

## 2008 Water Quality Report

Water quality monitoring on Go Home Lake for the past nine summers (2000-2008) has consisted primarily of biweekly bacteriological testing at 6 selected sites from mid June until mid September. This testing is made possible with financial assistance from the Township of Georgian Bay, the District of Muskoka, and the GBA Foundation. The monitoring program measures Total Coliforms (TC), *Escherichia coli* (*E. coli*) and water clarity (Secchi depth) at each of the 6 sites 7 or 8 times over the summer.

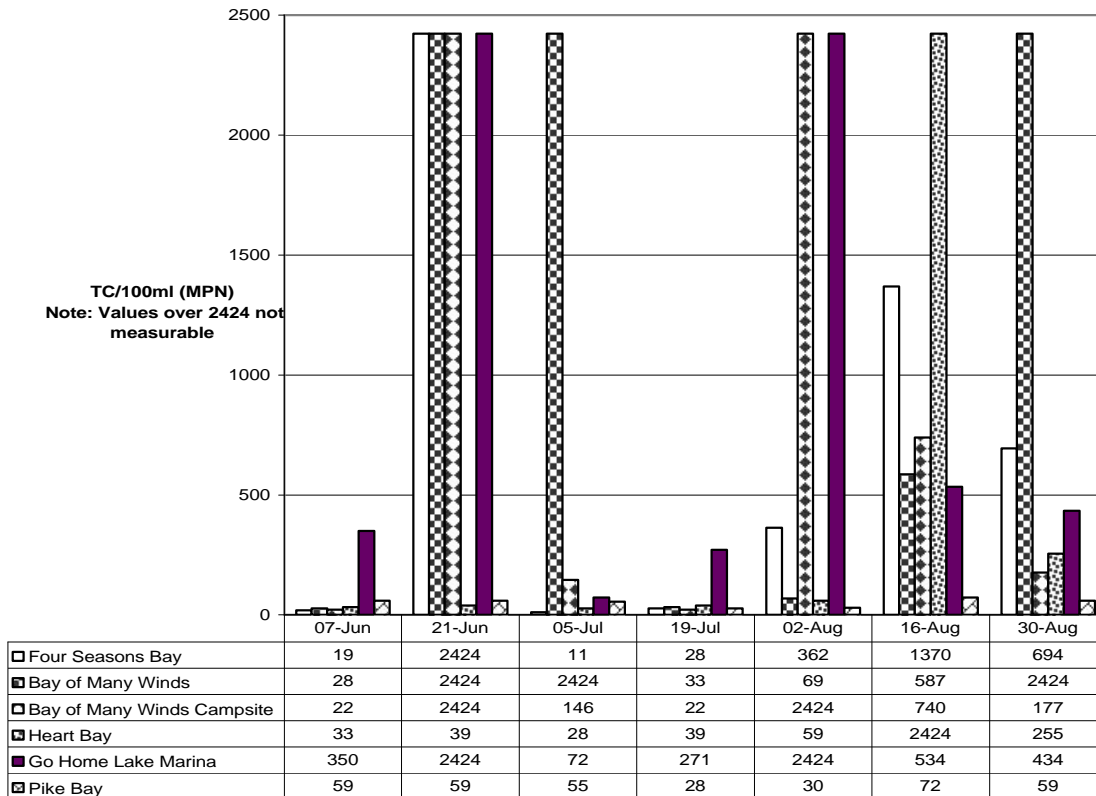
Once again this year, with the kind assistance of Paul Wiancko of Six Mile Lake, depth profiles to analyze water temperature, dissolved oxygen, conductivity (a measure of water source and circulation patterns), clarity and total phosphorus were conducted at 7 locations (southern Control Dam outlet, Blue Lagoon, Four Seasons Bay, Bay of Many Winds, Crystal Bay, Manning Bay and the inflow at Swallow Bay) in early September.

### Total Coliforms

Total Coliform readings during the summer of 2008 were generally consistent with prior year averages. Ten samples exceeded the Ontario recreational waters guideline of 1000 TC/100ml, and were likely related to rainfall events shortly before samples were taken

The majority of organisms measured by the TC test occur naturally in the environment, and enter the lake through soil runoff and decaying organic matter. There is little evidence that human activity contributes significantly to TC readings.

Go Home Lake Total Coliforms 2008

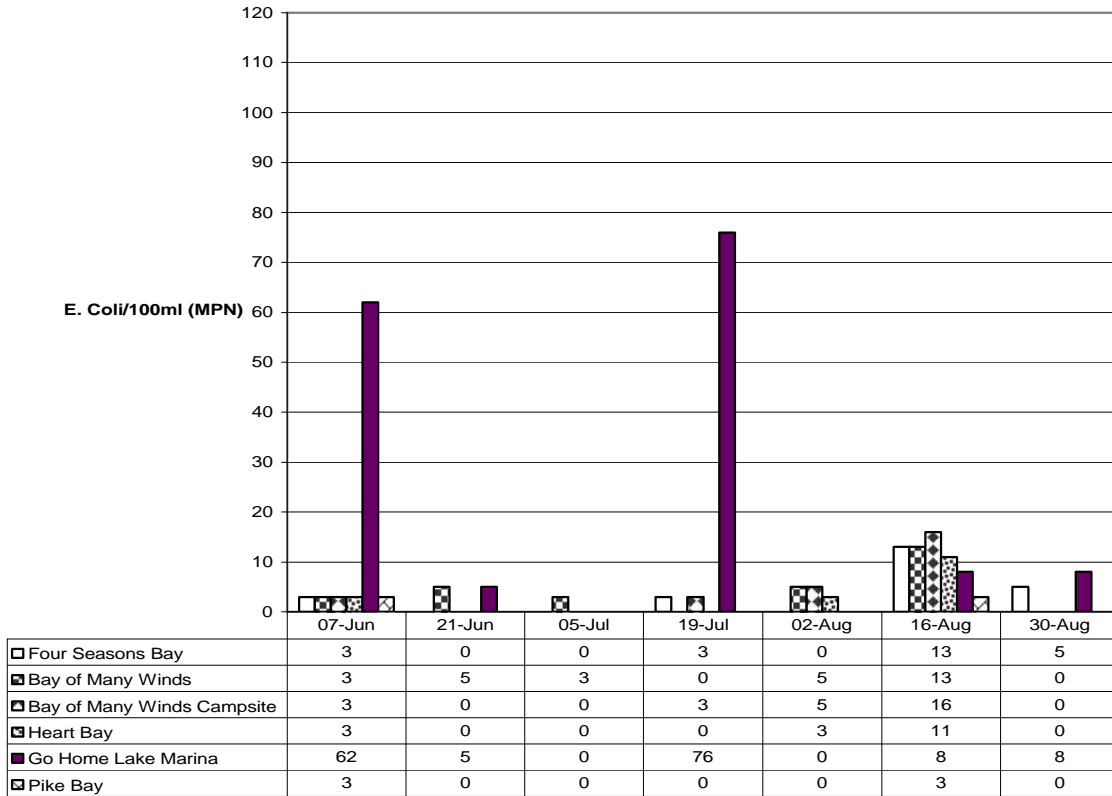


### E. Coli

*E. Coli*, an organism which is abundant in human and animal excreta, is now favoured as an indicator of fecal contamination. Studies have shown that illness rates among recreational water users increase with fecal-associated bacteria levels in the water. Health Canada has established a guideline of 0 *E. Coli*/100ml for drinking water, while Ontario uses 100 *E. Coli*/100ml as the recreational water guideline. Because children typically ingest quantities of lake water while swimming or playing, the GBA has proposed an objective of 10 *E. Coli*/100ml for our recreational waters.

E. Coli readings during the summer of 2008 improved slightly as compared to prior year averages, with no results exceeding the provincial guideline (versus two in 2007), and were unusually consistent across sample dates. Six results spanning five sites (compared to ten in 2007 and an average of five in prior years) exceeded the GBA objective.

**Go Home Lake E. Coli 2008**



**Summary**

In summary, water quality conditions were generally quite acceptable in Go Home Lake during the summer of 2008, especially given the upward trend in average seasonal E. Coli levels - which began in 2005 and continued through 2006 and 2007 - has reversed somewhat this year.

Depth profile analysis samples were collected on September 7<sup>th</sup>. Only Four Seasons Bay and Manning Bay were stratified by a thermocline this year (Bay of Many Winds was also stratified last year). Total Phosphorus levels for Four Seasons Bay were the same as last year, however Manning Bay was 10 µg/L above the thermocline and 41µg/L below. The value of 41µg/L is disconcerting since it indicates that phosphorous is being released back into the water column from bottom sediments, which occurs at oxygen levels below 1.0 mg/L. In Manning Bay, oxygen levels were as low as 0.18 mg/L at 8 meters depth. If these waters ever reached the surface and sunlight on a sudden turnover, a major algal plume could occur. Phosphorus and oxygen levels remained good at all other sites.

Conductivity/mixing was very uniform throughout the lake with values at the inlet (Swallow Bay) of 54.7 µS/cm and outfall (Control Dam) of 54.8 µg/cm. Clarity was also relatively uniform with depth visibility ranging from 3.6 to 4.6 meters except in Four Seasons Bay where 5.8 meters was recorded.

Most of the lake continues to show consistency over the last 4 years due to steady source water and flow from Swallow Bay to the Control Dam. However, Manning Bay is basically a lake unto itself and is showing signs of nutrient enrichment. This needs to be monitored over the next few years to determine if this is a trend or just a one off incident.

We hope to continue the water quality monitoring program in future years to enable us to track the effectiveness of our efforts to preserve this important natural resource. For further information on the program, contact Simon Edwards at 705 756 3445, 416 492 7696, or [simon@tipperlinne.com](mailto:simon@tipperlinne.com)