

# Muskoka Lakes Association Water Quality Initiative:

## 2006 Annual Report

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## Executive Summary

2006 marks the sixth year of the Muskoka Lakes Association's long-term commitment on behalf of the community to monitoring, protecting and enhancing the environmental resources of the Muskoka Lakes area. Scientific protocols and analytical procedures used during the 2006 program were developed during the 3-year pilot project and remained unchanged from those used in 2004 and 2005. Protocols and procedures may evolve in the future if necessary.

Research had two foci in 2006. The first research project focused on the effects of golf course landscapes on nearshore water quality. Data collected strongly suggested a difference between nearshore and offshore water quality, with statistical significance being evident at nearly 50% of sites monitored. Courses can be categorized as those that may have an impact on nearshore water quality and those that do not have an impact. Even with this level of correlation, it is impossible to draw defensible conclusions relating specific characteristics of courses to water quality impact.

Multiple years of inconclusive results from the research program suggest that the water quality initiative does not have the capacity to consider and draw conclusions about highly complex relationships between land uses and their impacts on water quality in the nearshore zone of Muskoka's lakes.

It is recommended that the golf course study be discontinued. Research should continue in the context of the community planning processes already initiated by the MLA. These processes, on lakes and lake segments currently facing environmental stressors, promise to engage local stakeholders in a thorough consideration of many possible environmental challenges. The community planning process will hopefully mobilize additional funding from local governments, as well as corporate and personal donations that will allow the collection of a broader range of samples if necessary.

The second research project compared offshore total phosphorus concentration measurements collected by the Muskoka Lakes Association to concentrations measured and predicted by the Lake System Health Program (LSHP). This was done in an effort to fill data gaps in the water quality model currently used by the District of Muskoka to trigger various management options suggested by the LSHP.

The phosphorus concentration measurement taken at each offshore location during the first sample period of the MLA water quality initiative could easily be used by the District of Muskoka to further calibrate their water quality model, including the provision of data where the District does not currently monitor. MLA water quality initiative nearshore data is also very valuable, as it may identify discrete sources of phosphorus loading throughout the season in an over-threshold lake or lake segment during a remedial action planning process.

One new Affiliate (the Skeleton Lake Cottagers' Organization) was added to the program in 2005. Monitoring efforts grew slightly to 156 sites monitored by over 80 volunteers. This represents a sustainable program size, especially on Lakes Muskoka, Rosseau and Joseph. Further expansion of the monitoring program on other lakes is possible, but should only be attempted with the help of outside expertise. Results of the monitoring program are once again available online at <http://www.mla.on.ca>.

Several recommendations are made for consideration in 2007. These recommendations include requiring a formally trained volunteer to be part of every sampling team, requiring every Affiliate to assign a volunteer "leader" to analyze bacteria samples, and undertaking an investigation into the reason that ColiPlates seemed to underestimate *E. Coli* levels when compared to lab duplicate results.