

Wednesday, August 20<sup>th</sup>, 2014

#### Waseosa Lake Volunteers

First off I want to thank you for your help with the benthic monitoring on Waseosa Lake this year! It's great to see people getting together who are all interested in learning more about biological activity within lakes 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 August 7<sup>th</sup>, 2014

- Richness is just below the Muskoka Average at 13. As stated above, richness is important as it represents biodiversity within the lake. Biodiversity shows healthy relationships between benthos.
- %EOT is lower than it was in 2011, but has a similar value as in 2010. This may indicate there is a small trend from year to year in these "intolerant" benthos.
- %Chironimids, similar to previous years, is still at 2. These benthos are tolerant to harsh (or unhealthy) environmental conditions such as low dissolved oxygen, high pH, etc. Having this low of a value is good.
- %Predators has stayed the same since 2011. Drastic jumps or drops in this value may indicate further monitoring may be needed. For now, it looks great.
- %Shredders is a bit higher than normal, but makes sense due to all the woody debris and leaf matter. These benthos break down organic matter.
- Hilsenhoff Index looks great at 5.75. For this index, the lower the number, the better.

I suggest sampling this location again next year, then move on to a different site. 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 rest of the summer!