

Executive Summary

The summer of 2002 marked the successful second year of the MLA's innovative nearshore water quality program. The program was launched in 2001 in response to members' concerns about the overall quality of water in Lakes Muskoka, Joseph and Rosseau. The 2001 program was carried out through a combination of volunteer effort, the MLA Marine Patrol and technical supervision by Gartner Lee Limited

One of the key recommendations of the 2001 program was that the MLA increase its direct involvement in the water quality program by a) identifying internal water quality champions and b) hiring an internal co-ordinator to run the day to day aspects of the summer program. These recommendations were made to provide long-term continuity to the MLA program and increase the cost effectiveness of the overall program.

The 2002 program represented a first-rate response to these recommendations. John Curran assumed the role of "champion" for the program and received the full support of the Board for his efforts. Mike Logan was hired to run the program for the summer and did a superb job in retaining volunteers, organizing their efforts, summarizing program results and drafting the report. Mike served as a visible and effective ambassador for the MLA and ensured that all geographic areas of the three lakes were covered in the program. He met with planning and political representatives in local municipalities and the District Municipality of Muskoka. He attended an international conference on water protection in June and presented the MLA program to a national meeting (The Society of Canadian Limnologists) in Ottawa in January of 2003, as a guest of the MLA and Gartner Lee Limited

Mike is presently attending Dalhousie University, studying for his Master of Science Degree in the combined disciplines of Coastal Engineering and Urban Planning. As a result of the summer 2002 program, he has identified the MLA Water Quality Program as the topic of his major thesis. Mike will return to the Water Quality Program for the summer of 2003.

At the technical level, the 2002 program achieved its goals. Our intent is to document water quality in the nearshore areas of our lakes – those areas where we swim and draw our water - and to look for evidence of water quality problems due to:

- a) bacterial contamination from septic systems or runoff;
- b) runoff of the algal nutrient phosphorus from lawns, agriculture, leaking septic systems, golf courses or urban areas; and
- c) growth of excessive amounts of algae, or undesirable types of algae.

The three lakes were divided into 17 smaller areas for sampling and a total of 75 different sites were sampled within the 17 areas. Bacterial measurements were made at all 75 sites, phosphorus measurements at 39 sites in 11 areas and algal growth was measured at 11 sites. Turbidity, a measure of water clarity, was measured at all sites. Each site was visited every two weeks, for a total of 8 samples between the end of May and mid-September. On each visit, a water sample was taken in the nearshore area, at a depth of approximately 1m. Every tenth sample was taken as a duplicate to check for measurement error and natural variance. We filled up test bottles with distilled water to check for contamination by our sampling methods and sent samples to a commercial laboratory, to compare their bacterial estimates against the counts we made ourselves using the “Coli Plates”.

The volunteers were enthusiastic and diligent. They completed all scheduled sampling on time and on schedule. In mid-July, the MLA hosted a “Volunteer Recognition Luncheon” at the Curran’s residence on Royal Muskoka Island to thank the volunteers for their hard work and determination. This was popular with the volunteers, the hosts and the local press and is recommended for all future years.

The 2002 program confirmed the results of the 2001 program and expanded on them. Overall, water quality in the Muskoka Lakes is excellent – whether described by bacterial counts, nutrient status or algal growth. There are no water quality restrictions on their recreational use for swimming, nor on their aesthetics and water clarity.

The 2002 program confirmed the hypothesis that water quality programs should focus on near shore areas and not just on open water areas as they have done in the past. Results showed that nutrient and bacterial levels were higher in near shore areas than in open water and that there are areas of concern, where land uses adjacent to the lakes may threaten water quality over the long term. Phosphorus levels were higher in nearshore areas and the type of land use and land stewardship which is practiced did influence the amounts of bacteria, phosphorus and algae which were present in the near shore. Water quality was measurably influenced by runoff from urban areas, agricultural areas and golf courses but, for golf courses in particular, results varied. Some had no effect and others did, dependent on age of the course, on site practices and exposure of the shoreline to wind and waves. Water quality responds to natural factors, human influences and the physical characteristics of the Muskoka Lakes where they receive runoff from adjacent lands and their watersheds.

Bacteria and turbidity were also sampled in Brandy Lake as part of the MLA program. Water quality was very good at all sites with the exception of the inflow of Brandy Creek, which had very high levels of total coliform and *E. coli*. These high inputs may reflect the high percentage of wetlands in the catchment or upstream land uses such as agriculture but it is also clear that the lake assimilated these inputs so that overall, water quality was maintained. Full interpretation of water quality in Brandy Lake awaits the results of the water quality study done by MOE in the summer of 2002.

We have now divided the MLA program in to two objectives. These are research (to develop new tools and land stewardship advice) and monitoring (to track changes over time and build public support for and contribution to the program). These needs will guide the 2003 program The 2002 program was very popular, and requests for participation were received from all areas of the large lakes and from

associations outside of the MLA. Politically, the visibility of the program and local press coverage were translated into good will among members of the MLA, associations outside of the MLA and with local government.

The three-year pilot program will finish with the 2003 studies. For 2003, we plan to :

- a) consolidate our findings;
- b) continue to maintain and build public support for the program;
- c) maintain the focus on algae, phosphorus and bacteria in the near shore area;
- d) finalize the recommendations for future monitoring tools; and
- e) increase the program size slightly by adding more sites and addressing specific geographic concerns of our membership.