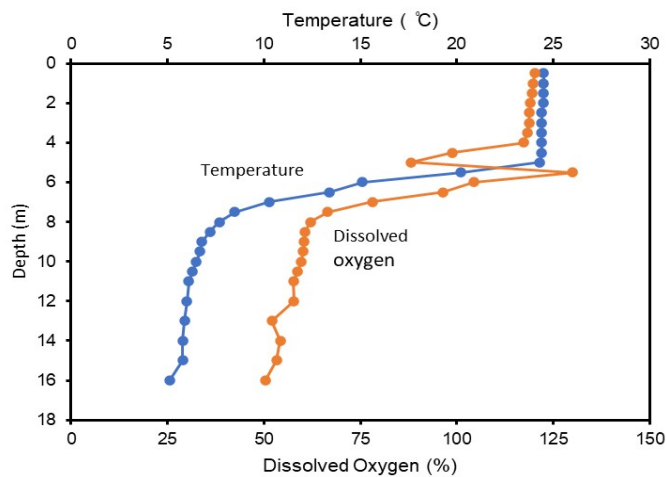


Crystal Lake

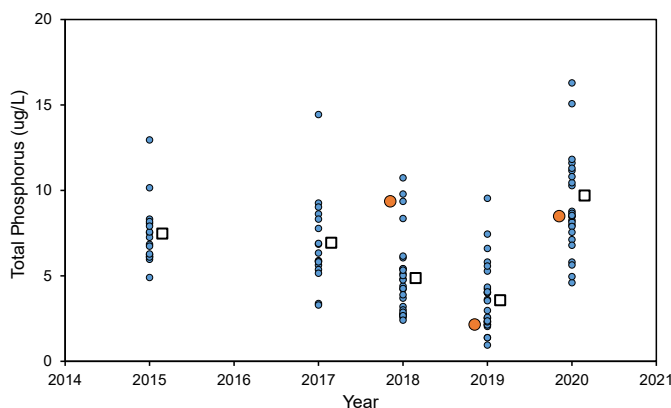
Water Quality Report 2015-2020

This report provides a summary of key water quality parameters for Crystal Lake measured as part of the long-term research program on the Kawartha region by the Trent Aquatic Research Program (TARP). One aim of this research is to track the health of the region's lakes as a means to identify problems early and to better understand longer term dynamics. So far, lake data has been collected over six years from fifty-two lakes. Due to logistics and financial constraints, not all lakes are sampled for all variables each year but this remains a goal as the program continues to develop. This lake-specific report uses the collected data to provide you information on Crystal Lake including water clarity, temperature, dissolved oxygen, phosphorus, calcium, and chlorophyll. For more background on these parameters and their meaning, please refer to our short review of water quality basics and limnology (email paulfrost@trentu.ca for a free copy).

To learn more about the Trent Aquatic Research Program and how you can support this work, please visit: <https://mycommunity.trentu.ca/tarp>



Temperature and Oxygen: Temperature always shows a typical pattern in Crystal Lake. On the day of sampling in 2019, temperature was very warm (about 27°C) at the surface and 5°C at the lake's bottom. Dissolved oxygen was high in surface waters (~118% saturated) of Crystal Lake and lower in the bottom waters (~50% saturated). The supersaturation (>100%) seen in surface waters likely reflects oxygen being released from algae into the water column faster than it can escape to the atmosphere or recent changes in water temperature.

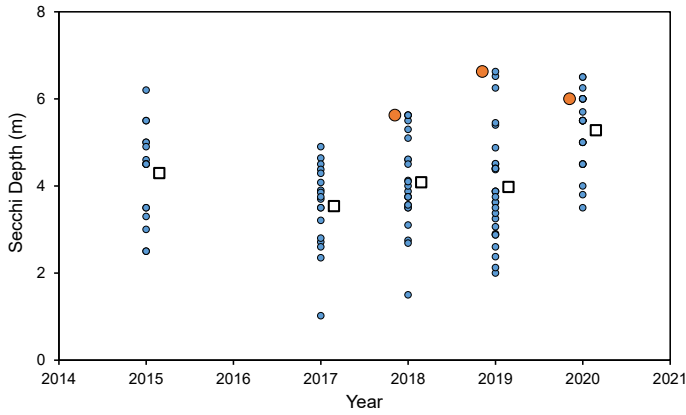


Total Phosphorus: Concentrations of total phosphorus in Crystal Lake have varied over the past three years. In two of the three years (2018 and 2020), Crystal was found to have higher total phosphorus concentrations (~10 µg/L). In 2019, we found a very low total P concentration in Crystal Lake. In two of the three years, P concentrations were below the regional average. Total phosphorus in Crystal Lake appears to be somewhat more variable than normal but in the low category that is associated with good water quality. Sampling more years is advisable given the higher values seen in two of the three past years to determine if this is part of a longer term pattern of higher P concentrations.

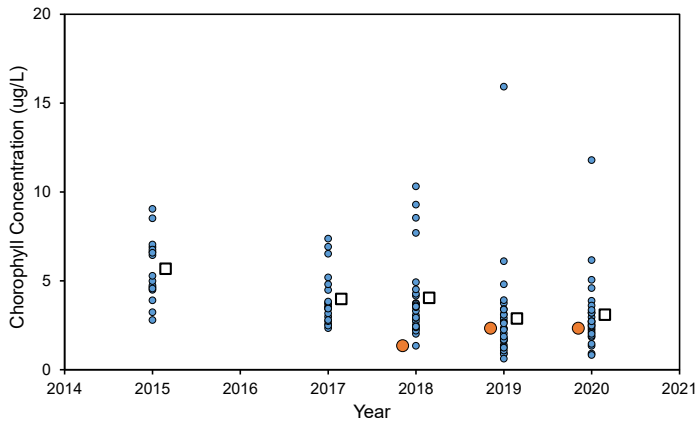
In this graph and the ones to follow, orange dots represent measurements for Crystal Lake, blue dots denote data from other sampled lakes, and open squares mark the average of the sampled



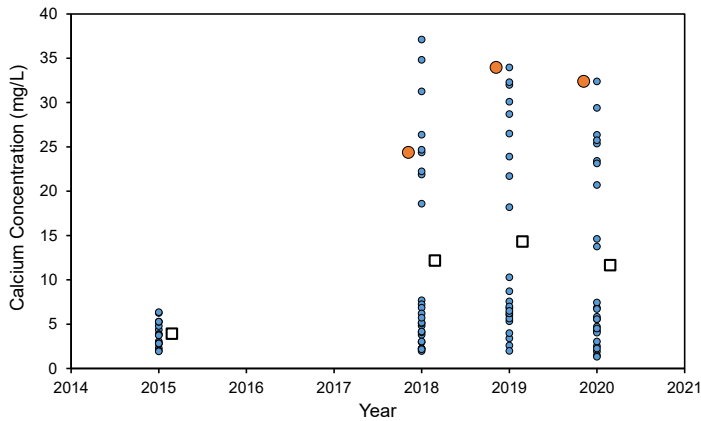
This report was produced by the Trent Aquatic Research Program, Trent University, Peterborough, Ontario. Please direct all questions and inquiries about this report to Dr. Paul Frost.
Email: paulfrost@trentu.ca



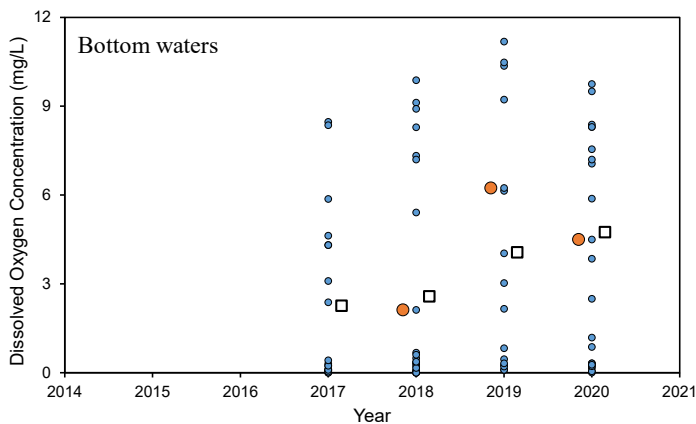
Water Clarity: Secchi depths in Crystal Lake are all very high, which indicates very transparent water and especially high water quality. In two of the three years, Crystal was the most transparent of Kawartha region lakes. These values indicate Crystal does not currently have any clarity or algal biomass problems.



Chlorophyll: The concentration of chlorophyll in Crystal Lake is very low relative to lakes in our study and in general. These very low values are associated with very good water quality and especially clear lakes. The risk of algal blooms appears to be very low.



Calcium: Concentrations of calcium in Crystal Lake (~30 mg/L) are very high relative to other Kawartha region lakes. This is associated with hard water and is more typically found in lakes to the south of the Kawartha Highlands. These values place Crystal Lake at a very low risk of problems associated with calcium decline but may place the lake at greater risk of invasion by hard-water loving non-native species.



Dissolved oxygen: The concentrations of dissolved oxygen in water one meter off the bottom of Crystal Lake are average and not especially low. These dissolved oxygen concentrations are not of current concern but are worth monitoring given the possibility that they could decline to more problematic concentrations (<1-2 mg/L).