

Wednesday, July 30<sup>th</sup>, 2014

Bay Lake Volunteers

First off I want to thank you for your help with the benthic monitoring on Bay Lake this year! It's great to see people getting together who are all interested in learning more about the biological activity and lake health.

Each year we sample our established sites to determine which benthic macroinvertebrates are found. These benthos indicate the health of the riparian zone (section between shallow water and dry land) and the littoral zone (shallow water nearest to dry land). These two zones are especially important to lake health as they are impacted by snowmelt, runoff, sedimentation, etc.

Collected benthos are grouped into seven (7) different categories, in which three (3) are mainly focused on: EOT, Chironimids, and Richness. The % EOT includes mayflies, dragonflies, and caddisflies, which are benthic macroinvertebrates who are **intolerant** to pollution. % Chironimids is focused on the invertebrate named a Midge (or blood worm) which are **tolerant** to pollution and can survive in harsh environments. Richness is the biodiversity of species found within the sample, and with biodiversity, the more the better. The other four (4) categories are more used as reference, in that if one year a number drastically jumps or falls, further investigation might be required.

With these numbers alongside the Muskoka Average\*, we are able to understand the direction the lake is heading in regards to shoreline and lake health. If the % EOT (intolerant) is low, and % Chironimids (tolerant) is high, this indicates that the environment may not be suitable for the intolerant benthic invertebrates. This indicates to us that this section of the lake may be impacted by sources such as development, runoff, or other anthropogenic sources.

Below I have explained results from our testing on July 12<sup>th</sup>, 2014

- Richness is above the Muskoka Average and is standing at 15. As stated above, richness is important as it represents biodiversity within the lake. Biodiversity shows that there is a healthy relationship between benthos.
- %EOT is looking okay at 13, but seems to have a slow decrease.
- %Chironimids dramatically jumped this year and is high above the Muskoka Average.
- %Predators is normal, right at 25.
- %Shredders is back to a normal range
- Hilsenhoff Index has also risen a bit, and this is most likely due to the % Chironimids (the lower the number, the better).

I would suggest sampling this site again next year as there are a few concerns, particularly the high number for % Chironimids and the algae we found in the water. This could just be a trend, but we won't know until further monitoring occurs. I hope I have answered any possible questions or concerns about the results, but if you have any others please feel free to e-mail me at [biotech@muskoka.on.ca](mailto:biotech@muskoka.on.ca) or call my office number at 705-645-2100 ext 332. I hope you all have a safe and enjoyable summer!

***Dylan Moesker – Biomonitoring Technician 2014***