

Canada Lake Questions and Answers, 2015 CSLAP

Q1. What is the condition of our lake this year?

A1. Water quality conditions in Canada Lake were close to normal and highly favorable in 2015. No algae blooms or any other water quality problems were reported.

Q2. Is there anything new that showed up in the testing this year?

A2. Chloride sampling results were typical of lakes with few impacts from road salt runoff, and no biological impacts have been reported or measured.

Q3. How does the condition of our lake this year compare with other lakes in the area?

A3. Canada Lake has slightly higher water clarity, and much lower algae and nutrient levels, than a typical Adirondack lake, and as in most Adirondack lakes, no shoreline blooms were reported.

Q4. Are there any trends in our lake's condition?

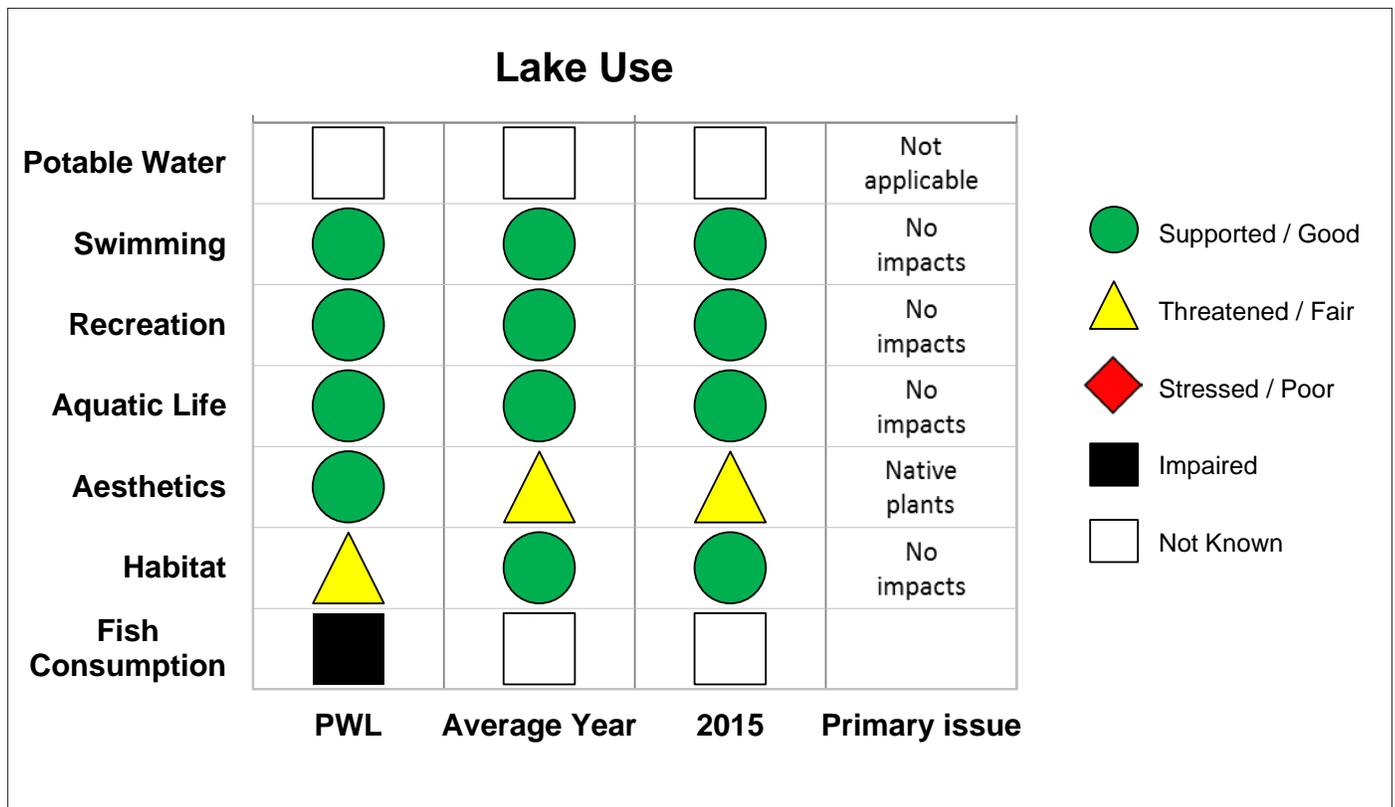
A4. No clear long-term trends are apparent, and slightly higher water clarity and lower nutrient levels since 2007 suggest no evidence of changes beyond normal variability. Most of the other CSLAP indicators have not exhibited any clear changes.

Q5. Should we be concerned about the condition of our lake? Are we close to a tipping point?

A5. Canada Lake does not appear to be susceptible to algae blooms or other significant water quality problems. The greatest threat to the lake, at least at this time, appears to be invasive species, particularly since invasive plants and animals are found in nearby lakes.

Q6. Are any actions indicated, based on the trends and this year's results?

A6. Individual stewardship activities such as pumping your septic system, growing a buffer of native plants next to the water bodies, and reducing erosion from shoreline properties and runoff into the lake will help to maintain highly favorable water quality conditions by reducing nutrient and sediment loading to the lake. Visiting boats should be inspected to reduce the risk of new invasive species, since nearby lakes harbor several invasive plants not found in the lake

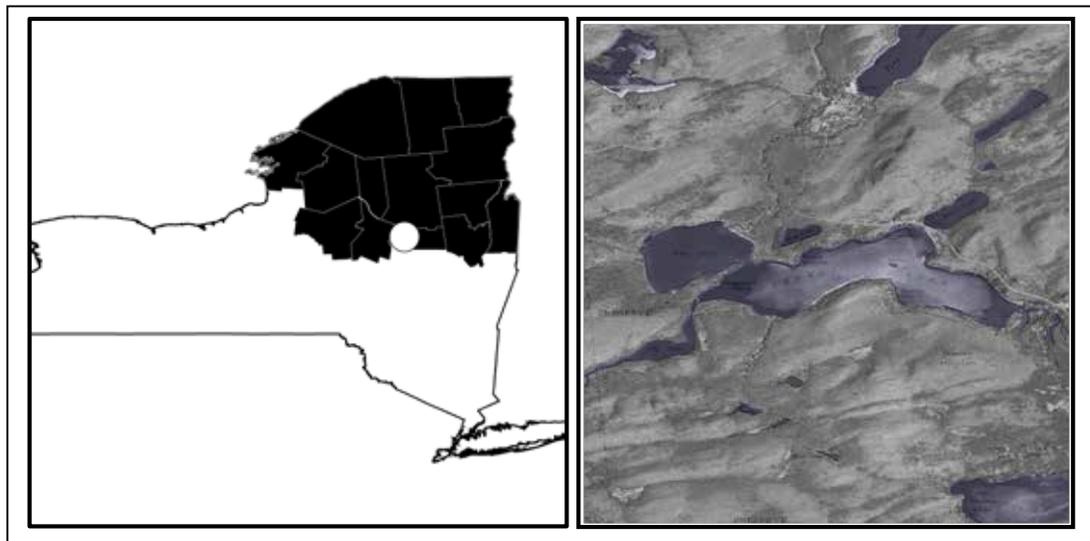


CSLAP 2015 Lake Water Quality Summary: Canada Lake

General Lake Information

Location	Town of Caroga
County	Fulton
Basin	Mohawk River
Size	51.8 hectares (127.9 acres)
Lake Origins	Natural
Watershed Area	10,856 hectares (26,816 acres)
Retention Time	0.1 years
Mean Depth	21.3 meters
Sounding Depth	28 meters
Public Access?	DEC launch at inlet
Major Tributaries	Burnt Vly Stream (Via West Lake)
Lake Tributary To...	Sprite Creek to East Canada Creek to Mohawk River
WQ Classification	B (contact recreation = swimming)
Lake Outlet Latitude	43.141
Lake Outlet Longitude	-74.594
Sampling Years	2001-2010, 2012-2015
2015 Samplers	John and Merryn Byrnes
Main Contact	John Byrnes

Lake Map



Background

Canada Lake is a 130 acre, class B lake found in the Town of Caroga in Fulton County, in the southern Adirondack region of New York State. It has been sampled as part of CSLAP since 2001.

It is one of eight CSLAP lakes among the nearly 200 lakes and ponds found in Fulton County, and one of 13 CSLAP lakes among the nearly 800 lakes and ponds in the Mohawk River drainage basin.

Lake Uses

Canada Lake is a Class B lake; this means that the best intended use for the lake is for contact recreation—swimming and bathing, non-contact recreation—boating and angling, aquatic life, and aesthetics. The lake is used by lake residents for swimming, boating and other recreation via shoreline properties; the public can access the lake via a DEC launch at the inlet.

It is not known by the report authors if Canada Lake has been stocked by lake residents or municipal officials. Canada Lake has been stocked by the state with 1,750 eight inch brown trout and 2,860 eight to nine inch lake trout.

General statewide fishing regulations are applicable in Canada Lake. In addition, the open season for chain pickerel is the 1st Saturday in May through March 15th, with no size limits but a take limit of five fish. There is a year-round open season for lake trout and other trout, with a lake trout size limit of 21 inches and a take limit of three lake trout and five other trout. Ice fishing is allowed.

There are two fish consumption advisories on Canada Lake of no more than one meal per month for chain pickerel and smallmouth bass greater than 15 inches in length.

Historical Water Quality Data

CSLAP sampling was conducted on Canada Lake from 2001 to 2010, and 2012 to 2015. The CSLAP reports for each of the past several years can be found on the NYSFOLA website at <http://nysfola.mylaketown.com>. The most recent CSLAP report for Canada Lake can also be found on the NYSDEC web page at <http://www.dec.ny.gov/lands/77870.html>.

Canada Lake was sampled as part of the 1934 Biological Survey conducted by the NYS Conservation Department (the predecessor to the NYSDEC). The focus of this monitoring program, as related to lake sampling, was monitoring to evaluate the biological condition of the lake. As such, many of the water quality indicators in CSLAP were not monitored through the Biological Survey. These data indicated that water clarity was probably comparable in 1934 and since 2000, while pH readings have probably dropped slightly since 1934- perhaps due to the influence of acid rain. The Biological Survey results also indicate that deepwater oxygen levels—in water more than 140 feet deep!- were comparable to those at the lake surface, indicating excellent water quality. The written summary of the lake was as follows:

“For the purposes of this report Canada Lake, West Lake (P718), and Lily Lake (P716) will be considered as one lake. This body of water has an area of 710 acres about 400 acres of which is

over 40 ft. deep. The maximum depth is 144 ft. The chemical conditions in Canada Lake proper are excellent while the bottom samples from the West Lake and Lily Lake portions contain no oxygen. The lack of oxygen is due to the decomposition of the sawdust with which the bottom of these two lakes is covered.”

Sampling data from the lake is also included in the statewide fisheries database. These indicate conditions comparable to those measured through CSLAP.

The major Canada Lake tributaries (Burnt Vly Stream via West Lake) and the outlet (Sprite Creek) have not been monitored through the NYSDEC Rotating Intensive Basins (RIBS) program. No sites have been sampled through the state stream macroinvertebrate monitoring program.

Lake Association and Management History

Canada Lake is served by the Canada Lake Protective Association. The lake association involved in a variety of lake management activities, including:

- flare lighting
- ski and wakeboard clinic
- youth activities
- fish stocking- salmon
- lake management committee re: fire safety, fishing, stewardship, lake safety, water testing, water level
- bacteria testing
- other social activities

The Canada Lake Protective Association maintains a website, at

<http://www.canadalake.com/display.cfm?CFID=48409&CFTOKEN=11667129>.

Summary of 2015 CSLAP Sampling Results

Evaluation of 2015 Annual Results Relative to 2001-2014

The summer (mid-June through mid-September) average readings are compared to historical averages for all CSLAP sampling seasons in the “Lake Condition Summary” table, and are compared to individual historical CSLAP sampling seasons in the “Long Term Data Plots – Canada Lake” section in Appendix C.

Evaluation of Eutrophication Indicators

Water clarity was close to normal in 2015, although clarity has increased over the last four years after decreasing the previous four years. The former may be consistent with a decrease in phosphorus readings since the mid-2000s, although algae levels (chlorophyll *a*) may have increased slightly over the last fifteen years. All of these small but varying changes in the trophic indicators suggests that each of these changes have been within the expected range of variability for Canada Lake.

Water clarity and phosphorus readings increase slightly during the course of the typical summer, although algae levels do not vary in the same manner. In 2015, water clarity increased in mid-summer, corresponding to a decrease in algae levels in the same timeframe, although phosphorus readings did not change appreciably.

The lake continues to be characterized as *mesoligotrophic*, based on water clarity (typical of *mesotrophic* lakes), chlorophyll *a* and total phosphorus (both typical of *oligotrophic* lakes) readings. The trophic state indices (TSI) evaluation suggests that phosphorus readings are slightly lower than expected given the algae levels and water clarity in the lake. This suggests that Canada Lake may be susceptible to small increases in phosphorus. Overall trophic conditions are summarized on the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Potable Water Indicators

No water quality indicators related specifically to potable water usage have been collected through CSLAP in Canada Lake. Algae levels are not high enough to render the lake susceptible to taste and odor compounds or elevated DBP (disinfection by product) compounds that could affect the potability of the water. However, the lake is not classified for this use. Hypolimnetic phosphorus and ammonia readings in Canada Lake are low (although deepwater ammonia readings were slightly higher than normal in 2015) and similar to those at the lake surface, suggesting that deepwater intakes should not be compromised. Potable water conditions, at least as measurable through CSLAP, are summarized in the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Limnological Indicators

Conductivity readings were slightly higher than normal in 2014 and 2015, but no long term trends in conductivity have been apparent. pH has increased slightly over the last decade, despite similar readings in 2015. Each of these other limnological indicators (NO_x, ammonia, total nitrogen, color, and calcium) was close to normal in 2015, and none of these indicators has exhibited a long-term trends.

Chloride levels in the 2015 samples, collected for the first time through CSLAP and cited in Appendix A, ranged from 11 to 14 mg/l. These values fall within the low end of the range of “moderate” road salt runoff levels cited by the New Hampshire DES. These readings are well below the state potable water quality standard of 250 mg/l and lower than the range of values found in most NYS lakes. These readings suggest a low to moderate likelihood of biological impacts from road salt. Additional data will help to determine if these represent normal readings for the lake.

Overall limnological conditions are summarized in the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Biological Condition

The limited information about the fish community in the lake is comprised of a mix of coldwater (at least three species), coolwater (at least one species) and warmwater (at least four species) fish. This indicates that the lake supports a two story fishery.

Macrophyte, zooplankton and macroinvertebrate surveys have not been conducted through CSLAP at Canada Lake. The fluoroprobe screening samples analyzed by SUNY ESF in the last several years indicated very low algae levels and a low percentage of blue green algae, with the sparse algae community dominated by green algae and diatoms. No shoreline blooms have been reported or sampled.

Biological conditions in the lake are summarized in the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Lake Perception

Aquatic plant coverage increased slightly in 2015. Recreational assessments were also slightly more favorable than usual (although all reports have been favorable). None of these indicators of lake perception has exhibited any long-term trends. No seasonal trends are normally apparent, although plant coverage increases during the summer. No seasonal trends were apparent in any of the last three years. Overall lake perception is summarized on the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Local Climate Change

Temperature readings have not varied significantly since CSLAP sampling began in the lake, although water temperatures were slightly higher than usual in 2015. It is not likely that any of the small changes in air or water temperature readings are indicative of local climate change in the lake.

Evaluation of Algal Toxins

Algal toxin levels can vary significantly within blooms and from shoreline to lake, and the absence of toxins in a sample does not indicate safe swimming conditions. Fluoroprobe readings have been well below the threshold for harmful algal blooms (HABs) in open water, due to very low total algae levels and low percentages of blue green algae. An analysis of algae samples indicates microcystin and anatoxin-a levels below the levels needed to support safe swimming in the open water, and presumably along the shoreline. No shoreline blooms have been reported.

Lake Condition Summary

Category	Indicator	Min	Annual Avg	Max	2015 Avg	Classification	2015 Change?	Long-term Change?
Eutrophication Indicators	Water Clarity	2.45	4.60	9.40	4.61	Mesotrophic	Within Normal Range	No Change
	Chlorophyll <i>a</i>	0.26	1.60	4.50	1.86	Oligotrophic	Within Normal Range	No Change
	Total Phosphorus	0.001	0.006	0.019	0.004	Oligotrophic	Lower Than Normal	No Change
Potable Water Indicators	Hypolimnetic Ammonia	0.01	0.05	0.30	0.06	Close to Surface NH4 Readings	Higher than Normal	Not known
	Hypolimnetic Arsenic							Not known
	Hypolimnetic Iron							Not known
	Hypolimnetic Manganese							Not known
Limnological Indicators	Hypolimnetic Phosphorus	0.001	0.006	0.026	0.004	Close to Surface TP Readings	Lower Than Normal	Not known
	Nitrate + Nitrite	0.01	0.13	0.48	0.13	Intermediate NOx	Within Normal Range	No Change
	Ammonia	0.00	0.03	0.17	0.03	Low Ammonia	Within Normal Range	No Change
	Total Nitrogen	0.10	0.38	0.99	0.33	Low Total Nitrogen	Within Normal Range	No Change
	pH	5.99	7.16	9.35	7.31	Circumneutral	Within Normal Range	No Change
	Specific Conductance	25	40	53	47	Softwater	Higher than Normal	No Change
	True Color	2	17	40	15	Intermediate Color	Within Normal Range	No Change
	Calcium	1.5	2.2	2.7	2.0	Not Susceptible to Zebra Mussels	Within Normal Range	No Change
Lake Perception	WQ Assessment	1	1.2	3	1.0	Crystal Clear	Within Normal Range	No Change
	Aquatic Plant Coverage	1	2.4	3	2.7	Subsurface Plant Growth	Within Normal Range	No Change
	Recreational Assessment	1	1.3	5	1.0	Could Not Be Nicer	Within Normal Range	No Change
Biological Condition	Phytoplankton					Open water-low blue green algae biomass	Not known	Not known
	Macrophytes					Not known	Not known	Not known
	Zooplankton					Not measured through CSLAP	Not known	Not known
	Macroinvertebrates					Not measured through CSLAP	Not known	Not known
	Fish					Coldwater fishery	Not known	Not known
	Invasive Species					Brown trout	Not known	Not known
Local Climate Change	Air Temperature	2	21.7	31	22.1		Within Normal Range	No Change
	Water Temperature	11	22.0	28	23.3		Higher Than Normal	No Change
Harmful Algal Blooms	Open Water Phycocyanin	<3	5	53	2	No readings indicate high risk of BGA	Not known	Not known
	Open Water FP Chl.a	0	1	3	1	No readings indicate high algae levels	Not known	Not known
	Open Water FP BG Chl.a	0	0	1	0	No readings indicate high BGA levels	Not known	Not known
	Open Water Microcystis	<DL	<DL	0.5	<DL	Low to undetectable open water MC-LR	Not known	Not known
	Open Water Anatoxin a	<DL	<DL	<DL	<DL	Open water Anatoxin-a consistently not detectable	Not known	Not known
	Shoreline Phycocyanin					No shoreline blooms sampled for PC	Not known	Not known
	Shoreline FP Chl.a					No shoreline blooms sampled for FP	Not known	Not known
	Shoreline FP BG Chl.a					No shoreline blooms sampled for FP	Not known	Not known
	Shoreline Microcystis					No shoreline bloom MC-LR data	Not known	Not known
	Shoreline Anatoxin a					No shoreline bloom anatoxin data	Not known	Not known

Evaluation of Lake Condition Impacts to Lake Uses

The 2002 NYSDEC Priority Waterbody Listings (PWL) for the Mohawk River drainage basin indicate that habitat is *stressed* by hydrologic modification. The PWL listing for Canada Lake is shown in Appendix B.

Potable Water (Drinking Water)

The CSLAP dataset at Canada Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, is inadequate to evaluate the use of the lake for potable water, and the lake is not used for this purpose.

Public Bathing

The CSLAP dataset at Canada Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggests that public bathing, if conducted at a public swimming beach, would be fully supported, although additional information about bacterial levels is needed to evaluate the safety of the water for swimming.

Recreation (Swimming and Non-Contact Uses)

The CSLAP dataset on Canada Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that recreation should be fully supported.

Aquatic Life

The CSLAP dataset on Canada Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aquatic life should be fully supported, although this use may eventually be *threatened* by road salt runoff. Additional data are needed to evaluate the food and habitat conditions for aquatic organisms in the lake.

Aesthetics and Habitat

The CSLAP dataset on Canada Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aesthetics may at times be *fair* due to native weed growth, although it is likely that habitat is *good*.

Fish Consumption

There are fish consumption advisories posted for Canada Lake—fish consumption is limited to no more than one meal per month for chain pickerel and for smallmouth bass greater than 15 inches in length.

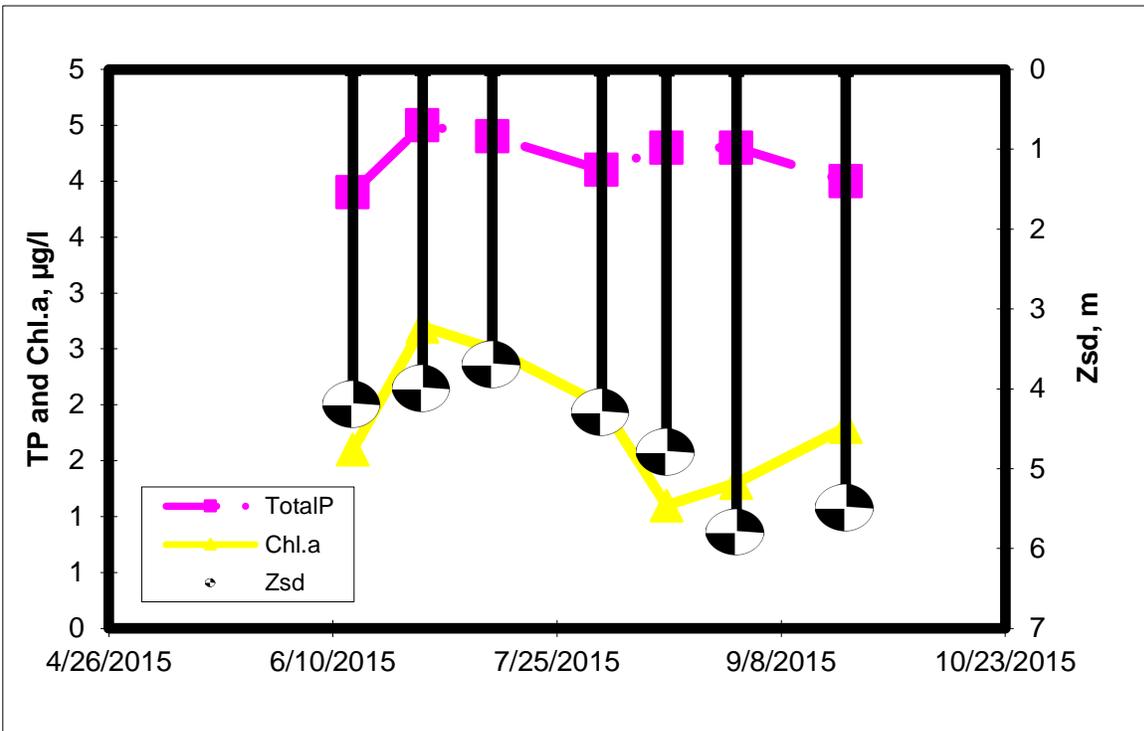
Additional Comments and Recommendations

Aquatic plant survey data should be collected to determine if invasive, exotic plants are found in the lake, and the extent to which aquatic plants influenced recreational assessments of Canada Lake. Lake residents should report (and avoid exposure to) any shoreline blooms.

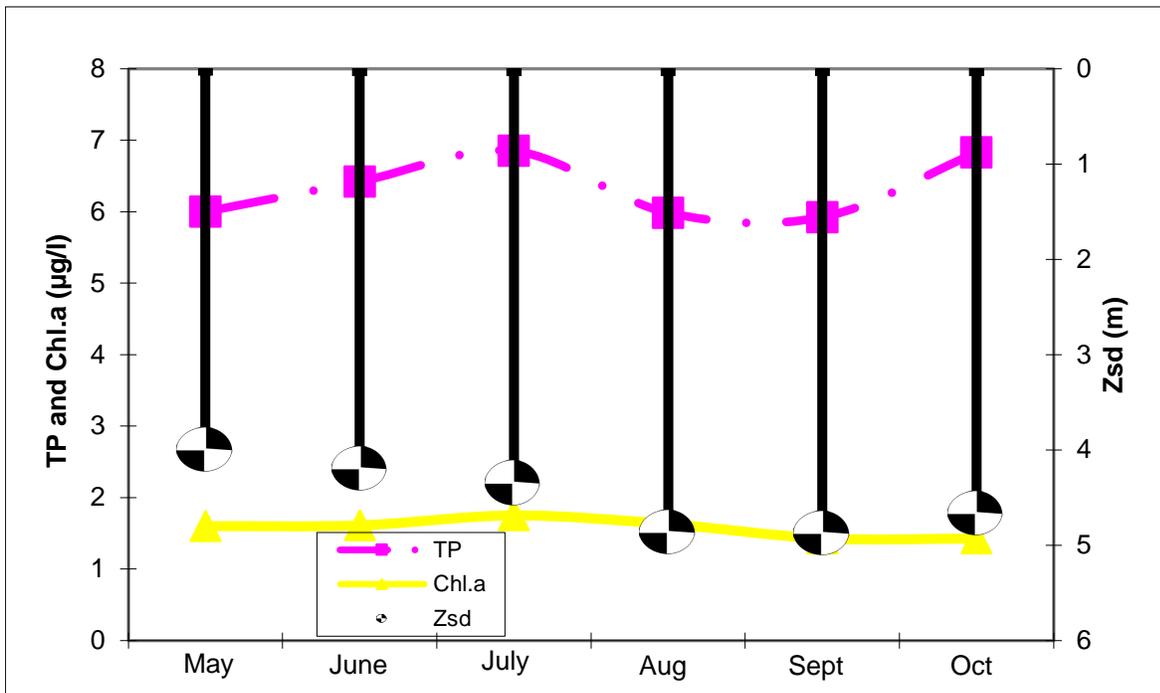
Aquatic Plant IDs-2015

None submitted for identification in 2015.

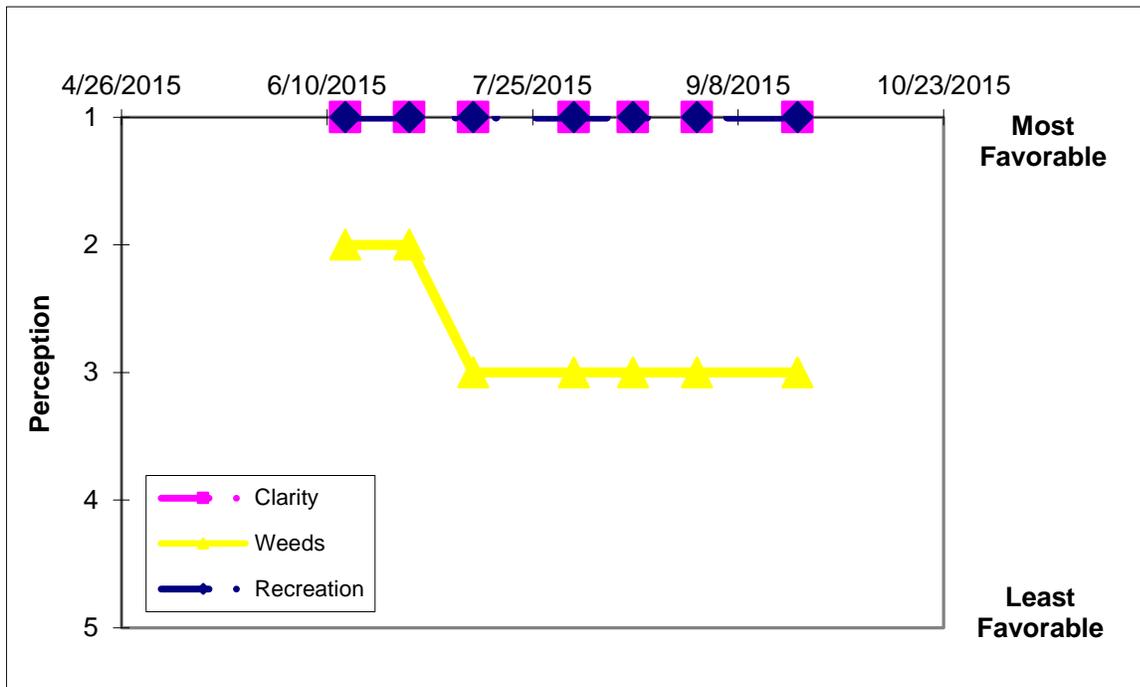
Time Series: Trophic Indicators, 2015



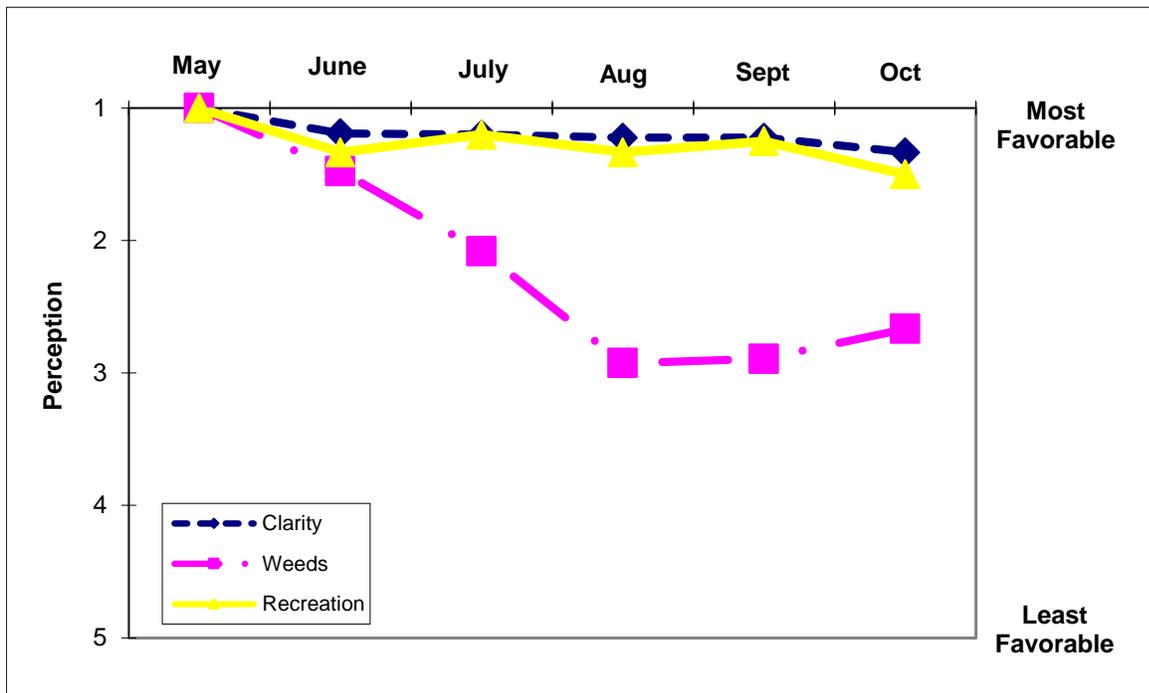
Time Series: Trophic Indicators, Typical Year (2001-2015)



Time Series: Lake Perception Indicators, 2015



Time Series: Lake Perception Indicators, Typical Year (2001-2015)



Appendix A- CSLAP Water Quality Sampling Results for Canada Lake

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a	Cl
176	Canada L	6/2/2001	>50	4.00	1.5	0.015	0.28				15	7.35	39		1.18	
176	Canada L	6/15/2001	>50	5.40		0.007	0.26				14	5.99	39		0.56	
176	Canada L	6/30/2001	>50	3.90		0.007	0.21				10	6.91	41		1.60	
176	Canada L	7/16/2001	>50	4.80	1.5	0.007	0.21				9	7.25	43		1.34	
176	Canada L	7/29/2001	>50	4.50	1.5	0.007	0.18				9	6.27	42		0.65	
176	Canada L	8/13/2001	>50	5.65	1.5	0.004	0.16				9	6.26	43			
176	Canada L	8/27/2001	>50	4.65	1.5	0.004					8	6.85	43		0.64	
176	Canada L	9/10/2001	>50	6.10		0.003					8	6.95	43		0.49	
176	Canada L	06/10/02	42.7	4.47	1.5	0.006	0.22	0.11	0.81	309.08	15	6.63	40		0.74	
176	Canada L	06/24/02	42.7	3.85	1.5	0.008	0.09	0.04	0.45	127.66	23	6.63	38		1.41	
176	Canada L	07/08/02	42.7	3.05	1.5	0.007	0.07	0.03	0.44	145.62	21	6.70	37			
176	Canada L	08/06/02	42.7	4.55	1.5	0.006	0.08	0.03	0.43	157.43	15	6.83	39		1.28	
176	Canada L	08/18/02	42.7	4.45	1.5		0.06	0.04	0.41		16	6.77	39	2.0	0.90	
176	Canada L	09/02/02	42.7	3.98	1.2	0.004	0.06	0.04	0.57	281.71	18	6.93	40		0.30	
176	Canada L	09/22/02	42.7	4.50	1.5		0.09	0.01	0.38		16	7.03	40		1.02	
176	Canada L	6/16/2003	42.7	4.30	1.4	0.005	0.12	0.01	0.38	158.94	18	6.55	43	2.4	0.89	
176	Canada L	7/14/2003	42.7	4.60	1.1	0.008	0.10	0.02	0.26	75.16	21	6.60	45		0.26	
176	Canada L	7/27/2003	42.7	4.15	1.1	0.004	0.10	0.00	0.10	55.00	16	6.58	44		0.69	
176	Canada L	8/11/2003	42.7	4.00	1.1		0.08	0.01	0.45		26	6.67	43		0.75	
176	Canada L	8/24/2003	39.6	5.45	1.1		0.05	0.01	0.45		31	6.36	41	2.5	1.09	
176	Canada L	9/8/2003	42.7	5.35	1.0	0.006	0.10	0.02			20	6.73	40		0.60	
176	Canada L	9/20/2003	42.7	4.80		0.008	0.09	0.04	0.35	96.86	11	6.62	43		0.73	
176	Canada L	10/25/2003	42.7	3.90	>15.2	0.013	0.09	0.02	0.26	44.07	26	6.62	41		0.66	
176	Canada L	6/6/2004	>28	4.00	1.5	0.006	0.18	0.02			12	6.28	43	2.5	2.22	
176	Canada L	6/27/2004	>30.48	4.35	1.5	0.013	0.13	0.01	0.30	50.89	21	6.58	50			
176	Canada L	7/11/2004	>30.48	5.45	1.5	0.007	0.26	0.03	0.58	181.99	12	6.73	49		1.30	
176	Canada L	7/26/2004	>30.48	3.80	1.5	0.011	0.12	0.01	0.30	59.46	14	7.00	52		3.70	
176	Canada L	8/10/2004	>28	3.80	1.5	0.010	0.08	0.01	0.25	53.61	9	7.07	39	2.6	1.50	
176	Canada L	9/2/2004	>28	4.00	1.5	0.008	0.10	0.03	0.34	90.55	19	7.96	28		0.80	
176	Canada L	9/19/2004	>28	4.50	1.5	0.005	0.07	0.02	0.19	81.00	16	7.30	35		0.71	
176	Canada L	10/2/2004		3.95	1.5	0.005	0.05	0.01	0.41	197.02	32	7.43	36		1.16	
176	Canada L	6/8/2005	28+	4.00	1.5	0.004	0.01	0.17	0.14	71.43	18	6.77	42	2.5	1.02	
176	Canada L	6/28/2005	28+	4.35	1.5	0.007	0.01	0.16	0.16	49.44	9	7.40	41		1.35	
176	Canada L	7/19/2005	28+	4.75	1.5	0.008	0.01	0.12	0.23	66.36	5	7.69	40		1.56	
176	Canada L	8/7/2005	28+	5.75	1.5	0.005	0.01	0.10	0.57	269.10	2	7.11	48		1.62	
176	Canada L	8/21/2005	28+	5.25	1.5	0.005	0.01	0.09	0.17	74.07	5	7.34	48	2.6	1.82	
176	Canada L	9/5/2005	28+	6.55	1.5	0.012	0.01	0.08	0.24	46.24	11	7.09	44		1.84	
176	Canada L	9/19/2005	28+	5.35	1.5	0.006	0.01	0.08	0.18	69.85	5	7.65	43		0.81	
176	Canada L	10/5/2005	28+	6.70	1.5	0.007	0.01	0.08	0.19	57.39	14	6.44	47		0.73	
176	Canada L	6/19/2006	>28	4.00	1.5	0.006	0.12	0.02	0.27	96.61	18	7.12	38	2.1	1.50	
176	Canada L	7/6/2006	>28	2.45	1.5	0.008	0.04	0.02	0.45	119.04	25	6.61	31		4.26	
176	Canada L	7/23/2006	>28	2.55	1.5	0.019	0.02	0.02	0.46	52.73	40	6.50	29		3.54	
176	Canada L	8/6/2006	>28	3.00	1.5	0.007	0.03	0.01	0.45	140.73	32	7.03	34		2.18	
176	Canada L	8/20/2006	>28	3.20	1.5	0.011	0.02	0.01	0.56	116.87	28	7.17	33	2.1	3.42	
176	Canada L	9/6/2006	>28	3.15	1.5	0.009			0.47	121.47	12	7.94	27		2.54	
176	Canada L	9/17/2006	>28	3.20	1.5	0.010	0.04	0.02	0.45	99.02	21	7.46	30		2.08	
176	Canada L	10/2/2006	>28	3.20	1.5	0.009	0.06	0.02	0.46	110.26	17	7.38	33		1.68	
176	Canada L	7/1/2007	>28	5.55	1.5	0.006	0.48	0.03	0.74	284.86	9	8.03	39	2.2	1.16	
176	Canada L	7/14/2007	>28	5.35	1.5	0.005	0.44	0.02	0.83	358.29	10	7.00	53		1.27	
176	Canada L	7/30/2007	>28	5.75	1.5	0.005	0.43	0.02	0.91	418.27	8	7.83	39		0.64	
176	Canada L	8/19/2007	>28	9.40	1.5	0.004	0.39	0.02	0.76	437.38	9	7.45	33		0.54	
176	Canada L	8/26/2007	>28	7.50	1.5	0.003	0.36	0.02	0.87	594.89	9	7.54	37	2.7	0.72	
176	Canada L	9/11/2007	>28	7.00	1.5	0.007	0.39	0.01	0.81	259.33	6	9.35	25		1.19	
176	Canada L	9/23/2007	>28	7.60	1.5	0.005	0.42	0.01	0.89	370.00	4	7.53	42		0.50	
176	Canada L	10/3/2007	>28	7.30	1.5	0.004	0.40	0.03	0.99	544.89	8		42		0.55	
176	Canada L	6/22/2008	>28	5.00	1.5	0.005	0.14	0.02	0.85	352.92	11	6.37	30	2.2	1.31	
176	Canada L	7/14/2008	>28	4.60	1.5	0.007	0.30	0.02	0.32	108.95	10	7.55	37		2.16	
176	Canada L	7/27/2008	>28	4.85	1.5	0.006	0.21	0.03	0.45	155.89	10	7.11	26		2.26	
176	Canada L	8/17/2008	>28	4.20	1.5	0.006	0.14	0.02	0.41	139.40	14	7.59	38		2.24	

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a	Cl
176	Canada L	8/27/2008	>28	5.50	1.5	0.010	0.12	0.00	0.22	49.02	6	7.27	34		1.35	
176	Canada L	9/7/2008	>28	5.05	1.5	0.004	0.11	0.01	0.21	131.16	8	7.29	41		1.28	
176	Canada L	9/17/2008	>28	5.15	1.5	0.004	0.13	0.03	0.33	188.88	10	7.48	41		1.22	
176	Canada L	9/29/2008	>28	4.90	1.5	0.005	0.13	0.03	0.28	123.49	9	7.05	41		1.28	
176	Canada L	06/14/2009	>28	4.85	1.5	0.006	0.14	0.02	0.25	98.27	12	7.59	49	2.0	2.94	
176	Canada L	07/08/2009	>28	4.05	1.5	0.005	0.07	0.02	0.21	86.37	26	7.36	34		2.68	
176	Canada L	07/20/2009	>28	4.60	1.5	0.006	0.10	0.04	0.20	78.18	17	8.05	29		1.53	
176	Canada L	08/09/2009	>28	5.10	1.5	0.009	0.07	0.03	0.24	58.26	20	7.59	29		1.63	
176	Canada L	08/23/2009	>28	6.30	1.5	0.007	0.06	0.03	0.23	72.29	31	7.83	37	1.7	1.30	
176	Canada L	09/02/2009	>28	4.50	1.5	0.006	0.05	0.01	0.16	62.21	25	7.79	34		2.00	
176	Canada L	09/13/2009	>28	3.95	1.5	0.008	0.03	0.01	0.15	44.59	32	6.69	27		4.50	
176	Canada L	10/12/2009	>28	3.95	1.5	0.009	0.06	0.02	0.20	50.32	34	7.01	28		4.20	
176	Canada L	5/31/2010	28+	4.00	1.5	0.006	0.13	0.03	0.61	223.30	10	6.88	34	2.5	1.60	
176	Canada L	6/20/2010	28+	4.35	1.5	0.006	0.09	0.02	0.29	116.40	10	6.42	41		2.30	
176	Canada L	7/11/2010		6.60	1.5	0.007	0.08	0.03	0.20	63.41	7	7.28	36		0.60	
176	Canada L	8/1/2010	28+	4.50	1.5	0.005	0.06	0.04	0.27	115.50	21	7.61	41		1.10	
176	Canada L	8/16/2010	28+	4.70	1.5	0.005	0.06	0.05	0.20	94.22	18	6.74	42	1.9	1.70	
176	Canada L	8/25/2010	28+	3.35	1.5	0.008	0.08	0.07	0.33	94.29	24	7.22	36		4.30	
176	Canada L	9/19/2010	28+	4.00	1.5	0.009	0.09	0.03	0.26	62.33	26	7.08	37		1.30	
176	Canada L	10/3/2010	28+	3.65	1.5	0.001	0.09	0.04	0.29	635.80	27	7.08	43		1.00	
176	Canada L	6/10/2012	28+	3.40	1.5	0.008	0.24	0.01	0.51	149.31	19	7.29	39	1.6	2.80	
176	Canada L	6/24/2012	28+	3.90	1.5	0.005	0.19	0.04	0.33	134.04	18	7.98	38		1.90	
176	Canada L	7/8/2012	28+	3.85	1.5	0.007	0.15	0.01	0.26	82.66	18	7.98	38		2.70	
176	Canada L	7/29/2012	28+	3.75	1.5	0.006	0.11	0.02	0.36	132.73	13	8.14	37		2.70	
176	Canada L	8/12/2012	28+	3.65	1.5	0.007	0.11	0.02	0.34	105.35	14	8.30	38	1.8	3.60	
176	Canada L	8/26/2012	28+	3.80	1.5	0.007	0.08	0.02	0.32	94.54	10	8.64	51		2.20	
176	Canada L	9/16/2012	28+	4.25	1.5	0.008	0.12	0.03	0.50	137.50	9	6.10	39		1.20	
176	Canada L	9/30/2012	28+	5.65	1.5	0.005	0.11	0.04	0.26	108.75	13	7.35	40		1.20	
176	Canada L	6/9/2013	>28	4.30	1.5	0.005	0.24	0.04	0.37	174.57	19	6.80	39		1.20	
176	Canada L	6/22/2013	>28	4.65	1.5	0.004			0.33	166.64	24	6.74	37		1.30	
176	Canada L	7/14/2013	>28	4.00	1.5	0.007	0.08	0.01	0.21	64.98	30	7.05	35		1.60	
176	Canada L	7/29/2013	>28	3.80	1.5	0.005			0.48	210.17	31	7.24	35			
176	Canada L	8/11/2013	>28	4.10	1.5	0.003	0.10	0.03	0.36	242.97	24	7.41	36		1.10	
176	Canada L	9/2/2013	>28	4.45	1.5	0.004			0.39	202.74	22	7.08	37		1.50	
176	Canada L	9/15/2013	>28	4.20	1.5	0.004	0.07	0.01	0.34	180.39	21	6.38	38		1.00	
176	Canada L	9/29/2013	>28	5.05	1.5	0.004			0.41	231.28	17	7.45	39		1.50	
176	Canada L	6/15/2014	>28	3.25	1.5	0.005	0.21	0.02	0.38	163.06	24	7.19	45	2.29	1.80	
176	Canada L	6/29/2014	>28	3.90	1.5	0.005			0.31	132.85	22	7.30	47		1.50	
176	Canada L	7/13/2014	>28	4.75	1.5	0.005	0.15	0.03	0.29	134.81	22	7.12	41		1.30	
176	Canada L	7/27/2014	>28	3.40	1.5	0.005			0.29	123.12	23	7.09	42		1.60	
176	Canada L	8/10/2014	>28	4.65	1.5	0.006	0.10	0.03	0.29	115.11	19	7.05	45	2.65	1.00	
176	Canada L	9/1/2014	>28	4.95	1.5	0.004			0.23	115.63	20	7.64	45		1.50	
176	Canada L	9/14/2014	>28	4.40	1.5	0.004	0.11	0.03	0.28	142.23	17	7.54	47		2.50	
176	Canada L	9/28/2014	>28	4.40	1.5	0.004	0.27		0.27	152.31	17	6.92	44		2.60	
176	Canada L	6/14/2015	29.0	4.20	1.5	0.004	0.21	0.02	0.36	92.82	10	7.68	48	2.37	1.60	
176	Canada L	6/28/2015	29.0	4.00	1.5	0.005			0.29	65.33	12	7.35	46		2.70	
176	Canada L	7/12/2015	28.0	3.70	1.5	0.004	0.13	0.03	0.37	82.95	22	7.87	44		2.50	14.2
176	Canada L	8/3/2015	28.0	4.30	1.5	0.004			0.37	90.49	20	6.82	48		2.00	
176	Canada L	8/16/2015	28.0	4.80	1.5	0.004	0.11	0.03	0.39	90.70	15	7.25	49	1.53	1.10	
176	Canada L	8/30/2015	28.0	5.80	1.5	0.004			0.27	63.72	14	7.04	47		1.30	
176	Canada L	9/21/2015	28.0	5.50	1.5	0.004	0.08	0.02	0.29	71.75	10	7.16	51		1.80	11.7
176	Canada L	06/10/02	42.7													
176	Canada L	06/24/02	42.7													
176	Canada L	08/06/02	42.7	4.55	15.2			0.03	0.50							
176	Canada L	08/18/02	42.7	4.45	15.2		0.07	0.05	0.32							
176	Canada L	09/02/02	42.7													
176	Canada L	09/22/02	42.7			0.005										
176	Canada L	6/16/2003			25.9	0.003	0.16	0.02	0.37	250.46						
176	Canada L	7/14/2003			25.9	0.006	0.22	0.05	0.50	196.43						
176	Canada L	7/27/2003			24.4	0.004	0.26	0.01	0.24	134.69						
176	Canada L	8/11/2003			24.4	0.017	0.21	0.01	0.37	49.01						
176	Canada L	8/24/2003			24.4	0.026	0.20	0.03	0.42	35.25						

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
176	Canada L	9/8/2003			27.4	0.003	0.27	0.03							
176	Canada L	9/20/2003				0.018	0.23	0.04	0.27	33.60					
176	Canada L	10/25/2003				0.013	0.10	0.03	0.35	59.32					
176	Canada L	6/6/2004	>28		28.0	0.004	0.26	0.03							
176	Canada L	6/27/2004	>30.48			0.013	0.25	0.03	1.29	218.24					
176	Canada L	7/11/2004	>30.48			0.005	0.09	0.04	0.62	258.08					
176	Canada L	7/26/2004	>30.48		28.0	0.007	0.25	0.03	0.44	138.29					
176	Canada L	8/10/2004	>28		28.0	0.008	0.29	0.02	0.42	121.57					
176	Canada L	9/2/2004	>28		28.0	0.012	0.26	0.05	0.59	105.21					
176	Canada L	9/19/2004	>28		28.0	0.005	0.01	0.04	0.45	220.78					
176	Canada L	10/2/2004			28.0	0.003	0.07	0.01	0.30	205.08					
176	Canada L	6/8/2005	28+		28.0	0.003									
176	Canada L	6/28/2005	28+		28.0	0.005									
176	Canada L	7/19/2005	28+		28.0	0.010									
176	Canada L	8/7/2005	28+		28.0	0.007									
176	Canada L	8/21/2005	28+		28.0	0.009									
176	Canada L	9/5/2005	28+		28.0	0.009									
176	Canada L	9/19/2005	28+		28.0	0.006									
176	Canada L	10/5/2005	28+		28.0	0.012									
176	Canada L	6/19/2006	>28		28.0	0.004									
176	Canada L	7/6/2006	>28		28.0	0.005									
176	Canada L	7/23/2006	>28		28.0	0.006									
176	Canada L	8/6/2006	>28		28.0	0.003									
176	Canada L	8/20/2006	>28		28.0	0.005									
176	Canada L	9/6/2006	>28		28.0	0.005									
176	Canada L	9/17/2006	>28		28.0	0.004									
176	Canada L	10/2/2006	>28		28.0	0.007									
176	Canada L	7/1/2007	>28		28.0	0.006									
176	Canada L	7/14/2007	>28		28.0	0.005									
176	Canada L	7/30/2007	>28		28.0	0.008									
176	Canada L	8/19/2007	>28		28.0	0.010									
176	Canada L	8/26/2007	>28		28.0	0.006									
176	Canada L	9/11/2007	>28		28.0	0.006									
176	Canada L	9/23/2007	>28		28.0	0.007									
176	Canada L	10/3/2007	>28		28.0	0.006									
176	Canada L	6/22/2008	>28		28.0	0.005									
176	Canada L	7/14/2008	>28		28.0	0.005									
176	Canada L	7/27/2008	>28		28.0	0.006									
176	Canada L	8/17/2008	>28		28.0	0.004									
176	Canada L	8/27/2008	>28		28.0	0.005									
176	Canada L	9/7/2008	>28		28.0	0.003									
176	Canada L	9/17/2008	>28		28.0	0.004									
176	Canada L	9/29/2008	>28		28.0	0.005									
176	Canada L	06/14/2009				0.005		0.04							
176	Canada L	07/08/2009				0.001									
176	Canada L	07/20/2009				0.001		0.09							
176	Canada L	08/09/2009				0.006									
176	Canada L	08/23/2009				0.004		0.04							
176	Canada L	09/02/2009				0.005									
176	Canada L	09/13/2009				0.013		0.30							
176	Canada L	10/12/2009				0.007									
176	Canada L	05/31/2010	28+		28.0	0.005		0.04							
176	Canada L	07/11/2010			28+	0.006		0.05							
176	Canada L	08/16/2010	28+		28.0	0.003		0.05							
176	Canada L	09/19/2010	28+		28.0	0.001		0.01							
176	Canada L	06/10/2012			28.0	0.008		0.03							
176	Canada L	07/08/2012			28.0	0.007		0.03							
176	Canada L	08/12/2012			28.0	0.007		0.04							
176	Canada L	09/16/2012			28.0	0.006		0.07							
176	Canada L	06/09/2013			28.0	0.006		0.03							
176	Canada L	07/14/2013			28.0	0.005		0.03							
176	Canada L	08/11/2013			28.0	0.004		0.05							

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
176	Canada L	09/15/2013			28.0	0.003		0.03							
176	Canada L	6/15/2014			28.0	0.004		0.05							
176	Canada L	7/13/2014			28.0	0.004		0.07							
176	Canada L	7/27/2014			28.0	0.004									
176	Canada L	8/10/2014			28.0	0.004		0.07							
176	Canada L	9/1/2014			28.0	0.004									
176	Canada L	9/14/2014			28.0	0.004		0.05							
176	Canada L	6/15/2014			28.0	0.004		0.05							
176	Canada L	6/14/2015			28.0	0.003		0.04							
176	Canada L	6/28/2015			28.0	0.006									
176	Canada L	7/12/2015			28.0	0.004		0.09							
176	Canada L	8/3/2015			28.0	0.004									
176	Canada L	8/16/2015			28.0	0.004		0.06							
176	Canada L	8/30/2015			28.0	0.005									
176	Canada L	9/21/2015			27.0	0.004		0.04							

LNum	PName	Date	Site	TAir	TH20	QA	QB	QC	QD	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cylin	FP-Chl	FP-BG	HAB-form	Shore HAB
176	Canada L	6/2/2001	epi	18	16	1	2	1	0											
176	Canada L	6/15/2001	epi	21	20	1	2	1	0											
176	Canada L	6/30/2001	epi	25	24															
176	Canada L	7/16/2001	epi	20	20	2	2	1												
176	Canada L	7/29/2001	epi	26	24	1	2	1												
176	Canada L	8/13/2001	epi	28	26	1	2	1	0											
176	Canada L	8/27/2001	epi	26	24	1	3	1												
176	Canada L	9/10/2001	epi	26	24	1	3	1												
176	Canada L	06/10/02	epi	2	20	2	1	3	58											
176	Canada L	06/24/02	epi	22	21	3	1	2	18											
176	Canada L	07/08/02	epi	20	22	2	2	2	8											
176	Canada L	08/06/02	epi	18	23	2	3	2	8											
176	Canada L	08/18/02	epi	28	26	2	3	1	8											
176	Canada L	09/02/02	epi	22	21	2	3	2	5											
176	Canada L	09/22/02	epi	20	21	2	3	5	5											
176	Canada L	6/16/2003	epi	22	19	1	1	2	8											
176	Canada L	7/14/2003	epi	24	23	1	1	1	8											
176	Canada L	7/27/2003	epi	21	20	1	1	1	5											
176	Canada L	8/11/2003	epi	27	26	1	3	1	5											
176	Canada L	8/24/2003	epi	20	22	1	3	1	8											
176	Canada L	9/8/2003	epi	20	20	1	3	1	8											
176	Canada L	9/20/2003	epi	18	20	1	3	1	8											
176	Canada L	10/25/2003	epi	18	11	2	3	2												
176	Canada L	6/6/2004	epi	14	18	1	1	4	5											
176	Canada L	6/27/2004	epi	19	19	1	1	1	5											
176	Canada L	7/11/2004	epi	23	22	1	1	1	0											
176	Canada L	7/26/2004	epi	19	24	1	2	2	0											
176	Canada L	8/10/2004	epi	20	22	1	2	2	5											
176	Canada L	9/2/2004	epi	21	23	1	2	2	0											
176	Canada L	9/19/2004	epi	16	20	1	3	1	0											
176	Canada L	10/2/2004	epi	16	19	1	3	2	5											
176	Canada L	6/8/2005	epi	29	23	1	1	1	5											
176	Canada L	6/28/2005	epi	29	28	1	3	1	0											
176	Canada L	7/19/2005	epi	30	27	1	2	1	0											
176	Canada L	8/7/2005	epi	29	27	1	3	1	7											
176	Canada L	8/21/2005	epi	20	24	1	3	1	0											
176	Canada L	9/5/2005	epi	20	24	1	3	1	7											
176	Canada L	9/19/2005	epi	19	22	1	3	1	0											
176	Canada L	10/5/2005	epi	20	19	1	2	1	0											
176	Canada L	6/19/2006	epi	19	21	1	1	1	0											
176	Canada L	7/6/2006	epi	18	22	2	3	3	16											
176	Canada L	7/23/2006	epi	22	25	1	3	2	1											
176	Canada L	8/6/2006	epi	23	26	1	3	2	1											
176	Canada L	8/20/2006	epi	23	24	1	3	3	15											

LNum	PName	Date	Site	TAir	TH20	QA	QB	QC	QD	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cylin	FP-Chl	FP-BG	HAB-form	ShoreHAB
176	Canada L	9/6/2006	epi	16	19		3	2	15											
176	Canada L	9/17/2006	epi	20	20	1	3	1	6											
176	Canada L	10/2/2006	epi	18	16	1	3	1	0											
176	Canada L	7/1/2007	epi	18	21	1	2	1	5											
176	Canada L	7/14/2007	epi	21	23	1	2	1	0											
176	Canada L	7/30/2007	epi	24	24	1	3	1	0											
176	Canada L	8/19/2007	epi	21	23	1	3	1	0											
176	Canada L	8/26/2007	epi	21	22	1	3	1	0											
176	Canada L	9/11/2007	epi	20	23	1	3	1	0											
176	Canada L	9/23/2007	epi	22	21	1	3	1	0											
176	Canada L	10/3/2007	epi	22	20															
176	Canada L	6/22/2008	epi	23	21	1	1	1	0											
176	Canada L	7/14/2008	epi	25	23	1	2	1	5											
176	Canada L	7/27/2008	epi	24	25	1	1	1	0											
176	Canada L	8/17/2008	epi	22	22	1	3	2	5											
176	Canada L	8/27/2008	epi	24	23	1	3	1	0											
176	Canada L	9/7/2008	epi	22	23	1	3	1	5											
176	Canada L	9/17/2008	epi	18	21	1	3	1	8											
176	Canada L	9/29/2008	epi	16	18	1	3	1	5											
176	Canada L	06/14/2009	epi	18	21	1	2	1	0											
176	Canada L	07/08/2009	epi	17	20	1	2	1	0											
176	Canada L	07/20/2009	epi	23	22	1	3	1	0											
176	Canada L	08/09/2009	epi	20	22	1	3	1	0											
176	Canada L	08/23/2009	epi	26	26	1	3	1	0											
176	Canada L	09/02/2009	epi	17	21	2	3	1	0											
176	Canada L	09/13/2009	epi	21	21	1	3	1	0			16.26								
176	Canada L	10/12/2009	epi	9	13	1	3	1	0											
176	Canada L	5/31/2010	epi	28	23	1	1	1	0											
176	Canada L	6/20/2010	epi	26	22	1	1	1	0											
176	Canada L	7/11/2010	epi	29	27	1	2	1	0											
176	Canada L	8/1/2010	epi	26	25	1	3	1	0											
176	Canada L	8/16/2010	epi	27	24	1	3	1	0											
176	Canada L	8/25/2010	epi	21	21	3	3	4	16			53.37								
176	Canada L	9/19/2010	epi	17	18	1	3	1	0											
176	Canada L	10/3/2010	epi	15	17	2	2	2	1											
176	Canada L	6/10/2012	epi	27	19	1	1	1	0	0	0	0.50	0.50	<0.30	<0.417		0.61	0.26	l	
176	Canada L	6/24/2012	epi	21	24	1	1	1	0	0	0	0.30	0.50	<0.30	<0.410		0.90	0.41	l	
176	Canada L	7/8/2012	epi	29	24	2	2	1	0	0	0	-3.00	0.50	<0.30	<0.423		1.86	0.89	l	
176	Canada L	7/29/2012	epi	23	25	1	3	1	0	0	0	2.00	0.40	<0.30	<0.292		1.52	0.51	l	
176	Canada L	8/12/2012	epi	23	25	1	3	1	0	0	0	3.40	0.70	<0.60	<1.074		2.58	0.42	l	
176	Canada L	8/26/2012	epi	26	25	3	3	1	0	0	0	3.10	0.40	<0.40	<0.734		34.27	31.02	l	
176	Canada L	9/16/2012	epi	18	21	1	3	1	0	0	0	40.40	0.20	<0.30	<3.205		0.39	0.39	l	
176	Canada L	9/30/2012	epi	16	16	1	3	1	0	0	0	1.40	0.20	<0.30	<3.205		0.53	0.53	i	
176	Canada L	6/9/2013	epi	25	18	1	2	1	0	0	0	1.10	1.10	<0.30	<0.420		0.70	0.00	l	l
176	Canada L	6/22/2013	epi	25	18	1	2	1	0	0	0	1.20	1.10	<0.30	<0.370		0.70	0.00	l	
176	Canada L	7/14/2013	epi	31	27	1	2	1	7	0	0	0.90	1.30	<0.30	<0.490		0.90	0.00	l	l
176	Canada L	7/29/2013	epi	22	26	1	2	1	0	0	0	2.40	1.20	<0.30	<0.380		0.70	0.00	l	
176	Canada L	8/11/2013	epi	22	24	1	3	1	0	0	0	1.80	1.10	<0.30	<0.340		0.60	0.00	l	l
176	Canada L	9/2/2013	epi	18	20	1	3	1	0	0	0	1.70	1.40	<0.30	<0.570		0.90	0.00	l	
176	Canada L	9/15/2013	epi	27	25	2	3	1	0	0	0		0.90	<0.30	<0.100		0.10	0.00	l	
176	Canada L	9/29/2013	epi	22	18	1	3	1	0	0	0	1.70	1.00	<0.30	<0.050		0.50	0.00	l	l
176	Canada L	6/15/2014	epi	19	19	2	1	1	0	0	0	0.05	0.10	<0.61	<0.08		0.80	0.00	i	i
176	Canada L	6/29/2014	epi	26	24	1	2	1	0	0	0	1.00	0.20	<0.48	<0.48		0.30	0.00	i	i
176	Canada L	7/13/2014	epi	22	24	1	2	1	0	0	0	1.50	0.20	<0.63	<0.03		0.60	0.00	i	i
176	Canada L	7/27/2014	epi	26	26	2	2	1	0	0	0	1.60	0.30	<0.63	<0.03		1.40	0.40	i	i
176	Canada L	8/10/2014	epi	24	26	1	3	1	0	0	0	0.05	0.20	<0.28	<0.05		0.10	0.00	i	i
176	Canada L	9/1/2014	epi	24	24	1	3	1	0	0	0	1.10	0.20	<0.29	<0.14		0.50	0.00	i	i
176	Canada L	9/14/2014	epi	15	20	1	3	1	0	0	0	1.40	0.20	<0.24	<0.03		0.40	0.00	i	i
176	Canada L	9/28/2014	epi	23	19	1	3	1	0	0	0								i	i
176	Canada L	6/14/2015	epi	24	24	1	2	1	0	0	0	2.80	0.60	<0.55	<0.027	<0.318	0.45	0.00	l	l
176	Canada L	6/28/2015	epi	17	20	1	2	1	0	0	0	1.20	0.40	<1.01	<0.007	<0.000	0.85	0.00	l	l

LNum	PName	Date	Site	TAir	TH20	QA	QB	QC	QD	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cylin	FP-Chl	FP-BG	HAB form	Shore HAB
176	Canada L	7/12/2015	epi	22	24	1	3	1	0	0	0	2.60	0.50	<1.01	<0.003	<0.011	1.53	0.00	I	I
176	Canada L	8/3/2015	epi	22	24	1	3	1	0	0	0	1.95	0.38	<0.18	<0.002	<0.009	0.39	0.00	I	I
176	Canada L	8/16/2015	epi	25	25	1	3	1	0	0	0	3.50	0.20	<0.44	<0.002	<0.014	0.27	0.00	I	I
176	Canada L	8/30/2015	epi	23	23	1	3	1	0	0	0			<0.39	<0.012	<0.031	0.50	0.00	I	I
176	Canada L	9/21/2015	epi	22	23	1	3	1	0	0	0	0.05	0.20	<0.30	<0.007	<0.035	0.52	0.00	I	I
176	Canada L	08/06/02	hypo	18	21	2	3	2	8											
176	Canada L	08/18/02	hypo	28	24	2	3	1	8											
176	Canada L	6/16/2003	hypo		16															
176	Canada L	7/14/2003	hypo		11															
176	Canada L	7/27/2003	hypo		10															
176	Canada L	8/11/2003	hypo		10															
176	Canada L	8/24/2003	hypo		8															
176	Canada L	9/8/2003	hypo		10															
176	Canada L	9/20/2003	hypo		10															
176	Canada L	10/25/2003	hypo		10															
176	Canada L	6/6/2004	hypo		0															
176	Canada L	6/27/2004	hypo		8															
176	Canada L	7/11/2004	hypo		8															
176	Canada L	7/26/2004	hypo		8															
176	Canada L	8/10/2004	hypo		8															
176	Canada L	9/2/2004	hypo		9															
176	Canada L	9/19/2004	hypo		8															
176	Canada L	10/2/2004	hypo		9															
176	Canada L	6/8/2005	hypo		8															
176	Canada L	6/28/2005	hypo		8															
176	Canada L	7/19/2005	hypo		10															
176	Canada L	8/7/2005	hypo		10															
176	Canada L	8/21/2005	hypo		9															
176	Canada L	9/5/2005	hypo		11															
176	Canada L	9/19/2005	hypo		9															
176	Canada L	10/5/2005	hypo		8															
176	Canada L	6/19/2006	hypo		9															
176	Canada L	7/6/2006	hypo		9															
176	Canada L	7/23/2006	hypo		9															
176	Canada L	8/6/2006	hypo		8															
176	Canada L	8/20/2006	hypo		9															
176	Canada L	9/6/2006	hypo		9															
176	Canada L	9/17/2006	hypo		9															
176	Canada L	10/2/2006	hypo		8															
176	Canada L	7/1/2007	hypo		8															
176	Canada L	7/14/2007	hypo		10															
176	Canada L	7/30/2007	hypo		8															
176	Canada L	8/19/2007	hypo		9															
176	Canada L	8/26/2007	hypo		9															
176	Canada L	9/11/2007	hypo		8															
176	Canada L	9/23/2007	hypo		9															
176	Canada L	10/3/2007	hypo		9															
176	Canada L	6/22/2008	hypo		7															
176	Canada L	7/14/2008	hypo		13															
176	Canada L	7/27/2008	hypo		8															
176	Canada L	8/17/2008	hypo		8															
176	Canada L	8/27/2008	hypo		8															
176	Canada L	9/7/2008	hypo		9															
176	Canada L	9/17/2008	hypo		9															
176	Canada L	9/29/2008	hypo		8															
176	Canada L	05/31/2010	hypo		9															
176	Canada L	07/11/2010	hypo		9															
176	Canada L	08/16/2010	hypo		10															
176	Canada L	09/19/2010	hypo		9															
176	Canada L	06/10/2012	hypo		8															
176	Canada L	07/08/2012	hypo		10															

LNum	PName	Date	Site	TAir	TH20	QA	QB	QC	QD	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cylin	FP-Chl	FP-BG	HABform	ShoreHAB
176	Canada L	08/12/2012	hypo		9															
176	Canada L	09/16/2012	hypo		9															
176	Canada L	06/09/2013	hypo		8															
176	Canada L	07/14/2013	hypo		9															
176	Canada L	08/11/2013	hypo		9															
176	Canada L	09/15/2013	hypo		8															
176	Canada L	6/15/2014	hypo		8															
176	Canada L	7/13/2014	hypo		10															
176	Canada L	7/27/2014	hypo		12															
176	Canada L	8/10/2014	hypo		11															
176	Canada L	9/1/2014	hypo		9															
176	Canada L	9/14/2014	hypo		9															
176	Canada L	9/28/2014	hypo		9															
176	Canada L	6/14/2015	hypo		9															
176	Canada L	6/28/2015	hypo		8															
176	Canada L	7/12/2015	hypo		8															
176	Canada L	8/3/2015	hypo		8															
176	Canada L	8/16/2015	hypo		9															
176	Canada L	8/30/2015	hypo		9															
176	Canada L	9/21/2015	hypo		9															

Legend Information

<i>Indicator</i>	<i>Description</i>	<i>Detection Limit</i>	<i>Standard (S) / Criteria (C)</i>
General Information			
Lnum	lake number (unique to CSLAP)		
Lname	name of lake (as it appears in the Gazetteer of NYS Lakes)		
Date	sampling date		
Field Parameters			
Zbot	lake depth at sampling point, meters (m)		
Zsd	Secchi disk transparency or clarity	0.1m	1.2m (C)
Zsamp	water sample depth (m) (epi = epilimnion or surface; bot = bottom)	0.1m	none
Tair	air temperature (C)	-10C	none
TH20	water temperature (C)	-10C	none
Laboratory Parameters			
Tot.P	total phosphorus (mg/l)	0.003 mg/l	0.020 mg/l (C)
NOx	nitrate + nitrite (mg/l)	0.01 mg/l	10 mg/l NO3 (S), 2 mg/l NO2 (S)
NH4	total ammonia (mg/l)	0.01 mg/l	2 mg/l NH4 (S)
TN	total nitrogen (mg/l)	0.01 mg/l	none
TN/TP	nitrogen to phosphorus (molar) ratio, = (TKN + NOx)*2.2/TP		none
TCOLOR	true (filtered) color (ptu, platinum color units)	1 ptu	none
pH	powers of hydrogen (S.U., standard pH units)	0.1 S.U.	6.5, 8.5 S.U. (S)
Cond25	specific conductance, corrected to 25C (umho/cm)	1 umho/cm	none
Ca, Cl	calcium, chloride (mg/l)	1 mg/l	none
Chl.a	chlorophyll a (ug/l)	0.01 ug/l	none
Fe	iron (mg/l)	0.1 mg/l	1.0 mg/l (S)
Mn	manganese (mg/l)	0.01 mg/l	0.3 mg/l (S)
As	arsenic (ug/l)	1 ug/l	10 ug/l (S)
AQ-PC	Phycocyanin (aquafior) (unitless)	1 unit	none
AQ-Chl	Chlorophyll a (aquafior) (ug/l)	1 ug/l	none
MC-LR	Microcystis-LR (ug/l)	0.01 ug/l	1 ug/l potable (C) 20 ug/l swimming (C)
Ana	Anatoxin-a (ug/l)	variable	none
Cyl	Cylindrospermopsin (ug/l)	0.1 ug/l	none
FP-Chl, FP-BG	Fluoroprobe total chlorophyll, fluoroprobe blue-green chlorophyll (ug/l)	0.1 ug/l	none
Lake Assessment			
QA	water quality assessment; 1 = crystal clear, 2 = not quite crystal clear, 3 = definite algae greenness, 4 = high algae levels, 5 = severely high algae levels		
QB	aquatic plant assessment; 1 = no plants visible, 2 = plants below surface, 3 = plants at surface, 4 = plants dense at surface, 5 = surface plant coverage		
QC	recreational assessment; 1 = could not be nicer, 2 = excellent, 3 = slightly impaired, 4 = substantially impaired, 5 = lake not usable		
QD	reasons for recreational assessment; 1 = poor water clarity, 2 = excessive weeds, 3 = too much algae, 4 = lake looks bad, 5 = poor weather, 6 = litter/surface debris, 7 = too many lake users, 8 = other		
QF, QG	Health and safety issues today (QF) and past week (QG); 0 = none, 1 = taste/odor, 2 = GI illness humans/animals, 3 = swimmers itch, 4 = algae blooms, 5 = dead fish, 6 = unusual animals, 7 = other		
HAB form, Shore HAB	HAB evaluation; A = spilled paint, B = pea soup, C = streaks, D = green dots, E = bubbling scum, F = green/brown tint, G = duckweed, H = other, I = no bloom		

Appendix B- Priority Waterbody Listing for Canada Lake

Lily, Canada, Stewarts Land, West Lakes (1201-0050) Need Verific

Waterbody Location Information

Revised: 08/19/2002

Water Index No:	H-240-144-13-P716,P717,P718	Drain Basin:	Mohawk River
Hydro Unit Code:	02020004/180	Str Class:	B(T)
Waterbody Type:	Lake (Unknown Trophic)	Reg/County:	5/Fulton Co. (18)
Waterbody Size:	153.7 Acres	Quad Map:	CANADA LAKE (I-22-2)
Seg Description:	total area of all four lakes		

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Habitat/Hydrology	Stressed	Possible

Type of Pollutant(s)

Known: ---
Suspected: WATER LEVEL/FLOW
Possible: ---

Source(s) of Pollutant(s)

Known: ---
Suspected: HYDRO MODIFICATION
Possible: ---

Resolution/Management Information

Issue Resolvability:	1 (Needs Verification/Study (see STATUS))	
Verification Status:	1 (Waterbody Nominated, Problem Not Verified)	
Lead Agency/Office:	DEC/FWMR	Resolution Potential: Medium
TMDL/303d Status:	n/a ()	

Further Details

Natural resources (fishery) habitat in the Canada, West, Lily, and Stewarts Landing Lake system may be limited due to reduced vegetative habitat for spawning and cover. Operation of Stewarts Landing Dam (owned and operated by NYS DEC) results in significant water level fluctuations.

Stewarts Landing and Canada Lake have been included in recent (1997 through 2001) NYS DEC Citizen Statewide Lake Assessment Program (CSLAP) volunteer monitoring efforts. Results of these studies found no evidence of water quality problems or use impairment. (DEC/DOW, BWM/Lake Services, August 2002)

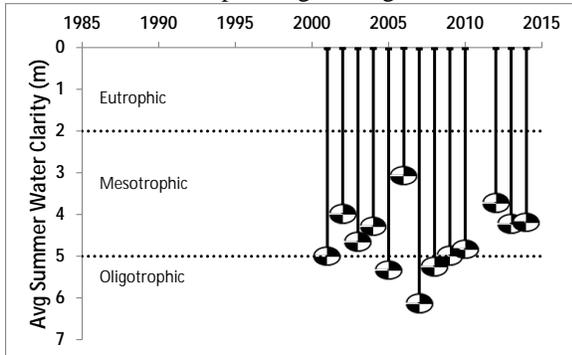
Canada Lake was surveyed by DEC/FWMR staff in summer of 2002. The focus of the survey was to sample lake trout populations. Data from this survey will be available in 2003. (DEC/FWMR, Region 5, August 2002)

The local lake association has monitored minor lake acidification. Lake pH is considered somewhat low, but still satisfactory for the support of aquatic life. Chlorides from road salting are also a concern. (Canada Lake Protective Association, April 2002)

Appendix C- Long Term Trends: Canada Lake

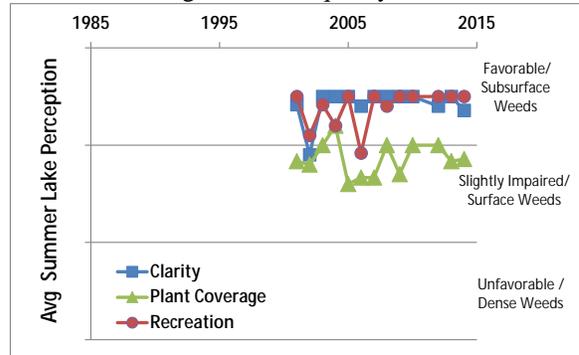
Long Term Trends: Water Clarity

- Decreasing since 2007, but no clear trend
- Most readings typical of *mesotrophic* lakes, as expected given algae and TP levels



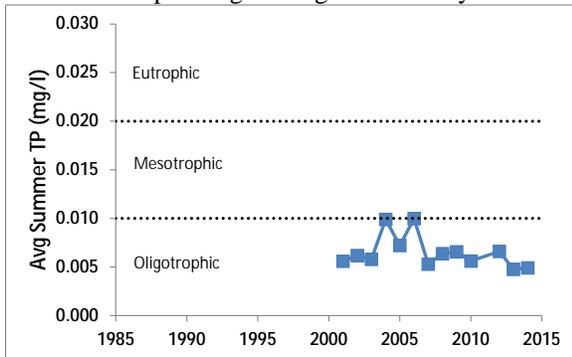
Long Term Trends: Lake Perception

- No trends apparent
- Recreational perception more closely linked to changes in water quality than weeds



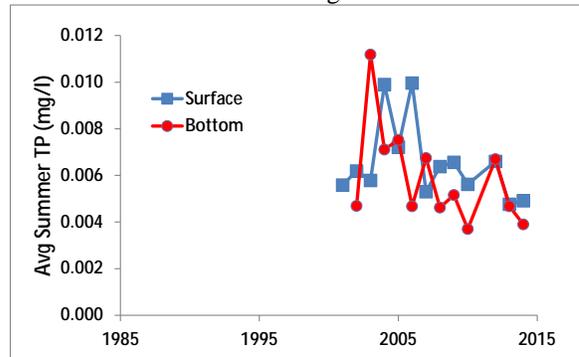
Long Term Trends: Phosphorus

- Slight decrease since '07 despite clarity drop
- Most readings typical of *oligotrophic* lakes, as expected given algae and clarity levels



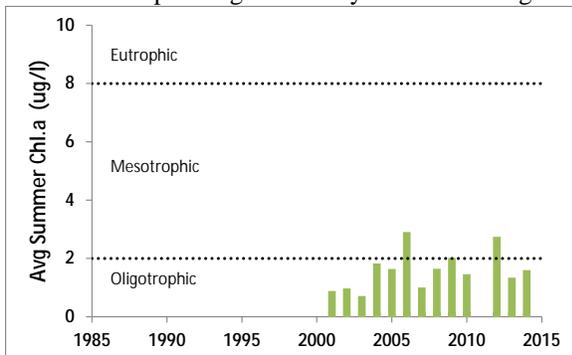
Long Term Trends: Bottom Phosphorus

- Bottom and surface TP mostly similar
- Given strong thermal stratification, this indicates little TP migration to surface



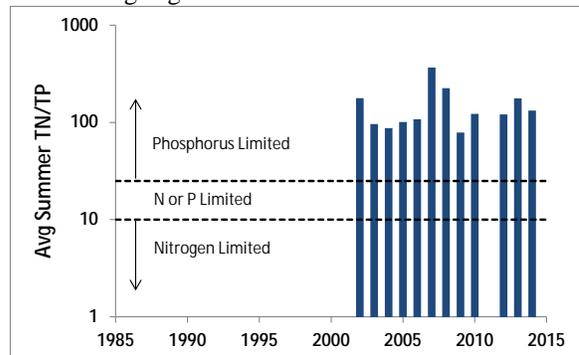
Long Term Trends: Chlorophyll a

- No trends, so clarity drop probably no trend
- Most readings typical of *oligotrophic* lakes, as expected given clarity and TP readings



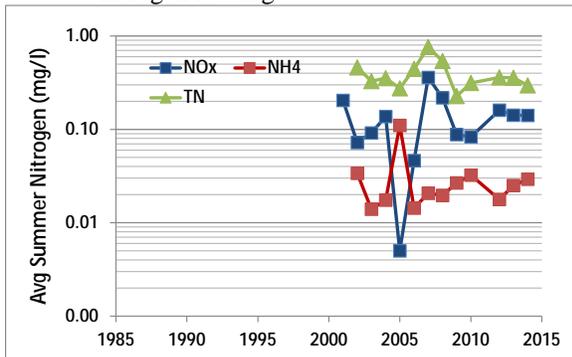
Long Term Trends: N:P Ratio

- No trends apparent
- Most readings indicate phosphorus limits algae growth



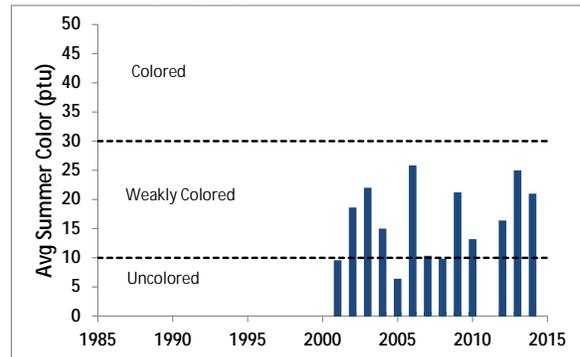
Long Term Trends: Nitrogen

- No trends apparent
- Low but variable nitrate, ammonia and total nitrogen readings



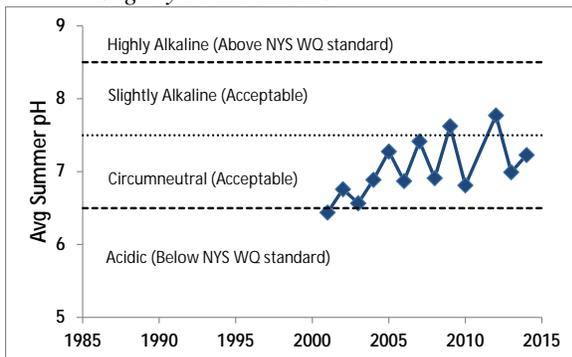
Long Term Trends: Color

- No trends apparent
- Most readings typical of *uncolored to weakly colored* lakes



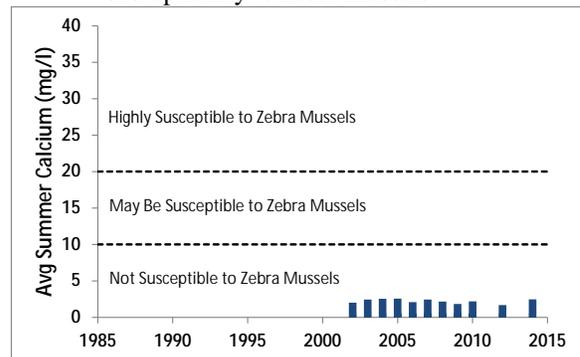
Long Term Trends: pH

- Slight increase but variable year to year
- Most readings typical of *circumneutral to slightly alkaline* lakes



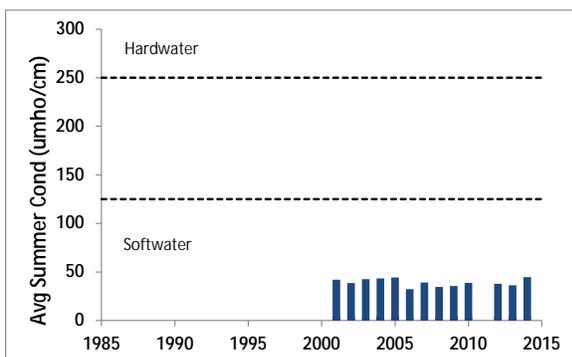
Long Term Trends: Calcium

- No trends apparent
- Most readings indicate very low susceptibility to zebra mussels



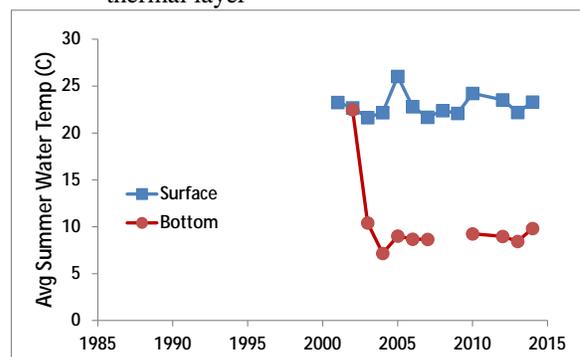
Long Term Trends: Conductivity

- No trends apparent
- Most readings typical of *softwater* lakes



Long Term Trends: Water Temperature

- No trends apparent in surface temperatures
- Low deepwater temperatures indicate strong thermal layer



Appendix D: Algae Testing Results from SUNY ESF Study

Most algae are harmless, naturally present, and an important part of the food web. However excessive algae growth can cause health, recreational, and aesthetic problems. Some algae can produce toxins that can be harmful to people and animals. High quantities of these algae are called harmful algal blooms (HABs). CSLAP lakes have been sampled for a variety of HAB indicators since 2008. This was completed on selected lakes as part of a NYS DOH study from 2008-2010. In 2011, enhanced sampling on all CSLAP lakes was initiated through an EPA-funded project that has continued through the current sampling season. This study has evaluated a number of HAB indicators as follows:

- Algae types - blue green, green, diatoms, and "other"
- Algae densities
- Microscopic analysis of bloom samples
- Algal toxin analysis

Some of these results are reported in other portions of these reports. This appendix the seasonal change in blue green algae, other algae types, and the primary algal toxin (microcystin-LR, a liver toxin). Analysis was completed on open water samples and, for some lakes, shoreline samples that were collected when visual evidence of blooms were apparent. Results are compared to the DEC criteria of 30 ug/l blue green chlorophyll a and 20 ug/l microcystin-LR (based on the World Health Organization (WHO) threshold for unsafe swimming conditions) and the WHO provisional criteria for long-term protection of treated water supplies (= 1 ug/l microcystin-LR). The data for algae types are drawn from a high end fluorometer used by SUNY ESF. While these results are useful for timely approximation of lake conditions, they are not as accurate as the total chlorophyll results measured as a regular part of CSLAP since 1986 in all open water samples. Therefore these results are used judiciously in the assessment of sampled waterbodies.

Two separate samples are evaluated. A sample is taken at the CSLAP sample point at the deepest point of the lake at every sample session. In addition, shoreline samples can be taken when a bloom is visible. It should be noted that shoreline conditions can vary significantly over time and from one location to another. The shoreline bloom sampling results summarized below are not collected as routinely as open water samples, and therefore represent snapshots in time. It is assumed that sampling results showing high blue green algae and/or toxin levels indicate that algae blooms may be common and/or widespread on these lakes. However, the absence of elevated blue green algae and toxin levels does not assure the lack of shoreline blooms on these lakes. Elevated open water readings may indicate a higher likelihood of shoreline blooms, but in some lakes, these shoreline blooms have not been (well) documented.

The results from these samples are summarized within the CSLAP report for the lake.



Figure D1:
2013 Open Water Total and BGA Chl.a

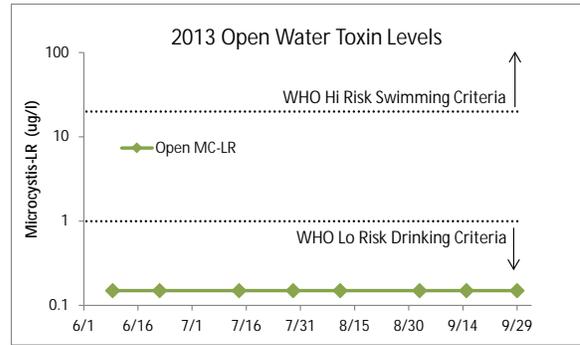


Figure D2:
2013 Open Water Microcystin-LR



Figure D3:
2013 Shoreline Total and BGA Chl.a

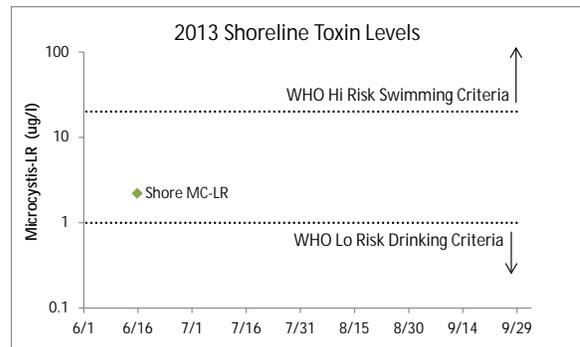


Figure D4:
2013 Shoreline Microcystin-LR

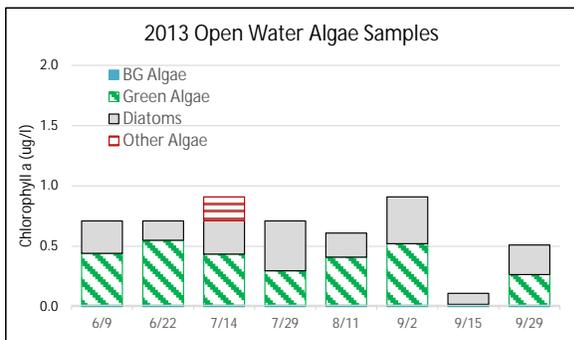


Figure D5:
2013 Open Water Algae Types

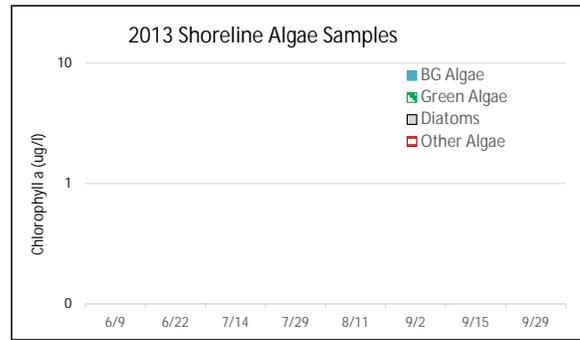


Figure D6:
2013 Shoreline Algae Types

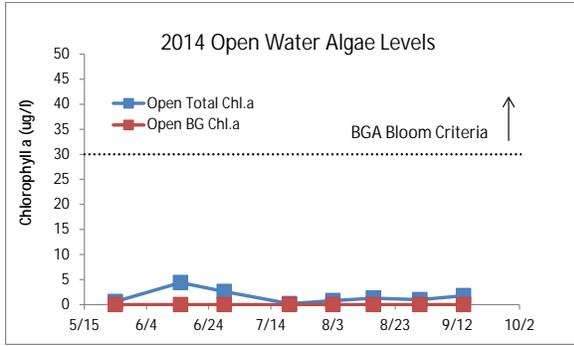


Figure D7:
2014 Open Water Total and BGA Chl.a

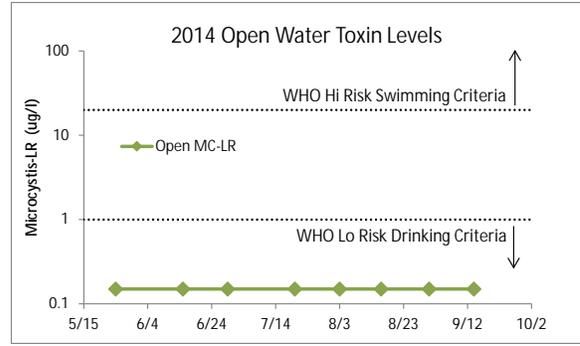


Figure D8:
2014 Open Water Microcystin-LR



Figure D9:
2014 Shoreline Total and BGA Chl.a

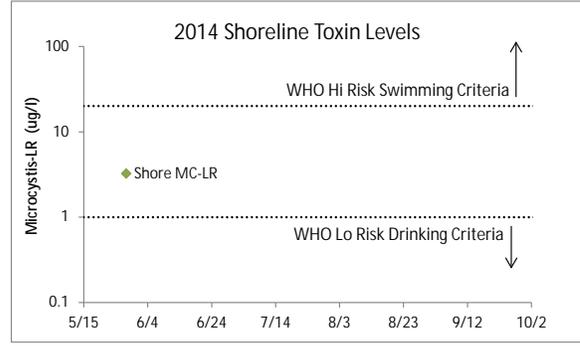


Figure D10:
2014 Shoreline Microcystin-LR

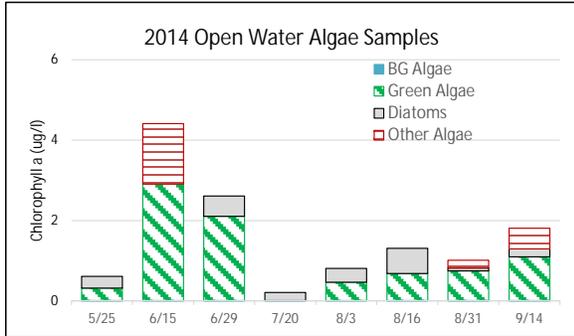


Figure D11:
2013 Open Water Algae Types

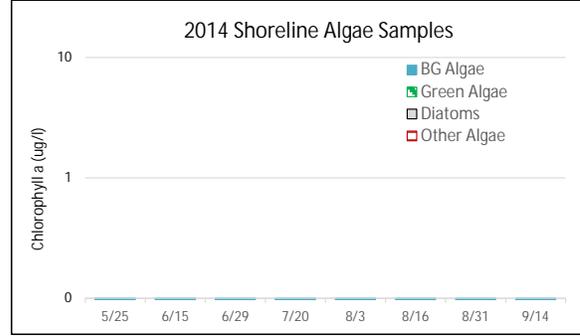


Figure D12:
2014 Shoreline Algae Types

Appendix E: AIS Species in Fulton County

The table below shows the invasive aquatic plants and animals that have been documented in Fulton County, as cited in either the iMapInvasives database (<http://www.imapinvasives.org/>) or in the NYSDEC Division of Water database. These databases may include some, but not all, non-native plants or animals that have not been identified as “Prohibited and Regulated Invasive Species” in New York state regulations (6 NYCRR Part 575; http://www.dec.ny.gov/docs/lands_forests_pdf/islist.pdf).

This list is not complete, but instead represents only those species that have been reported and verified within the county. If any additional aquatic invasive species (AIS) are known or suspected in these or other waterbodies in the county, this information should be reported through iMap invasives or by contacting NYSDEC at dowinfo@dec.ny.gov.

Aquatic Invasive Species – Fulton County			
Waterbody	Kingdom	Common name	Scientific name
Canada Lake	Plant	Brittle naiad	<i>Najas minor</i>
Caroga Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
East Caroga Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Great Sacandaga Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Great Sacandaga Lake	Plant	Brittle naiad	<i>Najas minor</i>
Great Sacandaga Lake	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Great Sacandaga Lake	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Kyser Lake	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Mayfield Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Mayfield Lake	Plant	Brittle naiad	<i>Najas minor</i>
Mayfield Lake	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Peck Lake	Animal	Spiny waterflea	<i>Bythotrephes longimanus</i>
Stewarts Landing	Plant	Brittle naiad	<i>Najas minor</i>
West Caroga Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>

Appendix F: Watershed and Land Use Map for Canada Lake

This watershed and land use map was developed using USGS StreamStats and ESRI ArcGIS using the 2006 land use satellite imagery. The actual watershed map and present land uses within this watershed may be slightly different due to the age of the underlying data and some limits to the use of these tools in some geographic regions and under varying flow conditions. However, these maps are intended to show the approximate extent of the lake drainage basin and the major land uses found within the boundaries of the basin.

