Summary of water testing of Three Mile lake in 2011

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We continue to test Three Mile Lake water quality by measuring the coliform and *E-coli* content at five spots in the lake three times during the summer. Samples were also taken six times over the summer and sent to the Lake Partner Program for determination of the phosphorus levels in the water. The water clarity was measured six times during the summer using the Secchi disk, and water temperatures were recorded, at the 316 Skyline dock, several times throughout the summer too. The results of these measurements are shown in the tables below:

Coliform levels (cfus/100ml) at five spots in the lake:

	TML-1	TML-2	TML-3	TML-4	TML-5
May 22, 2011	59	11	76	28	5
July 24, 2011	72	5	30	16	3
Sept 17, 2011	28	65	83	39	39
Total	159	81	189	83	47
Average	53	27	63	27.7	15.7

The threshold limit is 1000 cfus/100ml.

***E-coli* levels (cfus/100ml) at various spots in the lake**

	TML-1	TML-2	TML-3	TML-4	TML-5
May 22, 2011	<3	<3	<3	3	<3
July 24, 2011	5	<3	3	<3	<3
Sept 17,20ll	<3	<3	8	3	<3
Ave	3 or less	<3	4 or less	3 or less	<3

The threshold value is 100 cfus/100ml.

Both of the coliform and *E-coli* values are significantly below the Ontario threshold values for recreational waters.

	Secchi depth	Water temp
5/22/2011	5.5m	17C/63F
7/22/2011	4.5m	28C/82F
8/12/2011	3.0m	24C/75F
8/29/2011	3.0m	20.5C/69F
9/24/2011	3.3m	17.8C/64F
11/4/2011	2.5m	9C/48F

The secchi depth and water temperature measurements warrant some discussion. In previous years whenever the water temperature was 80F, or higher, we would experience an algae bloom which would float on the water surface and have a greenish look to it. This year that did not happen, but you could see algae suspended in the water. The presence of these algae is confirmed by the decrease in the clarity of the water as measured with the secchi disk. Perhaps the algae didn't accumulate on the surface of the water because many days were windy with fewer calm days in late summer.

We participate in the Lake Partner Program for determination of the phosphorus content in the lake. The following table shows the results of duplicate samples taken from a deep spot in the lake. Samples were collected six times this summer.

Date	8 July 11	12 Aug 11	29 Aug 11	24 Sep 11	02 Oct 11	04 Nov 11
Phosphorus µg/L	8.2/14.8*	7.8/11.4*	10.2/10	11.2/10.6	10.6/12.4	16.2/17.6

* The large variation between two samples is a concern. We will contact Lake Partner Program.

These phosphorus values are similar to samples collected over the last 10 years or so. We don't have comparative data for phosphorus samples collected in November so we will try to repeat that sampling date this year.

Summary/Discussion

This year Queen's University completed an extensive review of our lake's water quality. Most of the data agrees with data we have previously collected. The data of the dissolved oxygen also matches data collected by Ken Watson a few years ago and confirms that the dissolved oxygen decreases for water depths greater than 5 meters. What is disturbing is that the dissolved oxygen falls below 7% for depths greater than 6 meters. This is bad news for fish and water health. It is now even more important that we have access to a meter to continue to test the dissolved oxygen in our lake. We will look into renting a testing instrument, or perhaps try to borrow one from one of the lakes in the watershed.