

Benthic Monitoring – Ril Lake August 2010
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2010 Brought a 2nd testing for site 3 in our continued Benthic Monitoring Program through the District Municipality of Muskoka. As always, we are able to continue this program through the continued participation of our volunteers which included some new faces, as well as those who continue to attend every year.

THANKS VOLUNTEERS!!!

Val Wood
Dave & Nicky Parsons
Kim Martin
Judy Felton
Gary Chadwick
Paul and Judy Freedman
Dianne More,

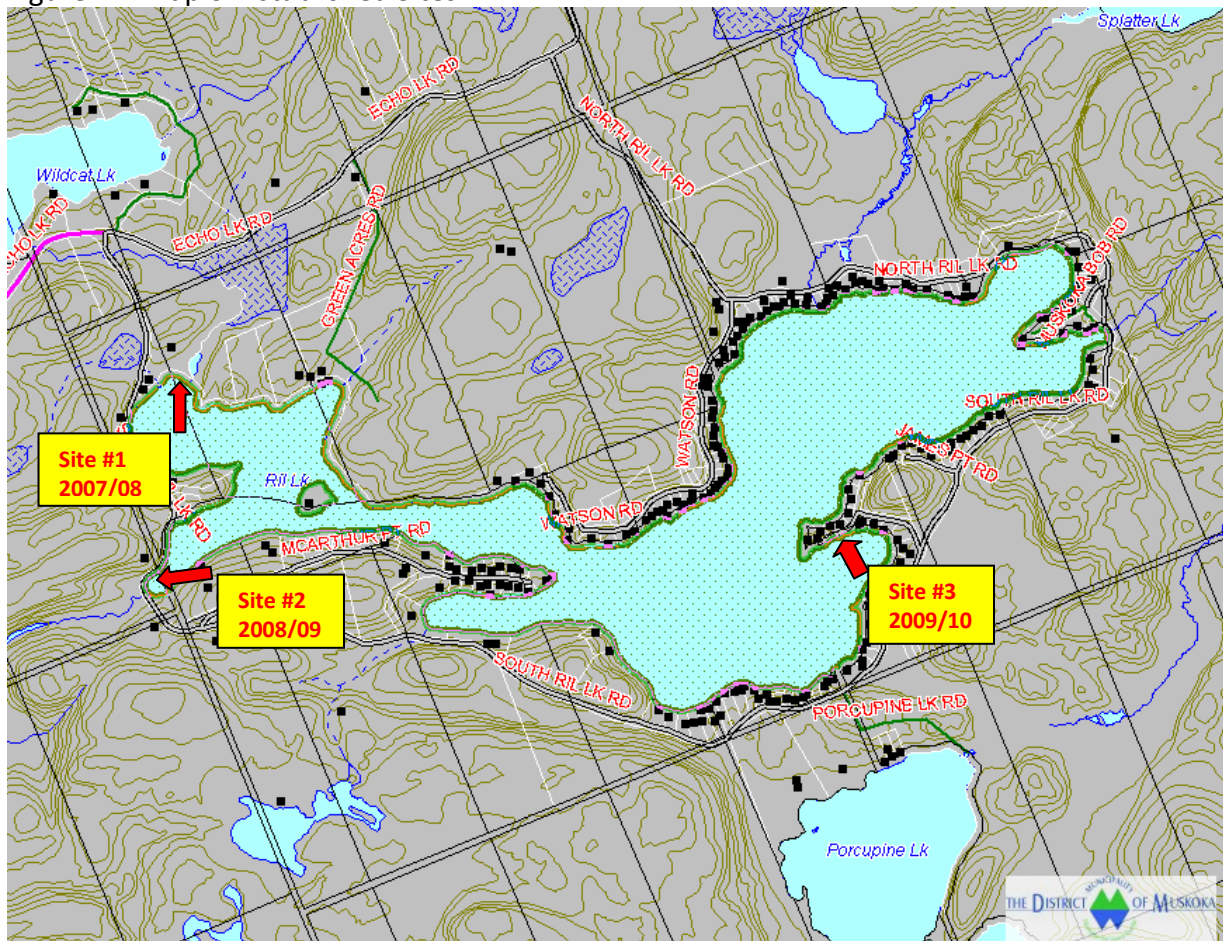
Margaret Fielding
Zander and Damion
Barb Billingsley
Patty Southy
Stu Mitchell
Mark & Jill Kelly
Warren Cook

The sites are noted in the map below (Figure 1) and next year a new location will be established. Once we have chosen approximately 8 – 10 sites, we will start re-testing each site on a rotational basis in order to keep track of any changes in the variety and quantity of “critters” we count. Any significant changes may indicate stressors affecting the area.

The samples seemed to be plentiful at first glance however it was difficult to obtain the 100 required bugs from bucket three. There are several reasons for this, examples being the temperature of the air and oxygen levels in the water. It was quite a warm day and despite ensuring the bugs were in a cool area and out of direct sunlight, the air temperature may have been a contributing factor.

Listed below the map is a summary of our data collected at the sites to date.

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.

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

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

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 is organic pollutants in the area.

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

<u>Bi Value</u>	<u>Water Quality</u>	<u>Degree of Organic Pollution</u>
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>