

Lake Water Quality Activities

The Lake Matinenda Cottage Association participated in the Ontario “Lake Partners” program again, our third year. The program requests samples of water from three areas of Matinenda after ice out. Total phosphorus analysis is performed to track lake nutrient content. High phosphorus is most often indicative of agricultural run off or industrial pollution, but lakes with high population densities with run off from lakefront lawns (fertilizers) and leaking septic systems can also show elevated phosphorus levels. Water clarity measurements are also made every two to three weeks during the season with a quartered black and white disc called a Secchi Dish. The disc is lowered near the deepest spot on the body of water until it is just visible. Obviously the more clear the water, the deeper it can be seen. That depth is reported in meters. Because clarity is not only affected by the nutrient level (alge growth) but weather as well, the average of all Secchi depth data is reported for the season.

Phosphorus levels for 2004 and 2005 are shown in the following table. The values are very low and typical for oligotropic Canadian Shield lakes.

	June 2004 Phosphate Level (ppm)	May 2005 Phosphate Level (ppm)
MacDonald's	4.4 - 5.9	4.8-5.2
Stover's Point	3.3 - 4.0	3.1-3.5
Baker's Bay	3.0 - 6.1	6.2-9.7

Oligotropic - unenriched	10 ppm or less
Mesotropic - moderately enriched	11 - 20 ppm
Eutropic - enriched (high levels of nutrients)	21 ppm or more

Complete Lake Partners Report is available at:

www.ene.gov.on.ca and e-mail: lakepartner@ene.gov.on.ca

RLB
12/05

Water clarity measurements are shown in the next table. All values indicate Oligotropic classification and limited nutrients in Matinenda. MacDonald's Bay values are the lowest of the clarity measurements reflecting the relatively shallow water found at that end of Matinenda as well as the higher population density.

2004 Secchi Disc (M)

2005 Secchi Disc (M)

Lee's Island	4.9 M	5.2 M
MacDonald's Bay	5.0 M	5.4 M
Stover's Point	5.7 M	6.4 M
Baker's Bay	6.8 M	6.9 M
68 Bay	6.4 M	6.9 M

Oligotropic - unenriched	Over 5M
Mesotropic - moderately enriched	3.0 - 4.9M
Eutropic - enriched, high levels of nutrients	Less than 2.9M RLB 12/05

While three years of Lake Partner data (both phosphorus and clarity) are not enough to draw major conclusions, no disturbing trends are apparent and Lake Matinenda appears healthy.

The Lake Partner data is acquired over the deepest water in a given area, and samples are taken at the depth of the Secchi Dish reading (approximately 15 – 20 feet). The Lake Matinenda Cottage Association is also interested in another aspect of water quality and that is biological assay. Lake sampling was done in late August near shore, and near the surface in four of our most populated areas. Samples submitted to a private laboratory for Total Coliform Bacteria and E Coli analysis. The results are shown in this last table:

<u>Location</u>	<u>Coliform Bacteria (CFU/100ml)</u>	<u>E. Coli (CFU/100ml)</u>
MacDonald's Bay West	19	4
MacDonald's Bay East	58	12
Sullivan's Bay	65	2
Teacher's Bay	58	2

Coliform bacteria are typically found in all surface water samples as a result of wildlife both in the water and from run off. E Coli on the other hand is almost exclusively the result of inadequate containment/treatment of human waste and is most often a point source.

The above values are not high enough to represent a health risk to cottager's recreation (swimming for example), but they are disturbing. The data implies that sewage is making its way into the Lake Matinenda without adequate treatment (direct run off or septic systems that are not up to code), and more importantly illustrates the *absolute* necessity of purifying our drinking water. Chlorinating, ultraviolet light and microfiltration are three methods to effectively generate potable water, please use the effective method of

your choice. *And* if you have an old, inadequate septic system, even if it is seldom used, upgrade to code or remove it. Remember that most of us share the same “well”.

Dick Brennan
February, 2006