

# Morrison Lake Water Quality Report

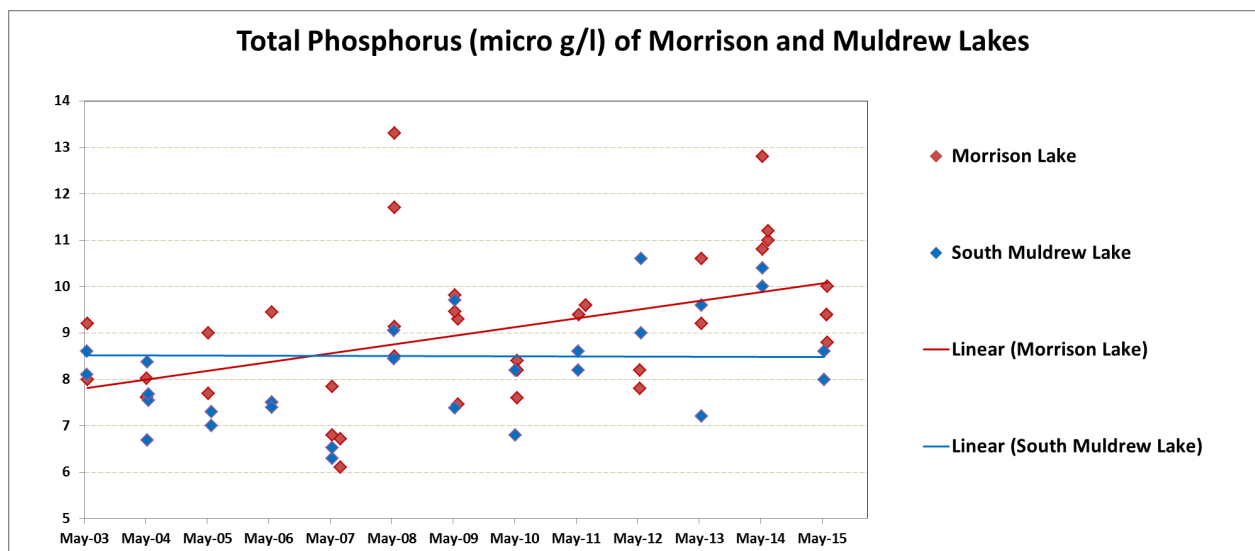
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Water quality measurements have been taken for several years under the Ontario Ministry of Environment Lake Partners program, a program whereby volunteers take water samples for testing of phosphorus content (micro grams per litre or  $\mu\text{g/l}$ ), water clarity (Secchi depth-m) and temperature measurements ( $^{\circ}\text{C}$ ) through the year. Phosphorus measurements are most important as high levels can cause algae growth (called blooms) which can consume oxygen in the lake and kill the fish. When the algae die it reacts with oxygen in the lake making it unavailable for fish etc. in the lake. As algae grow the water clarity drops because sunlight cannot penetrate into the lake. Morrison Lake is currently being monitored under this program at two locations, called Deep Spot, North End and S of Bell Island. The exact locations and details of the program can be found at their web site - <https://www.ontario.ca/environment-and-energy/map-lake-partner> .

Water quality is also monitored by The District of Muskoka with the data for Morrison Lake being reported at <http://www.muskokawaterweb.ca/images./lds/Morrison.pdf> . The specific location of the testing site is not published.

Details of the test results for the past several years can also be found at the web sites. In general, the Lake Partner results for 2015 showed improvement over 2014 with the average phosphorus levels dropping from  $11.5 \mu\text{g/l}$  to  $9.4 \mu\text{g/l}$ . There was no significant difference between the two sampling locations. The Muskoka District data gave lower numbers at  $7.4 \mu\text{g/l}$  for 2015 and a 10 year average of  $8.5 \mu\text{g/l}$ . Levels above  $10 \mu\text{g/l}$  may result in some algae blooms and above  $20 \mu\text{g/l}$  ongoing blooms are expected. Overall this looks like good news!

More detailed analysis of the data is cause for some concern, however. The Lake Partner phosphorus data for the past 12 years is shown in the graph below for both Morrison Lake and South Muldrew Lake, the lake directly upstream from our lake. The graph also shows a trend analysis for both lakes.



Although there is considerable scatter in the data, with peaks and valleys being experienced by both lakes, the linear regression trend analysis shows that:

1. The Morrison Lake trend (red line) shows a significant upward trend from about 8 µg/l in 2003 to about 10 µg/l in 2015. This shows an increase of over 20% in 12 years.
2. The South Muldrew Lake trend (blue line) shows no increase remaining at about 8.5 over the same 12 years.

The obvious conclusion to draw from this is that the rising phosphorus levels in Morrison are the result of our own activity on our lake. We are not getting this phosphorus from upstream.

Secchi depth clarity data was submitted for 2014 and 2015 but was not reported. Data has been sent in once again and hopefully this will appear with next year's data. This data is more variable and while there appears to be some reduction in clarity it is difficult to draw conclusions here.

In light of the trend in phosphorus levels we will try to do more water testing at different locations in order to get more detailed information about possible sources of phosphate. This will help us turn this around.

Meanwhile what can we all do to reduce this trend?

A few suggestions below, obvious perhaps, but worth our attention if we are to protect our lake.

1. Look after our septic systems. They are living biosystems that must be cared for. Keep them healthy by not adding poisons (bleach, chemicals, etc.), by minimizing water flow through the septic system and above all else by not letting them leak to the surface.
2. Do not use fertilizer on your property (or other chemicals for that matter). Under no conditions should you use fertilizer with phosphates (the middle number on the bag describing the nutrient content - 10-0-10 for example)
3. Use eco friendly cleaning products. TSP is a great cleaner but it stands for tri sodium phosphate. Since 2010 it has been limited to 0.5% in cleaning products but it is still commonly used. Cleaners for cottage, cars, boats, etc. can also contain other chemicals that are bad for our lake. Use GREEN products.
4. Leave plants growing along the water's edge and downstream from your septic bed. The plants will consume some of the the phosphate before it gets to the lake. Mother Nature can help us if we let her.

We are lucky that our lake is in good shape and does not suffer from the problems that we hear of in other lakes. It is fragile, however, and we must watch for threats to water quality and natural habitat.

If we look after our lake it will continue to look after us!

Bob Bruce and Bradie Debes of Morrison Lake