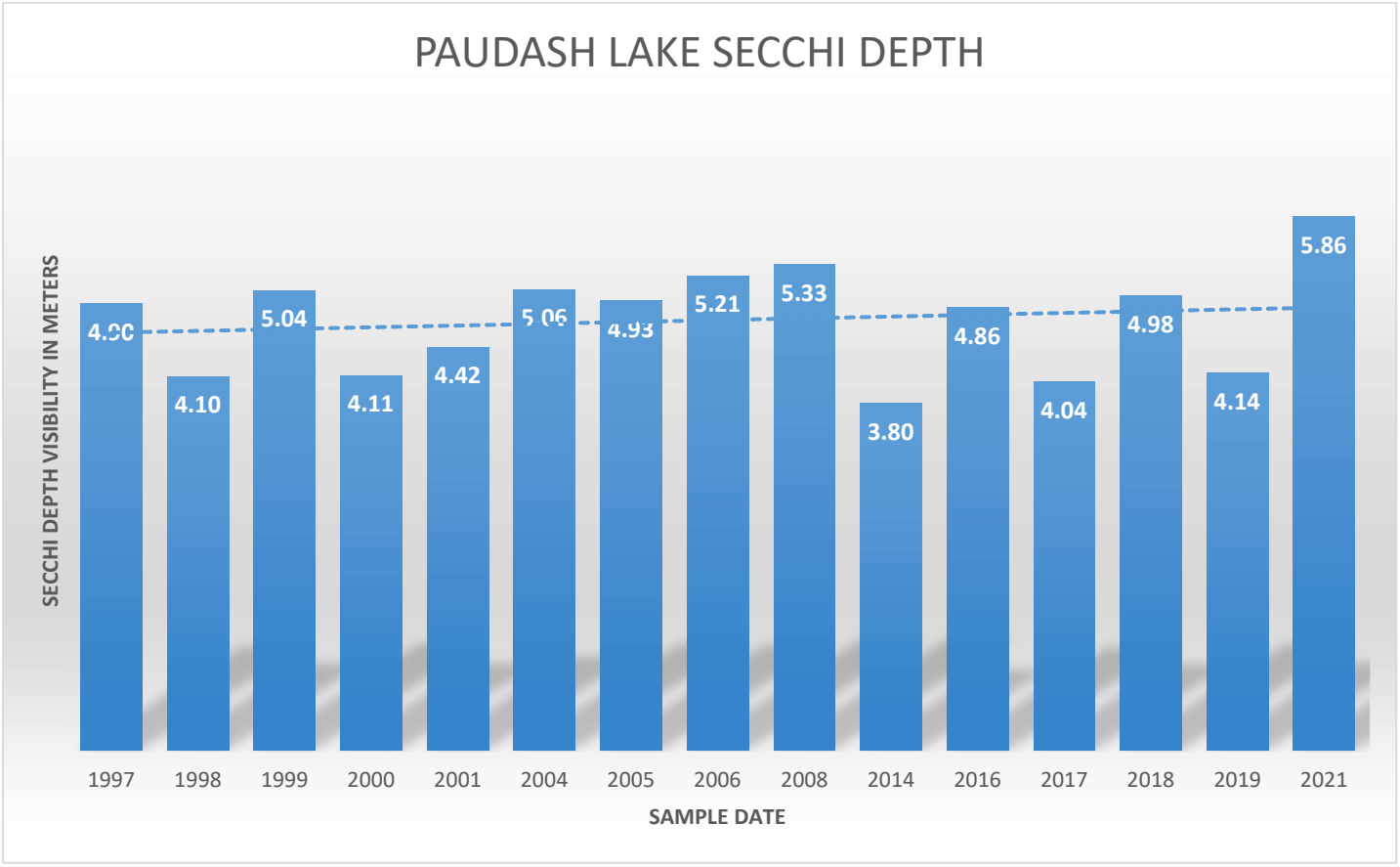


Chloride: Chloride is an essential nutrient found in both fresh and salt water. However, elevated levels of chloride can have detrimental effects on lake ecosystems, as most organisms can only tolerate so much in a water body. With the widespread use of road salt across Ontario, studying the levels of chloride in Ontario's lakes is imperative. Although the Canadian Water Quality Guideline sets the upper limit at 120mg/L, our trend as well as a comparison to nearby lakes (Baptiste 1.91, L'Amable 5.69) necessitates continued monitoring of Chloride levels and trends.



Water Clarity: Water transparency, or water clarity, is measured with a Secchi disk. It is an 8-inch (20 cm) disk with alternating black and white quadrants. It is lowered into the water of the lake until it can no longer be seen by the observer. This depth of disappearance, called the Secchi depth, is a measure of the transparency of the water. In general, higher clarity is associated with cleaner, healthier water. A Provincial Water Quality Object has not been established so repeated testing is especially useful in identifying trends in lake health.





Summary:

At the present time we see no concerning water quality issues in Paudash Lake. We will continue to monitor and publish testing results. We encourage you to visit the Federation of Ontario Cottagers Association (foca.on.ca) website as there is a wealth of information on interpretation of these results and data on other area Ontario lakes. Note that water Chemistry testing will be performed in May and results will be available in early summer.