

**FINAL INTERIM REPORT
ON THE LAKE GEORGE
COLIFORM MONITORING PROGRAM – 2008**

prepared for
The Fund for Lake George

by

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Lake George Coliform Monitoring Program

The Coliform Monitoring Program focuses on a series of locations that have shown chronically high levels of coliform bacteria in past years with routine surveillance sampling of other locations also included. Synoptic sampling of public bathing beaches on a two-week basis was initiated in 2002 and also included in the 2008 program. In addition to sample collection at the lakeshore, selected areas of the watershed are sampled by the Lake George Park Commission and local agencies to locate and remediate specific sources of bacterial pollution. These follow-up investigations by the Lake George Park Commission, NYS Department of Health and county and local government personnel are conducted at sites with elevated fecal coliform levels.

Sample collection is generally concentrated in the more populated areas of the basin with the Towns of Bolton and Lake George the most intensively sampled. All of the towns within the basin have been sampled over the course of the 2008 program.

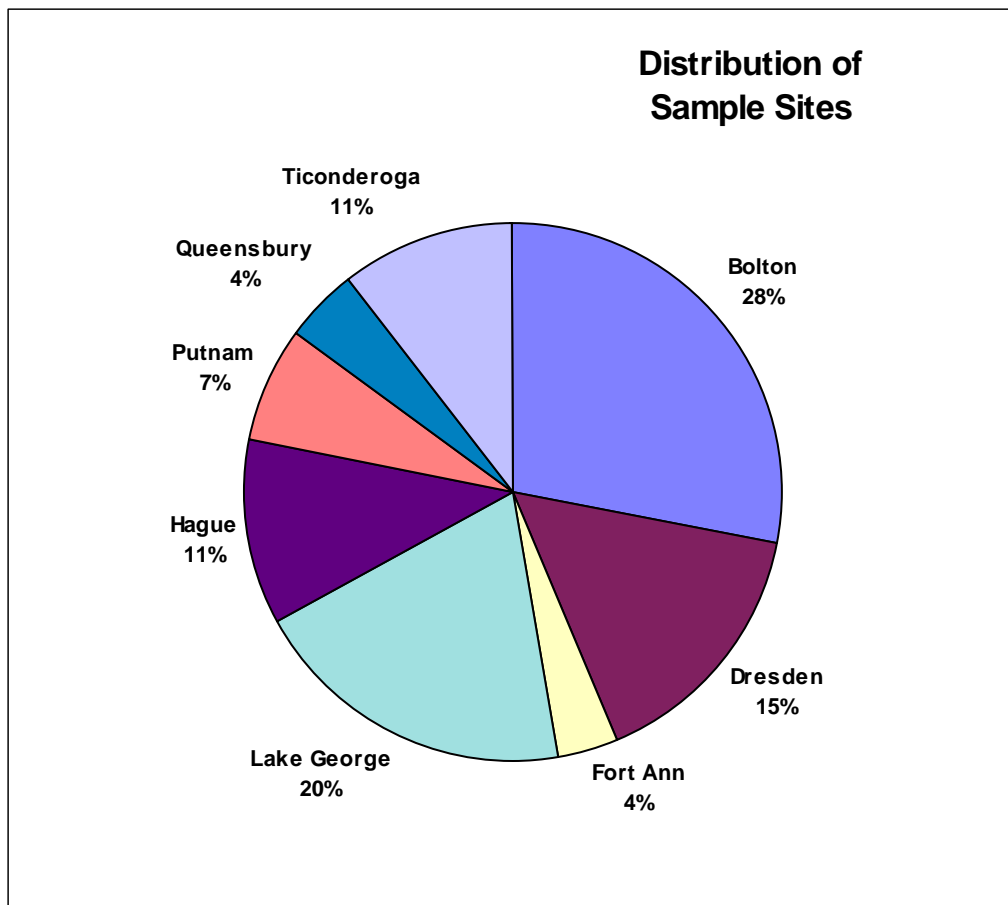


Figure 1. The distribution of sampling effort in the 2008 Lake George Coliform Monitoring Program.

Action Levels of the Fund for Lake George Coliform Monitoring Program

In order to respond effectively to contamination problems detected during the Fund for Lake George Coliform Monitoring Program, the following actions will occur:

1. If 200 or more fecal coliform bacteria per 100 milliliters are reported, the site will be resampled during the next sampling cycle.
2. If 400 or more fecal coliform bacteria per 100 milliliters are reported, the site will be resampled within 24 to 48 hours. The data for both samples will be reported to the LGPC. They will accept responsibility for contacting the appropriate regulatory agencies.

Follow-up samples to locate specific shoreline problems in the terrestrial portion of the basin are not within the guidelines of this program and will be the responsibility of the appropriate regulatory agencies. The Darrin Fresh Water Institute will provide technical assistance upon request, however the cost of additional sampling and analysis must be covered by the local, county or state agency responsible for water quality complaints.

In 2008, 188 samples were collected from 76 sites located throughout the Lake George basin. Eighteen sites with a total of 36 samples (19%) were found to contain fecal coliform levels above the average level that New York State considers acceptable for contact recreation (swimming & wading). Seven samples from 5 sites exceeded single sample limits for contact recreation. One of these samples was from Rogers Memorial Park Beach a public bathing beach. Seven samples from 3 sites exceeding single or average sample limits occurred during or shortly after heavy rainstorms. Excessive bacterial levels are commonly associated with massive loading of suspended sediments as a result of major stormwater runoff episodes. Three sites dominated the list including the South Sawmill Bay Brook, Cook Bay South Culvert and Howes Landing Culvert. These three locations were responsible for 47% of the samples exceeding contact recreation standards (17 of the 36 samples). Follow-up investigations by the Lake George Park Commission, NYS Department of Health and county and local government personnel were conducted at all of these locations. Initial investigations failed to locate specific sources of contamination, however a broken sewer line seeping into South Sawmill Bay Brook was later located and corrected. Remedial actions at Cook Bay South Culvert corrected a failing septic system in 2007, but additional areas of concern remain. This area will be a focus in 2009.

SUGGESTIONS FOR INTERPRETATION OF COLIFORM DATA

The Lake George Coliform Monitoring Program collects water samples from suspected contamination sources throughout the Lake George basin. Three primary measurements are then made for each sample; Total Coliform (TC), Fecal Coliform (FC) and Fecal Streptococcus (FS) Bacteria. These bacteria serve as indicators of the presence of animal or human waste. The presence of elevated levels of these bacteria indicate that potentially disease-causing protozoans, bacteria and other microorganisms may be present in the water.

New York State Department of Health has determined maximum allowable bacterial levels for contact recreation (swimming, wading, etc.). A table of these bacterial concentrations is included. When these maximum bacterial levels are exceeded, the New York State Department of Health is empowered to close the location to bathing until the problem or problems are corrected. These levels are used by the Fresh Water Institute to determine appropriate responses to various bacterial concentrations found during sampling. A table of these responses is included.

Interpretation of data to determine and locate sources of contamination (human or other warm-blooded animal) requires more than just current bacterial levels. A knowledge of past history of the site, weather, geology of the area, drainage patterns, and some information on human activities in the area are also necessary. To differentiate between human waste and that produced by other warm-blooded animals, it is sometimes helpful to refer to the ratio of fecal coliform to fecal streptococcus bacteria (FC/FS). An FC/FS ratio of 4 or greater is generally considered indicative of contamination of human origin.

New York State coliform bacteria standards for bathing beaches.

Maximum Allowable Levels of Coliform Bacteria in Waters Used for Contact Recreation (NYS Dept. of Health)		
Bacterial Test	Max. 5 Sample Mean	Max. Single Result
Total Coliform	2400 per 100 mls	5000 per 100 mls
Fecal Coliform	200 per 100 mls	1000 per 100 mls

Definitions

TC – Total Coliform Bacteria

FC – Fecal Coliform Bacteria

FS – Fecal Streptococcus Bacteria

FC/FS – Ratio of Fecal Coliform to Fecal Streptococcus Bacteria

TNTC – Too Numerous to Count

CONF – Confluent growth of target bacteria

MAT – Confluent growth of non-target bacteria

? – High background, referring to non-target growth of bacteria interfering with counts of target bacteria

LT – Less than

LA – Laboratory accident preventing enumeration of bacteria

2008 LAKE GEORGE COLIFORM MONITORING PROGRAM

SITE	DATE	TC/100mls	FC/100mls	FS/100mls	FC/FS	NOTES
Town of Bolton						
Basin Bay Brook	14-Jul-08	320	130	70	1.9	Warm, low flow, clear
Basin Bay Brook	11-Aug-08	510	46	480	0.1	Warm, clear, no flow
Beach South of Smith Island	21-Jul-08	8	9	10	0.9	collected by volunteer
Bixby Beach Road Culvert	30-Jun-08	1880	270	780	0.3	Turbid, low flow, cold
Bixby Beach Road Culvert	14-Jul-08	8900	180	800	0.2	No flow, Algae, soft sand, construction
Bixby Beach Road Culvert	11-Aug-08	20400	1640	4240	0.4	Low flow, brown, muddy
Bixby Beach Road Culvert	12-Aug-08	60	10	20	0.5	Warm, clear, no bathers
Bixby Beach Road Culvert	25-Aug-08	30	2	7	0.3	Paving, cool, clear, no flow
Braley Point Brook	28-Jul-08	90	1	1	1.0	good flow, warm, choppy
Cotton Point, Basin Bay Side	21-Jul-08	5	6	lt 1		collected by volunteer
Cotton Point, Lake Side	21-Jul-08	13	10	7	1.4	collected by volunteer
Edmunds Brook	28-Jul-08	990	34	79	0.4	cold, low flow, clear
Finkle Brook	26-Feb-08	lt 1	lt 1			Good flow, very cold
Finkle Brook	28-Jul-08	780	96	72	1.3	moderate flow, clear
Hemlock Point, Boon Bay	21-Jul-08	10	9	22	0.4	collected by volunteer
Hemlock Point, Lake Side	21-Jul-08	4	3	2	1.5	collected by volunteer
Huddle Beach Brook	23-Jun-08	520	127	1200	0.1	Cool, slightly turbid
Huddle Brook	14-Jul-08	1310	590	930	0.6	clear, cool, moderate flow
Huddle Brook	15-Jul-08	620	70	101	0.7	Cold, clear, low flow
Huddle Brook	28-Jul-08	710	40	92	0.4	warm, rain, low flow
Huddle Brook	25-Aug-08	220	20	210	0.1	cool, brown, low flow
Indian Brook	11-Aug-08	400	42	900	0.0	Good flow, cold, clear
Middleworth Bay - South	28-Jul-08	1690	160	77	2.1	cold, clear, low flow
Middleworth Bay - South	25-Aug-08	720	99	81	1.2	Clear, cold, low flow
Mohican Road Brook	14-Jul-08	12000	2560?	4650	0.6	Cold, clear, moderate flow
Mohican Road Brook	15-Jul-08	1390	110	180	0.6	Cool, clear, moderate flow
Mohican Road Brook	28-Jul-08	3100	79	112	0.7	cold, clear, high flow
Rogers Memorial Park Beach	30-Jun-08	590	108			Cool, clear, no bathers
Rogers Memorial Park Beach	14-Jul-08	1010	134			Calm, warm, no bathers, 3 ducks
Rogers Memorial Park Beach	28-Jul-08	120	53			many bathers, warm
Rogers Memorial Park Beach	11-Aug-08	890	650			No bathers, 3 ducks, clear, warm
Rogers Memorial Park Beach	12-Aug-08	1720	1150	430	2.7	Warm, clear, no bathers
Rogers Memorial Park Beach	25-Aug-08	340	58			no bathers, cool, clear
South Sawmill Bay Brook	30-Jun-08	320	280	950	0.3	Turbid, no flow
South Sawmill Bay Brook	14-Jul-08	8300	560	1330	0.4	Cold, clear, moderate flow
South Sawmill Bay Brook	15-Jul-08	31800	1400	2230	0.6	Cold, clear, moderate flow, pipe work being done
South Sawmill Bay Brook	28-Jul-08	6600	310	470	0.7	low flow, clear
South Sawmill Bay Brook	29-Jul-08	910	280	700	0.4	Clear, cold, low flow
South Sawmill Bay Brook	11-Aug-08	11000	1720	2150	0.8	Good flow, cool, brown
South Sawmill Bay Brook	12-Aug-08	4600	1210	450	2.7	Cold, clear, moderate flow
South Sawmill Bay Brook	25-Aug-08	2100	149	77	1.9	low flow, cool, clear, lots algae
South Sawmill Bay Brook, near lake	25-Aug-08	1600	307	139	2.2	Cool, clear, plants
Speaker Heck Island	11-Aug-08	45?	13	22	0.6	2 Sea gulls, clear, cool, dock 12
Stewart Brook	14-Jul-08	690	93	140	0.7	Low flow, calm
Stewart Brook	28-Jul-08	160	18	19	0.9	low flow, choppy, floating debris, warm clear
Stewart Brook	25-Aug-08	90	2	7	0.3	dead fish, warm, no flow
Stewart Brook @ Dula Pond	28-Jul-08	870?	150	39	3.8	Moderate flow, clear
Veterans Park Beach	30-Jun-08	152	145			Cool, clear, 5 bathers
Veterans Park Beach	14-Jul-08	97	98			Cool, clear, no bathers, ducks
Veterans Park Beach	28-Jul-08	500	320			4 bathers, rain, goose droppings
Veterans Park Beach	29-Jul-08	180	143	57	2.5	no bathers, warm, clear
Veterans Park Beach	11-Aug-08	49	24			No bathers, cool, clear
Veterans Park Beach	25-Aug-08	60	31			No bathers, cool, clear

SITE	DATE	TC/100mls	FC/100mls	FS/100mls	FC/FS	NOTES
Town of Dresden						
Bluff Head Creek	04-Aug-08	540	8	35	0.2	low flow, cold, clear
Bluff Head Culvert	21-Jul-08	910	21	197	0.1	Good flow, cool, clear
Commission Point	04-Aug-08	100	3	5	0.6	warm, calm, no boats
Cook Bay Brook	07-Jul-08	80	24	26	0.9	Low flow, cool, clear, deer
Cook Bay Loop	07-Jul-08	200	84	40	2.1	No flow, clear, cool
Cook Bay Loop	18-Aug-08	140	20	20	1.0	Ducks, no flow
Cook Bay South Culvert	07-Jul-08	630	580	67	8.7	Low flow, cold, clear
Cook Bay South Culvert	08-Jul-08	580	400	97	4.1	Clear, cold, low flow
Cook Bay South Culvert	21-Jul-08	520	390	222	1.8	Cold, clear, low flow
Cook Bay South Culvert	04-Aug-08	1840	510	108	4.7	cold, clear, low flow
Cook Bay South Culvert	05-Aug-08	830	200	40	5.0	Cool, low flow
Cook Bay South Culvert	18-Aug-08	910	310	55	5.6	Good flow, cold, clear
Cook Bay South Culvert	02-Sep-08	970	79	67	1.2	Low flow, cool
Foster Brook	07-Jul-08	320	16	27	0.6	Low flow, clear, very cold
Foster Brook	02-Sep-08	560	17	56	0.3	Low flow, cool, clear
Indian Bay Brook	21-Jul-08	200	6	109	0.1	Cold, clear, low flow
Paradise Bay	04-Aug-08	9	1	18	0.1	calm, warm, clear
Sunset Bay Brook East	07-Jul-08	400	90	38	2.4	Warm, no flow, lots of detritus
Sunset Bay Brook East	04-Aug-08	70	50	26	1.9	cool, clear, low flow
Sunset Bay Brook East	18-Aug-08	980	61	69	0.9	Low flow, clear, cold
Sunset Bay Brook West	07-Jul-08	120	47	29	1.6	No flow, warm, ducks
Sunset Bay Brook West	02-Sep-08	90	46	20	2.3	Low flow, 2 ducks, cool
Washington County Beach	07-Jul-08	50	14			No bathers, warm, clear
Washington County Beach	21-Jul-08	240	120			No bathers, choppy, warm, turbid
Washington County Beach	04-Aug-08	60	25			No bathers, calm, 1 duck, warm, clear
Washington County Beach	18-Aug-08	11	8			No bathers, calm, warm, clear
Washington County Beach	02-Sep-08	35	30			No bathers, calm, warm
Wyatts Bay Culvert	07-Jul-08	170	77	28	2.8	Clear, tepid, no flow
Wyatts Bay Culvert	18-Aug-08	80	24	12	2.0	Warm, clear, no flow
Town Of Fort Ann						
Butternut Brook	14-Jul-08	110	48	88	0.5	Warm, clear, low flow
Echo Bay	30-Jun-08	180	53	37	1.4	Slightly turbid
Town of Fort Ann Beach	30-Jun-08	14	11			Calm, clear, no bathers
Town of Fort Ann Beach	14-Jul-08	54	33			No bathers, cool, clear, calm
Town of Fort Ann Beach	28-Jul-08	88	39			No bathers, choppy, warm
Town of Fort Ann Beach	11-Aug-08	5	2			Warm, clear, no bathers, choppy
Town of Fort Ann Beach	25-Aug-08	19?	17			No bathers, clear, cool

SITE	DATE	TC/100mls	FC/100mls	FS/100mls	FC/FS	NOTES
Town of Hague						
Cape Cod Village Brook	07-Jul-08	430	38	360	0.1	Warm, clear, low flow
Hague Boat Launch Culvert	07-Jul-08	60	10	540	0.0	Warm, no flow
Hague Town Beach	07-Jul-08	6?	30?			No bathers, warm, turbid
Sabbath Day Point Beach	07-Jul-08	19	6			1 bather, warm, clear
Hague Brook	21-Jul-08	240	160	148	1.1	Cold, clear, moderate flow
Hague Town Beach	21-Jul-08	150	90			6 bathers, war, clear
Sabbath Day Point Beach	21-Jul-08	1	1			No bathers, warm, clear
Sabbath Day Point Brook	21-Jul-08	100	20	22	0.9	Warm, no flow, debris
Silver Bay Brook - North	21-Jul-08	830	281	740	0.4	Cold, clear, low flow
Hague Boat Launch Culvert	04-Aug-08	70	33	62	0.5	cool, debris, no flow
Hague Town Beach	04-Aug-08	240	174			1 bather, warm, clear
Sabbath Day Point Beach	04-Aug-08	40	8			No bathers, warm, clear
Silver Bay Brook - North	04-Aug-08	550	90	48	1.9	cool, clear, low flow
Hague Brook	18-Aug-08	160	21	51	0.4	Very choppy, moderate flow, cold, clear
Hague Town Beach	18-Aug-08	30	8?			Murky, many bathers, choppy
Sabbath Day Point Beach	18-Aug-08	90	60			Rough water, murky, warm
Sabbath Day Point Brook	18-Aug-08	210	7	29	0.2	Cold, deep mud, odor
Hague Boat Launch Culvert	02-Sep-08	72	13	17	0.8	No flow, cool, plants
Hague Town Beach	02-Sep-08	2	lt 1			2 bathers, warm, clear
Sabbath Day Point Beach	02-Sep-08	5	1			No bathers, warm, clear
Silver Bay Brook	02-Sep-08	280	15	27	0.6	Moderate flow, clear, cool
Town of Lake George						
Diamond Point Beach	30-Jun-08	86?	111			Cool, clear, no bathers
Diamond Point Beach	14-Jul-08	36	6			no bathers, calm, cool, clear
Diamond Point Beach	28-Jul-08	35	2			No bathers, warm, clear
Diamond Point Beach	11-Aug-08	6?	3			No bathers, warm, clear
Diamond Point Beach	25-Aug-08	4	1			No bathers, choppy, warm, clear
East Brook	14-Jul-08	9600	1520	2520	0.6	High flow, brown, turbid, cold
East Brook	15-Jul-08	560	170	120	1.4	Reverse flow, cool, clear, low flow
East Brook	28-Jul-08	660	118	69	1.7	Low flow, cold, clear
East Brook	25-Aug-08	200	123	29	4.2	no flow, cold, murky
Edmunds Brook	11-Aug-08	640	37	500	0.1	Cool, good flow
English Brook	11-Aug-08	590	284	270	1.1	Cold, clear, moderate flow
English Brook	25-Aug-08	410	112	56	2.0	choppy, clear, cold, no flow
King James Spring	30-Jun-08	600	470	115	4.1	No flow, sample taken in lake next to Sheriffs Dock
King James Spring	01-Jul-08	40	60	18	3.3	No flow, sample taken in lake next to Sheriffs Dock
King James Spring	14-Jul-08	40	3	2	1.5	Warm, slight debris, 1 duck, no flow
Lake Avenue Beach	30-Jun-08	116	80	79	1.0	Cool, calm, no bathers
Lake Avenue Beach	14-Jul-08	560?	390?	1040	0.4	Calm, clear, cool, 2 ducks
Lake Avenue Beach	28-Jul-08	780	140	23	6.1	2 bathers, clear
Lake Avenue Beach - S. Culvert	30-Jun-08	410	250	196	1.3	Cool, low flow
Lake Avenue Beach - S. Culvert	14-Jul-08	490?	370	990	0.4	no flow, cool, clear
Lake Avenue Beach - S. Culvert	28-Jul-08	840	150	12	12.5	clear, no flow
LG Water Treatment Plant Culvert	30-Jun-08	80	70	92	0.8	Cool, clear, low flow
Marine Village Beach	30-Jun-08	31	31	33	0.9	Cool, clear, 1 bather
Marine Village Culvert	30-Jun-08	480	85	224	0.4	Cool, slightly turbid, moderate flow
Marine Village Culvert	25-Aug-08	1040	230	56	4.1	no flow, cool, clear

SITE	DATE	TC/100mls	FC/100mls	FS/100mls	FC/FS	NOTES
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Town of Lake George (continued)

Shepard's Park Beach	30-Jun-08	160	77			Cool, clear, no bathers
Shepard's Park Beach	14-Jul-08	440	260			Many bathers, warm, clear
Shepard's Park Beach	28-Jul-08	190	66			many bathers, choppy, cold, clear
Shepard's Park Beach	11-Aug-08	460	230			Warm, clear, no bathers
Shepard's Park Beach	25-Aug-08	70	63			Few bathers, warm, clear
Sheriffs Dock Culvert	30-Jun-08	270	160	200	0.8	Turbid, mod flow, suspended debris
Sheriffs Dock Culvert	25-Aug-08	18	9	4	2.3	no flow, warm, clear
Tea Island Bay Brook	30-Jun-08	440	90	165	0.5	Cool, clear, low flow, debris
Ushers Park Beach	14-Jul-08	18	11	37	0.3	Cool, clear, no bathers, 2 ducks
West Brook	30-Jun-08	55	57	137	0.4	Low flow, clear
West Brook	11-Aug-08	700	112	410	0.3	Cold, clear. Low flow
West Brook	25-Aug-08	210	139	600	0.2	no flow, cold, clear

Town of Putnam

Dark Bay Brook	04-Aug-08	2280	29	410	0.1	moderate flow, cold, clear
Glenburnie Pumphouse Creek	04-Aug-08	2040	140	1170	0.1	cold, clear, low flow
Glenburnie Pumphouse Creek	02-Sep-08	330	22	31	0.7	Warm, no flow, clear
Gull Bay Brook	07-Jul-08	310	15	44	0.3	Cold, clear, moderate flow, dredging to south
Gull Bay Brook	18-Aug-08	380	8	30	0.3	Still dredging, clear, cold, moderate flow
Gull Bay Brook	02-Sep-08	570	26	52	0.5	Moderate flow, finished dredging
Putnam Town Beach	07-Jul-08	860	24			Bathers, warm, clear, dredging on either side of beach
Putnam Town Beach	21-Jul-08	21	15			No bathers, clear, warm, dredging
Putnam Town Beach	04-Aug-08	15	5			Calm, no bathers, dredging
Putnam Town Beach	18-Aug-08	11	1			No bathers, 2 ducks, warm, clear
Putnam Town Beach	02-Sep-08	1	lt 1			No bathers, calm, clear
Sucker Brook	07-Jul-08	120	35	380	0.1	Cold, clear, minnows
Sucker Brook	18-Aug-08	80	19	96	0.2	Brown, moderate flow, cool

Town of Queensbury

Assembly Point Culvert	28-Jul-08	90	25	36	0.7	no flow, cool, clear
Dunhams Bay Wetland	28-Jul-08	130	70	59	1.2	brown, low flow, calm
Harris Bay Culvert	30-Jun-08	21	17	125	0.1	Cool, algae, no flow
Joshua Rock Brook	30-Jun-08	152	30	144	0.2	Moderate flow, clear, cool
Lake George Boat Co. Boat Launch	11-Aug-08	120	14	39	0.4	No boats, choppy, warm
Warner Bay Culvert	11-Aug-08	220	8	80	0.1	Warm, no flow, debris
Warner Bay South Culvert	11-Aug-08	50	2	13	0.2	Warm, clear, no flow
Warner Bay South Culvert	25-Aug-08	130	2	11	0.2	no flow, warm, clear

SITE	DATE	TC/100mls	FC/100mls	FS/100mls	FC/FS	NOTES
Town of Ticonderoga						
Cooks Bay Brook - North	21-Jul-08	890	230	236	1.0	Warm, low flow, algae
Cooks Bay Brook - North	04-Aug-08	1500	83	500	0.2	cold, turbid, low flow
Cooks Bay Brook - North	02-Sep-08	530	29	36	0.8	Moderate flow, cool, clear
Cooks Bay Brook - South	21-Jul-08	530	100	168	0.6	Warm, low flow, slightly turbid
Cooks Bay Brook - South	02-Sep-08	460	20	26	0.8	Good flow, cool, clear
Howes Landing Culvert	21-Jul-08	1080	260	364	0.7	Cool, clear, moderate flow
Howes Landing Culvert	04-Aug-08	2300	280	550	0.5	cold, clear, mod flow
Howes Landing Culvert	18-Aug-08	1380	390	690	0.6	good flow, murky, very cold
Howes Landing Culvert	02-Sep-08	630	390	112	3.5	Good flow, cold, clear
Mossy Point Boat Launch	21-Jul-08	100	45	26	1.7	No boats, calm, turbid, warm, milfoil
Mossy Point Brook	21-Jul-08	20	34	20	1.7	Low flow
Ticonderoga Town Beach	07-Jul-08	21	22			Bathers, warm, clear
Ticonderoga Town Beach	21-Jul-08	15	7			5 bathers, calm, warm, clear
Ticonderoga Town Beach	04-Aug-08	5	20			No bathers, clear, calm, warm
Ticonderoga Town Beach	18-Aug-08	90	37			Many bathers, choppy, warm
Ticonderoga Town Beach	02-Sep-08	43	41			No bathers, warm, clear
Tiroga Point Channel	21-Jul-08	1800	680	700	1.0	Warm, turbid, 2 ducks
Tiroga Point Channel	22-Jul-08	40	50	100	0.5	turbid, warm
Tiroga Point Channel	04-Aug-08	180	172	65	2.6	murky, warm, weeds
Tiroga Point Channel	18-Aug-08	400	84	6	14.0	Murky, warm, low flow