

# Lake System Health Monitoring Program

2007 Results  
2008 Schedule



LSH Stewardship Workshop

May 3, 2008

# Monitoring Program Components

- ◆ **Spring phosphorus sampling**
- ◆ **Water sample collection for base chemical parameters**
- ◆ **Secchi depth measurements**
- ◆ **Temperature and dissolved oxygen readings**
- ◆ **Shoreline land use surveys**
- ◆ **Benthic macro-invertebrate sampling**
- ◆ **Terrestrial forest plot establishment**
- ◆ **Docktalk presentations and displays**

# Water Sampling

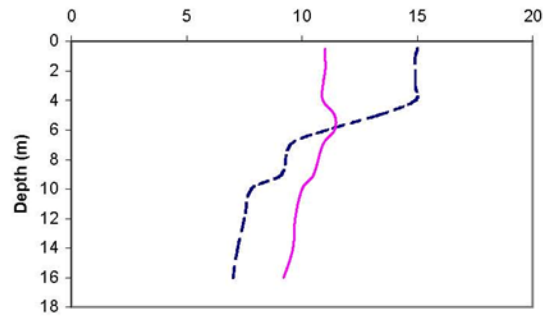
**Phosphorus and other chemical parameters, Secchi depth, dissolved oxygen and temperature**

<b>Location</b>	<b># of Sites</b>	<b># of Lakes</b>
Bracebridge	13	12
Georgian Bay	10	8
Gravenhurst	8	8
Huntsville	10	10
Lake of Bays	20	14
Muskoka Lakes	20	14
<b>Total</b>	<b>81</b>	<b>66</b>

# Long Lake

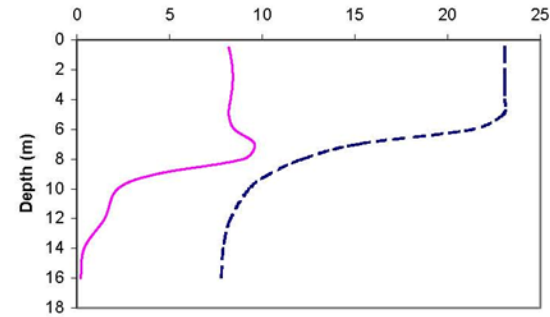
Municipality:	Muskoka Lakes	Watershed:	Lake Muskoka
Surface Area:	1.31 km <sup>2</sup>	Watershed Area (excluding lake):	2.89 km <sup>2</sup>
Maximum Depth:	17 m	Mean Depth:	N/A
Wetland Area:	5.92 %	Cold Water Fishery?	No
Phosphorus (interim average 1997-2006):	6.4 µg/L	Secchi Depth (10-year average):	5.4 m
Phosphorus (long-term average 1991-2001):	7.0 µg/L	Sensitivity:	High (OT)

May 2006



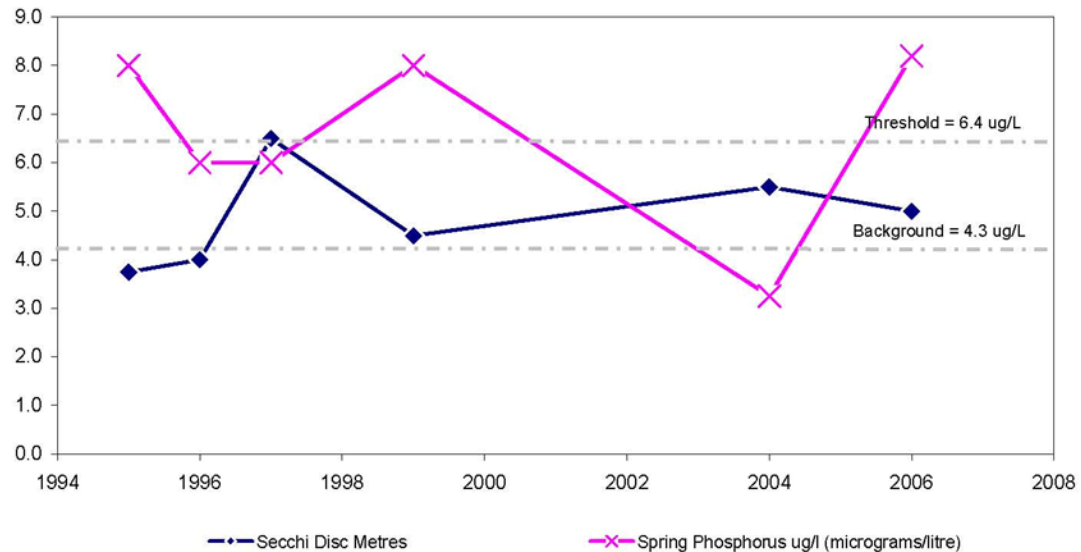
--- Temperature (°C)    — Dissolved Oxygen (mg/L)

August 2006

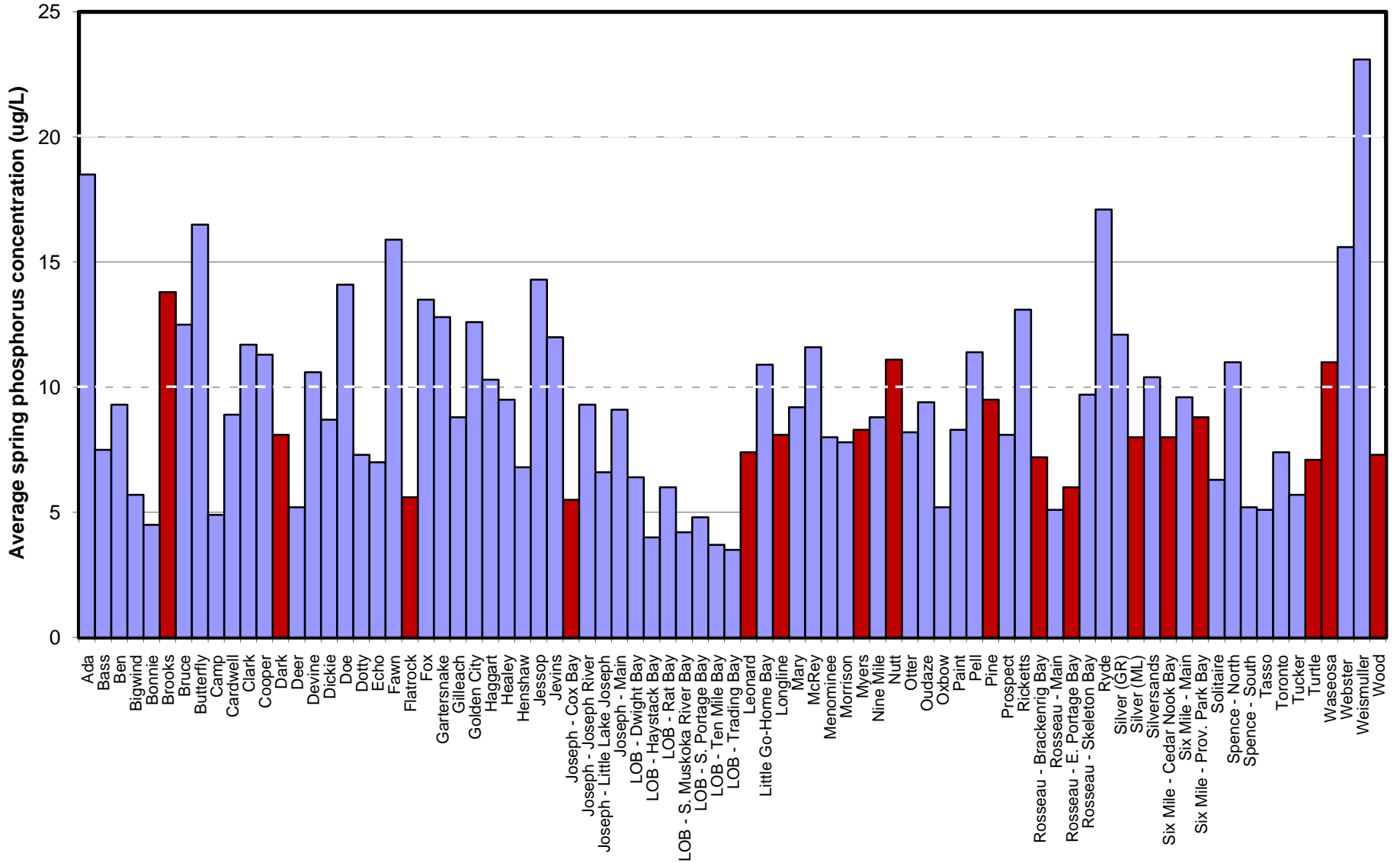


--- Temperature (°C)    — Dissolved Oxygen (mg/L)

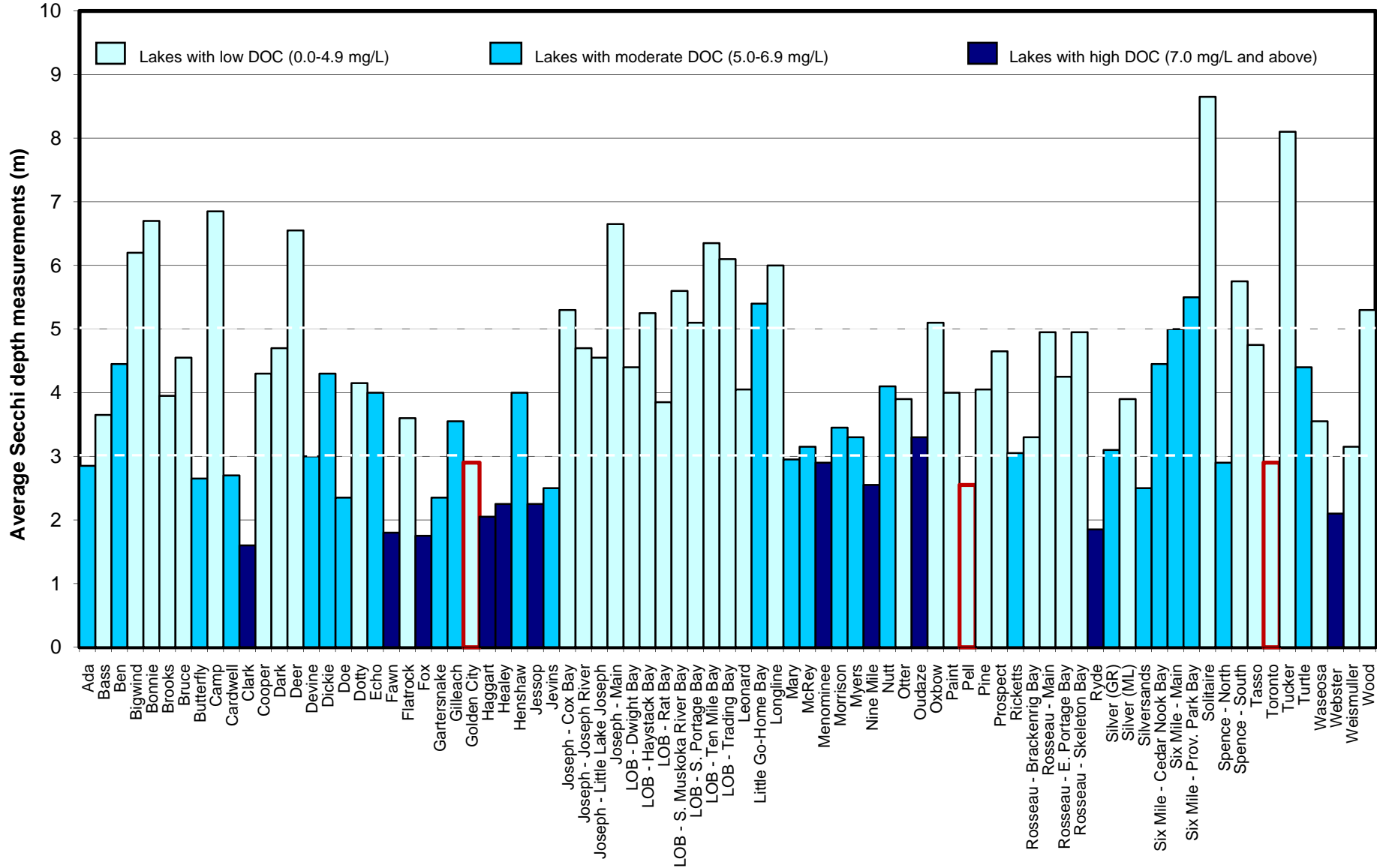
## Long Lake Long Term Monitoring Data



## 2007 Spring Phosphorus Sampling Results

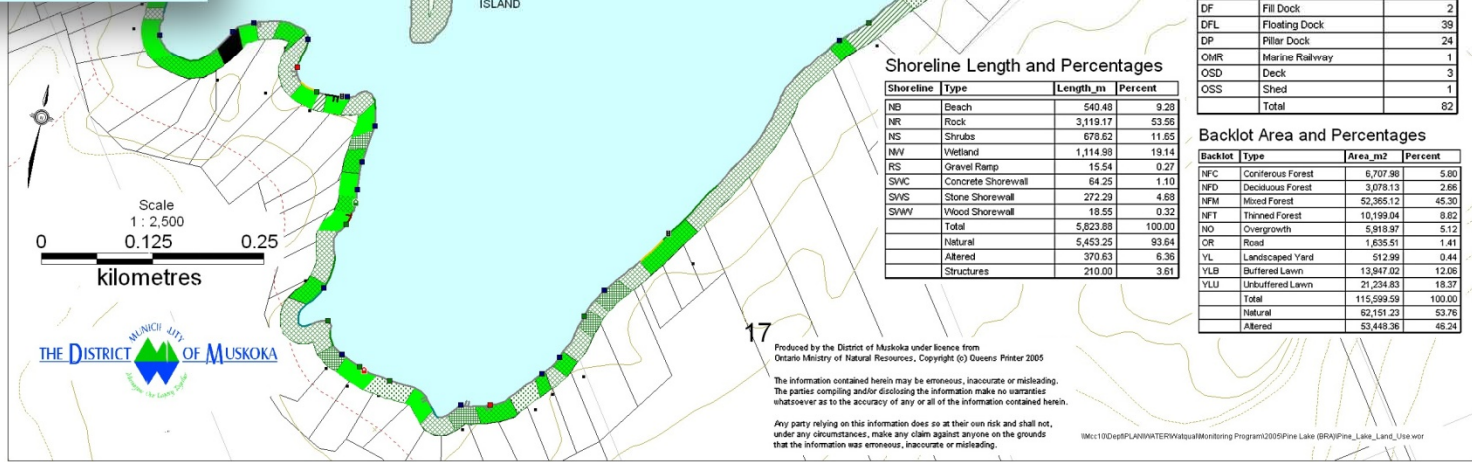
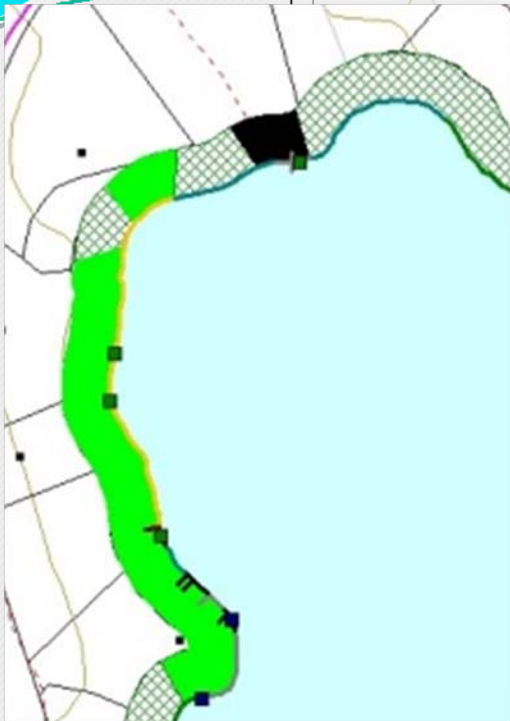


## 2007 Secchi Depth Measurements



# Shoreline Surveys

Lake Name	Municipality
Bird Lake	Bracebridge
Clearwater Lake	Gravenhurst
Clearwater Lake	Huntsville
Dark Lake	Muskoka Lakes
Go Home Lake	Georgian Bay
Lake Joseph – Cox Bay	Muskoka Lakes
Longline Lake	Lake of Bays
Lake Muskoka – Muskoka Bay	Gravenhurst
Lake Rosseau – Brackenrig Bay	Muskoka Lakes



Legend

- |   |   |  |
|---|---|--|
| <b>structurePineMAP by Structure</b>  | <b>shorelinePineMAP by Shoreline_2</b>  | <b>backlotPineMAP by Backlot</b>   |
| <ul style="list-style-type: none"> <li>■ BHC1 (1)</li> <li>■ BHP1 (1)</li> <li>■ DC (10)</li> <li>■ DF (2)</li> <li>■ DFL (39)</li> <li>■ DP (24)</li> <li>■ OMR (1)</li> <li>■ OSD (3)</li> <li>■ OSS (1)</li> </ul> | <ul style="list-style-type: none"> <li>— NB (13)</li> <li>— NR (20)</li> <li>— NS (20)</li> <li>— NW (20)</li> <li>— RS (1)</li> <li>— SMC (4)</li> <li>— SWS (9)</li> <li>— SNW (2)</li> </ul> | <ul style="list-style-type: none"> <li>■ NFC (3)</li> <li>■ NFD (4)</li> <li>■ NFM (41)</li> <li>■ NFT (12)</li> <li>■ NO (6)</li> <li>■ OR (3)</li> <li>■ YL (1)</li> <li>■ YLB (18)</li> <li>■ YLU (24)</li> </ul> |

Structure Count

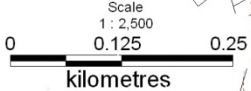
Structure	Type	Count
BHC1	1 Slip Crib Boathouse	1
BHP1	1 Slip Pillar Boathouse	1
DC	Crib Dock	10
DF	Fill Dock	2
DFL	Floating Dock	39
DP	Pillar Dock	24
OMR	Marine Railway	1
OSD	Deck	3
OSS	Shed	1
Total		82

Shoreline Length and Percentages

Shoreline	Type	Length_m	Percent
NB	Beach	540.48	9.28
NR	Rock	3,119.17	53.56
NS	Shrubs	679.62	11.65
NW	Wetland	1,114.98	19.14
RS	Gravel Ramp	15.54	0.27
SMC	Concrete Shorewall	84.25	1.10
SWS	Stone Shorewall	272.29	4.69
SNW	Wood Shorewall	19.55	0.32
Total		5,823.88	100.00
Natural		5,453.26	93.64
Altered		370.63	6.36
Structures		210.00	3.61

Backlot Area and Percentages

Backlot	Type	Area_m2	Percent
NFC	Coniferous Forest	6,707.98	5.80
NFD	Deciduous Forest	3,078.13	2.66
NFM	Mixed Forest	52,365.12	45.30
NFT	Thinned Forest	10,199.04	8.82
NO	Overgrowth	5,919.97	5.12
OR	Road	1,635.51	1.41
YL	Landscaped Yard	512.99	0.44
YLB	Buffered Lawn	13,947.02	12.06
YLU	Unbuffered Lawn	21,234.83	18.37
Total		115,599.59	100.00
Natural		52,151.23	53.76
Altered		53,448.36	46.24



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# Biological Monitoring

- ◆ Thirty organizations participated in 2007
- ◆ Benthic monitoring occurred at 22 sites on 20 lakes
- ◆ One terrestrial monitoring plot was established
- ◆ Docktalk presentations were given to 5 community groups and displays were set up at 3 events



# Availability

- ◆ Full versions of both reports will be posted on DMM website and a hard copy will be sent to each library and Area Municipal Office
- ◆ CDs with both reports will be available from the Planning Department
- ◆ Individual Lake Data Sheets, shoreline survey maps and benthic monitoring sheets will be posted on the Muskoka Water Web site ([www.muskokawaterweb.ca](http://www.muskokawaterweb.ca))
- ◆ Information on specific lakes can be emailed\faxed\mailed upon request

# 2008 Monitoring Schedule

- ◆ 88 sites on 67 lakes will be sampled for chemical parameters.
- ◆ Shoreline survey will focus on Lake Joseph.
- ◆ Biological monitoring program will engage at least 30 organizations in benthic monitoring, terrestrial monitoring, and Docktalk.

# Lakes to be Monitored in 2008

Township of Lake of Bays	Township of Muskoka Lakes	Township of Georgian Bay	Town of Gravenhurst
Axle Lake	Brandy Lake	Barron's Lake	Clearwater Lake
Bella Lake	Cassidy Lake	Baxter Lake	Cornall Lake
Buck Lake	Clear Lake	Go Home Lake	Gull Lake
Chub Lake	High Lake	McCrae Lake	Kahshe Lake – 2 sites
Fifteen Mile Lake	Lake Joseph – 7 sites	McDonald Lake	Loon Lake
Foote Lake	Little Long Lake	North Bay	North Muldrew Lake
Grandview Lake	Long Lake	South Bay	Pigeon Lake
Hardup Lake	Medora Lake	Twelve Mile Bay – 2 sites	South Muldrew Lake
Moot Lake	Mirror Lake	<b>Town of Huntsville</b>	Sparrow Lake
Peninsula Lake – 2 sites	Lake Muskoka – 5 sites		Three Mile Lake
Porcupine Lake	Neilson Lake	Buck Lake	<b>Town of Bracebridge</b>
Rebecca Lake	Roderick Lake	Chub Lake	
Ril Lake	Lake Rosseau – 5 sites	Clearwater Lake	Crosson Lake
Sixteen Mile Lake	Skeleton Lake	Fairy Lake – 2 sites	Gullfeather Lake
South Nelson Lake	Stewart Lake	Long's Lake	Leech Lake
Tackaberry Lake	Three Mile Lake – 2 sites	Penfold Lake	McKay Lake
Tooke Lake	Young Lake	Lake Vernon – 3 sites	Spring Lake
Walker Lake			Stoneleigh Lake

# NFM beats YLU when it comes to lake health

*For these students, helping Muskoka water quality one of the perks of summer dream job*



**ASHLEY LIMA AND MELISSA GREAVES** head out for another day of surveying the shoreline of Muskoka Bay for the District of Muskoka's lake system health project. This is the university students' second summer on the job — not a bad one if you enjoy spending day after day on the water.



GETTING AS MANY SHORES SURVEYED as possible is the focus of June and July outings, but in May and August, water sampling is the name of the game. Ashley Lima demonstrates how water and dissolved oxygen are measured.