LWCA Water quality report Summer 2022 AGM

TO: LWCA Board

FROM: Claire Vandervoort

SUBJECT: WATER QUALITY BOARD REPORT

DATE: 24 July 2022

DO/Temperature sampling

Sampling has been completed for June and is scheduled to be completed for July 30th weekend, so Lisa Thompson can join in a sampling event while she is visiting the lake. Sampling will continue throughout the summer and into fall, with a chemistry sampling event taking place sometime in August, results for the chemistry sampling will take a bit longer to come back but will be shared to residents when they arrive.

Coordinates for each sampling location have been recorded which I intend to map this fall. A visual of sampling locations will allow for a greater scope and understanding of the water quality program within the LWCA and for lake residents. A more in depth field sheet has been developed for field sampling which will allow for simple archival of future field results (ie; scanned and entered in excel), as well as adding further context to the water quality program.

2022 Sampling program

I will be following Ian's routine which involves DO/temp readings approx. monthly and collecting chemistry sampling in mid to late August. This summer will include readings for Secchi depth at each water quality station, which Ian had started last summer, but will be more comprehensive this summer. The updated field sheet will also include water clarity, wave action, air temp, cloud cover, water colour, wind direction/speed, and an area for addition comments (such as species seen (invasive/native), or any other interesting things to note during sampling). I hope these additional areas will provide more context to the sampling program and help to note ongoing changes on the lake.

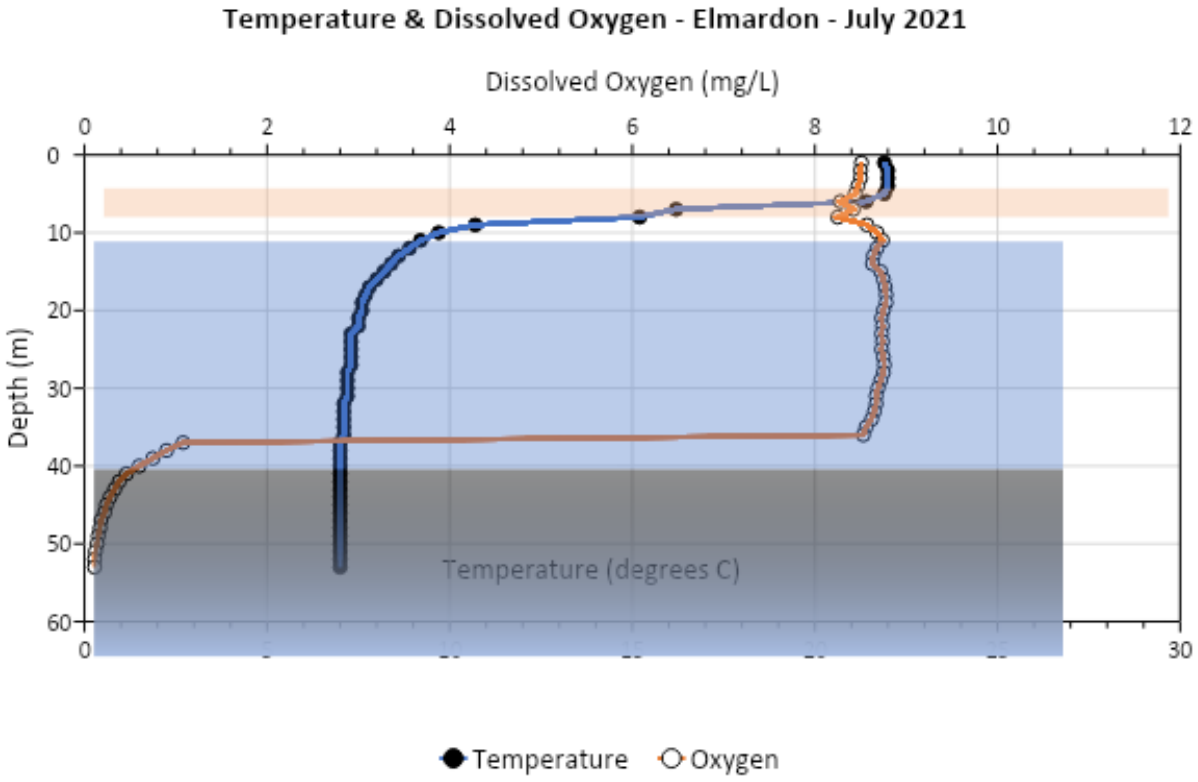
FOCA has been contacted about moving forward with the Lake Partner Program for the Summer of 2023. This process is extremely slow going as I wait for further information on their end. It appears that LWCA was previously part of this program, but the sampling locations are no longer active. I hope to have more information about LWCA's participation in this program for future reports.

2022 Sampling Results thus far

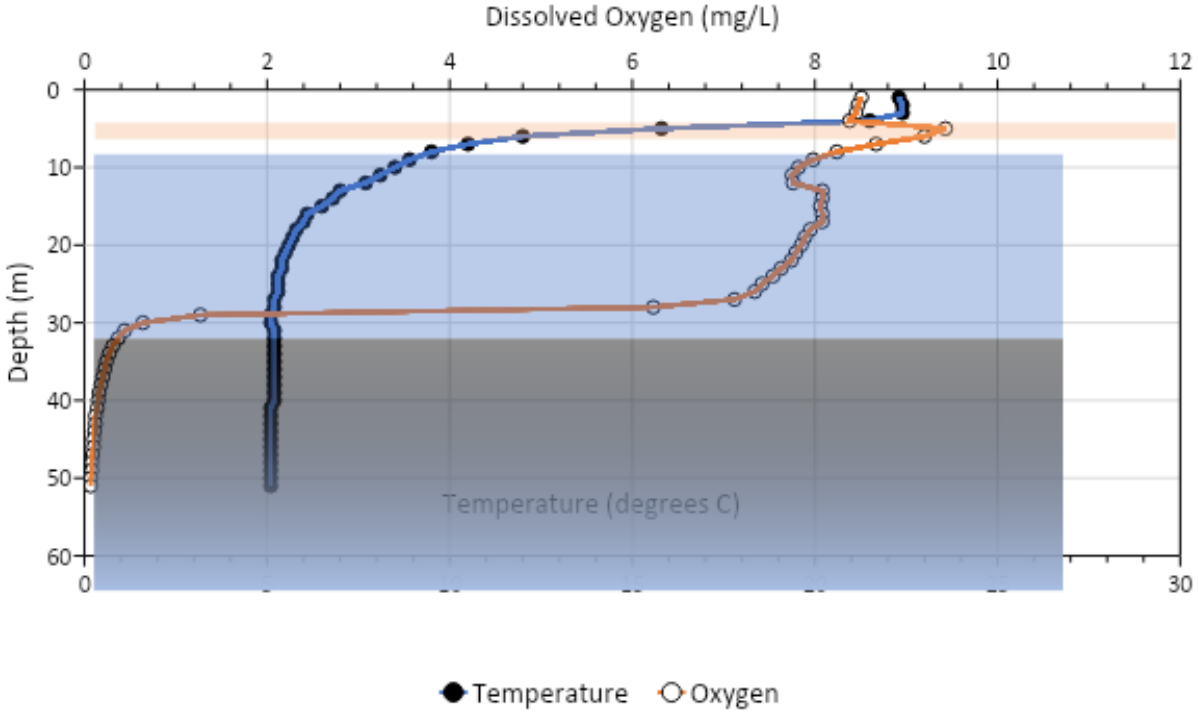
There is little new data to report on for the 2022 summer sampling season, so I will provide July 2021 data as a reminder for residents. The graphs have bands of colour to indicate the suitability of the water temperature for lake trout. Pink indicates the zone from which lake trout would be excluded because of high temperature (=>23 ºC). White indicates water temperature that is tolerable for trout, but higher than preferred (13 – 23 ºC). Fish may make short forays into warmer water to feed, but need to spend most of their time in cooler water. Blue indicates the zone where the water temperature is in the preferred range

for lake trout (<= 13 ºC). Grey shading indicates a water layer from which lake trout would be excluded because of low dissolved oxygen (<= 6 mg/L DO, the bottom of the range set by PWQO). Thus, the plain blue zone has both preferred temperature and dissolved oxygen, and is the “sweet spot” for lake trout.

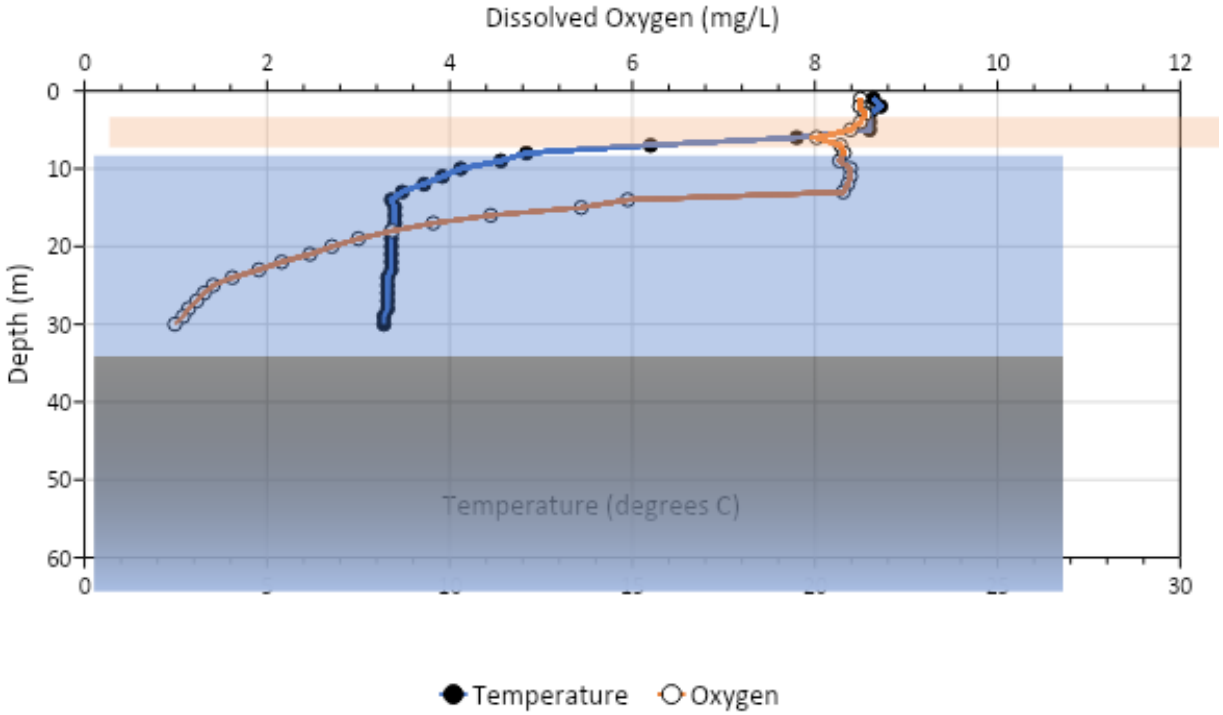
So far for the 2022 season, water quality results are following the same trends as this time last year, this is a good sign! In the fall, graphs similar to these will be updated with the final water quality data as well as August chemistry data for the 2022 season. Any significant changes will be highlighted.

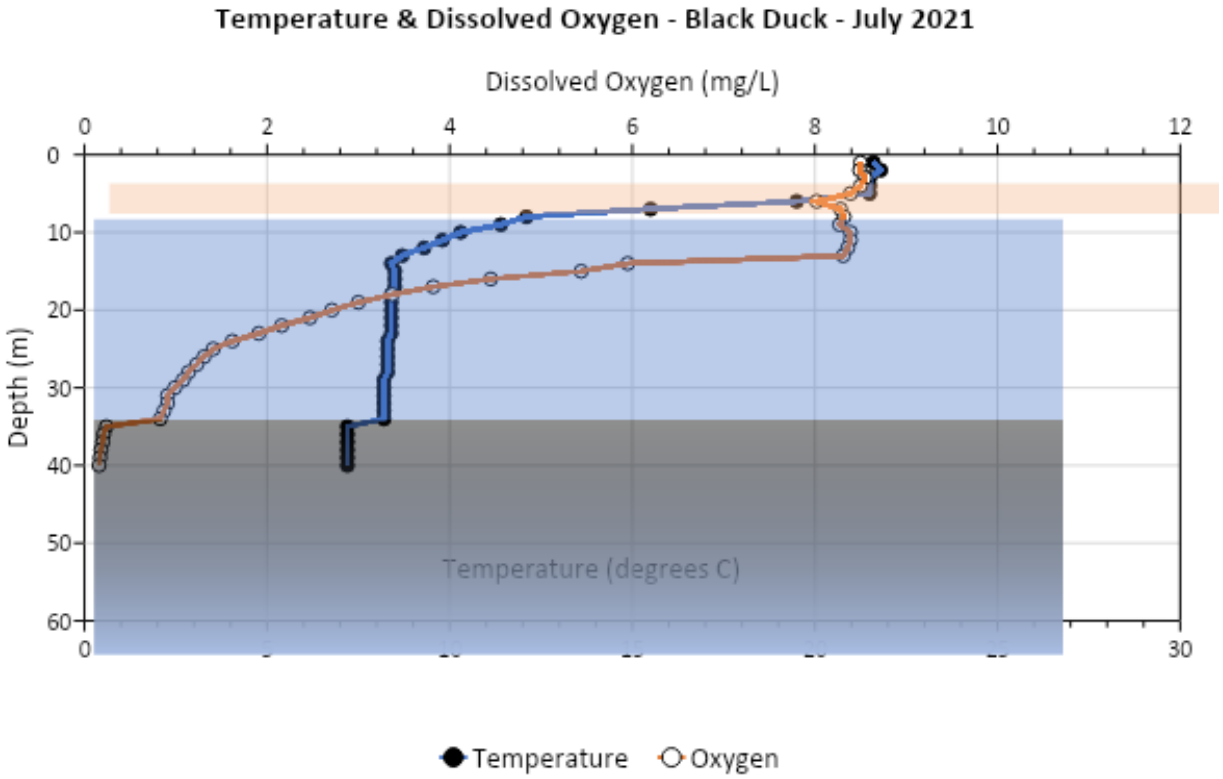


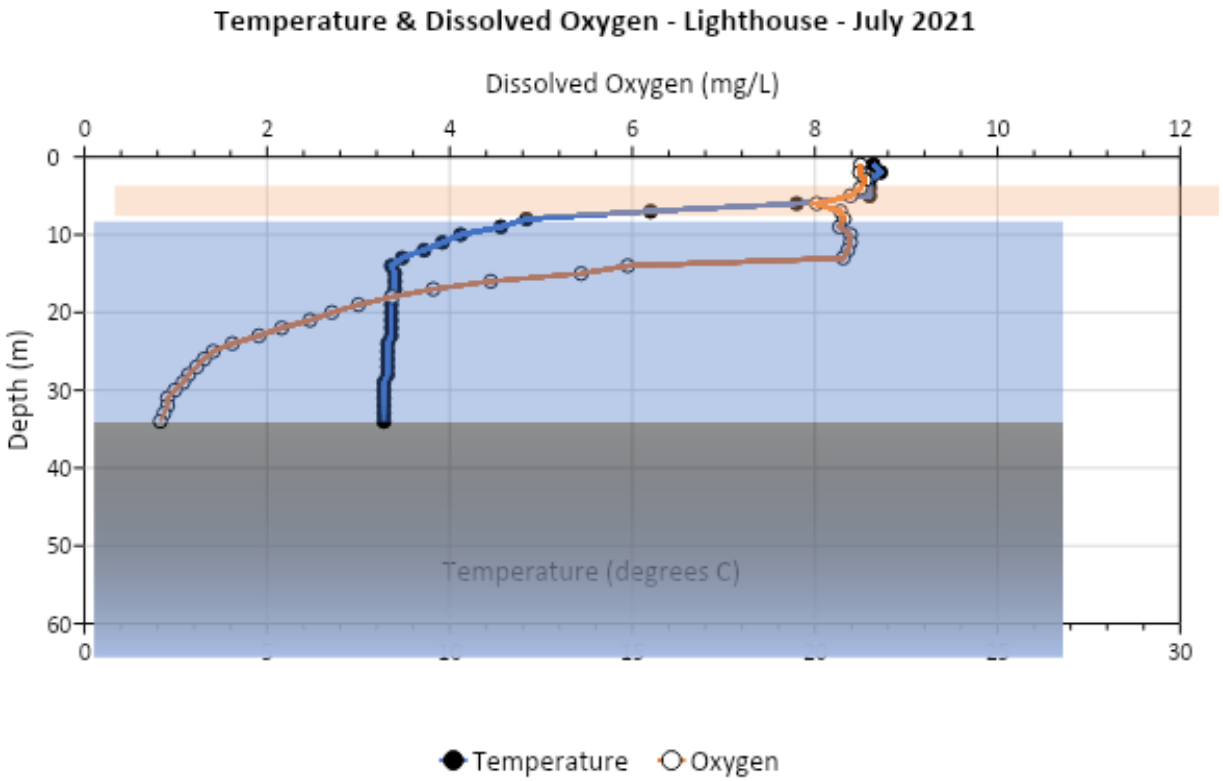
Temperature & Dissolved Oxygen - Otter - July 2021



Temperature & Dissolved Oxygen - Snake Point - July 2021




Temperature & Dissolved Oxygen - Black Duck - July 2021
Dissolved Oxygen (mg/L)
0
2
4
6
8
10
12
Depth (m)
0
10
20
30
40
50
60
Temperature (degrees C)
0
30
Temperature
Oxygen


Temperature & Dissolved Oxygen - Lighthouse - July 2021
Dissolved Oxygen (mg/L)
0
2
4
6
8
10
12
Depth (m)
0
10
20
30
40
50
60
Temperature (degrees C)
0
30
Temperature
Oxygen

Considerations for Cottagers

Here are some things to consider to help protect the water quality of Lake Weslemkoon:

According to FOCA, in recreational lakes that do not have a large point source of phosphorus (e.g., sewage treatment plant), domestic waste from septic systems is the largest human source of phosphorus. The concentrations of phosphorus in septic wastewaters are roughly 200-300 times higher than the concentrations needed to stimulate significant algal growth in lakes! Therefore, as cottage owners, we have a shared responsibility to maintain the health of our lakes by limiting the inputs of phosphorus. Below are some ways that you can help reduce the effects of shoreline development on water quality:

1) Maintain a properly functioning septic system. Have your septic system pumped every 3-5 years to remove the build-up of solids and scum, and take this opportunity to have the system checked for any required maintenance. If you are converting a cottage into a permanent dwelling be sure to check the capacity of your septic system. Exceeding the capacity of your septic could result in the remobilization of phosphorus in the soil.

2) Reduce your water use at the cottage. Excessive water use is the most common cause of septic failure. Cut down on the amount of water entering your septic by installing low flow toilets and showerheads, and taking laundry home to wash.

3) Implement septic inspections. Arrange for an inspector to come inspect your current septic system to ensure it is operating properly.

4) Naturalize your shorelines (e.g., vegetated buffer strips, wetlands) to help control soil erosion and the runoff of nutrients to the lake and nearby rivers and streams. Aim to keep natural areas natural!

5) Limit the amount of impervious surfaces, including roofs, parking areas, and patios, to reduce runoff to nearby waterbodies.

Closing remarks

Wishing you all a very happy and fun remainder of the summer season. I will have more data to share as the season goes on! Please feel free to reach out if you have any additional questions.

Cheers,

Claire Vandervoort