

Big Cedar Lake Health Testing Results – Comparison of our Lake vs. other North Kawartha Lakes

Diane and Ralph Trauzzi regularly test the Lake Health. **Phosphorus levels** which are tested each spring continue to be low, with 2017 numbers 5.4 µg/L. The average phosphorus measurement over the last 16 years is 6.3 µg/L. **Clarity tests**, done with a secchi disk two times each month, show good clarity, with an average for 2017 of approximately 6.4 metres, and the average for the last 18 years of 5.2 metres. Year to year variation of phosphorus and clarity has been minimal, however clarity has increased over time, particularly since the 2005 Zebra Mussel invasion.

Ecoli testing has been ongoing at Big Cedar, and for the last two years BCLSA has supported an increase of the number of sites we have tested. Rudi Harner had done sampling of one site near his cottage for a number of years, and the results have been published in the annual publication that is put out by the Kawartha Lake Stewards Association in their Annual Lake Water Quality Report. Big Cedar Lake has consistently reported low readings for this site, and this reflects positively to others looking at the health of our lake. Results from all of the Ecoli testing done on Big Cedar are all excellent with values regularly of 0, or 1 cfu/100mL, with rare outliers of only 7 cfu/100ml or less. To put this in context, KLSA considers counts over 50 cfu/100mL as “high” for Kawartha Lakes and triggers retesting. Counts 20 and below (with occasional between 20-50) are normal for Kawartha Lakes. The safe swimming level (at which public beaches are posted) is 100 cfu/100mL. Count of zero for drinking water. So all of our results are very good!

Big Cedar was included again this year in the more **in-depth water testing** done in association with Dr. Paul Frost from Trent University, to supplement the water testing currently being done. Results from this test from last year show that Big Cedar Lake is in excellent shape compared to other lakes in the North Kawartha area. Ralph Trauzzi put together a summary of these additional tests, that was presented to our membership at the AGM, and is included here:

Analysis of the water testing results for 2017

	Con	DO	Temp	pH	TSS	CHL	Secchi	SRP	PP	TP
Big Cedar Lake	188	9.64	24.3	8.23	0.85	2.98	4.64	2.88	1.76	6.04

Surrounding Lakes (NORKLA)

Min	34.9	8.46	21.1	7.07	0.6	2.8	2.71	1.63	1.0	4.92
Max	188	9.68	24.3	8.23	2.02	5.19	4.64	6.06	2.75	8.23

Legend of Measures:	Units:	Better high (↑) or low (↓)?
Con - Conductivity	uS/m	
DO - Dissolved Oxygen	mg/L	↑
Temp - Temperature	Celsius	
pH - Acidity/Alkalinity	pH scale	↑ to 9
TSS - Total Suspended solids	mg/L	
CHL - Chlorophyll	ug/L	
Secchi - Clarity	m	
SRP - Soluble Reactive Phosphorus	ug/L	↓
PP - Particulate Phosphorus	ug/L	↓
TP - Total Phosphorus	ug/L	↓

The chart above summarizes the results of the water testing done by Dr. Paul Frost of Trent university, and shows the results of Big Cedar, vs the other NORKLA lakes that participated in this testing.

To explain the values in this chart, the first data item is Conductivity – which is somewhat self-explanatory, it is the opposite of resistance. This is created by dissolved solids and is an indication of the ability of the lake to sustain/create aquatic life, especially crustaceans. Our lake is on the high end of this scale, but it isn't too high (we wouldn't want a salt-water lake).

The next is dissolved oxygen. For this one, more=better. For instance, Rainbow Trout need higher dissolved oxygen levels than most other fish. Dead stagnant water has low dissolved oxygen. Running water and wave action gives higher dissolved oxygen levels. Again, our lake is high compared to the other NORKLA Lakes, which is a good sign.

With temperature, the higher the temperature, the lower dissolved oxygen you can have, although 1-2 degrees don't matter. Big Cedar is at the high end of temperature for the NORKLA lakes.

Next is Acidity/Alkalinity which is measured in a base-10 logarithmic scale from 0 to 14 (where for instance 7 is 10 times more than 6). Seven is neutral, below 7 is acidic. It is better to be higher than 7, up to 9 which is slightly Alkaline. This is affected by Acid rain vs a limestone run-off which is a Base. Our lake is at the higher end of the lakes in our area as a Base, which is good.

TSS is the Total suspended solids – this is the stuff that floats in the water and blocks sunlight and is also the stuff that fish eat. Our lake is on the low side for this one, our water is fairly clear.

CHL or Chlorophyll is a measurement of algae, the “green stuff” and other plant particulates. Our lake is on the low side of this one as well, and we may attribute this to zebra mussels...

The Secchi measurement is the clarity measurement done twice a month and our lake is on the high end of clarity of lakes in the area.

The last three measurements have to do with Phosphorus. Soluble Reactive Phosphorus is the worst kind – soluble = dissolved in water and reactive = can chemically react (there are more stable versions of phosphorus). Particulate Phosphorus is that suspended in water and the last is the total Phosphorus. Main sources of phosphorus in our lakes are from soaps and fertilizers (remember: always use phosphate free soaps etc., can't stress it enough) so you want low levels of phosphorus. Plant life like algae need phosphorus so high levels can cause algae to be worse.

Overall, our lake appears to be in excellent health, especially as compared to lakes in our area. But, each of us needs to be aware that it is up to all of us to maintain this health. For instance, Phosphorus levels can be minimized by reducing or eliminating fertilizer use, pumping out your septic system on a regular basis, and being careful with soap. Try to only use phosphate-free soaps, such as Sunlight, Palmolive or Ivory dishsoap and Burt's Bees or Live Clean shampoo.

Remember... whatever goes on your property and into your drain eventually finds its way into our lake!