

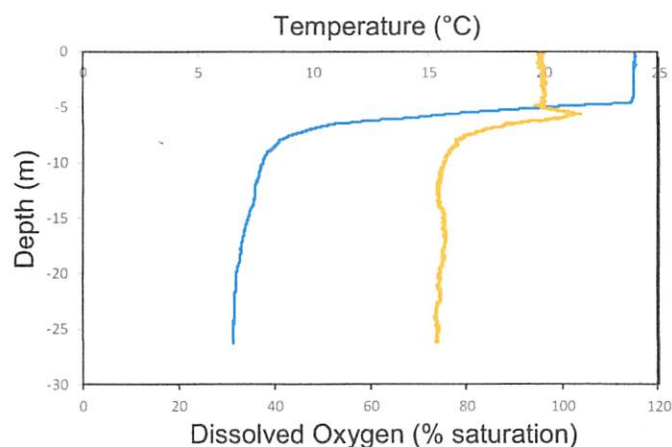
# Anstruther Lake

Trent Aquatic  
Research Program

## Water Quality Report 2015-2020

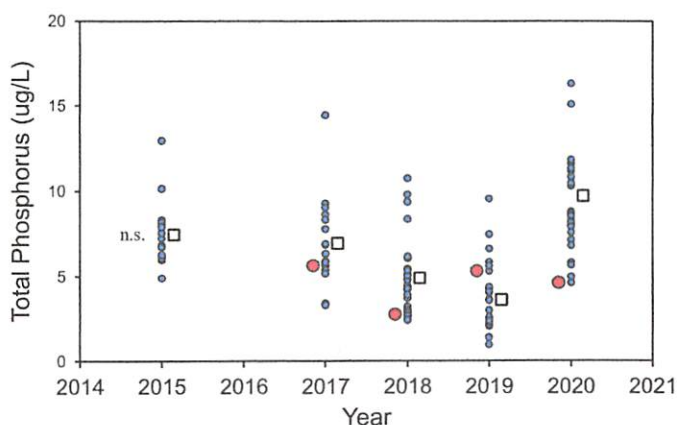
This report provides a summary of key water quality parameters for Anstruther Lake measured as part of the long-term research program on the Kawartha region by the Trent Aquatic Research Program (TARP). One aim of this research is to track the health of the region's lakes as a means to identify problems early and to better understand longer term dynamics. So far, lake data has been collected over five years from a total of 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 Anstruther Lake including water clarity, temperature, dissolved oxygen, phosphorus, calcium, and chlorophyll. For more background on these parameters and their meaning, please refer to our Limnology 101 primer that has been attached.

To learn more about our research program, TARP, and how you can help support this work, please visit: <https://mycommunity.trentu.ca/2015-giving/trent-aquatic-research-program>



**Temperature and Oxygen:** Temperature and dissolved oxygen (DO) show a very typical pattern in Anstruther Lake. In 2020, we used a high resolution profile to measure temperature and DO. As in previous years, temperature was about 25°C at the surface and 6-7°C at the lake's bottom. While dissolved oxygen was also higher in surface waters than bottom waters, the bottom waters of Anstruther still contained a high concentration (>75%) of dissolved oxygen. The supersaturation (>100%) at about 6 m is likely due to photosynthesis from a relatively thin layer of phytoplankton.

•Patterns of temperature and dissolved oxygen continue to be average and well within the normal in Anstruther Lake.



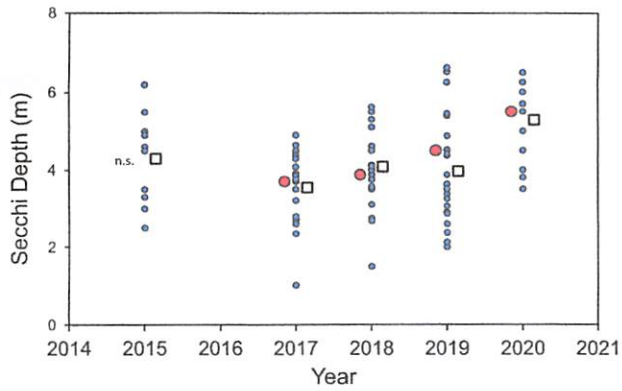
**Total Phosphorus:** Concentrations of total phosphorus in Anstruther Lake are well within range of sampled Kawartha region lakes. In three of the four years (2017, 2018 and 2020), Anstruther was below the regional average. In 2019, Anstruther was found to have a slightly higher phosphorus concentration than most other Kawartha lakes and the regional average. The observed value (~6 µg/L) is still considered low and the difference with other lakes (~2-3 µg/L) is relatively small.

•Total phosphorus concentrations in Anstruther Lake are well within the normal range and generally lower than other Kawartha Highlands lakes.

In this graph and the ones to follow, orange dots represent measurements for Anstruther Lake, blue dots denote data from other sampled lakes, and open squares mark the average of the sampled lakes. n.s. means not sampled.

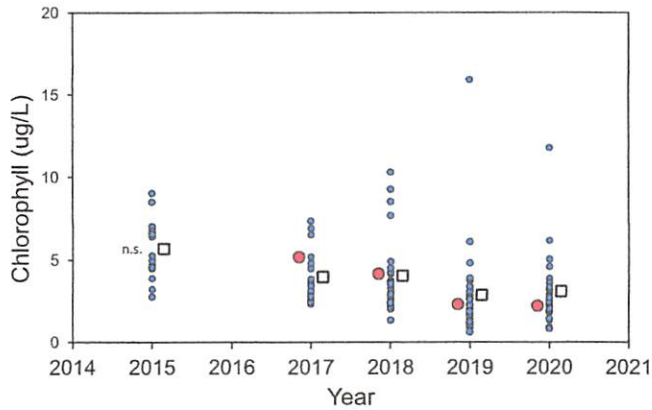


This report was produced by the Trent Aquatic Research Program, Trent University, Peterborough, Ontario. Please direct all questions and inquiries about this report to Dr. Paul Frost.  
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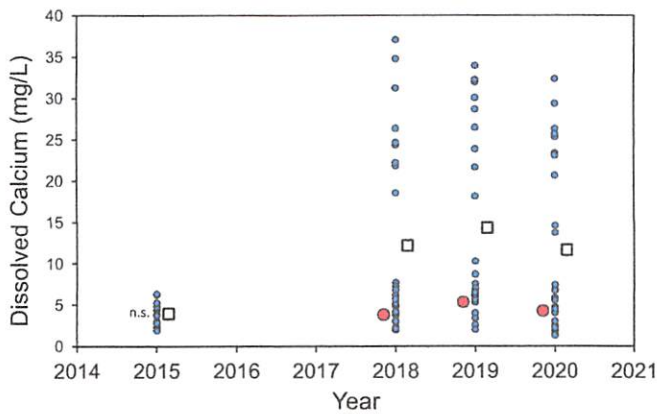
**Water Clarity:** The Secchi depths in Anstruther Lake have been well within the normal range of sampled Kawartha region lakes. Anstruther tends to be right about at the regional average. Interestingly, the Secchi depths in Kawartha Highland lakes was slightly deeper (~5.5 m) in 2020 than in previous years (~4.0 m) indicating more clarity this past year.

- Secchi depths in Anstruther Lake have been and continue to be within a normal range.



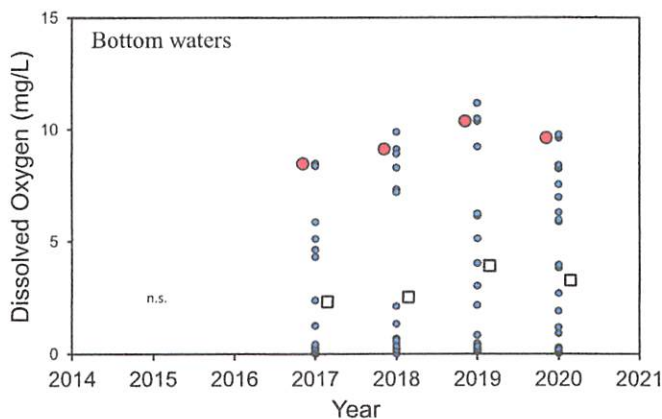
**Chlorophyll:** The concentration of chlorophyll in Anstruther Lake was within range of sampled Kawartha region lakes. Although there is a decreasing trend emerging over time, it remains near the regional average in the past four years (2017-20).

- Chlorophyll concentrations in Anstruther Lake may have slightly decreased over time, but nonetheless remain within the normal range for lakes in the region.



**Calcium:** Concentrations of calcium in Anstruther Lake (~3.8-5.3 mg/L) were within the range seen for the sampled Kawartha region lakes. These concentrations tend to be lower than many lakes in the region but remain above potentially critical concentrations (<2.0 mg/L) of concern. The wide range in Ca in 2018-2020 reflects the inclusion of lakes having some limestone pockets in their catchments.

- While calcium concentrations in Anstruther Lake were near the low end of the normal range of values, but at this point do not merit any concern.



**Dissolved oxygen:** The concentrations of dissolved oxygen at the bottom of Anstruther Lake are typical for some Kawartha region lakes and generally above the region average. We found similar values in each year (2017-2020). Dissolved oxygen at the top of the lake is not shown here, but it was always near saturation (100%) or above.

- The bottom of Anstruther Lake has above average concentrations of dissolved oxygen and is not currently experiencing low oxygen concentrations seen in some area lakes.