



Our 4th site was established for Benthic Monitoring on July 9, 2011. It never ceases to amaze me the amount of enthusiasm and energy our volunteers show when conducting this study. As always, we had some newcomer's to the event which is most encouraging. So, a hearty thanks to all who attended and diligently picked through the "Bugs-In-The-Mud"!!

THANKS VOLUNTEERS!!!

Brenda Williams
Carly Quigg
Breanna Williams
Judith Felton
Dave Parsons
Margaret Fielding
Dianne More

Cassie Paccanaro
Rachel Parsons
Virginia Cook
Casey Cook
Karen Anderson
Warren Cook
Katie Paroschy

Our new site #4 is located at the south-east bay of the lake as noted in (Figure 1). The Biotech for the District Municipality of Muskoka for 2011 was Delaina Arnold, a classmate of mine who is also a recent graduate of the Ecosystem Management Technology Program at Sir Sandford Fleming College and is continuing her Environmental studies at Trent University in September. She was joined by Katie Paroschy, another classmate, who was this summer's Stewardship Ranger Supervisor at the Ministry of Natural Resources (MNR) in Bracebridge.

This was a wonderful site and the samples of bugs we obtained were plentiful. Our volunteers were divided into two groups, each taking a sample bucket and extracting the bugs. Delaina counted and recorded samples from bucket #1, and I did the same for bucket #2 with Delaina completing #3. This allowed us to conduct the study at a faster rate, providing less stress for the bugs. This procedure worked very well and we had more than the required 100 samples in short order.

We have been fortunate throughout the years to be joined by some wildlife that seem to be interested in our efforts. It's as if they are aware of our efforts to keep Ril Lake healthy and are giving their "stamp of approval". This year we were joined by a lovely snapping turtle, who we hope may be "Snappy", the one rescued at the Smith/Felton cottage and featured in the Toronto Zoo's Adopt-A-Pond Newsletter: "The Amphibian Voice", written by our own, Courtney Felton. The link to this article is located at: The Toronto Zoo Adopt-A-Pond, Resources, Amphibian Voice, Fall 2008.

<http://www.torontozoo.com/adoptapond/newsletter/AV-fall2008.pdf>

This wonderful turtle that may be Snappy now has the alias "Sherman", stayed with us for several hours enjoying a lunch of fresh watermelon (Images 1 & 2)

Figure 1 – Snappy aka Sherman



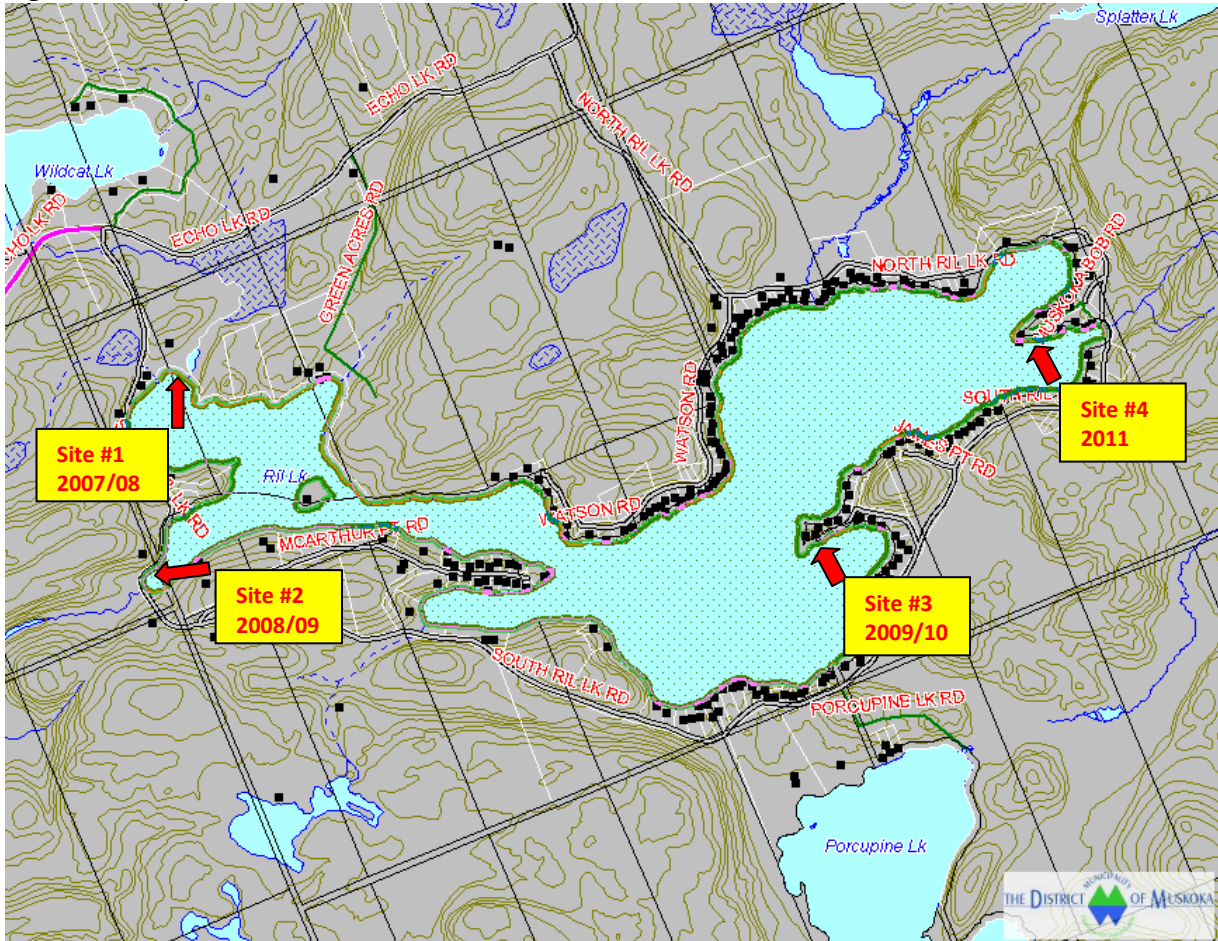
(Cook 2011)

Figure 2 – Snappy aka Sherman



(Cook 2011)

Figure 1 – Map of Established Sites



(District Municipality of Muskoka 2009)

Summary of Data To Date:

The following is a breakdown of our data. The specimens are broken down by predators, shredders and collectors/gathers – an imbalance in numbers of any of these groups is an indication there is a problem in the ecosystem.

		Site 1	Site 2	Site 3	Site 4
Variety of Species	Test #1	11	15	13	17
	Test #2	15	9	10	N/A
% of Total Species Intolerant to Stressors	Test #1	49	30	14	20
	Test #2	30	33	15	N/A
% of Total Species Tolerant of Stressors	Test #1	10	24	11	19
	Test #2	11	33	8	N/A
% of Predators	Test #1	48	30	22	20
	Test #2	41	19	14	N/A
% Shredders (Breakdown Leaves/Plants)	Test # 1	1	4.7	4	7
	Test #2	6	2.0	1	N/A
% Collectors/Gatherers (Consume Organics)	Test #1	50	56	74	70
	Test #2	45	79	84	N/A

Hilsenhoff Index is the combined information of the species and their tolerance to pollutants and nutrients such as phosphorous, nitrogen & carbon. High values indicate pollution, low values indicate healthy water quality. (NOTE: please note that the Muskoka Average of Shredders is low)

Hilsenhoff Index	<u>Muskoka Average</u>		<u>Ril Lake</u>
	5.99	<u>Site 1</u> Test 1	5.72
		Test 2	6.02
		<u>Site 2</u> Test 1	6.13
		Test 2	6.17
		<u>Site 3</u> Test 1	5.96
		Test 2	5.94
		<u>Site 4</u> Test 1	5.92

The Hilsenhoff Biotic Index is used to assess low dissolved oxygen due to organic input in a water body. The invertebrates are either; tolerant, semi-tolerant or intolerant of stressors and are therefore, good indicators if there are organic pollutants in the area.

Table 1. Water quality classifications for the Hilsenhoff Biotic Index (BI) (Hilsenhoff 1987)

BI Value	Water Quality	Degree of Organic Pollution
0.00-3.50	Excellent	No apparent organic pollution
3.51-4.50	Very Good	Slight organic pollution
4.51-5.50	Good	Some organic pollution
5.51-6.50	Fair	Fairly significant organic pollution
6.51-7.50	Fairly Poor	Significant organic pollution
7.51-8.50	Poor	Very significant organic pollution
8.51-10.00	Very Poor	Severe organic pollution

(Shepard G, 1997. History of the Hilsenhoff Biotic Index 2009)

<http://www.uwsp.edu/cnr/research/gshepard/History/History.htm>