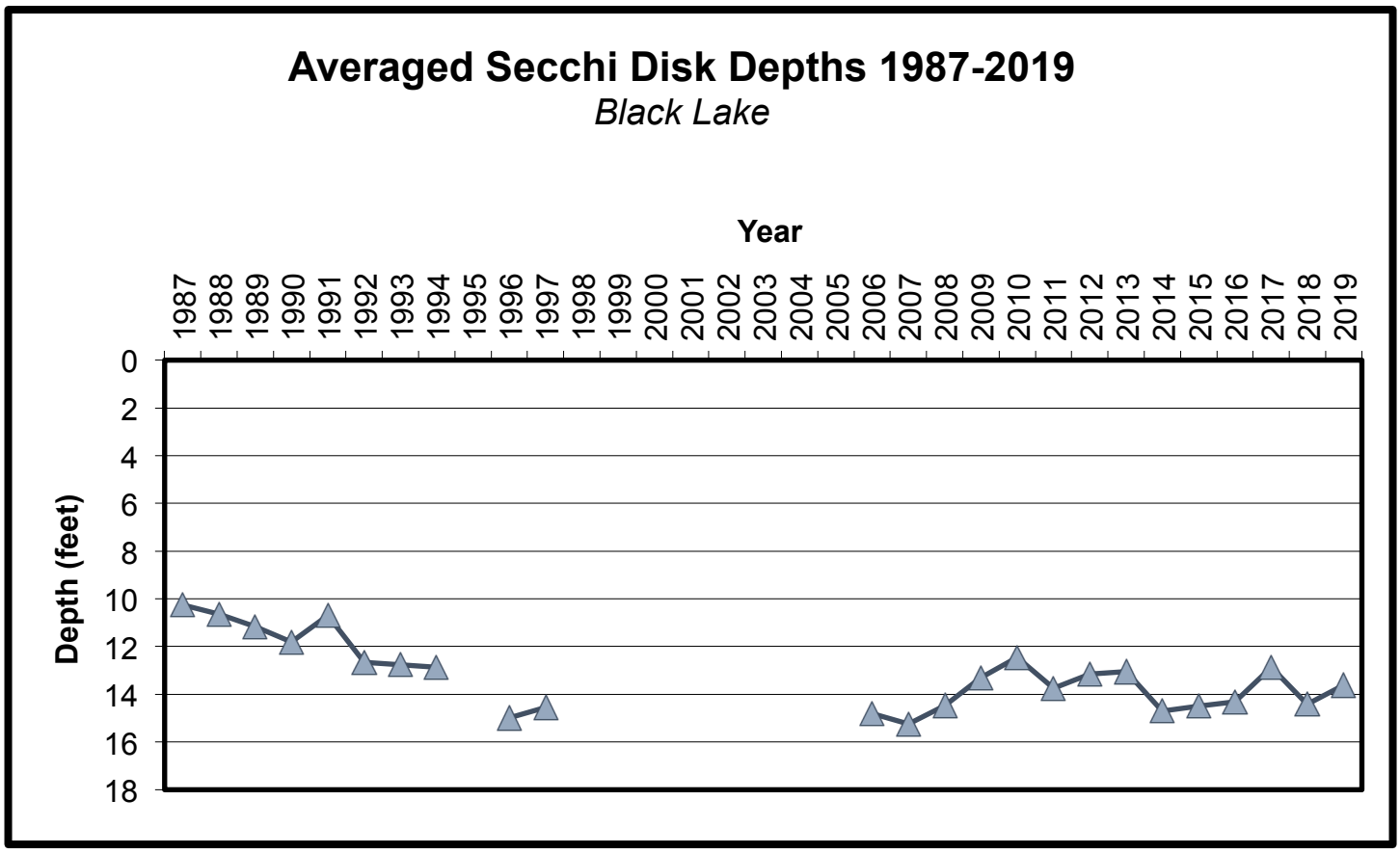
Black Lake Water Quality

For the thirtieth year, a volunteer lake monitor has collected key water quality indicators on Black Lake. Bob Williams has been volunteering on Black Lake since 2006. This past year, 2019, was special because Tip of the Mitt Watershed Council collected extra parameters in our regular three-year rotation. This important collection of data allows us to not only understand the lake's current conditions, but to also identify any deviations from long-term trends.

Here is a brief recap of what Williams and the Watershed Council collected in 2019.

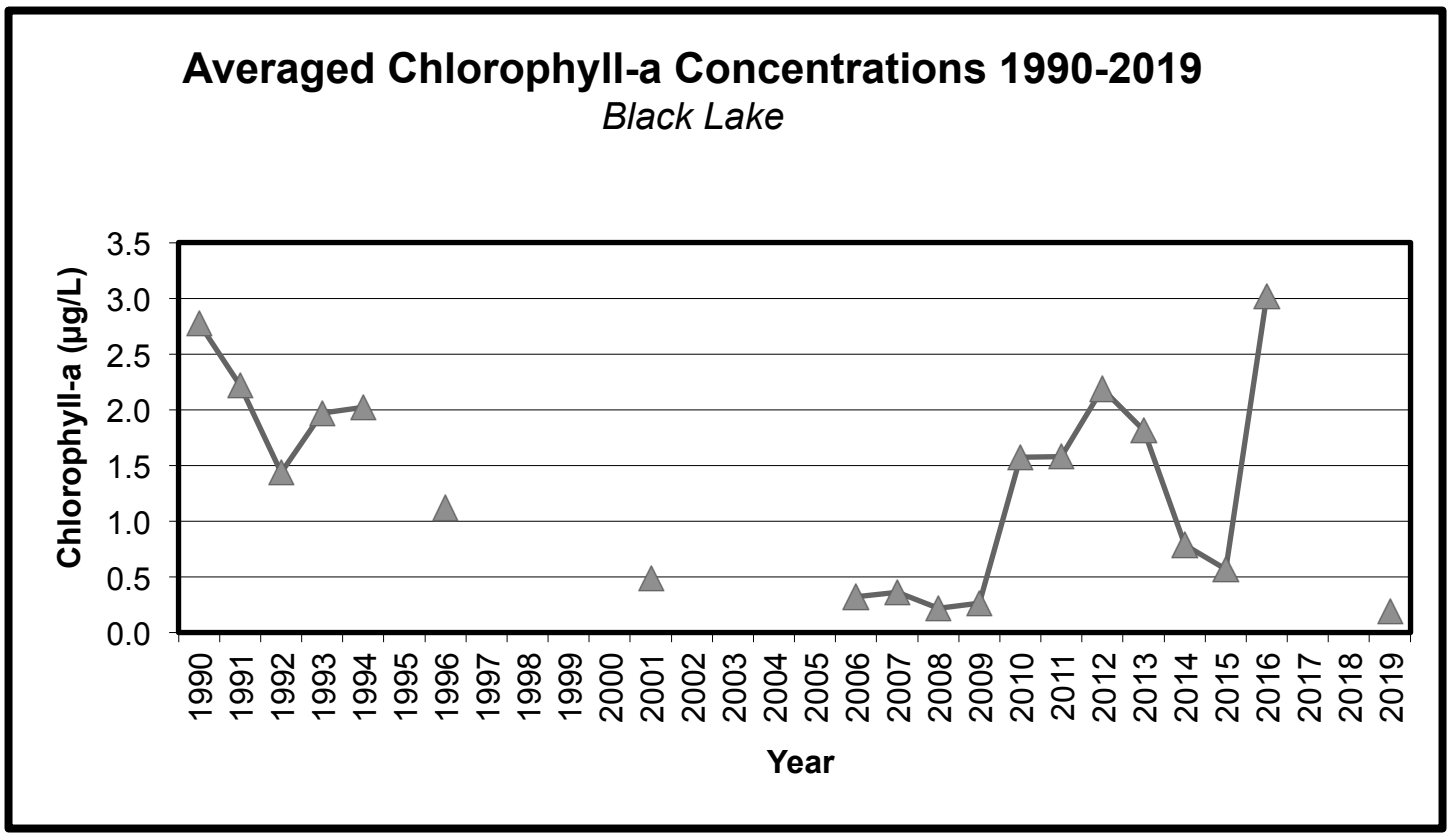
Secchi Disk

The Secchi disk is a weighted black and white disk used to measure water clarity by lowering it into the water and recording the depth at which it is no longer visible. The average Secchi disk reading in 2019 was 13.62 feet. Overtime, Black Lake Secchi disk readings are trending slightly deeper, meaning there are decreasing levels of nutrients and sediments in the water. This is often a sign of high quality water.



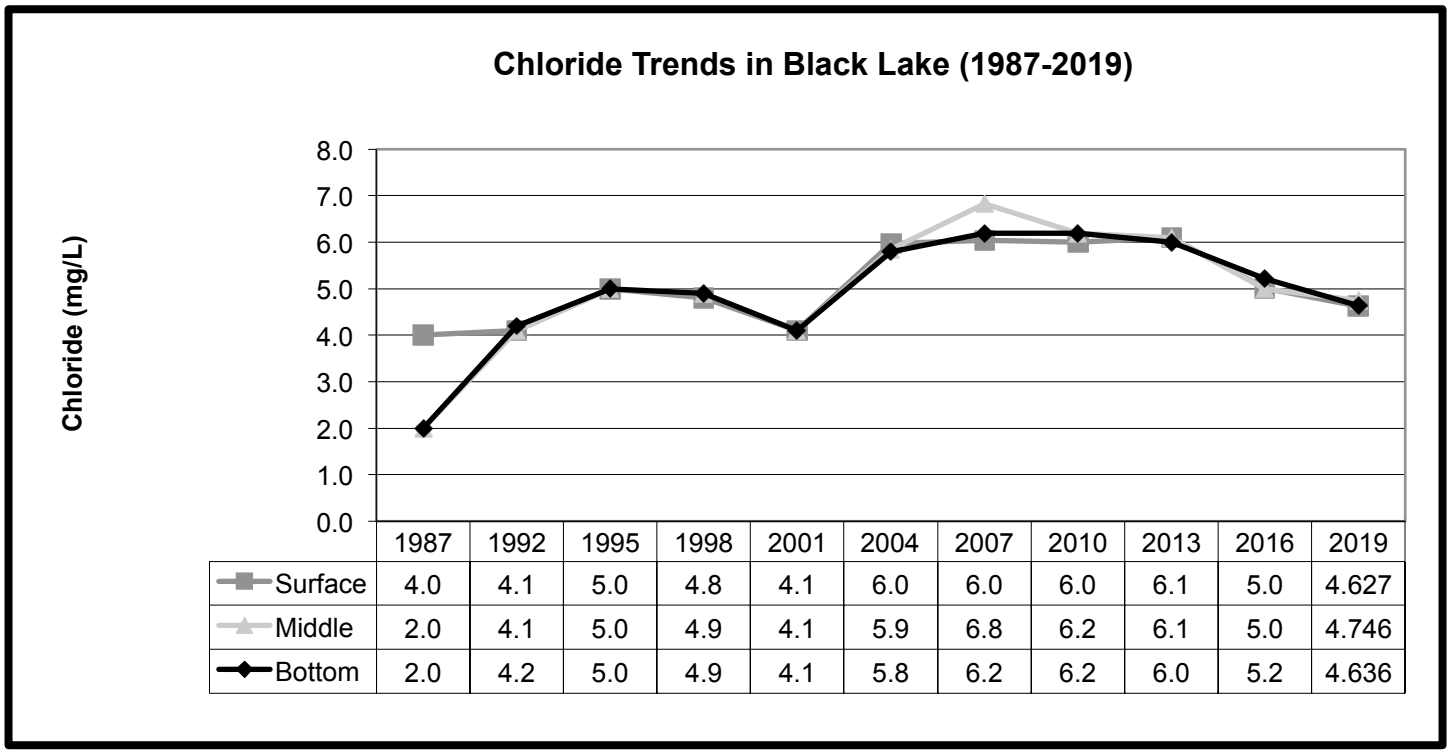
Chlorophyll-a

Chlorophyll-a is a pigment found in all green plants, including algae. Higher chlorophyll-a concentrations indicate greater phytoplankton densities, which reduce water clarity. The results of 2019 chlorophyll-a sampling were 0.19 µg/L, down from a high of 3.02 µg/L in 2016.



Chloride

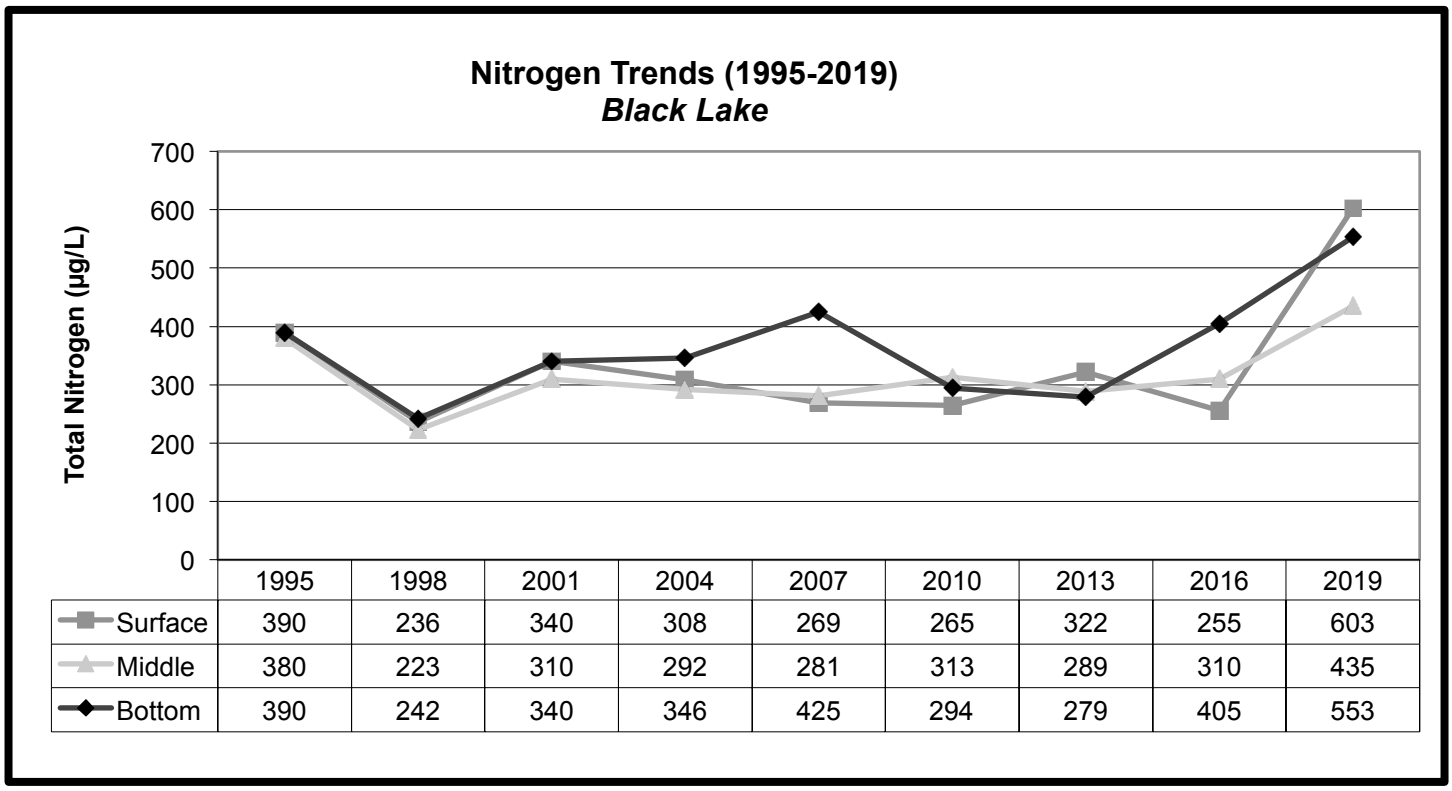
Chloride (Cl^-) is likely on your kitchen table, in water softener salts, some fertilizers, and used in the wintertime to de-ice roadways. Chloride is decreasing in Black Lake, which is good because chloride can be a proxy measurement for human impacts.



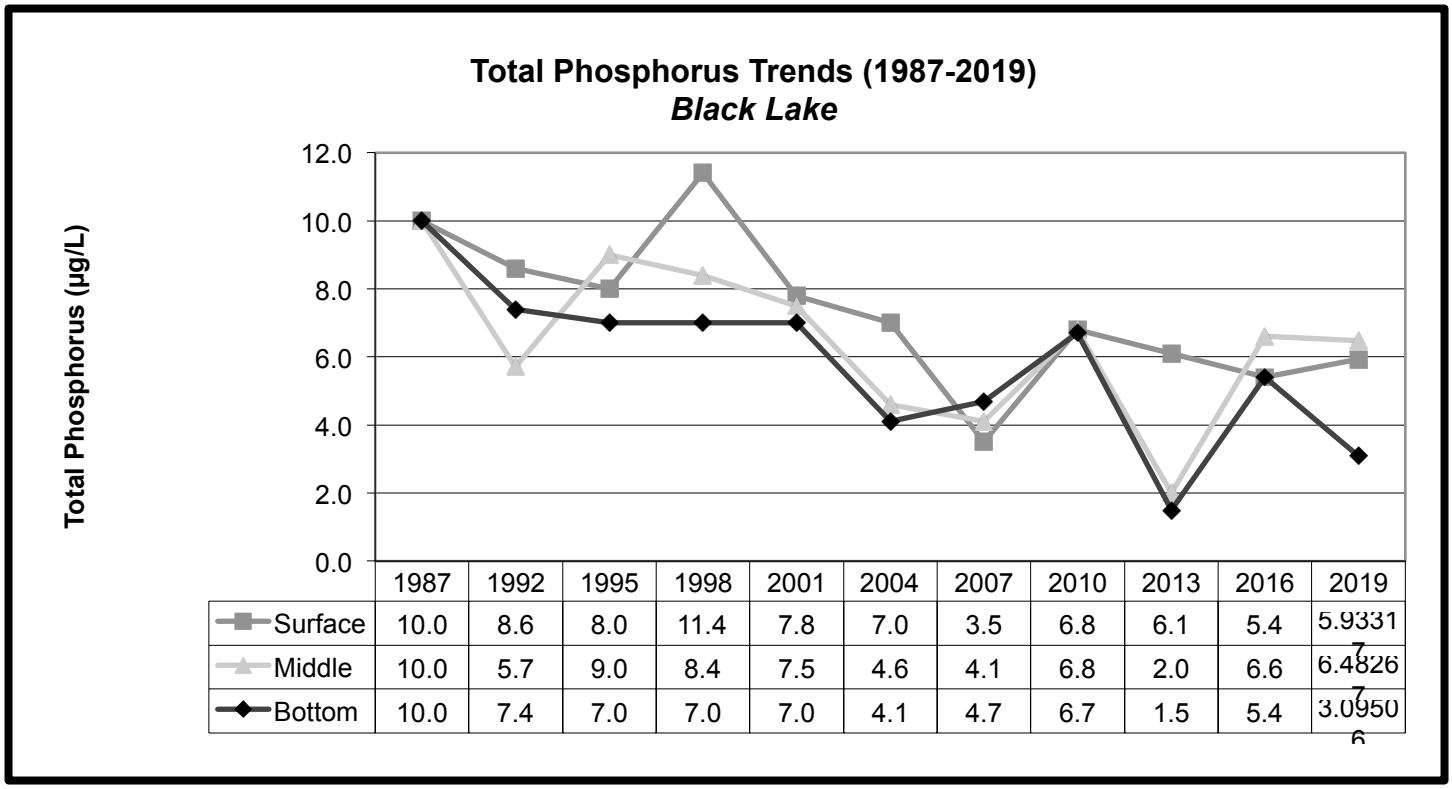
	1987	1992	1995	1998	2001	2004	2007	2010	2013	2016	2019
Surface	4.0	4.1	5.0	4.8	4.1	6.0	6.0	6.0	6.1	5.0	4.627
Middle	2.0	4.1	5.0	4.9	4.1	5.9	6.8	6.2	6.1	5.0	4.746
Bottom	2.0	4.2	5.0	4.9	4.1	5.8	6.2	6.2	6.0	5.2	4.636

Total Nitrogen and Phosphorus

Phosphorus and nitrogen are two important nutrients for plant and algal growth. However, too much of either can have a negative impact on Black Lake water quality. Both nutrients are found in fertilizers and can leach from failing septic systems or surface runoff after rainfall. Most lakes in our area are phosphorus limited, meaning the biological productivity (i.e. – algal growth) is limited by the amount of phosphorus available. Minimizing external phosphorus inputs to Black Lake from septic systems and fertilizers is vital to managing nuisance algal blooms and maintaining high water quality. Phosphorus in 2019 was about the same as 2016, but nitrogen increased about 60%. This increase may coincide with the algae bloom on July 3, 2019. The Michigan Department of Environment, Great Lakes, and Energy (EGLE) tested the algae for microcystin, a toxin that certain types of blue-green algae can produce. Results showed no algal toxins were present from sampling that occurred from July 3 through July 10.



	1995	1998	2001	2004	2007	2010	2013	2016	2019
Surface	390	236	340	308	269	265	322	255	603
Middle	380	223	310	292	281	313	289	310	435
Bottom	390	242	340	346	425	294	279	405	553



	1987	1992	1995	1998	2001	2004	2007	2010	2013	2016	2019
Surface	10.0	8.6	8.0	11.4	7.8	7.0	3.5	6.8	6.1	5.4	5.93317
Middle	10.0	5.7	9.0	8.4	7.5	4.6	4.1	6.8	2.0	6.6	6.48267
Bottom	10.0	7.4	7.0	7.0	7.0	4.1	4.7	6.7	1.5	5.4	3.09506

Overall, the water quality of Black Lake remains high, but is not without threats. Harmful algal blooms are an emerging issue that EGLE is taking seriously. If you suspect a harmful algal bloom, contact the Gaylord field office at (989)-731-4920 or email algaebloom@michigan.gov. If you have any questions, comments, or concerns about the above information, please do not hesitate to contact Tip of the Mitt Watershed Council at (231) 347-1181 or email at info@watershedcouncil.org.