

2012 Three Mile Lake Water Testing Summary

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Overview: As in previous years, we measured the *E.coli*, coliform, water temperature and phosphorus levels in the lake. In addition, students from the Huntsville campus of the University of Waterloo used their specialty instruments to measure the dissolved oxygen, pH, conductivity, turbidity and temperature profile values of the water.

In general, the water quality appears to be stable. There was concern about the high *E.coli* level (90cfus) in the spring in Bear Trap Bay but repeat testing in June gave a much lower value of 5 cfus which is more typical of the *Ecoli* level in previous years. We have no definite cause for the high *E.coli* level. There were many geese on the lake in the spring and possibly they were the cause for this spike.

Several cottagers observed a high concentration of a greenish-black “gunk” on the bottom of the lake near the shoreline this spring. No definite cause for this either but we suspect it is decaying algae. We measure the clarity of water during the summer using a Secchi disk. In 2011 the water clarity started at 5.5 meters in the spring and decreased to 2.5 meters by fall. In the spring of 2012 the clarity started at 7.5 meters, suggesting that whatever was in the water in the fall of 2011 probably settled out over the winter. Unfortunately, the water clarity in 2012 also declined to about 2.5 meters in the fall so we may see this “gunk” again in the spring of 2013. We are trying to have the University of Waterloo sample the bottom of the lake in 2013 to identify what is on the bottom.

The data of the summer testing of phosphorus levels in the lake is finally available from the Lake Partner Program. In the attached slide you will notice that the phosphorus level increased over the summer. In the last two years we have extended our testing to include October and November to catch the release of phosphorus as algae decays in the fall and winter.

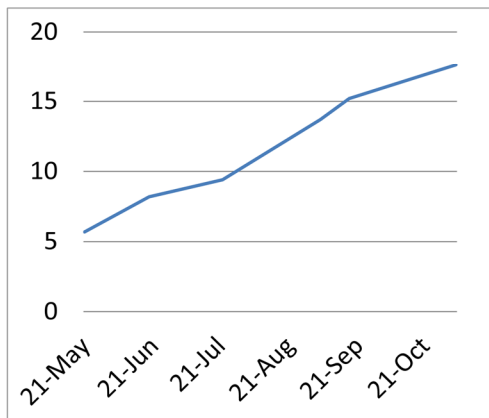
Fortunately, the phosphorus levels are still below 20 mcg/L and while algae was visible in the water, no significant deposits were observed and no surface films

were observed as well. We still need to be vigilant to minimize entry of phosphorus into the lake.

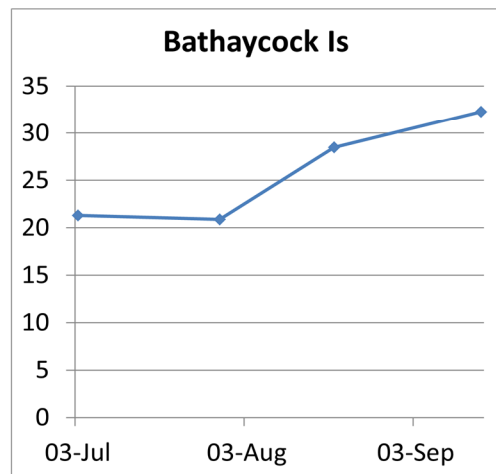
As you are aware, the Three Mile Lake in Windemere had a toxic algae bloom again last summer. The algae blooms are very dependent on the phosphorus levels, and levels above 20 mcg/L are often reported in lakes with significant algae blooms. We have included a comparison of the phosphorus levels in TML - Katrine with the levels in TML-Windemere for your information.

2012 Phosphorus Levels (mcg/L)

TML- Katrine

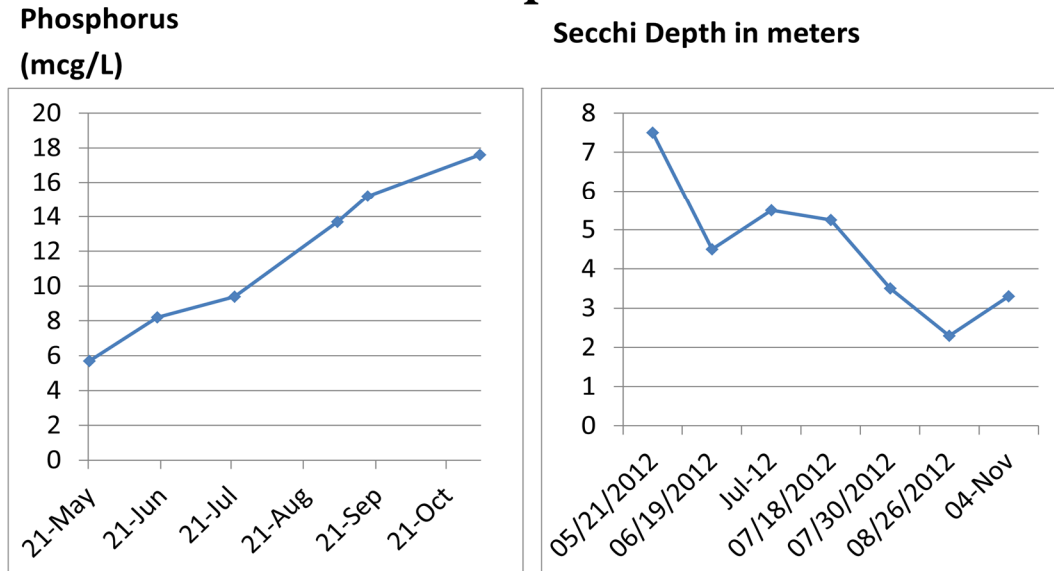


TML - Windemere



Finally, we are including a comparison of the phosphorus measurements with the Secchi depth measurements. It appears that the decreasing Secchi depth over the summer is a good measure of the increasing concentration of the algae (increasing phosphorus).

2012 Phosphorus vs. Secchi Depth



As already mentioned, we hope that we can have some determinations of the “gunk” at the bottom of the lake by the U. of Waterloo this summer

Three Mile Lake is a member of the Magnetawan River Watershed Association (MRWA). In 2012, the MRWA had booths at several local fall fairs to encourage water testing of all the lakes in the watershed.

We were fortunate to have the U. of Waterloo test our lake in 2012. We hope to expand this testing to more lakes in the MRWA in 2013. The MRWA is also involved in the planning of the 2013 testing program. The program and a water testing workshop will be held on May 25, 2013 (see attached flyer). This workshop is open to any interested person.

The results of our testing, including that performed by the University of Waterloo, follow. It should be mentioned that the lake temperature again reached the low 80s F. These higher water temperatures will encourage algae and weed growth in the lake. The warm water is nice for swimming though!

| Date | Secchi depth (meters) | Water temp (F) |
|---------|-----------------------|----------------|
| 5/21/12 | 7.5 | 63 |
| 6/19/12 | 4.5 | 72 |
| 7/7/12 | 5.5 | 80 |
| 7/18/12 | 5.25 | 76 |
| 7/30/12 | 3.5 | 79 |
| 8/26/12 | 2.3 | 73 |
| 9/5/12 | 3.3 | - |

| <i>E.coli</i> | TML-1 | TML-2 | TML-3 | TML-4 | TML-5 |
|---------------|---------|----------|--------|--------|--------|
| 5/21/12 | 13 cfus | 90* cfus | 8 cfus | 3 cfus | 3 cfus |
| 6/19/12 | - | 5 | - | - | - |
| 8/10/12 | 3 | 3 | 25 | 8 | 16 |

Threshold limit value for recreational water is 100 colony forming units (cfus)

| Coliform | TML-1 | TML-2 | TML-3 | TML-4 | TML-5 |
|----------|----------|----------|---------|---------|---------|
| 5/21/12 | 177 cfus | 132 cfus | 49 cfus | 28 cfus | 11 cfus |
| 6/19/12 | - | 55 | - | - | - |
| 8/12/12 | 76 | 90 | 90 | 102 | 72 |

Threshold limit value for recreational water is 1000 cfus

*TML-2 is Bear Trap Bay, TML-1 is NW corner of lake, TML-3 is SW corner of lake, TML-4 is boat launch area and TML-5 is middle of lake