



# Hutchinson

Environmental Sciences Ltd.

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## Lake of Bays Water Quality Report 2009

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**Prepared By:** Hutchinson Environmental Sciences Ltd.

**Prepared For:** Lake of Bays Association

**Project #:** J100013

**Date:** October, 2010

October 22, 2010

Project #: J100013

Deb Cumming  
Environment Committee  
Lake of Bays Association  
PO Box 8  
Baysville, ON P0B 1A0

Dear Ms. Cumming:

**Re: HESL J100012 - Lake of Bays Water Quality Report 2009**

I am pleased to submit this report to the Lake of Bays Association on behalf of Hutchinson Environmental Sciences Ltd. (HESL). It describes the water quality conditions measured in the Lake of Bays in 2009 and discusses them in the context of long-term water quality trends observed by the LOBA, the Ontario Ministry of Environment's Lake Partner Program and the District of Muskoka.

I thank you for the opportunity to assist the LOBA with the water quality monitoring program.

Sincerely,



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# Table of Contents

	page
<b>1. Introduction .....</b>	<b>1</b>
<b>2. Methods .....</b>	<b>2</b>
2.1 Sample Sites.....	2
2.2 Phosphorus.....	2
2.3 Bacteria .....	4
2.4 Quality Control .....	4
<b>3. Water Quality Results 2009.....</b>	<b>4</b>
3.1 Total Phosphorus.....	4
3.2 Bacteria .....	8
3.3 Quality Control .....	9
<b>4. Long-term Water Quality Trends .....</b>	<b>10</b>
4.1 Total Phosphorus.....	10
4.2 Bacteria .....	13
<b>5. Summary.....</b>	<b>15</b>
<b>6. References .....</b>	<b>16</b>

## List of Figures

Figure 1.	Map of Lake of Bays and Sites Sampled by the LOBA in 2009. ....	3
Figure 2.	Total Phosphorus Concentrations in Lake of Bays 2009, Deep Water Sites. ....	6
Figure 3.	Total Phosphorus Concentrations in Lake of Bays 2009, Undisturbed Near-shore Sites. ....	6
Figure 4.	Total Phosphorus Concentrations in Lake of Bays 2009, Disturbed and River Sites. ....	7
Figure 5.	Total Phosphorus Concentrations in Lake of Bays 2009, Summarized by Site Type. ....	7
Figure 6.	Results for Bacteria Field Duplicates in Lake of Bays, 2009. ....	9
Figure 7.	Long-term Trends (2002-2009) in Median Summer Total Phosphorus by Site Type. ....	11
Figure 8.	Long-term Trends in Secchi Depth, Spring and Summer Total Phosphorus in Deep Areas of Lake of Bays. ....	12
Figure 9.	Spring Total Phosphorus Concentrations in South Muskoka River Bay near the Lake of Bays Outflow 2003-2009 (Data from District of Muskoka). ....	13
Figure 10.	Geometric Mean of E. coli Counts in Lake of Bays from 2002 to 2009, by Site Type. ....	14
Figure 11.	Geometric Mean of Total Coliform Counts in Lake of Bays from 2002 to 2009, by Site Type. ....	14

## List of Tables

Table 1.	Total Phosphorus Concentrations in Lake of Bays, 2009. ....	5
Table 2.	<i>E. coli</i> and Total Coliform Concentrations in Lake of Bays, 2009.....	8
Table 3.	Results for Total Phosphorus Field Duplicates in Lake of Bays, 2009. ....	9
Table 4.	Number of Samples Collected by the Lake of Bays Monitoring Program (2002-2009) for Total Phosphorus and Bacteria .....	10

## Appendices

Appendix A	Complete LOBA Water Quality Data from 2002 to 2009
Appendix B	Sampling Protocol of the Lake of Bays Association Water Quality Program

# 1. Introduction

Since 2002, the Lake of Bays Association (LOBA) has championed a volunteer-based water quality monitoring program in Lake of Bays. The aim of the program is to characterize phosphorus and bacteria levels as an indication of general lake and watershed health while fostering community involvement and education.

Until the summer of 2000, monitoring in Lake of Bays was limited to tracking water clarity and spring phosphorus concentration under the Ontario Ministry of the Environment's Lake Partner Program. LOBA's monitoring program began with a pilot study in 2000 to monitor bacteria levels in the lake during summer. This project was successful and LOBA expanded the area of study in the summer 2001 to include near-shore areas adjacent to developed and undeveloped properties and areas influenced by wetlands and rivers. In 2004, the program was again expanded to monitor phosphorus concentrations in near-shore areas. Over the course of the program, site selection has changed reflecting changes in focus with an ever-increasing understanding of water quality conditions in Lake of Bays. A number of key sites in the main bays were consistently monitored since 2002, however, providing a useful data set for analysis of long-term trends and comparison to other datasets, such as the Ontario Ministry of the Environment's Lake Partner Program data and the District of Muskoka spring monitoring.

For recreational lakes on the Canadian Shield like Lake of Bays, water quality concerns are most often associated with nutrient enrichment due to increased human phosphorus sources. Phosphorus is a nutrient that limits growth of algae in most freshwater systems on the Canadian Shield. Phosphorus is a natural element in the environment and enters lakes from the atmosphere through precipitation, stream and overland flow, and to a lesser degree through groundwater. Increases in phosphorus loads to lakes from human sources can result in a deterioration of water clarity and decrease deep-water oxygen concentrations that affect coldwater fish habitat.

Bacteria in surface waters can also be a concern for recreational water quality. Coliforms are a group of naturally occurring bacteria that are found in soils, plants and the intestines of warm-blooded animals. Natural sources of these bacteria include waterfowl and wildlife and therefore higher levels are often found in wetlands and along the shorelines of lakes and rivers. Human waste also contains intestinal coliform bacteria; and therefore elevated bacterial concentrations in areas of high human activity may represent the discharge of improperly treated sewage or grey water to the lake. The presence of coliform bacteria in water potentially indicates the presence of disease-causing (pathogenic) micro-organisms and therefore is of concern for contact recreation when occurring in high levels. *Escherichia coli* (*E. coli*) is one of several types of coliform bacteria and is a more specific indicator of fecal contamination.

Lake of Bays has so far been a clear lake with low phosphorus and bacteria levels and no obvious impact of development on water quality. Data collected by the Lake Partner Program, however, have shown a long-term decline in water clarity since the mid-1990s, and the LOBA data showed somewhat increased average phosphorus concentrations from 2006 to 2008 when compared to previous years (AECOM 2009). In this report we present the results of the summer phosphorus monitoring completed by the LOBA in 2009 and discuss them in the context of long-term water quality data collected by the LOBA, the MOE Lake Partner Program and the District Municipality of Muskoka.



## 2. Methods

Volunteers, coordinated by the LOBA Environment Committee, collected samples for analysis of total phosphorus concentrations on five occasions during the summer of 2009 (July 3 and 17, August 1 and 17, and September 4). The sampling and analytical methods in 2009 were consistent with those used in previous monitoring years and are summarized below. Detailed sampling instructions that are provided to the volunteers are presented in Appendix B.

### 2.1 Sample Sites

Total phosphorus was sampled at numerous locations throughout Lake of Bays to include deep, open water locations, near-shore sites adjacent to developed and undeveloped shorelines, and other areas of interest, e.g., inlet river locations, near lagoon discharges. Sites monitored in 2009 are illustrated in Figure 1. Bacteria were sampled in the same locations as TP, with additional locations at the Hollow River lagoon and the Hollow River mouth.

Compared to the 2007 and 2008 sampling years, the focus for 2009 was placed on deep water sites, with reduced sampling at near-shore undisturbed sites and river sites that were sampled in previous years (e.g., Narrows, Hollow River). This approach allows better comparison with other water quality programs, such as the Lake Partner Program and the District of Muskoka spring monitoring, which collect data in central, deep areas of the lake. It also reflects experience collected through the years of the program, which showed that lake water quality is different from river water quality and that near-shore sites can show very local effects that are not representative for whole-lake water quality trends.

### 2.2 Phosphorus

At each deep water site, a water sample was collected from the euphotic zone, at approximately two times the Secchi Depth. At each near-shore site, a water sample was collected at ca. 30 cm depth. The samples were then filtered using a mesh filter in order to remove zooplankton (microscopic animals living in the water, such as water fleas) that can contaminate the sample and result in non-representative, high phosphorus values.

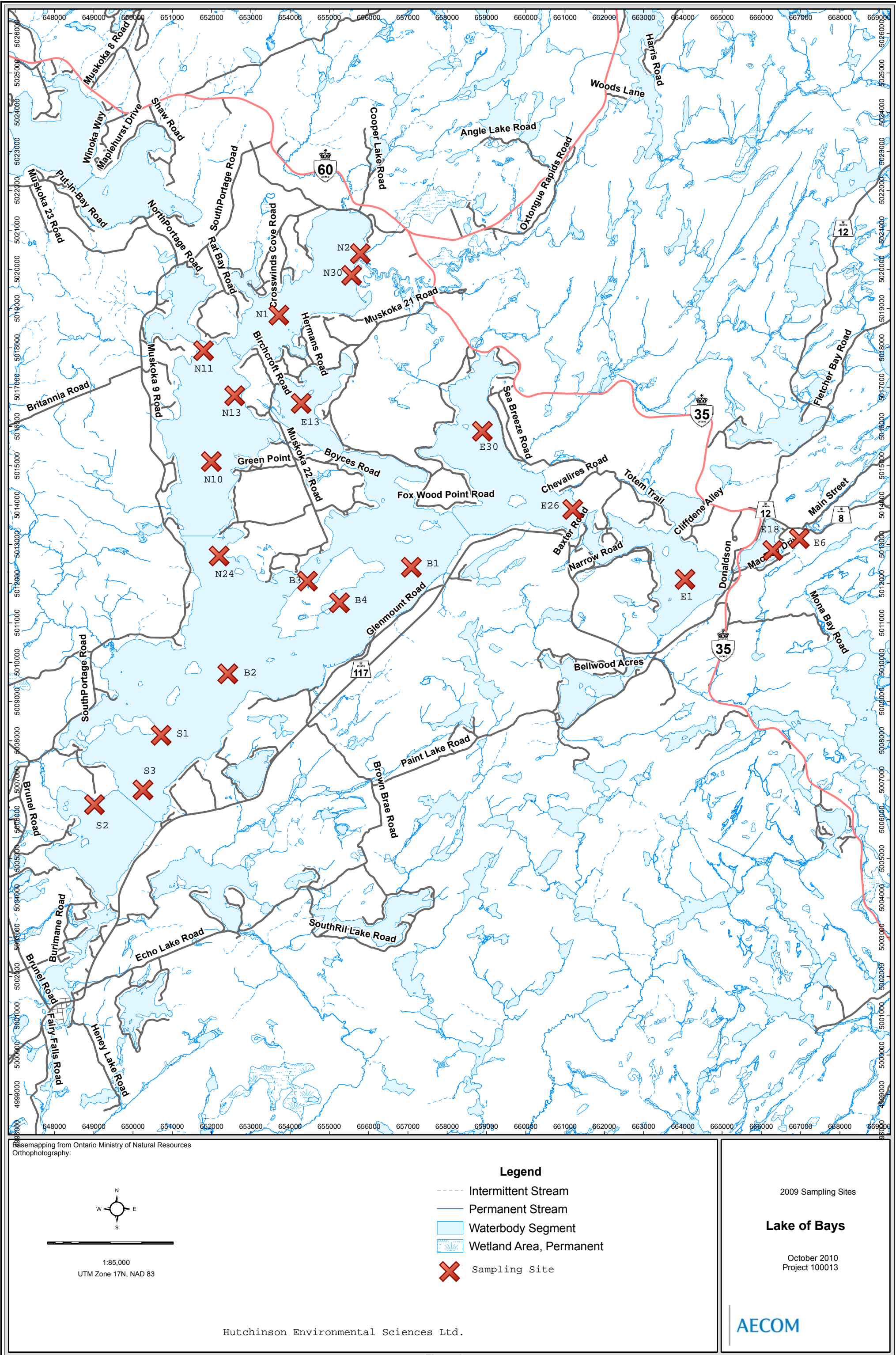
Samples were directly poured into the glass tubes used for phosphorus analysis, stored in a cool place and submitted for analysis to the Trent University laboratory at the Ministry of the Environment's Dorset Environmental Science Centre. Phosphorus concentrations in Lake of Bays were compared to the MOE's Interim Provincial Water Quality Objectives (1994), which state that,

1. Average total phosphorus concentrations for the ice-free period should not exceed 20 µg/L to avoid nuisance concentrations of algae in lakes.
2. A high level of protection against aesthetic deterioration will be provided by a total phosphorus concentration for the ice-free-period of 10 µg/L or less. This should apply to all lakes naturally below this value.
3. Excessive plant growth in rivers and streams should be eliminated at a total phosphorus concentration below 30 µg/L/.

**Figure 1. Map of Lake of Bays and Sites Sampled by the LOBA in 2009.**







## 2.3 Bacteria

Bacteria samples were collected at the same sites as those visited for total Phosphorus sampling. Bacteria were sampled at a depth of 22 – 30 cm at both near-shore and deep water locations and care was taken to prevent any contamination (see detailed sampling procedure in Appendix B). The samples were kept cool and submitted for analysis to an accredited laboratory.

Bacteria levels were compared to the Provincial Water Quality Objectives (PWQO) for recreational water use (Ministry of the Environment and Energy 1994). For total coliforms, the PWQO is 1,000 colony forming units (cfu) per 100 mL, based on a geometric mean for a series of water samples. The MOW recommends that this objective be used as a guideline only, and that bacterial assessment of water quality should be based on more specific fecal bacteria indicators such as *E. coli*. The PWQO for *E. coli* is 100 cfu per 100 mL, based on a geometric mean of at least five samples taken from one site within one month. This objective is intended to protect swimming and bathing beaches for recreational use.

Where testing indicates sewage or fecal contamination, a site-specific judgment must be made as to the severity of the problem and the appropriate course of action. Although the five sampling visits to Lake of Bays did not occur within one, but two months, we calculated geometric means from the five dates as a reasonable approximation of the degree of bacterial contamination over the summer season.

## 2.4 Quality Control

In order to assess the variability of results related to sampling and analytical procedures, nine duplicates of field samples for total phosphorus and 15 field duplicates for bacteria were collected and analyzed in 2009.

# 3. Water Quality Results 2009

## 3.1 Total Phosphorus

Total phosphorus concentrations at all sampling sites monitored in 2009 were relatively low reflecting low algae productivity or “oligotrophic” conditions in Lake of Bays (Table 1, Figures 2, 3 and 4). The mean summer total phosphorus concentration of all of the samples was 4.7 µg/L, and ranged from 1.9 to 10.2 µg/L. All but one sample were below the Provincial Water Quality Objective of 20 µg/L for highest protection against aesthetic deterioration due to nuisance aquatic plant growth and document the continued excellent water quality in Lake of Bays.

Concentrations varied somewhat among sites and dates, showing a decreasing trend from early summer to late summer, in particular at the near-shore sites. The highest seasonal values were consistently observed on July 17<sup>th</sup>.

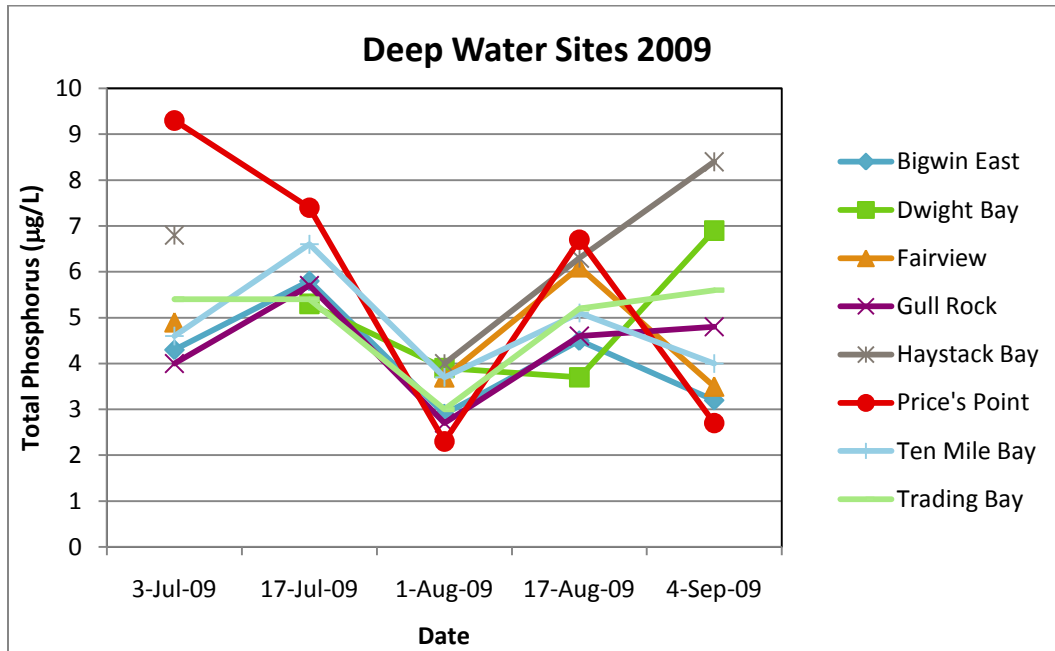


River sites had on average the highest phosphorus concentrations (Figure 5), which is expected as rivers transport soil and other particles that contain phosphorus. These particles settle to the bottom as they reach the calm lake waters and therefore lake water contains less total phosphorus. Undisturbed near-shore sites generally had the lowest phosphorus concentrations, which may indicate their pristine, unimpacted nature, but also uptake of nutrients by aquatic plants in the shallower waters. Disturbed and deep-water sites had intermediate phosphorus levels, which may indicate some local influence from shoreline development on near-shore sites and on deep areas in relatively enclosed bays, such as Haystack Bay. This, however, is not a generality across all disturbed sites, as some of them had very low phosphorus levels, such as Britannia and Bigwin Bay (Figure 2 c).

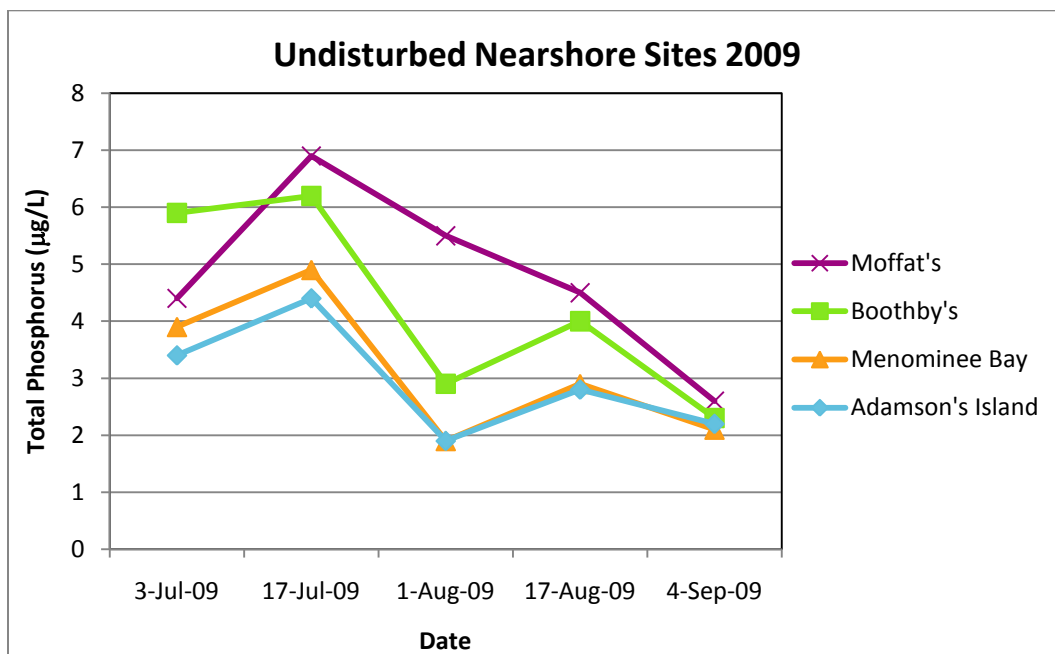
**Table 1. Total Phosphorus Concentrations in Lake of Bays, 2009.**

Site ID	Site Type & Name	3-Jul-09	17-Jul-09	1-Aug-09	17-Aug-09	4-Sep-09	Mean
<i>Deep Water</i>							
B1	Bigwin East	4.3	5.8	2.9	4.5	3.2	4.1
N1	Dwight Bay	-	5.3	3.9	3.7	6.9	5.0
B2	Fairview	4.9	-	3.7	6.1	3.5	4.6
N10	Gull Rock	4.0	5.7	2.7	4.6	4.8	4.4
E13	Haystack Bay	6.8	-	4.0	6.3	8.4	6.4
S3	Price's Point	9.3	7.4	2.3	6.7	2.7	5.7
E30	Ten Mile Bay	4.6	6.6	3.7	5.1	4.0	4.8
E1	Trading Bay	5.4	5.4	3.0	5.2	5.6	4.9
<i>Disturbed</i>							
B4	Bigwin Bay	4.6	6.8	3.9	3.4	2.1	4.2
B3	Bigwin North	4.5	10.2	2.9	5.4	5.1	5.6
N11	Britannia	3.5	5.3	2.0	3.5	3.6	3.6
<i>Undisturbed Nearshore</i>							
S1	Adamson's Island	3.4	4.4	1.9	2.8	2.2	2.9
N24	Boothby's	5.9	6.2	2.9	4.0	2.3	4.3
S2	Menominee Bay	3.9	4.9	1.9	2.9	2.1	3.1
N13	Moffat's	4.4	6.9	5.5	4.5	2.6	4.8
<i>River</i>							
N30	Oxtongue mouth	5.7	6.3	4.1	4.8	2.9	4.8
N2	Oxtongue Delta	9.4	8.5	6.8	6.9	6.4	7.6
	<i>Mean</i>	5.3	6.4	3.4	4.7	4.0	4.7

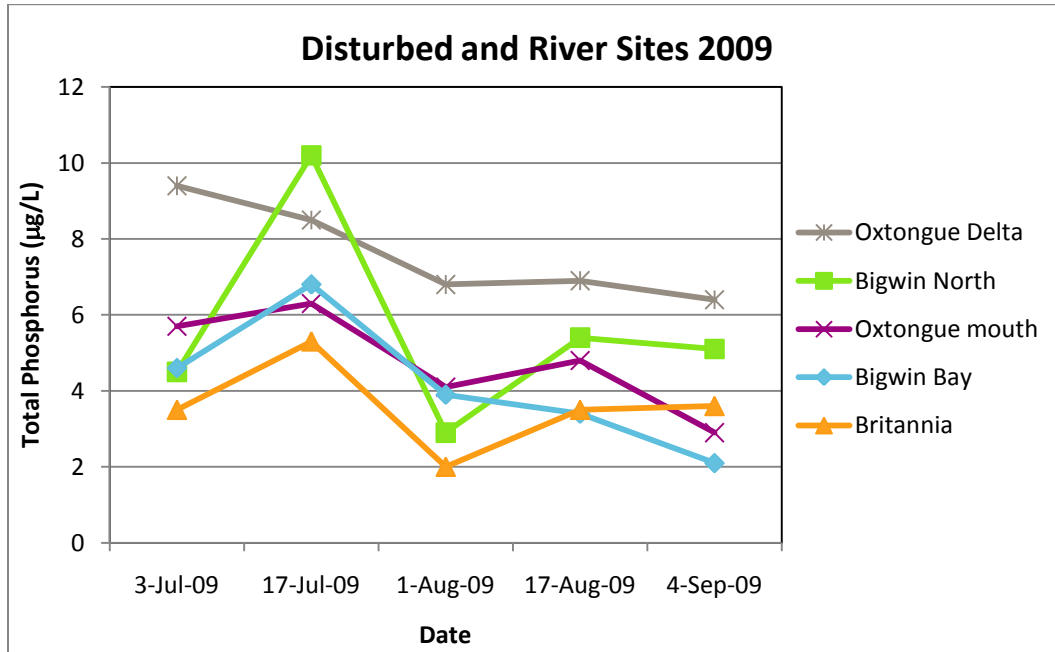
**Figure 2. Total Phosphorus Concentrations in Lake of Bays 2009, Deep Water Sites.**



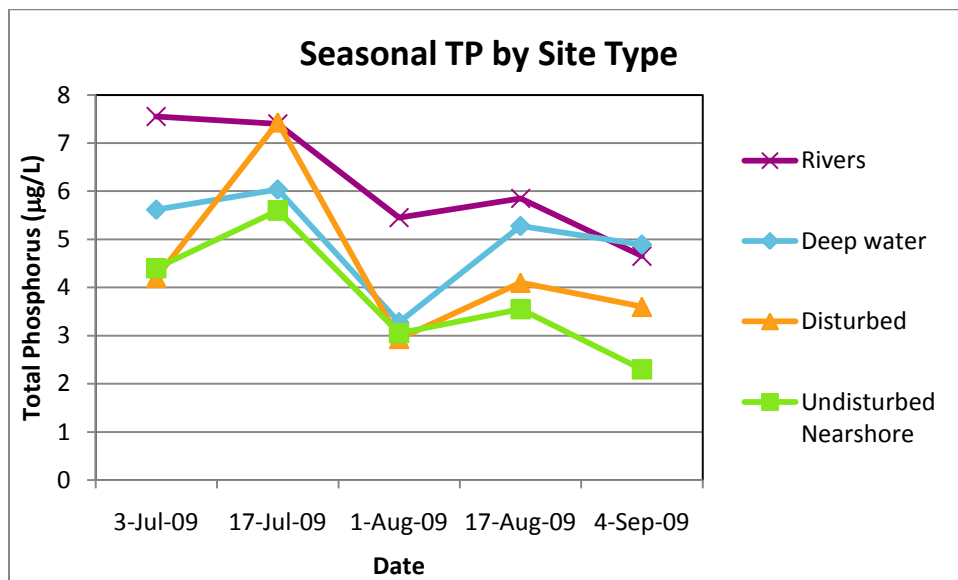
**Figure 3. Total Phosphorus Concentrations in Lake of Bays 2009, Undisturbed Near-shore Sites.**



**Figure 4. Total Phosphorus Concentrations in Lake of Bays 2009, Disturbed and River Sites.**



**Figure 5. Total Phosphorus Concentrations in Lake of Bays 2009, Summarized by Site Type.**



*Note: Data points for each date represent mean values of all sites of one type.*



## 3.2 Bacteria

In 2009, as in previous sampling years, *E.coli* counts remained far below the PWQO of 100 cfu/100 mL and Total Coliforms remained far below the PWQO of 1,000 cfu/100 mL at all sampling sites (Table 2). Many samples (30%) were below the detection limit of 3 cfu/100 mL and the overall average of site geometric means was 3 cfu/100 mL. The overall average of site geometric means for Total Coliform counts was 11 cfu/ 100 mL.

The highest bacteria counts were observed in the river sites, a pattern that has been observed in previous years in Lake of Bays and that is expected as rivers are more exposed to bacteria sources from wildlife and riverside development. The lowest values were observed in deep-water sites, likely because these sites are most removed from bacteria sources that mainly are located at or near the shore. Overall, the bacteria levels in Lake of Bays did not pose any human health risk with respect to exposure from recreational activity in summer 2009.

**Table 2. *E. coli* and Total Coliform Concentrations in Lake of Bays, 2009**

Site ID	Site Name	<i>E. coli</i> <sup>1,2</sup> (cfu/100 mL)	Total Coliforms <sup>1,2</sup> (cfu/100 mL)
<i>Deep water</i>			
B 1 P	Bigwin East	1	4
B 2 P	Fairview	2	4
E 1 P/B	Trading Bay	3	5
E 13 P/B	Haystack Bay	3	7
E 30 P/B	Ten Mile Bay	2	9
N 1 P	Dwight Bay	2	6
N 10 P/B	Gull Rock	2	3
S 3 P/B	Price's Point	2	4
	<b>Mean</b>	<b>2</b>	<b>5</b>
<i>Disturbed</i>			
B3 P/B	Bigwin North	4	15
B5 P/B	Bigwin docks	3	12
N 11 P/B	Britannia	2	6
	<b>Mean</b>	<b>3</b>	<b>11</b>
<i>Nearshore undisturbed</i>			
E 26 P/B	Narrows West	4	11
N 13 P/B	Moffatt's	2	6
N 24 P/B	Boothby's	2	7
S 1 P/B	Adamson's Island	2	8
S 2 P/B	Menominee Bay	2	11
	<b>Mean</b>	<b>2</b>	<b>8</b>
<i>River</i>			
E 18 P/B	Hollow River mouth	7	41
E 6 P/B	Hollow River lagoon	8	24
N2 P/B	Oxtongue River mouth	10	26
N 30 P/B	Oxtongue Delta	4	9
	<b>Mean</b>	<b>7</b>	<b>25</b>
	<b>All Sites Mean</b>	<b>3</b>	<b>11</b>

Note: <sup>1</sup>The data values are geometric means of five samples, collected between July 6 and September 6, 2009.

<sup>2</sup>Non-detects were assumed to have 1 cfu/100 mL for the purpose of geometric mean calculation.

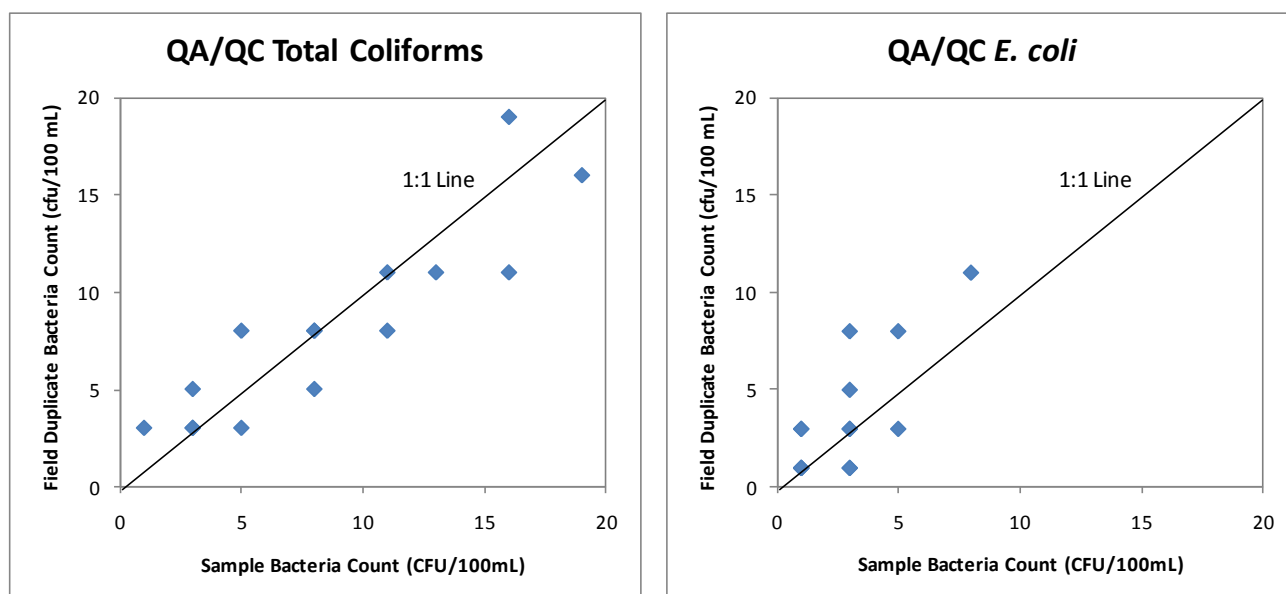
### 3.3 Quality Control

The quality control program in 2009 again yielded positive results that provide a high degree of confidence in the sampling protocols and analyses for total phosphorus (Table 3) and bacteria (Figure 6). The difference between TP field duplicates ranged from 0 to 1.3 µg/L, with a mean difference between sample pairs of 0.3 µg/L. This mean difference represents 6 % of the overall mean TP concentration, which is excellent for TP measurements. The differences between bacteria duplicates ranged from 0 to 5 (Figure 6), with an average difference of 2, which is also very low.

**Table 3. Results for Total Phosphorus Field Duplicates in Lake of Bays, 2009.**

Site ID	Site Name	Site Type	Date	Total Phosphorus (µg/L)		Absolute Difference
				Sample	Duplicate	
S1	Adamson's Island	Nearshore Undisturbed	3-Jul-09	3.4	3.4	0.0
B1	Bigwin East	Deep water	3-Jul-09	4.2	4.3	0.1
S3	Price's Point	Deep water	3-Jul-09	9.5	9.2	0.3
N1	Dwight Bay	Deep water	17-Jul-09	5.3	5.2	0.1
N10	Gull Rock	Deep water	1-Aug-09	2.5	2.9	0.4
N1	Dwight Bay	Deep water	1-Aug-09	4.5	3.2	1.3
N1	Dwight Bay	Deep water	17-Aug-09	3.6	3.7	0.1
E1	Trading Bay	Deep water	17-Aug-09	5.3	5.1	0.2
S3	Price's Point	Deep water	4-Sep-09	2.6	2.7	0.1
Average						0.3
Minimum						0.0
Maximum						1.3

**Figure 6. Results for Bacteria Field Duplicates in Lake of Bays, 2009.**



## 4. Long-term Water Quality Trends

The Lake of Bays Water Quality Monitoring Program has been consistently collecting data over the summer season for eight years at numerous locations throughout the lake (Table 4). The yearly number of collected samples including QA/QC samples ranged from 50 in 2002 to 108 in 2008, with a total number of 621 collected TP samples. This data set provides an excellent opportunity to assess long-term trends and variability in Lake of Bays total phosphorus over the years.

**Table 4. Number of Samples Collected by the Lake of Bays Monitoring Program (2002-2009) for Total Phosphorus and Bacteria**

Site Type	2002	2003	2004	2005	2006	2007	2008	2009	2002-2009
<b>Total Phosphorus</b>									
Deep water	30	39	28	29	53	49	48	47	323
Disturbed	15	22	13	8		9	13	15	95
Near-shore Undisturbed	5	7	5	14	22	32	32	20	137
River		16	7	8		10	15	10	66
<b>All Site Types</b>	<b>50</b>	<b>84</b>	<b>53</b>	<b>59</b>	<b>75</b>	<b>100</b>	<b>108</b>	<b>92</b>	<b>621</b>
<b>Bacteria</b>									
Deep water	13	12	8	30	57	61	68	38	287
Disturbed	7	7	7	5	-	13	15	16	70
Nearshore Undisturbed	7	6	8	36	29	47	44	35	212
River	7	13	10	7	-	16	14	16	83
<b>All Site Types</b>	<b>34</b>	<b>38</b>	<b>33</b>	<b>78</b>	<b>86</b>	<b>137</b>	<b>141</b>	<b>105</b>	<b>652</b>

### 4.1 Total Phosphorus

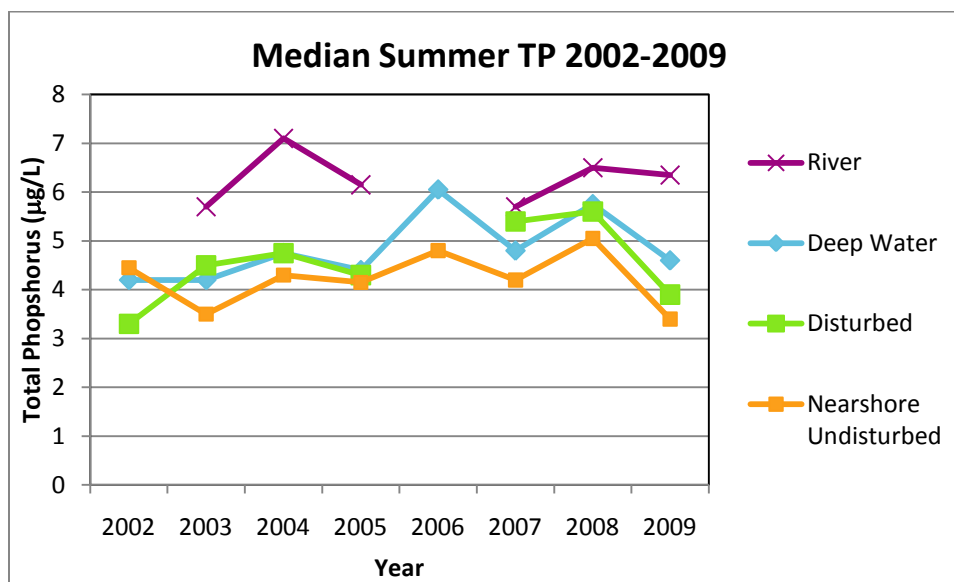
For the purpose of summarizing trends over the years, we calculated mean and median total phosphorus concentrations per site type and per year. Median concentrations have the advantage that they are not sensitive to high or low point measurements that are not representative of the overall trend and can have an overriding influence on the data summary. Some extreme values that indicated sample contamination were excluded from the data summaries.

Since 2002, the median summer total phosphorus concentrations have ranged between ~3 and 7 µg/L (Figure 6). These concentrations are low and reflect the low primary productivity or oligotrophic conditions in Lake of Bays. Oligotrophic lakes typically have good water clarity and high dissolved oxygen concentrations and therefore excellent water quality. River sites typically displayed higher total phosphorus concentrations than in-lake samples, which is an expected observation due to naturally higher phosphorus concentrations in rivers, as discussed above. Deep-water and disturbed sites showed very similar median concentrations over the years, while the undisturbed near-shore sites consistently had the lowest phosphorus levels (Figure 6). Although the difference is small, it is statistically significant when comparing median values of deep-water and undisturbed near-shore sites ( $t = 3.5$ ,  $p = 0.009$ ,  $d.f. = 7$ ). This result indicates



that the undisturbed near-shore sites do have the most pristine water quality of all sites in the lake.

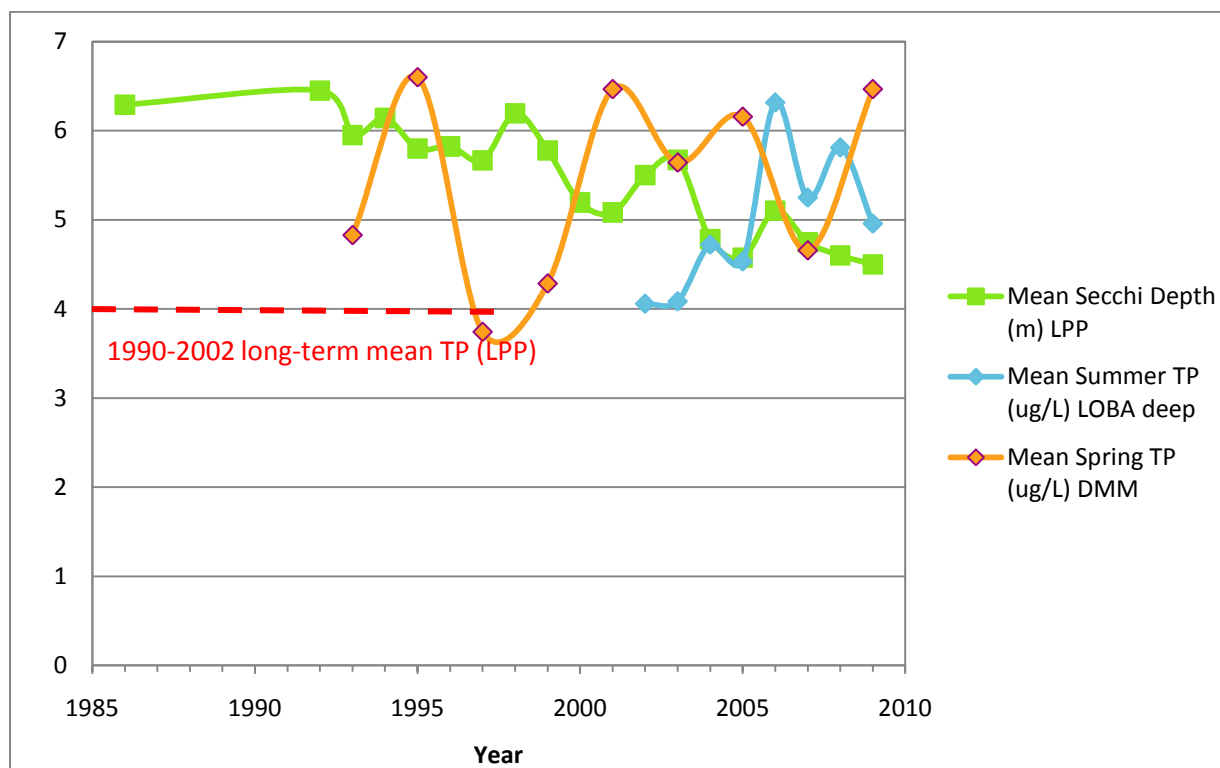
**Figure 7. Long-term Trends (2002-2009) in Median Summer Total Phosphorus by Site Type.**



The summer total phosphorus concentrations measured by the LOBA have shown a recent increase, in particular during the years from 2006-2008 (Figure 6). This trend did not continue in 2009, when generally lower concentrations than in 2006-2008 were recorded, returning to 2003/2004 levels. There was also a steady long-term decrease in Secchi Depth from 1992 to the present (Lake Partner Program, Figure 7), which would be consistent with increased total phosphorus, as more algae growth due to increased phosphorus decreases water clarity. This trend has also been observed in other lakes in the area, but the reasons are currently not well understood (AECOM 2009).

Decreased water clarity in the water can also be caused by increased colour due to higher dissolved organic carbon (DOC) concentrations. Lake recovery from acidification is accompanied by increases of DOC (Bouchard 1997), but climate change has also been suggested as a factor that increases surface water DOC (e.g., Posch et al. 2007). This remains a speculation, however, unless DOC data are collected in Lake of Bays and other lakes in the area that show the long-term decline in water clarity.

**Figure 8. Long-term Trends in Secchi Depth, Spring and Summer Total Phosphorus in Deep Areas of Lake of Bays.**



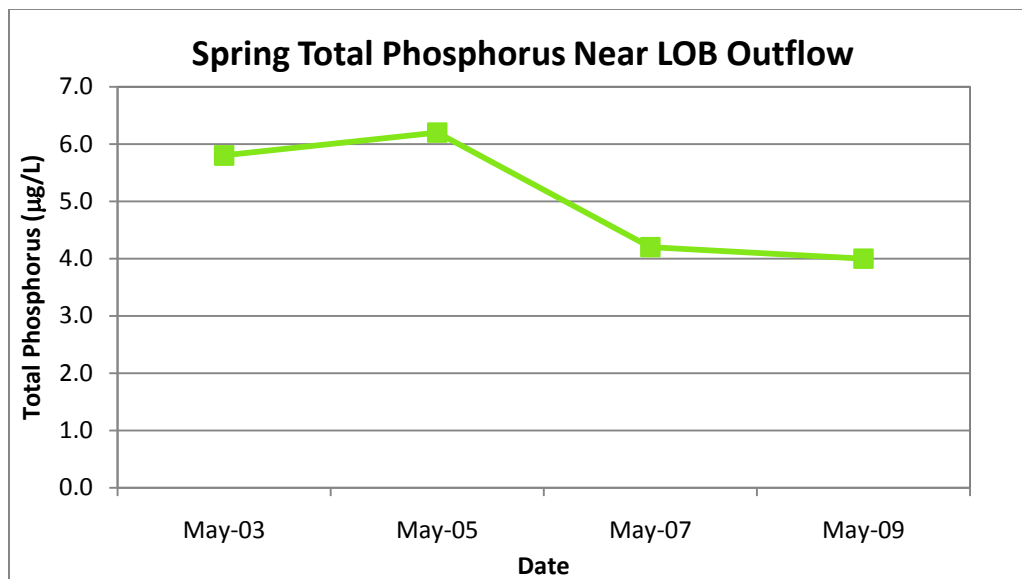
*Notes: Summer TP measured by the LOBA only includes only deep water sites, in order to allow comparison with DMM and LPP data that are consistently collected in deep areas.  
LPP Secchi Depth was measured in different bays before and after 2003 (Bigwin Channel, Dwight Bay, Fairview Island Channel, Gull Island Channel, Haystack Bay, Trading Bay from 1992 to 2003, in Little Trading Bay and South of Britannia Bay from 2004 to 2009).*

Long-term total phosphorus concentrations measured in spring by the District of Muskoka, on the other hand, were very variable among years and sites and did not show any clear long-term trend (Figure 7). They varied across the entire range of values encountered in the LOBA summer data and were not correlated with the summer data. It has to be noted that during the years 2006 and 2008, when summer TP monitored by LOBA was highest, the DMM did not sample Lake of Bays, therefore we do not know if the spring TP was high during those years as well. From the years when both spring and summer data were collected, it still appears that the variation in spring total phosphorus concentrations in the Lake of Bays is controlled by different factors than summer total phosphorus concentrations. The main cause for inter-annual changes in spring TP is probably the varying intensity of spring snowmelt, which would result in varying amounts of particles in the lake during spring that would settle out with stratification and have no effect on summer concentrations. During summer, weather, shoreline development, localized nutrient uptake by plants and changes in the food chain may all affect total phosphorus concentrations and cause differences between years, sampling locations and sampling dates.

A small decreasing trend was evident in spring phosphorus data collected by the District of Muskoka from the site near the outflow from 2003 to 2009 (South Muskoka River Bay, Figure 8).

This result indicates that while in-lake total phosphorus concentrations have varied largely among different LOB sites and over time, the quality of the water leaving the lake in spring was not highly variable. It therefore represents an average of lake conditions, as would be expected for the outflow of a lake that has a number of different inflows and water sources.

**Figure 9. Spring Total Phosphorus Concentrations in South Muskoka River Bay near the Lake of Bays Outflow 2003-2009 (Data from District of Muskoka).**

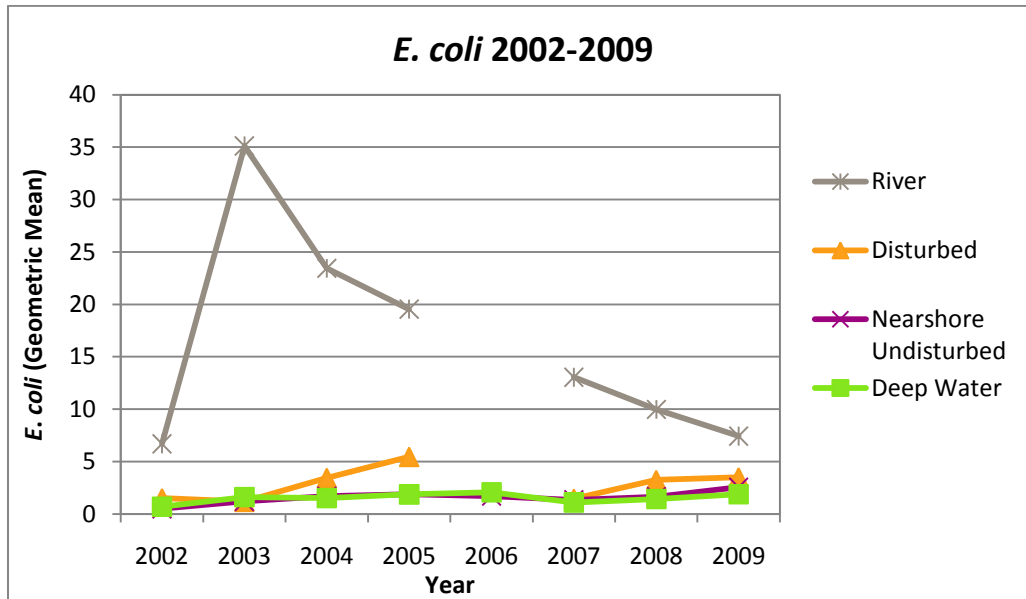


## 4.2 Bacteria

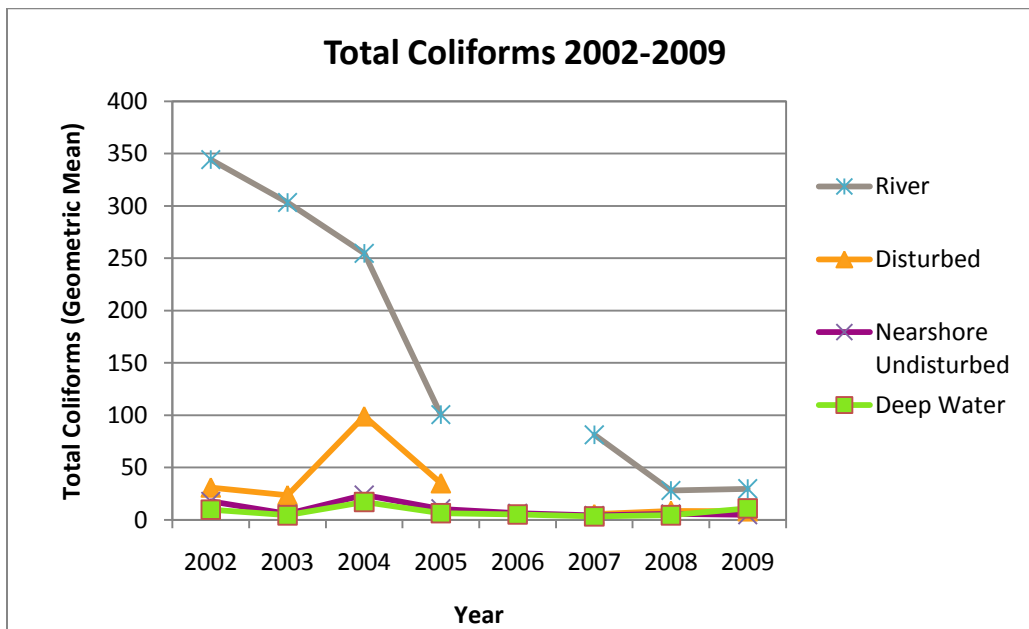
Long-term data on bacteria counts show that bacteria levels in deep water and undisturbed near-shore sites have always been very low and stable over the years, while bacteria levels in river and disturbed sites have declined over time (Figures 10 and 11). As the highest bacteria levels in earlier years were measured in the Hollow River lagoon, we verified if the river trend was only driven by improved lagoon water quality, but found that the bacteria levels were decreasing in all river sites. Still, the largest decreases occurred in the lagoon and the river site downstream of the lagoon (Hollow River mouth, E18). These trends were observed in both the *E. coli* and the Total Coliform counts.

Generally, lake sites always remained well below the PWQOs for Total Coliforms and *E. coli*. An effect of shoreline development on bacteria levels can be seen in most years by slightly elevated bacteria counts in disturbed sites when compared to undisturbed and deep-water sites. The absolute values, however, have been mostly very low, in particular in the last few years, demonstrating excellent bathing water quality at all sites in the Lake of Bays.

**Figure 10. Geometric Mean of *E. coli* Counts in Lake of Bays from 2002 to 2009, by Site Type.**



**Figure 11. Geometric Mean of Total Coliform Counts in Lake of Bays from 2002 to 2009, by Site Type.**



## 5. Summary

The total phosphorus and bacteria data collected by the Lake of Bays Association in summer 2009 were of high quality and indicated continued excellent water quality at all sampling sites in the Lake of Bays. The main results of data analyses from the year 2009 and from previous years are as follows:

- 1) Total phosphorus concentrations are characteristic of lakes with low primary productivity and meet the highest Provincial standards for protection from algae bloom development;
- 2) Total phosphorus concentrations were highest in river sites compared to lake sites, as expected from natural processes, and were lowest in undisturbed near-shore sites, indicating that these are indeed the most pristine sites of the lake;
- 3) The previously described increasing trend in total phosphorus concentrations did not continue in 2009, with values returning to 2003/2004 levels, which suggests that the 2006-2008 increase was due to natural variability;
- 4) Bacteria levels were well below guidelines for waters used for contact recreation, as in previous years, indicating excellent bathing water quality in Lake of Bays;
- 5) Highest bacteria levels were observed in river sites, as expected for natural waters, and lowest levels were observed in deep water and undisturbed near-shore sites; reflecting their remoteness from bacterial sources.
- 6) Bacteria levels have always been low in the lake since the LOBA monitoring program started, but the river and disturbed sites show a decline in bacteria levels from 2002 to 2009.



## 6. References

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# Appendix A

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## **Complete Lake of Bays Association Water Quality Data from 2002 to 2009**



Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
B1P	B1	Bigwin East	Deep water	2002	1-Jul-02	4.4				
B1P	B1	Bigwin East	Deep water	2002	15-Jul-02	5.8				
B1P	B1	Bigwin East	Deep water	2002	5-Aug-02	4.3				
B1P	B1	Bigwin East	Deep water	2002	19-Aug-02	3.7				
B1P	B1	Bigwin East	Deep water	2002	2-Sep-02	2.7				
B2 P/B	B2	Fairview	Deep water	2002	1-Jul-02	2.2				
B2 P/B	B2	Fairview	Deep water	2002	15-Jul-02	2.3				
B2 P/B	B2	Fairview	Deep water	2002	5-Aug-02	4.2				
B2 P/B	B2	Fairview	Deep water	2002	19-Aug-02	3.3				
B2 P/B	B2	Fairview	Deep water	2002	2-Sep-02	2.1				
B3 P/B	B3	Bigwin North	Disturbed	2002	26-May-02		0.5	3		
B3 P/B	B3	Bigwin North	Disturbed	2002	1-Jul-02	8.8	52	94		
B3 P/B	B3	Bigwin North	Disturbed	2002	15-Jul-02	5.1	0.5	8		
B3 P/B	B3	Bigwin North	Disturbed	2002	5-Aug-02	6.2	11	213		
B3 P/B	B3	Bigwin North	Disturbed	2002	19-Aug-02	2.7	0.5	43		
B3 P/B	B3	Bigwin North	Disturbed	2002	2-Sep-02	2.3	0.5	33		
B3 P/B	B3	Bigwin North	Disturbed	2002	29-Sep-02		0.5	39		
B4 P/B	B4	Bigwin Bay	Disturbed	2002	1-Jul-02	3.1				
B4 P/B	B4	Bigwin Bay	Disturbed	2002	15-Jul-02	9.6				
B4 P/B	B4	Bigwin Bay	Disturbed	2002	5-Aug-02	5.4				
B4 P/B	B4	Bigwin Bay	Disturbed	2002	19-Aug-02	3.1				
B4 P/B	B4	Bigwin Bay	Disturbed	2002	2-Sep-02	2.9				
E 6 P/B	E6	Hollow River Lagoon	River	2002	26-May-02		3	43		
E 6 P/B	E6	Hollow River Lagoon	River	2002	1-Jul-02		13	166		
E 6 P/B	E6	Hollow River Lagoon	River	2002	15-Jul-02		11	188		a
E 6 P/B	E6	Hollow River Lagoon	River	2002	5-Aug-02		8	1174		
E 6 P/B	E6	Hollow River Lagoon	River	2002	19-Aug-02		22	587		
E 6 P/B	E6	Hollow River Lagoon	River	2002	2-Sep-02		0.5	2424		
E 6 P/B FD	E6	Hollow River Lagoon	River	2002	15-Jul-02		16	256		F
E1 P/B	E1	Trading Bay	Deep water	2002	26-May-02		0.5	3		
E1 P/B	E1	Trading Bay	Deep water	2002	1-Jul-02	4.6	0.5	11		
E1 P/B	E1	Trading Bay	Deep water	2002	15-Jul-02	4.2	0.5	3		
E1 P/B	E1	Trading Bay	Deep water	2002	5-Aug-02	5.9	0.5	5		
E1 P/B	E1	Trading Bay	Deep water	2002	19-Aug-02		0.5	13	17.7	
E1 P/B	E1	Trading Bay	Deep water	2002	2-Sep-02	1.8	0.5	8		
E1 P/B	E1	Trading Bay	Deep water	2002	29-Sep-02		0.5	59		
E13 P/B	E13	Haystack Bay	Deep water	2002	1-Jul-02	3.5				



Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
E13 P/B	E13	Haystack Bay	Deep water	2002	15-Jul-02	6.1				
E13 P/B	E13	Haystack Bay	Deep water	2002	5-Aug-02	4.9				
E13 P/B	E13	Haystack Bay	Deep water	2002	19-Aug-02	4.1				
E13 P/B	E13	Haystack Bay	Deep water	2002	2-Sep-02	2.5				
N1 P	N1	Dwight Bay	Deep water	2002	1-Jul-02	6.7				
N1 P	N1	Dwight Bay	Deep water	2002	15-Jul-02	5.7				
N1 P	N1	Dwight Bay	Deep water	2002	5-Aug-02	4.8				
N1 P	N1	Dwight Bay	Deep water	2002	19-Aug-02	3.8				
N1 P	N1	Dwight Bay	Deep water	2002	2-Sep-02	1.8				
N10 P/B	N10	Gull Rock	Deep water	2002	26-May-02		0.5	0.5		
N10 P/B	N10	Gull Rock	Deep water	2002	1-Jul-02	4.6	3	25		
N10 P/B	N10	Gull Rock	Deep water	2002	15-Jul-02	4.9				
N10 P/B	N10	Gull Rock	Deep water	2002	5-Aug-02	4.3	5	52		
N10 P/B	N10	Gull Rock	Deep water	2002	19-Aug-02	3.8	0.5	30		
N10 P/B	N10	Gull Rock	Deep water	2002	2-Sep-02	2.4	0.5	33		
N10 P/B	N10	Gull Rock	Deep water	2002	28-Sep-02		0.5	3		
N11 P/B	N11	Britannia	Disturbed	2002	1-Jul-02	3.3				
N11 P/B	N11	Britannia	Disturbed	2002	15-Jul-02	4.7				
N11 P/B	N11	Britannia	Disturbed	2002	5-Aug-02	3.8				
N11 P/B	N11	Britannia	Disturbed	2002	19-Aug-02	2.7				
N11 P/B	N11	Britannia	Disturbed	2002	2-Sep-02	2.0				
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2002	26-May-02		0.5	0.5		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2002	1-Jul-02	5.6	0.5	11.0		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2002	15-Jul-02	5.1	0.5	33.0		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2002	5-Aug-02		0.5	123.0	36.7	
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2002	19-Aug-02	3.8	0.5	55.0		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2002	2-Sep-02	1.8	0.5	55.0		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2002	29-Sep-02		0.5	8.0		
B1P	B1	Bigwin East	Deep water	2003	8-Jun-03					
B1P	B1	Bigwin East	Deep water	2003	30-Jun-03	4.6				
B1P	B1	Bigwin East	Deep water	2003	14-Jul-03	5.5				
B1P	B1	Bigwin East	Deep water	2003	4-Aug-03	4.1				
B1P	B1	Bigwin East	Deep water	2003	18-Aug-03	5.2				
B1P	B1	Bigwin East	Deep water	2003	1-Sep-03	2.9				
B1P	B1	Bigwin East	Deep water	2003	28-Sep-03	2.7				
B2 P/B	B2	Fairview	Deep water	2003	8-Jun-03	4.4				
B2 P/B	B2	Fairview	Deep water	2003	30-Jun-03	4.0				

Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
B2 P/B	B2	Fairview	Deep water	2003	14-Jul-03	4.2				
B2 P/B	B2	Fairview	Deep water	2003	4-Aug-03	4.2				
B2 P/B	B2	Fairview	Deep water	2003	18-Aug-03	3.2				
B2 P/B	B2	Fairview	Deep water	2003	1-Sep-03	2.4				
B2 P/B	B2	Fairview	Deep water	2003	28-Sep-03	2.6				
B3 P/B	B3	Bigwin North	Disturbed	2003	8-Jun-03	4.5				
B3 P/B	B3	Bigwin North	Disturbed	2003	30-Jun-03	4.0	1	8		
B3 P/B	B3	Bigwin North	Disturbed	2003	14-Jul-03	5.3	1	33		
B3 P/B	B3	Bigwin North	Disturbed	2003	4-Aug-03	4.4	1	19		
B3 P/B	B3	Bigwin North	Disturbed	2003	4-Aug-03	4.5	1	19		
B3 P/B	B3	Bigwin North	Disturbed	2003	14-Aug-03	2.7	1	43		
B3 P/B	B3	Bigwin North	Disturbed	2003	1-Sep-03	3.3	3	87		
B3 P/B	B3	Bigwin North	Disturbed	2003	28-Sep-03	2.7	1	11		
B4 P/B	B4	Bigwin Bay	Disturbed	2003	8-Jun-03	4.9				
B4 P/B	B4	Bigwin Bay	Disturbed	2003	30-Jun-03	3.5				
B4 P/B	B4	Bigwin Bay	Disturbed	2003	14-Jul-03	5.1				
B4 P/B	B4	Bigwin Bay	Disturbed	2003	4-Aug-03	4.8				
B4 P/B	B4	Bigwin Bay	Disturbed	2003	18-Aug-03	7.3				
B4 P/B	B4	Bigwin Bay	Disturbed	2003	1-Sep-03	2.1				
B4 P/B	B4	Bigwin Bay	Disturbed	2003	28-Sep-03	5.4				
E 6 P/B	E6	Hollow River Lagoon	River	2003	30-Jun-03	11.4	25	240		
E 6 P/B	E6	Hollow River Lagoon	River	2003	14-Jul-03	8.5	11	388		
E 6 P/B	E6	Hollow River Lagoon	River	2003	4-Aug-03	7.7	25	619		a
E 6 P/B	E6	Hollow River Lagoon	River	2003	14-Aug-03	5.2	3	469		
E 6 P/B	E6	Hollow River Lagoon	River	2003	1-Sep-03	5.2				
E 6 P/B	E6	Hollow River Lagoon	River	2003	28-Sep-03	5.1				
E 6 P/B LD	E6	Hollow River Lagoon	River	2003	4-Aug-03		24	76		L
E 6A P/B	E6a	ollow River lagoon-upstrea	River	2003	30-Jun-03	7.3	30	177		
E 6A P/B	E6a	ollow River lagoon-upstrea	River	2003	14-Jul-03	6.5	102	534		
E 6A P/B	E6a	ollow River lagoon-upstrea	River	2003	4-Aug-03	6.4	403	619		
E 6A P/B	E6a	ollow River lagoon-upstrea	River	2003	14-Aug-03	4.4	30	271		
E 6A P/B	E6a	ollow River lagoon-upstrea	River	2003	1-Sep-03	4.4				
E1 P/B	E1	Trading Bay	Deep water	2003	8-Jun-03					
E1 P/B	E1	Trading Bay	Deep water	2003	30-Jun-03	4.3	3	8		
E1 P/B	E1	Trading Bay	Deep water	2003	14-Jul-03	4.9	1	3		
E1 P/B	E1	Trading Bay	Deep water	2003	4-Aug-03	6.9	1	1		
E1 P/B	E1	Trading Bay	Deep water	2003	18-Aug-03	2.9	1	5		

Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
E1 P/B	E1	Trading Bay	Deep water	2003	1-Sep-03	2.4	1	1		
E1 P/B	E1	Trading Bay	Deep water	2003	28-Sep-03	2.8	1	3		
E13 P/B	E13	Haystack Bay	Deep water	2003	8-Jun-03	4.8				
E13 P/B	E13	Haystack Bay	Deep water	2003	30-Jun-03	5.2				
E13 P/B	E13	Haystack Bay	Deep water	2003	14-Jul-03	5.9				
E13 P/B	E13	Haystack Bay	Deep water	2003	4-Aug-03	4.9				
E13 P/B	E13	Haystack Bay	Deep water	2003	14-Aug-03	4.2				
E13 P/B	E13	Haystack Bay	Deep water	2003	1-Sep-03	3.0				
E13 P/B	E13	Haystack Bay	Deep water	2003	28-Sep-03	2.7				
E18 P/B	E18	Hollow River Mouth	River	2003	30-Jun-03	7.4	30	166		
E18 P/B	E18	Hollow River Mouth	River	2003	14-Jul-03	6.2	46	307		
E18 P/B	E18	Hollow River Mouth	River	2003	4-Aug-03	5.1	94	489		
E18 P/B	E18	Hollow River Mouth	River	2003	14-Aug-03	4.3	52	226		
E18 P/B	E18	Hollow River Mouth	River	2003	1-Sep-03	4.3				
N1 P	N1	Dwight Bay	Deep water	2003	8-Jun-03					
N1 P	N1	Dwight Bay	Deep water	2003	30-Jun-03	5.4				
N1 P	N1	Dwight Bay	Deep water	2003	14-Jul-03				0.7	
N1 P	N1	Dwight Bay	Deep water	2003	4-Aug-03	2.0				
N1 P	N1	Dwight Bay	Deep water	2003	18-Aug-03	5.0				
N1 P	N1	Dwight Bay	Deep water	2003	1-Sep-03	5.6				
N1 P	N1	Dwight Bay	Deep water	2003	28-Sep-03	3.1				
N10 P/B	N10	Gull Rock	Deep water	2003	8-Jun-03	5.0				
N10 P/B	N10	Gull Rock	Deep water	2003	30-Jun-03	4.8	19	30		
N10 P/B	N10	Gull Rock	Deep water	2003	14-Jul-03		1	5	16.9	
N10 P/B	N10	Gull Rock	Deep water	2003	4-Aug-03	6.1	1	8		
N10 P/B	N10	Gull Rock	Deep water	2003	18-Aug-03	4.4	5	8		
N10 P/B	N10	Gull Rock	Deep water	2003	1-Sep-03	2.1	1	1		
N10 P/B	N10	Gull Rock	Deep water	2003	28-Sep-03	2.7	1	13		
N11 P/B	N11	Britannia	Disturbed	2003	8-Jun-03	4.8				
N11 P/B	N11	Britannia	Disturbed	2003	30-Jun-03	5.6				
N11 P/B	N11	Britannia	Disturbed	2003	14-Jul-03	3.6				
N11 P/B	N11	Britannia	Disturbed	2003	4-Aug-03	3.8				
N11 P/B	N11	Britannia	Disturbed	2003	14-Aug-03	5.3				
N11 P/B	N11	Britannia	Disturbed	2003	1-Sep-03				12.6	
N11 P/B	N11	Britannia	Disturbed	2003	28-Sep-03	3.5				
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2003	8-Jun-03	5.2				
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2003	30-Jun-03	4.0	1.0	1.0		

Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2003	14-Jul-03	4.9	1.0	11.0		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2003	4-Aug-03	3.5	1.0	7.0		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2003	14-Aug-03	2.9	3.0	5.0		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2003	1-Sep-03	1.8	1.0	16.0		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2003	28-Sep-03	2.3	1.0	5.0		
B1P	B1	Bigwin East	Deep water	2004	5-Jul-04	2.7				
B1P	B1	Bigwin East	Deep water	2004	19-Jul-04	5.3				
B1P	B1	Bigwin East	Deep water	2004	2-Aug-04	4.2				
B1P	B1	Bigwin East	Deep water	2004	23-Aug-04	5.1				
B1P	B1	Bigwin East	Deep water	2004	6-Sep-04	3.6				
B2 P/B	B2	Fairview	Deep water	2004	5-Jul-04	1.7				
B2 P/B	B2	Fairview	Deep water	2004	19-Jul-04	4.8				
B2 P/B	B2	Fairview	Deep water	2004	2-Aug-04	5.3				
B2 P/B	B2	Fairview	Deep water	2004	23-Aug-04	4.4				
B2 P/B	B2	Fairview	Deep water	2004	6-Sep-04	3.9				
B3 P/B	B3	Bigwin North	Disturbed	2004	5-Jul-04	3.4	8	141		
B3 P/B	B3	Bigwin North	Disturbed	2004	19-Jul-04	7.7	5	280		
B3 P/B	B3	Bigwin North	Disturbed	2004	2-Aug-04	5.1	16	72		
B3 P/B	B3	Bigwin North	Disturbed	2004	23-Aug-04		1	65	27.7	
B3 P/B	B3	Bigwin North	Disturbed	2004	6-Sep-04	5.1	3	83		a
B3 P/B FD	B3	Bigwin North	Disturbed	2004	6-Sep-04		3	76		F
B3 P/B LD	B3	Bigwin North	Disturbed	2004	6-Sep-04		1	80		L
B4 P/B	B4	Bigwin Bay	Disturbed	2004	5-Jul-04	3.6				
B4 P/B	B4	Bigwin Bay	Disturbed	2004	19-Jul-04	6.6				
B4 P/B	B4	Bigwin Bay	Disturbed	2004	2-Aug-04	4.9				
B4 P/B	B4	Bigwin Bay	Disturbed	2004	23-Aug-04					
B4 P/B	B4	Bigwin Bay	Disturbed	2004	6-Sep-04	4.3				
E1 P/B	E1	Trading Bay	Deep water	2004	5-Jul-04	1.9	3	19		
E1 P/B	E1	Trading Bay	Deep water	2004	19-Jul-04		3	16	12.3	
E1 P/B	E1	Trading Bay	Deep water	2004	2-Aug-04	7.8	3	22		
E1 P/B	E1	Trading Bay	Deep water	2004	23-Aug-04	5.8				
E1 P/B	E1	Trading Bay	Deep water	2004	6-Sep-04	3.9	1	22		
E13 P/B	E13	Haystack Bay	Deep water	2004	5-Jul-04	2.4				
E13 P/B	E13	Haystack Bay	Deep water	2004	19-Jul-04	5.9				
E13 P/B	E13	Haystack Bay	Deep water	2004	2-Aug-04	5.9				
E13 P/B	E13	Haystack Bay	Deep water	2004	23-Aug-04	4.3				
E13 P/B	E13	Haystack Bay	Deep water	2004	6-Sep-04					

Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
E18 P/B	E18	Hollow River Mouth	River	2004	5-Jul-04	6.0	141	694		
E18 P/B	E18	Hollow River Mouth	River	2004	19-Jul-04	25.1	33	166		
E18 P/B	E18	Hollow River Mouth	River	2004	2-Aug-04	7.1	62	1038		a
E18 P/B	E18	Hollow River Mouth	River	2004	23-Aug-04		52	132		
E18 P/B FD	E18	Hollow River Mouth	River	2004	2-Aug-04		119	1174		F
E18 P/B LD	E18	Hollow River Mouth	River	2004	2-Aug-04		38	80		L
N 2P/B	N2	Oxtongue mouth	River	2004	5-Jul-04					
N 2P/B	N2	Oxtongue mouth	River	2004	19-Jul-04	7.9	16	156		
N 2P/B	N2	Oxtongue mouth	River	2004	2-Aug-04	8.1	46	350		
N 2P/B	N2	Oxtongue mouth	River	2004	23-Aug-04	7.1	1	69		
N 2P/B	N2	Oxtongue mouth	River	2004	6-Sep-04	6.5	1	206		
N1 P	N1	Dwight Bay	Deep water	2004	19-Jul-04	7.7				
N1 P	N1	Dwight Bay	Deep water	2004	2-Aug-04	6.3				
N1 P	N1	Dwight Bay	Deep water	2004	23-Aug-04	4.4				
N1 P	N1	Dwight Bay	Deep water	2004	6-Sep-04					
N10 P/B	N10	Gull Rock	Deep water	2004	5-Jul-04	6.2	1	52		
N10 P/B	N10	Gull Rock	Deep water	2004	19-Jul-04	5.0	1	11		
N10 P/B	N10	Gull Rock	Deep water	2004	2-Aug-04	5.4	1	11		
N10 P/B	N10	Gull Rock	Deep water	2004	23-Aug-04	4.7	1	8		
N10 P/B	N10	Gull Rock	Deep water	2004	6-Sep-04	4.1				
N11 P/B	N11	Britannia	Disturbed	2004	5-Jul-04	2.8				
N11 P/B	N11	Britannia	Disturbed	2004	19-Jul-04	5.1				
N11 P/B	N11	Britannia	Disturbed	2004	2-Aug-04	4.6				
N11 P/B	N11	Britannia	Disturbed	2004	23-Aug-04	3.6				
N11 P/B	N11	Britannia	Disturbed	2004	6-Sep-04					
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2004	5-Jul-04	2.8	8.0	19.0		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2004	19-Jul-04	5.8	1.0	13.0		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2004	2-Aug-04	4.3	1.0	28.0		a
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2004	23-Aug-04	3.3	3.0	33.0		a
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2004	6-Sep-04	4.7	1.0	127.0		
N13 P/B FD	N13	Moffat's	Nearshore Undisturbed	2004	2-Aug-04		3.0	13.0		F
N13 P/B FD	N13	Moffat's	Nearshore Undisturbed	2004	23-Aug-04		1.0	33.0		L
N13 P/B LD	N13	Moffat's	Nearshore Undisturbed	2004	2-Aug-04		1.0	8.0		L
B1P	B1	Bigwin East	Deep water	2005	4-Jul-05	2.8				
B1P	B1	Bigwin East	Deep water	2005	18-Jul-05	4.8				
B1P	B1	Bigwin East	Deep water	2005	1-Aug-05	3.7				
B1P	B1	Bigwin East	Deep water	2005	14-Aug-05	4.8				

Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
B1P	B1	Bigwin East	Deep water	2005	1-Sep-05	3.8				
B2 P/B	B2	Fairview	Deep water	2005	4-Jul-05					
B2 P/B	B2	Fairview	Deep water	2005	18-Jul-05	7.2				
B2 P/B	B2	Fairview	Deep water	2005	1-Aug-05	3.5				
B2 P/B	B2	Fairview	Deep water	2005	14-Aug-05	4.0				
B2 P/B	B2	Fairview	Deep water	2005	1-Sep-05	4.2				
B3 P/B	B3	Bigwin North	Disturbed	2005	4-Jul-05	3.9	5	33		
B3 P/B	B3	Bigwin North	Disturbed	2005	18-Jul-05	9.3	8	25		
B3 P/B	B3	Bigwin North	Disturbed	2005	1-Aug-05	3.5	3	49		
B3 P/B	B3	Bigwin North	Disturbed	2005	14-Aug-05		5	46		
B3 P/B	B3	Bigwin North	Disturbed	2005	1-Sep-05	3.9	8	28		
E1 P/B	E1	Trading Bay	Deep water	2005	4-Jul-05	6.7	5	8		
E1 P/B	E1	Trading Bay	Deep water	2005	18-Jul-05	4.9	8	16		a
E1 P/B	E1	Trading Bay	Deep water	2005	1-Aug-05	2.6	5	11		
E1 P/B	E1	Trading Bay	Deep water	2005	14-Aug-05		5	16		
E1 P/B	E1	Trading Bay	Deep water	2005	1-Sep-05	6.0	3	8		
E1 P/B FD	E1	Trading Bay	Deep water	2005	18-Jul-05					F
E18 P/B	E18	Hollow River Mouth	River	2005	4-Jul-05	11.0	16	72		
E18 P/B	E18	Hollow River Mouth	River	2005	18-Jul-05	6.3	11	102		
E18 P/B	E18	Hollow River Mouth	River	2005	1-Aug-05	3.0	8	59		
E18 P/B	E18	Hollow River Mouth	River	2005	14-Aug-05		28	182		
E18 P/B	E18	Hollow River Mouth	River	2005	1-Sep-05	3.8	19	114		
E20 P/B	E20	Little Trading Bay	Deep water	2005	4-Jul-05	5.9	8	28		
E20 P/B	E20	Little Trading Bay	Deep water	2005	18-Jul-05	5.8	5	11		a
E20 P/B	E20	Little Trading Bay	Deep water	2005	1-Aug-05	5.2	3	19		
E20 P/B	E20	Little Trading Bay	Deep water	2005	14-Aug-05		1	33		
E20 P/B	E20	Little Trading Bay	Deep water	2005	1-Sep-05	4.8	3	33		
E20 P/B FD	E20	Little Trading Bay	Deep water	2005	18-Jul-05		3	8		F
E20 P/B LD	E20	Little Trading Bay	Deep water	2005	18-Jul-05		1	4		L
N 2P/B	N2	Oxtongue mouth	River	2005	4-Jul-05					
N 2P/B	N2	Oxtongue mouth	River	2005	18-Jul-05	7.2	28	132		
N 2P/B	N2	Oxtongue mouth	River	2005	1-Aug-05	4.2				
N 2P/B	N2	Oxtongue mouth	River	2005	14-Aug-05	6.2	52	87		
N 2P/B	N2	Oxtongue mouth	River	2005	1-Sep-05	6.1				
N1 P	N1	Dwight Bay	Deep water	2005	18-Jul-05	6.1				
N1 P	N1	Dwight Bay	Deep water	2005	1-Aug-05	3.3				
N1 P	N1	Dwight Bay	Deep water	2005	14-Aug-05	5.9				

Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
N1 P	N1	Dwight Bay	Deep water	2005	1-Sep-05	3.4				
N10 P/B	N10	Gull Rock	Deep water	2005	4-Jul-05	4.1	5	8		
N10 P/B	N10	Gull Rock	Deep water	2005	18-Jul-05	5.0	1	5		a
N10 P/B	N10	Gull Rock	Deep water	2005	1-Aug-05	2.7	3	8		
N10 P/B	N10	Gull Rock	Deep water	2005	14-Aug-05	5.6	1	3		
N10 P/B	N10	Gull Rock	Deep water	2005	1-Sep-05	4.4	1	3		a
N10 P/B FD	N10	Gull Rock	Deep water	2005	18-Jul-05		3	8		F
N10 P/B FD	N10	Gull Rock	Deep water	2005	1-Sep-05		1	1		F
N10 P/B LD	N10	Gull Rock	Deep water	2005	18-Jul-05		1	3		L
N10 P/B LD	N10	Gull Rock	Deep water	2005	1-Sep-05		1	1		L
N11 P/B	N11	Britannia	Disturbed	2005	4-Jul-05					
N11 P/B	N11	Britannia	Disturbed	2005	18-Jul-05	2.1				
N11 P/B	N11	Britannia	Disturbed	2005	18-Jul-05	4.7				
N11 P/B	N11	Britannia	Disturbed	2005	1-Aug-05					
N11 P/B	N11	Britannia	Disturbed	2005	14-Aug-05	5.8				
N11 P/B	N11	Britannia	Disturbed	2005	1-Sep-05	9.4				
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2005	4-Jul-05	5.7	3	16		a
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2005	18-Jul-05	2.8	5	39		a
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2005	1-Aug-05		3	43		a
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2005	14-Aug-05	4.4	3	19		a
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2005	1-Sep-05	3.5	8	22		a
N13 P/B FD	N13	Moffat's	Nearshore Undisturbed	2005	4-Jul-05	4.0				F
N13 P/B FD	N13	Moffat's	Nearshore Undisturbed	2005	18-Jul-05		3	30		F
N13 P/B FD	N13	Moffat's	Nearshore Undisturbed	2005	1-Aug-05		5	28		F
N13 P/B FD	N13	Moffat's	Nearshore Undisturbed	2005	14-Aug-05		3	22		F
N13 P/B FD	N13	Moffat's	Nearshore Undisturbed	2005	1-Sep-05		8	28		F
N13 P/B LD	N13	Moffat's	Nearshore Undisturbed	2005	18-Jul-05		1	56		L
N13 P/B LD	N13	Moffat's	Nearshore Undisturbed	2005	14-Aug-05		1	8		L
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2005	4-Jul-05		3	8		a
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2005	18-Jul-05	6.2	3	11		a
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2005	1-Aug-05		3	16		a
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2005	14-Aug-05	10.3	1	1		a
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2005	1-Sep-05		1	8		a
N24 P/B FD	N24	Boothby's	Nearshore Undisturbed	2005	4-Jul-05		3	11		F
N24 P/B FD	N24	Boothby's	Nearshore Undisturbed	2005	18-Jul-05		5	8		F
N24 P/B FD	N24	Boothby's	Nearshore Undisturbed	2005	1-Aug-05		5	8		F
N24 P/B FD	N24	Boothby's	Nearshore Undisturbed	2005	14-Aug-05		3	8		F

Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
N24 P/B FD	N24	Boothby's	Nearshore Undisturbed	2005	1-Sep-05		1	13		F
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2005	4-Jul-05	6.5	3	8		
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2005	18-Jul-05	4.3	1	5		a
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2005	1-Aug-05		1	11		a
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2005	14-Aug-05		1	5		
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2005	1-Sep-05	3.7	1	3		a
S1 P/B FD	S1	Adamson's Island	Nearshore Undisturbed	2005	18-Jul-05					F
S1 P/B FD	S1	Adamson's Island	Nearshore Undisturbed	2005	1-Aug-05		1	8		F
S1 P/B FD	S1	Adamson's Island	Nearshore Undisturbed	2005	1-Sep-05		1	8		F
S1 P/B LD	S1	Adamson's Island	Nearshore Undisturbed	2005	1-Sep-05		1	4		L
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2005	4-Jul-05	11.0	1	5		
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2005	18-Jul-05	2.4	1	3		
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2005	1-Aug-05		1	16		
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2005	14-Aug-05	3.9	1	8		a
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2005	1-Sep-05	2.9	1	5		
S2 P/B FD	S2	Menominee Bay	Nearshore Undisturbed	2005	14-Aug-05		1	11		F
S2 P/B LD	S2	Menominee Bay	Nearshore Undisturbed	2005	14-Aug-05		1	12		L
S3 P/B	S3	Price's Point	Deep water	2005	4-Jul-05		1	11		
S3 P/B	S3	Price's Point	Deep water	2005	18-Jul-05	3.7	1	8		
S3 P/B	S3	Price's Point	Deep water	2005	1-Aug-05		1	5		
S3 P/B	S3	Price's Point	Deep water	2005	14-Aug-05	2.4	1	11		a
S3 P/B	S3	Price's Point	Deep water	2005	1-Sep-05	4.1	1	8		a
S3 P/B FD	S3	Price's Point	Deep water	2005	14-Aug-05		1	3		F
S3 P/B FD	S3	Price's Point	Deep water	2005	1-Sep-05		1	5		F
S3 P/B LD	S3	Price's Point	Deep water	2005	14-Aug-05		1	1		L
S3 P/B LD	S3	Price's Point	Deep water	2005	1-Sep-05		1	1		L
B1P	B1	Bigwin East	Deep water	2006	3-Jul-06	6.1	1	1		
B1P	B1	Bigwin East	Deep water	2006	17-Jul-06	6.3	3	5		a
B1P	B1	Bigwin East	Deep water	2006	7-Aug-06	3.3	1	8		a
B1P	B1	Bigwin East	Deep water	2006	21-Aug-06	6.1	3	15		a
B1P	B1	Bigwin East	Deep water	2006	1-Sep-06	4.1	3	8		a
B1P FD	B1	Bigwin East	Deep water	2006	17-Jul-06		5	13		F
B1P FD	B1	Bigwin East	Deep water	2006	7-Aug-06	4.3				F
B1P FD	B1	Bigwin East	Deep water	2006	21-Aug-06	7.4				F
B1P FD	B1	Bigwin East	Deep water	2006	1-Sep-06	5.4	1	3		F
B1P LD	B1	Bigwin East	Deep water	2006	17-Jul-06		4	4		L
B2 P/B	B2	Fairview	Deep water	2006	3-Jul-06	4.7	5	5		



Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
B2 P/B	B2	Fairview	Deep water	2006	17-Jul-06	6.3	1	1		
B2 P/B	B2	Fairview	Deep water	2006	7-Aug-06	4.3	3	8		a
B2 P/B	B2	Fairview	Deep water	2006	21-Aug-06	6.7	1	5		a
B2 P/B	B2	Fairview	Deep water	2006	1-Sep-06	4.1	1	5		
B2P FD	B2	Fairview	Deep water	2006	7-Aug-06	7.5	3	3		F
B2P FD	B2	Fairview	Deep water	2006	21-Aug-06	7.5				F
B2P LD	B2	Fairview	Deep water	2006	7-Aug-06		4	12		L
E1 P/B	E1	Trading Bay	Deep water	2006	3-Jul-06	5.4	1	5		
E1 P/B	E1	Trading Bay	Deep water	2006	17-Jul-06	7.3	1	1		a
E1 P/B	E1	Trading Bay	Deep water	2006	7-Aug-06	3.3	1	8		
E1 P/B	E1	Trading Bay	Deep water	2006	21-Aug-06		3	5	11.0	a
E1 P/B	E1	Trading Bay	Deep water	2006	1-Sep-06	5.6	3	13		
E1 P/B FD	E1	Trading Bay	Deep water	2006	17-Jul-06	4.5				F
E1 P/B FD	E1	Trading Bay	Deep water	2006	21-Aug-06		5	13		F
E1 P/B LD	E1	Trading Bay	Deep water	2006	21-Aug-06		4	4		L
E13 P/B	E13	Haystack Bay	Deep water	2006	3-Jul-06	5.6	3	3		
E13 P/B	E13	Haystack Bay	Deep water	2006	17-Jul-06	5.7	3	8		
E13 P/B	E13	Haystack Bay	Deep water	2006	7-Aug-06		1	5		
E13 P/B	E13	Haystack Bay	Deep water	2006	21-Aug-06	9.1	3	3		a
E13 P/B	E13	Haystack Bay	Deep water	2006	1-Sep-06	14.1	3	5		
E13 P/B FD	E13	Haystack Bay	Deep water	2006	21-Aug-06		5	11		F
E13 P/B LD	E13	Haystack Bay	Deep water	2006	21-Aug-06		4	8		L
E20 P/B	E20	Little Trading Bay	Deep water	2006	3-Jul-06	11.9	3	13		
E20 P/B	E20	Little Trading Bay	Deep water	2006	17-Jul-06	6.1	5	19		a
E20 P/B	E20	Little Trading Bay	Deep water	2006	8-Aug-06	4.4	3	19		
E20 P/B	E20	Little Trading Bay	Deep water	2006	21-Aug-06	6.5				
E20 P/B	E20	Little Trading Bay	Deep water	2006	1-Sep-06	10.3	3	11		
E20 P/B FD	E20	Little Trading Bay	Deep water	2006	17-Jul-06		5	19		F
E20 P/B LD	E20	Little Trading Bay	Deep water	2006	17-Jul-06		4	20		L
E30 P/B	E30	Ten Mile Bay	Deep water	2006	3-Jul-06	6.4	1	1		
E30 P/B	E30	Ten Mile Bay	Deep water	2006	17-Jul-06	7.7	1	3		
E30 P/B	E30	Ten Mile Bay	Deep water	2006	7-Aug-06	6.0	1	1		
E30 P/B	E30	Ten Mile Bay	Deep water	2006	21-Aug-06	10.2	1	8		a
E30 P/B	E30	Ten Mile Bay	Deep water	2006	1-Sep-06	4.2	1	5		
E30 P/B FD	E30	Ten Mile Bay	Deep water	2006	21-Aug-06	10.2				F
N1 P	N1	Dwight Bay	Deep water	2006	3-Jul-06	5.0	1	1		
N1 P	N1	Dwight Bay	Deep water	2006	17-Jul-06	4.5	8	8		a

Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
N1 P	N1	Dwight Bay	Deep water	2006	21-Aug-06	6.7	1	1		a
N1 P	N1	Dwight Bay	Deep water	2006	1-Sep-06	9.2	3	13		a
N1 P/B FD	N1	Dwight Bay	Deep water	2006	17-Jul-06	4.5				F
N1 P/B FD	N1	Dwight Bay	Deep water	2006	21-Aug-06		3	3		F
N1 P/B FD	N1	Dwight Bay	Deep water	2006	1-Sep-06				31.9	F
N1 P/B LD	N1	Dwight Bay	Deep water	2006	21-Aug-06		4	8		L
N10 P/B	N10	Gull Rock	Deep water	2006	3-Jul-06	4.7	1	3		a
N10 P/B	N10	Gull Rock	Deep water	2006	17-Jul-06	4.2	1	1		
N10 P/B	N10	Gull Rock	Deep water	2006	8-Aug-06	4.3	1	8		
N10 P/B	N10	Gull Rock	Deep water	2006	21-Aug-06	6.7	5	13		
N10 P/B	N10	Gull Rock	Deep water	2006	1-Sep-06	8.3	1	3		
N10 P/B FD	N10	Gull Rock	Deep water	2006	3-Jul-06		3	5		F
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2006	3-Jul-06	4.8	1	1		a
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2006	17-Jul-06	4.3	5	13		a
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2006	7-Aug-06	4.2	3	5		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2006	21-Aug-06	6.7	1	3		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2006	1-Sep-06	4.7	3	5		
N13 P/B FD	N13	Moffat's	Nearshore Undisturbed	2006	3-Jul-06		3	11		F
N13 P/B FD	N13	Moffat's	Nearshore Undisturbed	2006	17-Jul-06		3	11		F
N13 P/B LD	N13	Moffat's	Nearshore Undisturbed	2006	17-Jul-06		4	16		L
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2006	3-Jul-06	3.9	1	1		a
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2006	17-Jul-06	7.7	1	1		
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2006	7-Aug-06	5.7	1	33		a
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2006	21-Aug-06	5.7	1	8		
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2006	1-Sep-06		3	3		
N24 P/B FD	N24	Boothby's	Nearshore Undisturbed	2006	3-Jul-06		1	1		F
N24 P/B FD	N24	Boothby's	Nearshore Undisturbed	2006	7-Aug-06		3	22		F
N24 P/B LD	N24	Boothby's	Nearshore Undisturbed	2006	7-Aug-06		1	54		L
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2006	3-Jul-06	3.7	1	43		
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2006	17-Jul-06	5.1	1	3		
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2006	7-Aug-06	5.6	1	5		a
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2006	21-Aug-06	5.2	3	5		
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2006	1-Sep-06	7.7	5	16		a
S1 P/B FD	S1	Adamson's Island	Nearshore Undisturbed	2006	7-Aug-06		1	25		F
S1 P/B FD	S1	Adamson's Island	Nearshore Undisturbed	2006	1-Sep-06	4.1				F
S1 P/B FD	S1	Adamson's Island	Nearshore Undisturbed	2006	1-Sep-06	4.1				F
S1 P/B LD	S1	Adamson's Island	Nearshore Undisturbed	2006	7-Aug-06		1	17		L

Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2006	3-Jul-06	4.8	1	1		a
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2006	17-Jul-06	3.9	1	8		
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2006	7-Aug-06	2.8	3	19		
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2006	21-Aug-06	5.6	3	3		
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2006	1-Sep-06		1	5	15.9	a
S2 P/B FD	S2	Menominee Bay	Nearshore Undisturbed	2006	3-Jul-06		3	3		F
S2 P/B FD	S2	Menominee Bay	Nearshore Undisturbed	2006	1-Sep-06	8.1				F
S3 P/B	S3	Price's Point	Deep water	2006	3-Jul-06	5.9	1	5		
S3 P/B	S3	Price's Point	Deep water	2006	17-Jul-06	4.9	1	1		
S3 P/B	S3	Price's Point	Deep water	2006	7-Aug-06	4.1	1	16		
S3 P/B	S3	Price's Point	Deep water	2006	21-Aug-06	6.5	3	3		
S3 P/B	S3	Price's Point	Deep water	2006	1-Sep-06	8.5	1	5		
B1 P/B	B1	Bigwin East	Deep water	2007	2-Jul-07	3.7	1	1		
B1 P/B	B1	Bigwin East	Deep water	2007	23-Jul-07	4.8	1	1		a
B1 P/B	B1	Bigwin East	Deep water	2007	6-Aug-07	5.1	1	5		
B1 P/B	B1	Bigwin East	Deep water	2007	20-Aug-07	2.9	1	1		
B1 P/B	B1	Bigwin East	Deep water	2007	31-Aug-07	6.1	1	3		
B1P FD	B1	Bigwin East	Deep water	2007	23-Jul-07		1	3		F
B1P LD	B1	Bigwin East	Deep water	2007	23-Jul-07		4	56		L
B2 P/B	B2	Fairview	Deep water	2007	2-Jul-07	3.3	1	3		
B2 P/B	B2	Fairview	Deep water	2007	23-Jul-07	5.7	1	1		
B2 P/B	B2	Fairview	Deep water	2007	6-Aug-07	4.1	1	5		a
B2 P/B	B2	Fairview	Deep water	2007	20-Aug-07	2.4	1	5		
B2 P/B	B2	Fairview	Deep water	2007	31-Aug-07	12.5	1	3		
B2 P/B FD	B2	Fairview	Deep water	2007	6-Aug-07		1	1		F
B2 P/B LD	B2	Fairview	Deep water	2007	6-Aug-07		4	8		L
B3 P/B	B3	Bigwin North	Disturbed	2007	2-Jul-07	5.4	1	5		
B3 P/B	B3	Bigwin North	Disturbed	2007	23-Jul-07	5.7	1	1		
B3 P/B	B3	Bigwin North	Disturbed	2007	6-Aug-07		1	3	97.7	
B3 P/B	B3	Bigwin North	Disturbed	2007	20-Aug-07	8.3	1	8		
B3 P/B	B3	Bigwin North	Disturbed	2007	31-Aug-07	5.6	3	28		
E 6 P/B	E6	Hollow River Lagoon	River	2007	2-Jul-07	3.6	3	263		
E 6 P/B	E6	Hollow River Lagoon	River	2007	23-Jul-07	5.7	25	79		
E 6 P/B	E6	Hollow River Lagoon	River	2007	6-Aug-07	5.7	39	110		a
E 6 P/B	E6	Hollow River Lagoon	River	2007	20-Aug-07	5.1	25	79		a
E 6 P/B	E6	Hollow River Lagoon	River	2007	31-Aug-07	6.5	8	52		
E 6 P/B FD	E6	Hollow River Lagoon	River	2007	6-Aug-07		39	108		F

Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
E 6 P/B FD	E6	Hollow River Lagoon	River	2007	20-Aug-07		30	98		F
E 6 P/B LD	E6	Hollow River Lagoon	River	2007	6-Aug-07		42	600		L
E 6 P/B LD	E6	Hollow River Lagoon	River	2007	20-Aug-07		26	172		L
E 6A P/B	E6a	Hollow River upstream	River	2007	20-Aug-07		3	25		
E 6A P/B	E6a	Hollow River upstream	River	2007	31-Aug-07		3	11		
E1 P/B	E1	Trading Bay	Deep water	2007	2-Jul-07	2.9	1	5		
E1 P/B	E1	Trading Bay	Deep water	2007	23-Jul-07	6.1	1	16		
E1 P/B	E1	Trading Bay	Deep water	2007	6-Aug-07	6.2	1	1		a
E1 P/B	E1	Trading Bay	Deep water	2007	20-Aug-07	3.8	1	1		a
E1 P/B	E1	Trading Bay	Deep water	2007	31-Aug-07	4.6	1	1		
E1 P/B FD	E1	Trading Bay	Deep water	2007	6-Aug-07		1	8		F
E1 P/B FD	E1	Trading Bay	Deep water	2007	20-Aug-07	3.3				F
E1 P/B LD	E1	Trading Bay	Deep water	2007	6-Aug-07		1	6		L
E13 P/B	E13	Haystack Bay	Deep water	2007	2-Jul-07	4.0	1	3		
E13 P/B	E13	Haystack Bay	Deep water	2007	23-Jul-07	4.3	1	5		
E13 P/B	E13	Haystack Bay	Deep water	2007	6-Aug-07	10.8	1	13		a
E13 P/B	E13	Haystack Bay	Deep water	2007	20-Aug-07	2.6	1	1		
E13 P/B	E13	Haystack Bay	Deep water	2007	31-Aug-07	5.0	1	5		
E13 P/B FD	E13	Haystack Bay	Deep water	2007	6-Aug-07	12.8				F
E18 P/B	E18	Hollow River Mouth	River	2007	2-Jul-07	3.9	1	177		
E18 P/B	E18	Hollow River Mouth	River	2007	23-Jul-07	6.6	28	72		
E18 P/B	E18	Hollow River Mouth	River	2007	6-Aug-07	5.7	30	79		
E18 P/B	E18	Hollow River Mouth	River	2007	20-Aug-07	3.9	25	30		
E18 P/B	E18	Hollow River Mouth	River	2007	31-Aug-07	5.7	5	43		
E20 P/B	E20	Little Trading Bay	Deep water	2007	2-Jul-07	4.8	1	25		
E20 P/B	E20	Little Trading Bay	Deep water	2007	23-Jul-07	7.9	8	65		
E20 P/B	E20	Little Trading Bay	Deep water	2007	6-Aug-07	7.6	3	8		
E20 P/B	E20	Little Trading Bay	Deep water	2007	20-Aug-07	7.9	1	8		
E20 P/B	E20	Little Trading Bay	Deep water	2007	31-Aug-07	7.0	1	5		
E25 P/B	E25	Narrows East	Nearshore Undisturbed	2007	2-Jul-07	3.9	1	16		
E25 P/B	E25	Narrows East	Nearshore Undisturbed	2007	23-Jul-07	7.2	1	3		a
E25 P/B	E25	Narrows East	Nearshore Undisturbed	2007	6-Aug-07	16.9	1	11		
E25 P/B	E25	Narrows East	Nearshore Undisturbed	2007	20-Aug-07	12.9	3	8		
E25 P/B	E25	Narrows East	Nearshore Undisturbed	2007	31-Aug-07	16.1	1	1		a
E25 P/B FD	E25	Narrows East	Nearshore Undisturbed	2007	23-Jul-07		1	3		F
E25 P/B FD	E25	Narrows East	Nearshore Undisturbed	2007	31-Aug-07		1	5		F
E25 P/B LD	E25	Narrows East	Nearshore Undisturbed	2007	23-Jul-07		1	1		L

Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
E26 P/B	E26	Narrows West	Nearshore Undisturbed	2007	2-Jul-07	4.5	1	65		
E26 P/B	E26	Narrows West	Nearshore Undisturbed	2007	23-Jul-07	8.2	1	1		a
E26 P/B	E26	Narrows West	Nearshore Undisturbed	2007	6-Aug-07	7.0	13	25		a
E26 P/B	E26	Narrows West	Nearshore Undisturbed	2007	20-Aug-07	5.7	1	1		
E26 P/B	E26	Narrows West	Nearshore Undisturbed	2007	31-Aug-07	4.4	1	8		
E26 P/B FD	E26	Narrows West	Nearshore Undisturbed	2007	23-Jul-07	4.1				F
E26 P/B FD	E26	Narrows West	Nearshore Undisturbed	2007	6-Aug-07	6.4	1	1		F
E26 P/B FD	E26	Narrows West	Nearshore Undisturbed	2007	6-Aug-07		8	13		F
E30 P/B	E30	Ten Mile Bay	Deep water	2007	2-Jul-07	3.4	1	3		
E30 P/B	E30	Ten Mile Bay	Deep water	2007	23-Jul-07	4.9	1	1		a
E30 P/B	E30	Ten Mile Bay	Deep water	2007	6-Aug-07	5.8	1	1		
E30 P/B	E30	Ten Mile Bay	Deep water	2007	20-Aug-07	4.6	1	3		
E30 P/B	E30	Ten Mile Bay	Deep water	2007	31-Aug-07	6.2	1	1		
E30 P/B FD	E30	Ten Mile Bay	Deep water	2007	23-Jul-07		1	3		F
E30 P/B LD	E30	Ten Mile Bay	Deep water	2007	23-Jul-07		1	4		L
N1 P/B	N1	Dwight Bay	Deep water	2007	2-Jul-07	4.3	1	5		
N1 P/B	N1	Dwight Bay	Deep water	2007	23-Jul-07	6.1	1	13		a
N1 P/B	N1	Dwight Bay	Deep water	2007	6-Aug-07	9.6	1	5		a
N1 P/B	N1	Dwight Bay	Deep water	2007	20-Aug-07	4.6	1	1		a
N1 P/B	N1	Dwight Bay	Deep water	2007	31-Aug-07	5.3	1	5		
N1 P/B FD	N1	Dwight Bay	Deep water	2007	23-Jul-07		1	8		F
N1 P/B FD	N1	Dwight Bay	Deep water	2007	6-Aug-07		1	5		F
N1 P/B FD	N1	Dwight Bay	Deep water	2007	20-Aug-07	4.0				F
N1 P/B LD	N1	Dwight Bay	Deep water	2007	23-Jul-07		1	4		L
N1 P/B LD	N1	Dwight Bay	Deep water	2007	6-Aug-07		1	8		L
N10 P/B	N10	Gull Rock	Deep water	2007	2-Jul-07	4.1	1	1		a
N10 P/B	N10	Gull Rock	Deep water	2007	23-Jul-07	5.3	1	1		
N10 P/B	N10	Gull Rock	Deep water	2007	6-Aug-07	4.9	1	5		
N10 P/B	N10	Gull Rock	Deep water	2007	20-Aug-07	4.1	1	1		a
N10 P/B	N10	Gull Rock	Deep water	2007	31-Aug-07	4.6	1	3		
N10 P/B FD	N10	Gull Rock	Deep water	2007	2-Jul-07		1	8		F
N10 P/B FD	N10	Gull Rock	Deep water	2007	20-Aug-07	5.4				F
N10 P/B LD	N10	Gull Rock	Deep water	2007	2-Jul-07		1	8		L
N11 P/B	N11	Britannia	Disturbed	2007	2-Jul-07	3.5	3	5		a
N11 P/B	N11	Britannia	Disturbed	2007	23-Jul-07	5.8	1	3		
N11 P/B	N11	Britannia	Disturbed	2007	6-Aug-07	3.8	1	5		
N11 P/B	N11	Britannia	Disturbed	2007	20-Aug-07	5.3	5	11		

Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
N11 P/B	N11	Britannia	Disturbed	2007	31-Aug-07	5.1	1	3		a
N11 P/B FD	N11	Britannia	Disturbed	2007	2-Jul-07		3	8		F
N11 P/B FD	N11	Britannia	Disturbed	2007	31-Aug-07		1	11		F
N11 P/B LD	N11	Britannia	Disturbed	2007	2-Jul-07		1	4		L
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2007	2-Jul-07	3.8	1	1		a
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2007	23-Jul-07	5.0	3	3		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2007	6-Aug-07		1	11	15.1	
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2007	20-Aug-07	2.7	1	1		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2007	31-Aug-07	3.7	1	1		
N13 P/B FD	N13	Moffat's	Nearshore Undisturbed	2007	2-Jul-07		1	5		F
N13 P/B LD	N13	Moffat's	Nearshore Undisturbed	2007	2-Jul-07		1	4		L
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2007	2-Jul-07	3.8	1	1		
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2007	23-Jul-07	7.8	1	5		
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2007	6-Aug-07	7.3	1	5		a
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2007	20-Aug-07	3.0	1	3		a
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2007	31-Aug-07	4.3	1	3		
N24 P/B FD	N24	Boothby's	Nearshore Undisturbed	2007	6-Aug-07		1	8		F
N24 P/B FD	N24	Boothby's	Nearshore Undisturbed	2007	20-Aug-07		1	1		F
N24 P/B LD	N24	Boothby's	Nearshore Undisturbed	2007	6-Aug-07		1	108		L
N24 P/B LD	N24	Boothby's	Nearshore Undisturbed	2007	20-Aug-07		1	8		L
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2007	2-Jul-07	2.5	1	5		a
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2007	23-Jul-07	4.2	1	1		
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2007	6-Aug-07	4.1	1	13		
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2007	20-Aug-07	2.0	1	3		
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2007	31-Aug-07	3.7	1	1		
S1 P/B FD	S1	Adamson's Island	Nearshore Undisturbed	2007	2-Jul-07		1	1		F
S1 P/B LD	S1	Adamson's Island	Nearshore Undisturbed	2007	2-Jul-07		1	1		L
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2007	2-Jul-07	2.7	1	1		
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2007	23-Jul-07	3.8	1	1		a
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2007	6-Aug-07	6.0	3	5		
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2007	20-Aug-07	2.7	3	11		a
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2007	31-Aug-07	4.2	1	3		
S2 P/B FD	S2	Menominee Bay	Nearshore Undisturbed	2007	23-Jul-07		1	1		F
S2 P/B FD	S2	Menominee Bay	Nearshore Undisturbed	2007	20-Aug-07		5	108		F
S2 P/B LD	S2	Menominee Bay	Nearshore Undisturbed	2007	23-Jul-07		4	60		L
S2 P/B LD	S2	Menominee Bay	Nearshore Undisturbed	2007	20-Aug-07		8	116		L
S3 P/B	S3	Price's Point	Deep water	2007	2-Jul-07	5.2	1	1		a

Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
S3 P/B	S3	Price's Point	Deep water	2007	23-Jul-07	4.0	1	1		
S3 P/B	S3	Price's Point	Deep water	2007	6-Aug-07	3.6	1	3		
S3 P/B	S3	Price's Point	Deep water	2007	20-Aug-07	4.2	1	1		
S3 P/B	S3	Price's Point	Deep water	2007	31-Aug-07	5.3	1	3		
S3 P/B FD	S3	Price's Point	Deep water	2007	2-Jul-07		1	4		F
S3 P/B LD	S3	Price's Point	Deep water	2007	2-Jul-07		1	1		L
B1 P/B	B1	Bigwin East	Deep water	2008	30-Jun-08	4.4	1	1		
B1 P/B	B1	Bigwin East	Deep water	2008	14-Jul-08	9.0	5	8		a
B1 P/B	B1	Bigwin East	Deep water	2008	4-Aug-08	7.4	1	16		
B1 P/B	B1	Bigwin East	Deep water	2008	18-Aug-08	6.0	1	1		
B1 P/B	B1	Bigwin East	Deep water	2008	29-Aug-08	5.4	1	3		a
B1P FD	B1	Bigwin East	Deep water	2008	14-Jul-08		3	8		F
B1P FD	B1	Bigwin East	Deep water	2008	29-Aug-08	5.0				F
B1P LD	B1	Bigwin East	Deep water	2008	14-Jul-08		1	1		L
B2 P/B	B2	Fairview	Deep water	2008	30-Jun-08	3.7	1	1		a
B2 P/B	B2	Fairview	Deep water	2008	14-Jul-08	6.8	3	5		
B2 P/B	B2	Fairview	Deep water	2008	4-Aug-08	6.5	1	1		a
B2 P/B	B2	Fairview	Deep water	2008	18-Aug-08	6.0	1	3		
B2 P/B	B2	Fairview	Deep water	2008	29-Aug-08	6.3	1	11		
B2 P/B FD	B2	Fairview	Deep water	2008	30-Jun-08		1	1		F
B2 P/B FD	B2	Fairview	Deep water	2008	4-Aug-08	8.4				F
B3 P/B	B3	Bigwin North	Disturbed	2008	30-Jun-08	3.9	1	28		
B3 P/B	B3	Bigwin North	Disturbed	2008	14-Jul-08	8.0	8	30		
B3 P/B	B3	Bigwin North	Disturbed	2008	4-Aug-08	5.6	5	19		
B3 P/B	B3	Bigwin North	Disturbed	2008	18-Aug-08	7.1	1	1		
B3 P/B	B3	Bigwin North	Disturbed	2008	29-Aug-08	6.0	3	5		
B4 P/B	B4	Bigwin Bay	Disturbed	2008	4-Aug-08	6.4	11	87		
B4 P/B	B4	Bigwin Bay	Disturbed	2008	18-Aug-08	5.2	1	1		
B4 P/B	B4	Bigwin Bay	Disturbed	2008	29-Aug-08	4.9	3	13		
E 6 P/B	E6	Hollow River Lagoon	River	2008	14-Jul-08	8.1	25	65		
E 6 P/B	E6	Hollow River Lagoon	River	2008	4-Aug-08	5.2	11	39		
E 6 P/B	E6	Hollow River Lagoon	River	2008	18-Aug-08	5.5	1	19		a
E 6 P/B FD	E6	Hollow River Lagoon	River	2008	18-Aug-08		8	30		F
E 6 P/B LD	E6	Hollow River Lagoon	River	2008	18-Aug-08		8	48		L
E 6A P/B	E6a	Hollow River-upstream	River	2008	14-Jul-08	24.7	39	98		
E 6A P/B	E6a	Hollow River-upstream	River	2008	4-Aug-08	6.5	19	39		
E 6A P/B	E6a	Hollow River-upstream	River	2008	18-Aug-08	5.3	5	25		

Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
E1 P/B	E1	Trading Bay	Deep water	2008	30-Jun-08	4.0	1	33		
E1 P/B	E1	Trading Bay	Deep water	2008	14-Jul-08	5.8	3	5		a
E1 P/B	E1	Trading Bay	Deep water	2008	4-Aug-08	4.8	3	5		a
E1 P/B	E1	Trading Bay	Deep water	2008	18-Aug-08	5.3	1	5		a
E1 P/B	E1	Trading Bay	Deep water	2008	29-Aug-08	6.7	1	5		
E1 P/B FD	E1	Trading Bay	Deep water	2008	14-Jul-08		5	16		F
E1 P/B FD	E1	Trading Bay	Deep water	2008	4-Aug-08		1	8		F
E1 P/B FD	E1	Trading Bay	Deep water	2008	18-Aug-08	5.8				F
E1 P/B LD	E1	Trading Bay	Deep water	2008	4-Aug-08		1	8		L
E13 P/B	E13	Haystack Bay	Deep water	2008	30-Jun-08	5.1	1	1		
E13 P/B	E13	Haystack Bay	Deep water	2008	14-Jul-08	4.8	3	11		a
E13 P/B	E13	Haystack Bay	Deep water	2008	4-Aug-08	5.6	1	3		a
E13 P/B	E13	Haystack Bay	Deep water	2008	18-Aug-08	5.6	3	3		
E13 P/B	E13	Haystack Bay	Deep water	2008	29-Aug-08		3	11		
E13 P/B FD	E13	Haystack Bay	Deep water	2008	14-Jul-08		1	16		F
E13 P/B FD	E13	Haystack Bay	Deep water	2008	4-Aug-08		3	5		F
E13 P/B LD	E13	Haystack Bay	Deep water	2008	14-Jul-08		1	8		L
E13 P/B LD	E13	Haystack Bay	Deep water	2008	4-Aug-08		1	20		L
E18 P/B	E18	Hollow River Mouth	River	2008	14-Jul-08	10.1	50	90		
E18 P/B	E18	Hollow River Mouth	River	2008	4-Aug-08	5.5	33	62		
E18 P/B	E18	Hollow River Mouth	River	2008	18-Aug-08	5.8	5	16		
E20 P/B	E20	Little Trading Bay	Deep water	2008	30-Jun-08	7.4	1	59		
E20 P/B	E20	Little Trading Bay	Deep water	2008	14-Jul-08	7.0	1	16		
E20 P/B	E20	Little Trading Bay	Deep water	2008	4-Aug-08	8.3	8	22		
E20 P/B	E20	Little Trading Bay	Deep water	2008	18-Aug-08	6.5	1	3		
E20 P/B	E20	Little Trading Bay	Deep water	2008	29-Aug-08	9.4	3	62		a
E20 P/B FD	E20	Little Trading Bay	Deep water	2008	29-Aug-08		5	52		F
E25 P/B	E25	Narrows East	Nearshore Undisturbed	2008	30-Jun-08		1	5		
E25 P/B	E25	Narrows East	Nearshore Undisturbed	2008	14-Jul-08	4.9	3	19		a
E25 P/B	E25	Narrows East	Nearshore Undisturbed	2008	4-Aug-08	6.3	1	3		a
E25 P/B	E25	Narrows East	Nearshore Undisturbed	2008	18-Aug-08	4.3	1	16		
E25 P/B	E25	Narrows East	Nearshore Undisturbed	2008	29-Aug-08	7.2	5	16		
E25 P/B FD	E25	Narrows East	Nearshore Undisturbed	2008	14-Jul-08		1	19		F
E25 P/B FD	E25	Narrows East	Nearshore Undisturbed	2008	14-Jul-08		3	8		F
E25 P/B LD	E25	Narrows East	Nearshore Undisturbed	2008	4-Aug-08		1	19		L
E25 P/B LD	E25	Narrows East	Nearshore Undisturbed	2008	4-Aug-08		1	16		L
E26 P/B	E26	Narrows West	Nearshore Undisturbed	2008	30-Jun-08		3	8		



Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
E26 P/B	E26	Narrows West	Nearshore Undisturbed	2008	14-Jul-08	2.4	5	8		
E26 P/B	E26	Narrows West	Nearshore Undisturbed	2008	4-Aug-08	5.5	13	69		
E26 P/B	E26	Narrows West	Nearshore Undisturbed	2008	18-Aug-08	4.6	1	1		a
E26 P/B	E26	Narrows West	Nearshore Undisturbed	2008	29-Aug-08	5.5	3	11		
E26 P/B FD	E26	Narrows West	Nearshore Undisturbed	2008	18-Aug-08	5.9	1	1		F
E26 P/B LD	E26	Narrows West	Nearshore Undisturbed	2008	18-Aug-08		1	24		L
E30 P/B	E30	Ten Mile Bay	Deep water	2008	30-Jun-08	5.1	8	28		
E30 P/B	E30	Ten Mile Bay	Deep water	2008	14-Jul-08	4.7	5	11		a
E30 P/B	E30	Ten Mile Bay	Deep water	2008	14-Jul-08	6.9				a
E30 P/B	E30	Ten Mile Bay	Deep water	2008	4-Aug-08	5.3	1	5		
E30 P/B	E30	Ten Mile Bay	Deep water	2008	18-Aug-08	6.6	1	11		a
E30 P/B	E30	Ten Mile Bay	Deep water	2008	29-Aug-08	6.0	1	3		
E30 P/B FD	E30	Ten Mile Bay	Deep water	2008	14-Jul-08		3	11		F
E30 P/B FD	E30	Ten Mile Bay	Deep water	2008	18-Aug-08		1	19		F
E30 P/B LD	E30	Ten Mile Bay	Deep water	2008	14-Jul-08		1	8		L
E30 P/B LD	E30	Ten Mile Bay	Deep water	2008	18-Aug-08		1	16		L
N 2P/B	N2	Oxtongue mouth	River	2008	4-Aug-08	8.3	30	52		
N 2P/B	N2	Oxtongue mouth	River	2008	18-Aug-08	6.9	16	33		
N 2P/B	N2	Oxtongue mouth	River	2008	29-Aug-08	6.6	25	46		
N1 P/B	N1	Dwight Bay	Deep water	2008	30-Jun-08		1	1		
N1 P/B	N1	Dwight Bay	Deep water	2008	14-Jul-08	6.1	1	1		
N1 P/B	N1	Dwight Bay	Deep water	2008	4-Aug-08	6.3	1	1		
N1 P/B	N1	Dwight Bay	Deep water	2008	18-Aug-08	6.0	1	1		a
N1 P/B	N1	Dwight Bay	Deep water	2008	29-Aug-08	6.0	1	8		
N1 P/B FD	N1	Dwight Bay	Deep water	2008	18-Aug-08		1	1		F
N1 P/B LD	N1	Dwight Bay	Deep water	2008	18-Aug-08		1	1		L
N10 P/B	N10	Gull Rock	Deep water	2008	30-Jun-08	4.3	1	1		
N10 P/B	N10	Gull Rock	Deep water	2008	14-Jul-08		3	13		
N10 P/B	N10	Gull Rock	Deep water	2008	4-Aug-08	5.7	1	1		
N10 P/B	N10	Gull Rock	Deep water	2008	18-Aug-08	4.1	1	1		a
N10 P/B	N10	Gull Rock	Deep water	2008	29-Aug-08	5.7	1	3		
N10 P/B FD	N10	Gull Rock	Deep water	2008	18-Aug-08		1	1		F
N10 P/B LD	N10	Gull Rock	Deep water	2008	18-Aug-08		1	1		L
N11 P/B	N11	Britannia	Disturbed	2008	30-Jun-08	4.2	11	19		a
N11 P/B	N11	Britannia	Disturbed	2008	14-Jul-08	4.4	5	13		
N11 P/B	N11	Britannia	Disturbed	2008	4-Aug-08	8.4	3	3		a
N11 P/B	N11	Britannia	Disturbed	2008	18-Aug-08	4.1	3	8		

Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
N11 P/B	N11	Britannia	Disturbed	2008	29-Aug-08	6.2	1	1		
N11 P/B FD	N11	Britannia	Disturbed	2008	30-Jun-08		8.0	16.0		F
N11 P/B FD	N11	Britannia	Disturbed	2008	4-Aug-08		3.0	11.0		F
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2008	30-Jun-08	5.1	1	1		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2008	14-Jul-08	4.7	1	1		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2008	4-Aug-08	6.3	1	1		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2008	18-Aug-08		1	3		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2008	29-Aug-08	4.7	1	3		a
N13 P/B FD	N13	Moffat's	Nearshore Undisturbed	2008	29-Aug-08		1	3		F
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2008	30-Jun-08	5.9	1	5		a
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2008	14-Jul-08	5.8	28	43		
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2008	4-Aug-08	5.8	1	11		a
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2008	18-Aug-08	5.9	1	1		
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2008	29-Aug-08	4.7	1	1		
N24 P/B FD	N24	Boothby's	Nearshore Undisturbed	2008	4-Aug-08		3	8		F
N24 P/B LD	N24	Boothby's	Nearshore Undisturbed	2008	30-Jun-08	4.6				L
N24 P/B LD	N24	Boothby's	Nearshore Undisturbed	2008	4-Aug-08	5.0				L
N24 P/B LD	N24	Boothby's	Nearshore Undisturbed	2008	4-Aug-08		4	12		L
N30 P/B	N30	Oxtongue Delta	River	2008	4-Aug-08	5.9	3	8		
N30 P/B	N30	Oxtongue Delta	River	2008	18-Aug-08	5.0	1	1		
N30 P/B	N30	Oxtongue Delta	River	2008	29-Aug-08	9.7	5	11		
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2008	30-Jun-08	4.6	1	1		
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2008	14-Jul-08	4.3	8	65		
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2008	4-Aug-08	6.2	1	3		
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2008	18-Aug-08	3.0	1	13		
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2008	29-Aug-08	4.4	1	3		a
S1 P/B FD	S1	Adamson's Island	Nearshore Undisturbed	2008	29-Aug-08		1	1		F
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2008	30-Jun-08	4.8	1	8		
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2008	14-Jul-08	7.0	13	83		
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2008	4-Aug-08	8.5	1	1		a
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2008	18-Aug-08	5.8	1	16		
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2008	29-Aug-08	4.3	1	3		a
S2 P/B FD	S2	Menominee Bay	Nearshore Undisturbed	2008	29-Aug-08		1	3		F
S2 P/B LD	S2	Menominee Bay	Nearshore Undisturbed	2008	4-Aug-08	7.5				L
S2 P/B LD	S2	Menominee Bay	Nearshore Undisturbed	2008	29-Aug-08	4.3				L
S3 P/B	S3	Price's Point	Deep water	2008	30-Jun-08	3.6	1	1		a
S3 P/B	S3	Price's Point	Deep water	2008	14-Jul-08	3.6	3	16		a

Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
S3 P/B	S3	Price's Point	Deep water	2008	4-Aug-08	5.1	1	3		
S3 P/B	S3	Price's Point	Deep water	2008	18-Aug-08	5.0	1	1		a
S3 P/B	S3	Price's Point	Deep water	2008	29-Aug-08	6.0	1	1		
S3 P/B FD	S3	Price's Point	Deep water	2008	14-Jul-08		1	11		F
S3 P/B FD	S3	Price's Point	Deep water	2008	4-Aug-08		1	1		F
S3 P/B LD	S3	Price's Point	Deep water	2008	30-Jun-08	3.9				L
S3 P/B LD	S3	Price's Point	Deep water	2008	14-Jul-08		1	4		L
S3 P/B LD	S3	Price's Point	Deep water	2008	4-Aug-08		1	1		L
S3 P/B LD	S3	Price's Point	Deep water	2008	18-Aug-08	4.9				L
B1P	B1	Bigwin East	Deep water	2009	3-Jul-09	4.2	1	3		
B1P	B1	Bigwin East	Deep water	2009	17-Jul-09	5.8	3	8		
B1P	B1	Bigwin East	Deep water	2009	1-Aug-09	2.9	1	16		
B1P	B1	Bigwin East	Deep water	2009	17-Aug-09	4.5	3	3		
B1P	B1	Bigwin East	Deep water	2009	4-Sep-09	3.2	1	1		
B1P FD	B1	Bigwin East	Deep water	2009	3-Jul-09	4.3				F
B1P FD	B1	Bigwin East	Deep water	2009	1-Aug-09		1	11		F
B1P FD	B1	Bigwin East	Deep water	2009	17-Aug-09		1	5		F
B2 P/B	B2	Fairview	Deep water	2009	3-Jul-09	4.9	3	3		
B2 P/B	B2	Fairview	Deep water	2009	17-Jul-09		3	3	12.3	
B2 P/B	B2	Fairview	Deep water	2009	1-Aug-09	3.7	1	1		
B2 P/B	B2	Fairview	Deep water	2009	17-Aug-09	6.1	3	3		
B2 P/B	B2	Fairview	Deep water	2009	4-Sep-09	3.5	1	11		
B2 P/B FD	B3	Fairview	Deep water	2009	1-Aug-09		3	3		F
B3 P/B	B3	Bigwin North	Disturbed	2009	3-Jul-09	4.5	5	28		
B3 P/B	B3	Bigwin North	Disturbed	2009	17-Jul-09	10.2	8	30		
B3 P/B	B3	Bigwin North	Disturbed	2009	1-Aug-09	2.9	5	19		
B3 P/B	B3	Bigwin North	Disturbed	2009	17-Aug-09	5.4	3	11		
B3 P/B	B3	Bigwin North	Disturbed	2009	4-Sep-09	5.1	3	5		
B4 P/B	B4	Bigwin Bay	Disturbed	2009	3-Jul-09	4.6	3	11		
B4 P/B	B4	Bigwin Bay	Disturbed	2009	17-Jul-09	6.8	3	16		
B4 P/B	B4	Bigwin Bay	Disturbed	2009	1-Aug-09	3.9	1	11		
B4 P/B	B4	Bigwin Bay	Disturbed	2009	17-Aug-09	3.4	8	11		
B4 P/B	B4	Bigwin Bay	Disturbed	2009	4-Sep-09	2.1	5	13		
E 18 P/B	E18	Hollow River mouth	River	2009	3-Jul-09		5	39		
E 18 P/B	E18	Hollow River mouth	River	2009	17-Jul-09		11	90		
E 18 P/B	E18	Hollow River mouth	River	2009	1-Aug-09		8	62		
E 18 P/B	E18	Hollow River mouth	River	2009	17-Aug-09		16	19		

Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
E 18 P/B	E18	Hollow River mouth	River	2009	4-Sep-09		3	28		
E 26 P/B	E26	Narrows West	Nearshore Undisturbed	2009	3-Jul-09		3	16		
E 26 P/B	E26	Narrows West	Nearshore Undisturbed	2009	17-Jul-09		5	8		
E 26 P/B	E26	Narrows West	Nearshore Undisturbed	2009	1-Aug-09		3	11		
E 26 P/B	E26	Narrows West	Nearshore Undisturbed	2009	17-Aug-09		8	11		
E 26 P/B	E26	Narrows West	Nearshore Undisturbed	2009	4-Sep-09		3	11		
E 26 P/B FD	E26	Narrows West	Nearshore Undisturbed	2009	17-Jul-09		8	8		F
E 6 P/B	E6	Hollow River lagoon	River	2009	3-Jul-09		8	11		
E 6 P/B	E6	Hollow River lagoon	River	2009	17-Jul-09		16	39		
E 6 P/B	E6	Hollow River lagoon	River	2009	1-Aug-09		11	28		
E 6 P/B	E6	Hollow River lagoon	River	2009	17-Aug-09		8	43		
E 6 P/B	E6	Hollow River lagoon	River	2009	4-Sep-09		3	16		
E1 P/B	E1	Trading Bay	Deep water	2009	3-Jul-09	5.4	5	11		
E1 P/B	E1	Trading Bay	Deep water	2009	17-Jul-09	5.4	3	3		
E1 P/B	E1	Trading Bay	Deep water	2009	1-Aug-09	3.0	3	3		
E1 P/B	E1	Trading Bay	Deep water	2009	17-Aug-09	5.3	1	5		
E1 P/B	E1	Trading Bay	Deep water	2009	4-Sep-09	5.6	3	5		
E1 P/B FD	E1	Trading Bay	Deep water	2009	17-Aug-09	5.1				F
E1 P/B FD	E1	Trading Bay	Deep water	2009	4-Sep-09		3	3		F
E13 P/B	E13	Haystack Bay	Deep water	2009	3-Jul-09	6.8	1	8		
E13 P/B	E13	Haystack Bay	Deep water	2009	17-Jul-09		3	11	57.7	
E13 P/B	E13	Haystack Bay	Deep water	2009	1-Aug-09	4.0	3	8		
E13 P/B	E13	Haystack Bay	Deep water	2009	17-Aug-09	6.3	3	3		
E13 P/B	E13	Haystack Bay	Deep water	2009	4-Sep-09	8.4	5	11		
E13 P/B FD	E13	Haystack Bay	Deep water	2009	3-Jul-09		1	5		F
E30 P/B	E30	Ten Mile Bay	Deep water	2009	3-Jul-09	4.6	1	28		
E30 P/B	E30	Ten Mile Bay	Deep water	2009	17-Jul-09	6.6	1	11		
E30 P/B	E30	Ten Mile Bay	Deep water	2009	1-Aug-09	3.7	3	5		
E30 P/B	E30	Ten Mile Bay	Deep water	2009	17-Aug-09	5.1	3	11		
E30 P/B	E30	Ten Mile Bay	Deep water	2009	4-Sep-09	4.0	3	3		
E30 P/B FD	E30	Ten Mile Bay	Deep water	2009	17-Aug-09		1	8		F
N 2P/B	N2	Oxtongue mouth	River	2009	3-Jul-09	9.4	5	22		
N 2P/B	N2	Oxtongue mouth	River	2009	17-Jul-09	8.5	11	13		
N 2P/B	N2	Oxtongue mouth	River	2009	1-Aug-09	6.8	8	30		
N 2P/B	N2	Oxtongue mouth	River	2009	17-Aug-09	6.9	11	33		
N 2P/B	N2	Oxtongue mouth	River	2009	4-Sep-09	6.4	25	46		
N1 P/B	N1	Dwight Bay	Deep water	2009	3-Jul-09		5	11		

Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
N1 P/B	N1	Dwight Bay	Deep water	2009	17-Jul-09	5.3	1	8		
N1 P/B	N1	Dwight Bay	Deep water	2009	1-Aug-09	4.5	3	8		
N1 P/B	N1	Dwight Bay	Deep water	2009	17-Aug-09	3.6	1	11		
N1 P/B	N1	Dwight Bay	Deep water	2009	4-Sep-09	6.9	1	3		
N1 P/B FD	N1	Dwight Bay	Deep water	2009	17-Jul-09	5.2		3		F
N1 P/B FD	N1	Dwight Bay	Deep water	2009	1-Aug-09	3.2	8	11		F
N1 P/B FD	N1	Dwight Bay	Deep water	2009	17-Aug-09	3.7				F
N10 P/B	N10	Gull Rock	Deep water	2009	3-Jul-09	4.0	1	8		
N10 P/B	N10	Gull Rock	Deep water	2009	17-Jul-09	5.7	3	3		
N10 P/B	N10	Gull Rock	Deep water	2009	1-Aug-09	2.5	3	5		
N10 P/B	N10	Gull Rock	Deep water	2009	17-Aug-09	4.6	1	1		
N10 P/B	N10	Gull Rock	Deep water	2009	4-Sep-09	4.8	1	3		
N10 P/B FD	N10	Gull Rock	Deep water	2009	1-Aug-09	2.9				F
N10 P/B FD	N10	Gull Rock	Deep water	2009	4-Sep-09		1	3		F
N11 P/B	N11	Britannia	Disturbed	2009	3-Jul-09	3.5	8.0	19.0		
N11 P/B	N11	Britannia	Disturbed	2009	17-Jul-09	5.3	1.0	13.0		
N11 P/B	N11	Britannia	Disturbed	2009	1-Aug-09	2.0	3.0	5.0		
N11 P/B	N11	Britannia	Disturbed	2009	17-Aug-09	3.5	3.0	8.0		
N11 P/B	N11	Britannia	Disturbed	2009	4-Sep-09	3.6	1.0	1.0		
N11 P/B FD	N11	Britannia	Disturbed	2009	3-Jul-09		11.0	16.0		F
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2009	3-Jul-09	4.4	5	8		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2009	17-Jul-09	6.9	3	5		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2009	1-Aug-09	5.5	1	19		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2009	17-Aug-09	4.5	1	3		
N13 P/B	N13	Moffat's	Nearshore Undisturbed	2009	4-Sep-09	2.6	1	3		
N13 P/B FD	N13	Moffat's	Nearshore Undisturbed	2009	17-Aug-09		1	3		F
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2009	3-Jul-09	5.9	1	5		
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2009	17-Jul-09	6.2	3	13		
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2009	1-Aug-09	2.9	1	11		
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2009	17-Aug-09	4.0	5	8		
N24 P/B	N24	Boothby's	Nearshore Undisturbed	2009	4-Sep-09	2.3	1	3		
N24 P/B FD	N24	Boothby's	Nearshore Undisturbed	2009	17-Jul-09		5	11		F
N30 P/B	N30	Oxtongue Delta	River	2009	3-Jul-09	5.7	3	11		
N30 P/B	N30	Oxtongue Delta	River	2009	17-Jul-09	6.3	5	11		
N30 P/B	N30	Oxtongue Delta	River	2009	1-Aug-09	4.1	3	8		
N30 P/B	N30	Oxtongue Delta	River	2009	17-Aug-09	4.8	3	5		
N30 P/B	N30	Oxtongue Delta	River	2009	4-Sep-09	2.9	5	11		

Site Code	Site ID	Site Name	Site Type	Year	Date	Total Phosphorus (µg/L)	<i>E. coli</i> (cfu/100 mL)	Total Coliform (cfu/100 mL)	Suspected contaminated values (TP)	Duplicate (F=field, L=Lab, a=LOBA sample match)
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2009	3-Jul-09	3.4	1	8		
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2009	17-Jul-09	4.4	3	13		
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2009	1-Aug-09	1.9	3	3		
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2009	17-Aug-09	2.8	1	13		
S1 P/B	S1	Adamson's Island	Nearshore Undisturbed	2009	4-Sep-09	2.2	3	5		
S1 P/B FD	S1	Adamson's Island	Nearshore Undisturbed	2009	3-Jul-09	3.4				F
S1 P/B FD	S1	Adamson's Island	Nearshore Undisturbed	2009	4-Sep-09		3	8		F
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2009	3-Jul-09	3.9	5	8		
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2009	17-Jul-09	4.9	8	19		
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2009	1-Aug-09	1.9	3	5		
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2009	17-Aug-09	2.9	1	16		
S2 P/B	S2	Menominee Bay	Nearshore Undisturbed	2009	4-Sep-09	2.1	1	11		
S2 P/B FD	S2	Menominee Bay	Nearshore Undisturbed	2009	3-Jul-09		3	8		F
S3 P/B	S3	Price's Point	Deep water	2009	3-Jul-09	9.5	3	5		
S3 P/B	S3	Price's Point	Deep water	2009	17-Jul-09	7.4	1	16		
S3 P/B	S3	Price's Point	Deep water	2009	1-Aug-09	2.3	1	3		
S3 P/B	S3	Price's Point	Deep water	2009	17-Aug-09	6.7	3	3		
S3 P/B	S3	Price's Point	Deep water	2009	4-Sep-09	2.6	1	1		
S3 P/B FD	S3	Price's Point	Deep water	2009	3-Jul-09	9.2				F
S3 P/B FD	S3	Price's Point	Deep water	2009	17-Jul-09		3	19		F
S3 P/B FD	S3	Price's Point	Deep water	2009	4-Sep-09	2.7				F

# Appendix B

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## **Sampling Protocol of the Lake of Bays Association Water Quality Program**



# WATER QUALITY SAMPLING PROCEDURES

## General:

1. Check for equipment, including:
  - metre depth pole (if required)
  - thermometer
  - cooler and ice packs
  - sterilized jars, phosphorus tubes, duplicates
  - secchi depth disc and jar (if required)
  - data sheets and pen
2. verify that you have the appropriate boating safety equipment on board and that the weather is safe for sampling
3. record air temperature on data sheet as you leave the dock. Then attach thermometer to a rope in preparation for taking water temperature at sampling sites.
4. at each site, complete the data sheet, recording any factors or conditions that may make the sampling trip unusual or that may have an influence on sample results (eg. cloudy water, unusual activity in the area, presence of waterfowl)

## Coliform and E coli testing

*Near shore sample collected 22 – 30 cm. below the surface in water that is 1 m. in depth*

*Deep water samples also collected 22 – 30 cm. below the surface of the water.*

1. Carefully and correctly assemble the jars required for the specific site (all should be named and number coded)
2. Remove the cap/lid from the jar/bottle **without touching the inside of the lid or jar**, and place carefully, upside down on a flat stable surface
3. Grip the bottle at the base and plunge it into the water in a downward motion to the a depth of 22 – 30 cm. ( 9 – 15 in). The bottle goes in **upside down** (open end to lake bottom) and the appropriate depth is roughly around your elbow.
4. Adjust the bottle position in your hand so that the bottle is now parallel to lake surface and lake bottom, facing forward and **collect sample by sweeping the bottle forward** (forward, not up). This directional motion is important so that the water being collected in the bottle/jar does not pass over your hand. Collect water from that 22 – 30 cm. depth and then bring bottle to surface.
5. Empty it slightly (if it is full to the brim) and then recap bottle.
6. Store in the cooler chest.
7. **re quality control sample (lab and field duplicates).** Quality assurance is necessary to validate that the sampling and processing protocols have been followed appropriately. It is very important that these procedures are followed in order to ensure high quality results ...

If we are running duplicates (field and lab) on your site, there will be a large sampling jar, clearly marked, as well as a smaller one. Using the large jar, take your sample as per the steps outlined above. As soon as the sample is obtained, recap the jar (without touching interior of lid or jar) and shake it two or three times to ensure a uniform distribution of the discreet bacteria in the water sample. Immediately transfer some of the sample to the smaller jar. Cap both jars and store both jars. The contents of the



small jar are the sample, part of the remaining content of the large jar becomes the field duplicate and the balance of water in the large jar is sent for a quality control test at the Central Ontario Analytical Laboratory in Orillia.

The last part of quality assurance is distilled water. After the site sample and field duplicate have been collected, open the distilled water jug and fill the collection jar marked Distilled Water. Cap the glass bottle and place it in the cooler with the ice pack. Distilled water is, or should be, free of coliforms and e coli, and running a distilled water sample through our process (sterilized jars, sampling volunteers, Deb working the coliplates) is an excellent test of the scientific rigour of our program.

### **Near shore Phosphorus testing:**

*sample collected 22 – 30 cm. below the surface in water that is 1 m. in depth*

There are always a test tube **and** a PET jar associated with each phosphorus site (and sometimes extra test tubes for quality assurance purposes). The PET jar is used to actually collect the sample, which is then transferred to the test tube(s).

1. Carefully and correctly assemble the jars required for the specific site (all should be named and number coded)
2. Remove the top from the PET jar without touching the inside of top or jar and place in a flat, stable place.
3. **Rinse the jar in surface water at site.**
4. Rinse the filter (plastic funnel and filter cloth) in surface site water (filter stored in freezer bag.)
5. Grip the bottle at the base and plunge it into the water in a downward motion to the a depth of 22 – 30 cm. ( 9 – 15 in). The bottle goes in **upside down** (open end to lake bottom) and the appropriate depth is roughly around your elbow.
6. Adjust the bottle position in your hand so that the bottle is now parallel to lake surface and lake bottom, facing forward and **collect sample by sweeping the bottle forward** (forward, not up). This directional motion is important so that the water being collected in the bottle/jar does not pass over your hand. Collect water from that 22 – 30 cm. depth and then bring bottle to surface.
7. Take the top off the test tube, being careful not to touch the inside of the top or the test tube interior.
8. Gently swirl the water in the PET jar (don't spill it!) and then filter the water from the PET jar into the test tube using the filter (funnel plus filter cloth) provided. Fill the test tube to the line marked near the top of the test tube (want a tiny bit of air space in the tube for the lab to add some material.) Be prepared ... the filter cloth is a pain in the neck but it is important to filter out zooplankton which can distort phosphorus readings.
9. Cap tightly – both test tube and PET jar – and put both in the cooler.

**Note: be careful with the filters** ... they are light and blow away easily and it is also easy to lose/damage the filter cloths. **There is one filter per sampler for the entire summer!**

## Deep Water Phosphorus Testing

*sample is collected 10 – 15 m.(metres, not centimeters) below the surface in deep water*

While the process of collecting and filtering the sample is the same as that for near shore phosphorus, the sample is collected from further down in the water column. The process is as follows:

1. Attach the rope to the Secchi disc and measure the secchi depth by lowering the disc over the side of the boat until it disappears from view. It may take a bit of playing with it to verify when it actually disappears. Haul it up until you see it again and then slowly lower it. ( Know that in 8 years of doing this, I have NEVER had a secchi reading anywhere on Lake of Bays of less than 4.5 metres, and have occasionally had them up to 8 metres.) As you pull the disc back to the surface, count the number of metres (the rope is calibrated in 1 metre intervals.) Record this number. Redo to double check.
2. Record the colour of the water (orangey brown, bluey-green, etc.)
3. Attach the calibrated rope to the container for the secchi collection jar.
4. Rinse the collection jar in surface site water.
5. Lower the bottle (now in the weighted container to a distance that is **2 X** the secchi depth you observed and recorded above (the sample is being collected at a level to which light penetrates and given the refraction of light, that distance is 2 X the depth at which you could last see the disc.) The bottle should be lowered in a quick, smooth, but controlled motion (Don't let it free fall.)
6. Pull the container and collection jar back to the surface at a steady pace.
7. Use this water to rinse and fill the PET jar.
8. Swirl the water in the PET jar and then pour into the test tube **through the filter**. Fill test tube to the indicated line (just shy of full.)
9. Cap and place test tube and PET jar in cooler.

## Re quality assurance for phosphorus ... near shore and deep water:

Quality assurance is necessary to validate that the sampling and processing protocols have been followed appropriately. It is very important that these procedures are followed in order to ensure high quality results ...

1. If we are running phosphorus duplicates on your site, there will be an extra test tube, clearly marked as the field duplicate. Simply fill that second test tube in the same manner as the first, taking the time to gently swirl the contents of the PET jar before pouring water into the second test tube through the funnel and filter cloth Cap test tubes and PET jar and store in cooler.
2. The last part of quality assurance is distilled water. After the site sample and field duplicate have been collected, open the distilled water jug and fill the clearly marked test tube to the line (7/8<sup>th</sup> full). Cap and store with rest of samples from that particular site.