CSLAP 2014 Lake Water Quality Summary:
Mirror Lake

General Lake Information

Location	Town of Lake Placid
County	Essex
Basin	Lake Champlain
Size	49.4 hectares (122.0 acres)
Lake Origins	Natural
Watershed Area	303 hectares (739 acres)
Retention Time	1.3 years
Mean Depth	4.2 meters
Sounding Depth	9 meters
Public Access?	hand launch
Major Tributaries	no named tribs
Lake Tributary To…	unnamed outlet to Chubb River to West Branch Ausable River to Ausable River to Lake Champlain
WQ Classification	B(T) (contact recreation = swimming)
Lake Outlet Latitude	44.284
Lake Outlet Longitude	-73.982
Sampling Years	1998-2001, 2003-2011, 2013-2014
2014 Samplers	Mark Wilcox
Main Contact	Mark Wilcox

Lake Map

Background

Mirror Lake is a 122 acre, class B(T) lake found in the Town of North Elba in Essex County, in the northern Adirondack region of New York State. It was first sampled as part of CSLAP in 1998.

It is one of nine CSLAP lakes among the more than 270 lakes found in Essex County, and one of 22 CSLAP lakes among the more than 240 lakes and ponds in the Lake Champlain drainage basin.

Lake Uses

Mirror Lake is a Class B(T) lake; this means that the best intended use for the lake is for contact recreation—swimming and bathing, non-contact recreation—fishing and boating, aquatic life, and aesthetics (the (T) designation indicates support of trout). The lake is used by lake residents and the public for boating and other recreation via shoreline properties and a cartop launch. Lake residents also use the lake for swimming and bathing.

Mirror Lake has been stocked by annually by the state. In 2006, 1300 nine inch rainbow trout, 600 14 inch rainbow trout, and 100 19 inch rainbow trout were stocked. In addition, about 550 seven inch lake trout were stocked. Fish species in the lake include brown bullhead, lake trout, pumpkinseed sunfish, rainbow trout, rock bass, smallmouth bass, and yellow perch.

General statewide fishing regulations are applicable in Mirror Lake. Open season for lake trout is from April 1st through October 15th, with a size limit of 15 inches and a daily take limit of three fish. Sunfish and yellow perch have an open season throughout the year, with no take or size limits.

Statewide fish consumption advisories apply to Mirror Lake—no site-specific advisories have been issued for the lake.

Historical Water Quality Data

CSLAP sampling was conducted on Mirror Lake from 1998 to 2001, 2003 to 2011, and 2013 to 2014. 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 reports for Mirror Lake will also be found on the NYSDEC web page at http://www.dec.ny.gov/lands/77872.html.

The lake was sampled as part of the state Lake Biomonitoring pilot project (as part of the state Lake Classification and Inventory study, or LCI) conducted by the NYSDEC in 2008. With the exception of the elevated chlorophyll reading in the LCI sample (which does not appear to be representative of normal conditions in the lake), these data are very comparable. The depth profiles collected in this dataset show an oxygen depression starting at the thermocline (at a depth of about 8 meters) and increasing with depth to the lake bottom, but anoxic (oxygen-depleted) conditions were not apparent. Chloride and sodium levels were higher than in many other lakes sampled as part of this program, and may indicate some influence of road salt runoff, although these readings are well below the state water quality standards.

The report on the sediment sampling conducted as part of this program including the following information:

"The (Mirror Lake) sample was collected in seven meters of water with a petite ponar. The sample represents the top 10 cm. The sample was characterized as a dark gray, gelatinous material with low solids and high carbon content. Total organic carbon was 10.2 percent. Low levels of DDD and DDE were found. No PCBs were detected. PAHs were detected in thirteen of the sixteen chemicals within this class. Total PAHs were above the TEC guidelines.

Of the metals measured, lead was found at three times the above the PEC guidelines, suggesting potential toxicity. Both lead and zinc were measured at the highest concentration of any sediment sampled in 2008. The Microtox results indicated slight toxicity"

None of the Mirror Lake tributaries are named or have been monitored through the NYSDEC Rotating Intensive Basins (RIBS) program. No sites have been sampled through the state stream macroinvertebrate monitoring program. Limited water quality data have been collected by DEC fisheries staff and are included in the state fisheries (water quality) database. These data show conditions very similar to those measured through CSLAP.

Lake Association and Management History

Mirror Lake is represented by the Mirror Lake Association. The lake association is involved in a number of lake management activities, including:

- Clean up and water quality monitoring activities- water quality sampling, storm drain stenciling, water quality dip measurements, doggie bag dispensers, trash cans
- Educational activities- monthly newspaper articles, education about pet litter, lake education posters, lake education, brochures, education about storm drains, web site
- Lake advocacy activities- storm water management, storm drain inventory/action plan, trash can inventory/action plan
- Fund raising

The Mirror Lake Association maintains a website at http://www.mirrorlake.net/ .

Summary of 2014 CSLAP Sampling Results

Evaluation of 2014 Annual and Monthly Results Relative to 1998-2013

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 – Mirror Lake" section in Appendix C.

Evaluation of Eutrophication Indicators

Phosphorus readings were slightly higher than usual in 2014, and these readings have increased over the last decade. This has not translated into similar changes in algae levels or a decrease in water clarity over the same period, although Secchi disk transparency readings were slightly lower than normal in 2014.

The productivity of Mirror Lake does not usually exhibit any clear seasonal trends, although phosphorus readings are often lower in mid fall. No clear seasonal trends were apparent in 2014, although phosphorus readings did spike in mid-July and mid-September. These were not linked to changes in weather or other measured trophic indicators.

The lake continues to be characterized as *oligotrophic*, based on water clarity, chlorophyll *a* and total phosphorus readings (all typical of *oligotrophic* lakes), although phosphorus readings in 2014 were more typical of *mesotrophic*, or moderately productive lakes. The trophic state indices (TSI) evaluation suggests that each of the trophic indicators were "internally consistent"—that is, each trophic indicator was in the expected range given the readings for the other trophic indicators. Overall trophic conditions are summarized on the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Potable Water Indicators

Surface algae levels are not high enough to trigger slight impacts from taste and odor compounds or dangerous chlorinated compounds associated with excessive algae, although the lake is not classified for potable water use. Hypolimnetic phosphorus and ammonia readings in Mirror Lake are low and similar to those at the lake surface, although deepwater phosphorus readings were slightly higher than normal in 2014. This suggests that any "unofficial" deepwater intakes may be supported. Potable water conditions, at least as measurable through CSLAP, are summarized in the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Limnological Indicators

Ammonia readings were slightly higher than normal in 2013 and 2014, and ammonia levels have increased slightly over the last decade. NOx and conductivity readings have decreased over the same period, and NOx was also lower than normal in 2014. None of the other limnological indicators has exhibited any clear long-term trends. Overall limnological conditions are summarized in the Scorecard and Lake Condition Summary Table.

Evaluation of Biological Condition

The macrophyte data collected by the NYSDEC through the biomonitoring survey found few aquatic plants, although none of these were exotic or protected plant species. It is likely that there are other native plant species in the lake. There is insufficient information from these plant surveys to evaluate the floristic quality of the lake.

The 2008 DEC macroinvertebrate survey results from Mirror Lake continue to be evaluated. The preliminary data show a small number of macroinvertebrate species, a low percentage of ETO (*Ephemeroptera*, *Trichoptera*, and *Odonata*) species (indicating moderate to poor water quality). However, the diversity index was high and percentage of tolerant species was low, indicating a macroinvertebrate community sensitive to pollution (often indicative of healthy lakes). The stream nutrient biotic index suggested low lake productivity, as expected given the nutrient and algae levels in the lake. These apparently contradictory results preclude a definitive assessment of the macroinvertebrate community in the lake, although this may become more apparent with additional analysis of the data.

The fish community in the lake is comprised of a mix of coldwater (at least two species), coolwater (at least two species) and warmwater (at least three species) fish, suggesting a two-story fishery.

Zooplankton surveys have been conducted through CSLAP in Mirror Lake. The phycocyanin and fluoroprobe screening results over the last few years showed very low blue green algae levels and a low susceptibility for blue green algae blooms. Open water algae communities in the last few years has been comprised of diatoms and other forms of algae.

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

Evaluation of Lake Perception

Recreational assessments were slightly less favorable than normal in 2013 and 2014, due primarily to surface debris, swimmers itch, and excessive use of the lake, although these assessments continued to be "excellent". Aquatic plant coverage was slightly higher than normal in 2014, but none of these assessments has exhibited clear long-term trends. Aquatic plant coverage increases from June through August in the typical year, but no seasonal trends were apparent in 2014. Overall lake perception is summarized on the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Local Climate Change

Water temperatures have decreased since the early 2000s, and these readings were lower than usual in 2014. It is not known if 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. Phycocyanin readings have been well below the levels indicating susceptibility for harmful algal blooms (HABs), consistent with fluoroprobe data showing very low blue green algae levels. Algal toxin levels were not detectable in any open water samples in the last several years; no shoreline blooms have been reported or sampled.

Lake Condition Summary

Category	Indicator	Min	Overall Avg	Max	2014 Avg	Classification	2014 Change?	Long-term Change?
Eutrophication Indicators	Water Clarity	3.05	5.74	9.50	5.43	Oligotrophic	Within Normal Range	No Change
	Chlorophyll *a*	0.10	1.22	4.94	1.34	Oligotrophic	Within Normal Range	No Change
	Total Phosphorus	0.002	0.008	0.021	0.013	Oligotrophic	Higher than Normal	Increasing Slightly
Potable Water Indicators	Hypolimnetic Ammonia	0.01	0.05	0.53	0.04	Close to Surface NH4 Readings	Within Normal Range	Not known
	Hypolimnetic Arsenic							Not known
	Hypolimnetic Iron							Not known
	Hypolimnetic Manganese							Not known
Limnological Indicators	Hypolimnetic Phosphorus	0.004	0.012	0.055	0.017	Close to Surface TP Readings	Higher than Normal	Not known
	Nitrate + Nitrite	0.00	0.02	0.11	0.01	Low NOx	Lower Than Normal	No Change
	Ammonia	0.01	0.03	0.27	0.04	Low Ammonia	Within Normal Range	Increasing Significantly
	Total Nitrogen	0.09	0.33	0.62	0.35	Low Total Nitrogen	Within Normal Range	No Change
	pH	6.27	7.42	8.83	7.42	Circumneutral	Within Normal Range	No Change
	Specific Conductance	112	176	241	172	Intermediate Hardness	Within Normal Range	No Change
	True Color	1	9	31	7	Uncolored	Within Normal Range	No Change
	Calcium	7.1	8.7	10.2	9.3	Not Susceptible to Zebra Mussels	Higher than Normal	No Change
Lake Perception	WQ Assessment	1	1.9	3	2.0	Not Quite Crystal Clear	Within Normal Range	No Change
	Aquatic Plant Coverage	1	2.4	3	2.8	Subsurface Plant Growth	Within Normal Range	No Change
	Recreational Assessment	0	1.9	4	2.1	Excellent	Within Normal Range	Slightly Degrading
Biological Condition	Phytoplankton					Open water-low blue green algae biomass	Not known	Not known
	Macrophytes					Low plant diversity	Not known	Not known
	Zooplankton					Not measured through CSLAP	Not known	Not known
	Macroinvertebrates					Inconclusive results- will require analyses from additional lakes	Not known	Not known
	Fish					Two story fishery	Not known	Not known
	Invasive Species					Variable leaf milfoil, curly leafed pondweed	Not known	Not known
Local Climate Change	Air Temperature	0	17.4	30	13.0		Lower Than Normal	Decreasing Slightly
	Water Temperature	4	17.8	26	15.1		Lower Than Normal	Decreasing Slightly
Harmful Algal Blooms	Open Water Phycocyanin	1	8	54	3	No readings indicate high risk of BGA	Not known	Not known
	Open Water FP Chl.a	1	1	2	1	No readings indicate high algae levels	Not known	Not known
	Open Water FP BG Chl.a	0	0	0	0	No readings indicate high BGA levels	Not known	Not known
	Open Water Microcystis	<DL	<DL	<DL	<0.30	Open water MC-LR consistently not detectable	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	1.4	7.9	53.6	7.9	No readings indicate high risk of BGA	Not known	Not known
	Shoreline FP Chl.a	0.5	0.8	1.6	0.8	No readings indicate high algae levels	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 2009 NYSDEC Priority Waterbody Listings (PWL) for the Lake Champlain drainage basin indicate "*no use impairments*" on Mirror Lake. The PWL listing for the lake is shown in Appendix B.

Potable Water (Drinking Water)

The CSLAP dataset at Mirror 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.

Contact Recreation (Swimming)

The CSLAP dataset at Mirror Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggests that swimming and contact recreation should be fully supported, although additional information about bacterial levels is needed to evaluate the safety of the water for swimming.

Non-Contact Recreation (Boating and Fishing)

The CSLAP dataset on Mirror Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that non-contact recreation should be fully supported, although this use may be *threatened* by excessive weeds.

Aquatic Life

The CSLAP dataset on Mirror Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aquatic life appears to be supported, although this use may be *threatened* by elevated chloride levels. Additional data are needed to evaluate the food and habitat conditions for aquatic organisms in the lake.

Aesthetics

The CSLAP dataset on Mirror Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aesthetics should be fully supported, although this use may be *threatened* by invasive weeds.

Fish Consumption

There are no fish consumption advisories posted for Mirror Lake.

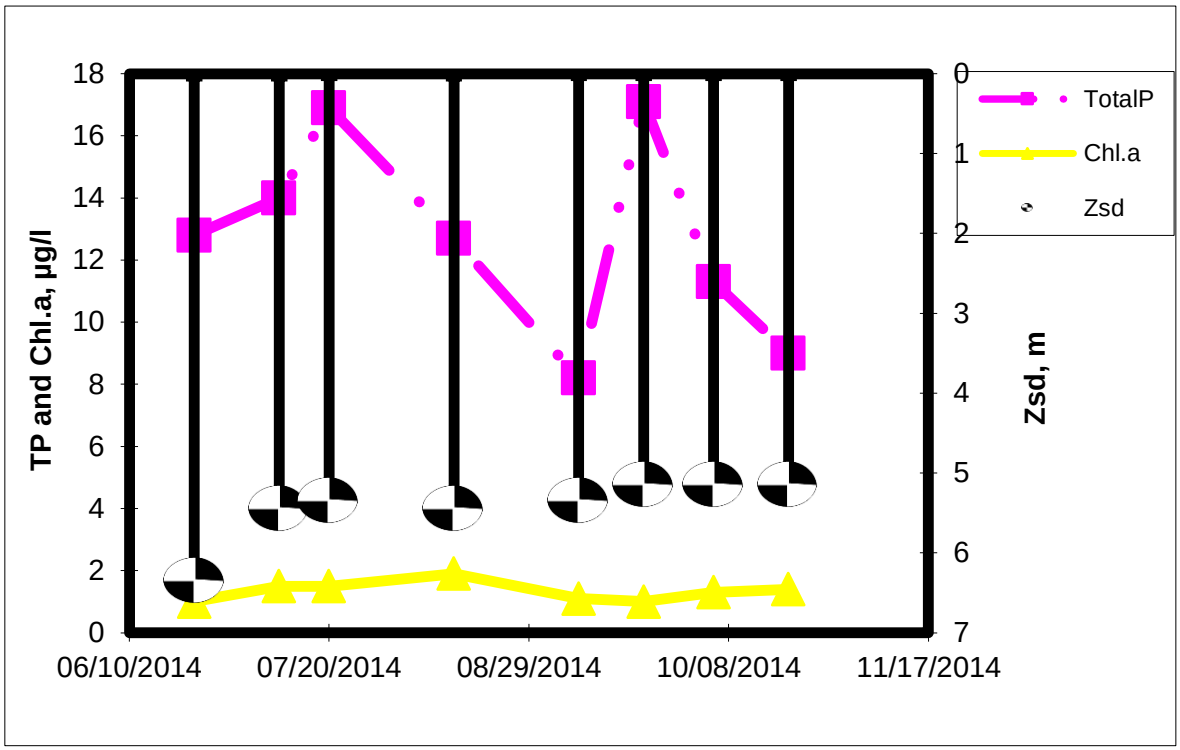
Additional Comments and Recommendations

Additional aquatic plant survey information would help to better evaluate the floristic quality of the lake. Lake residents are advised to report (and avoid exposure to) any shoreline algae blooms. Any sources of nutrients entering the lake from eroding shorelines, road runoff, or other sources should be identified and addressed in working with local agencies. This might help to reverse the increase in phosphorus levels over the last decade.

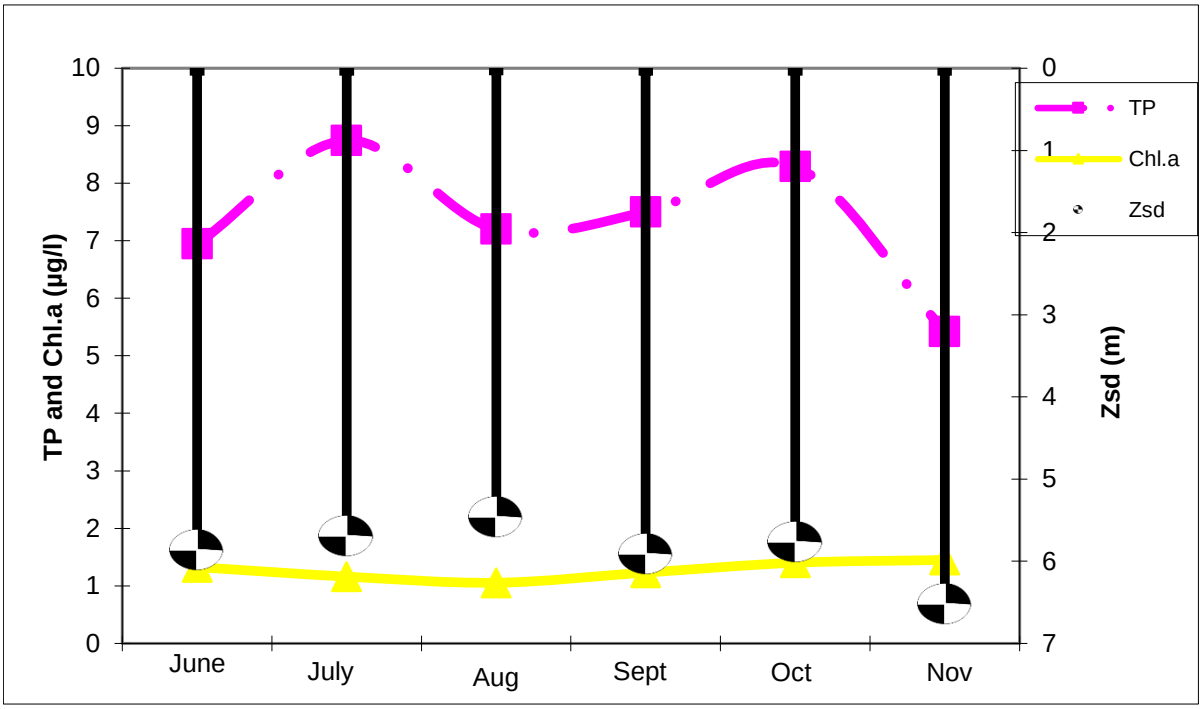
Aquatic Plant IDs-2014

None submitted for identification in 2014.

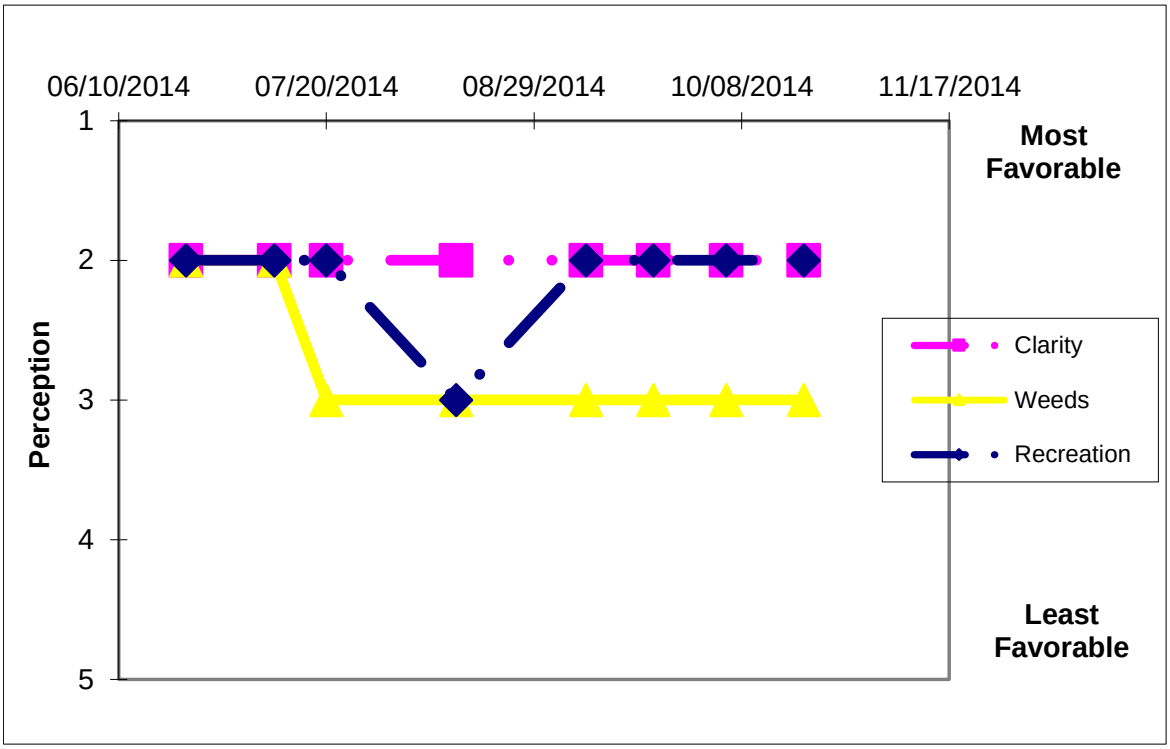
Time Series: Trophic Indicators, 2014



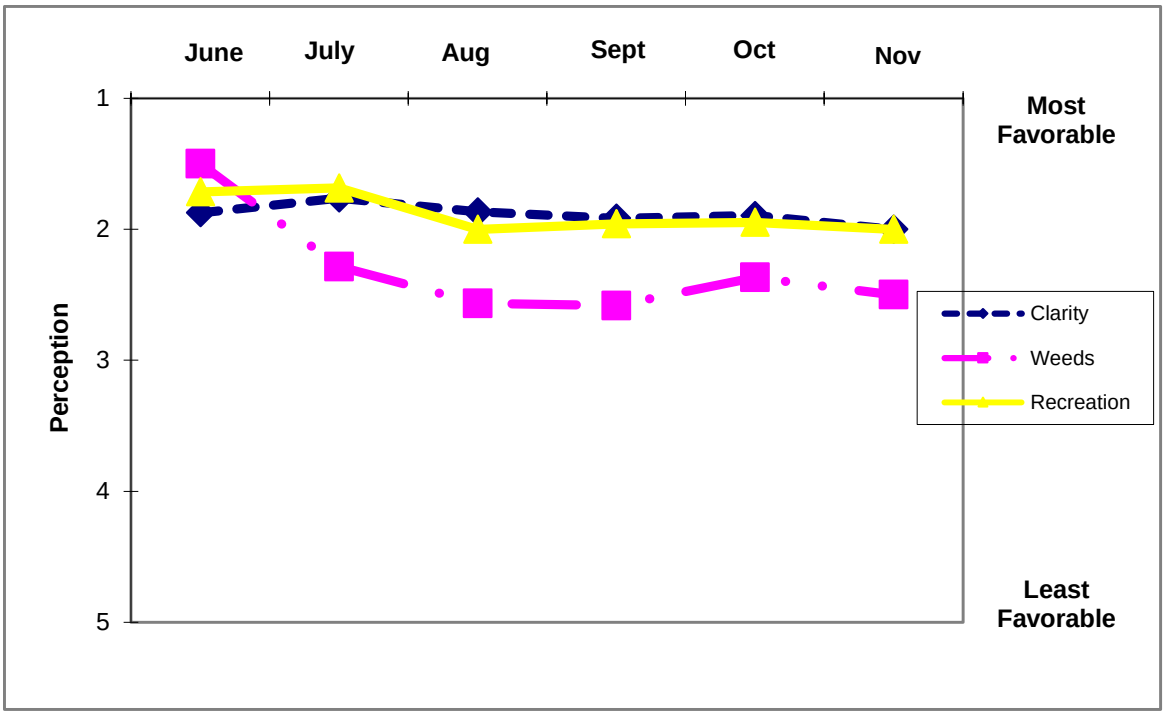
Time Series: Trophic Indicators, Typical Year (1998-2014)



Time Series: Lake Perception Indicators, 2014



Time Series: Lake Perception Indicators, Typical Year (1998-2014)



Appendix B- CSLAP Water Quality Sampling Results for Mirror Lake

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
149	Mirror L	6/23/1998	19.0	5.00	1.5		0.04				5	6.38			4.72
149	Mirror L	7/6/1998	17.1	5.00	1.5		0.01				3	7.91			4.94
149	Mirror L	7/21/1998	18.0	4.80	1.5		0.01				6	7.44	136		0.64
149	Mirror L	8/11/1998	17.7	4.70	1.5		0.01				4	7.23	137		1.55
149	Mirror L	8/23/1998	17.7	5.20	1.5						11	7.37	140		1.76
149	Mirror L	9/13/1998	18.2	6.60	1.5	0.006					5	7.61	144		2.98
149	Mirror L	9/26/1998	17.2	5.30	1.5	0.005	0.01				6	7.17	145		2.76
149	Mirror L	10/13/1998	17.1	5.30		0.006	0.01				6	7.58	149		2.67
149	Mirror L	6/20/1999	17.0	8.40	1.5	0.004	0.01				4	8.00	182		0.46
149	Mirror L	7/26/1999	16.8	7.20	1.5	0.005	0.01				6	6.72	181		0.86
149	Mirror L	8/12/1999	16.3	7.10	1.5	0.005	0.01				3	7.30	180		1.50
149	Mirror L	8/28/1999	16.8	6.80	1.5	0.006	0.01				6	6.27	179		1.24
149	Mirror L	9/27/1999	17.6	7.70	1.5	0.006	0.01				7	7.71	179		1.88
149	Mirror L	6/17/2000	16.5	4.30	2.0	0.005	0.01				7	6.98	173		2.51
149	Mirror L	7/12/2000	16.7	4.40		0.014	0.01				4	6.34	176		1.56
149	Mirror L	8/4/2000	16.0	4.50		0.005	0.01				7	6.51	176		1.54
149	Mirror L	8/28/2000	16.5	4.50	1.5	0.005	0.01				7	7.25	179		0.81
149	Mirror L	6/28/2001	14.7	5.10	2.0	0.007	0.08				5	7.78	178		1.26
149	Mirror L	7/17/2001	15.0		2.0	0.004	0.01				4	6.49	176		1.76
149	Mirror L	7/31/2001	14.4	5.40	2.0	0.009	0.01				4	6.41	178		1.06
149	Mirror L	8/27/2001	17.0	5.90	2.0	0.006	0.01				6	7.79	185		0.74
149	Mirror L	9/5/2001	14.7	5.30	2.0	0.010	0.01				5	8.22	181		
149	Mirror L	9/24/2001	15.1	4.90	2.0	0.007	0.01				4	6.67	191		
149	Mirror L	7/25/2003			1.0	0.006	0.01	0.01	0.13	23.44	12	7.39	206		
149	Mirror L	8/14/2003	14.7	6.55	1.0	0.004	0.00	0.01	0.39	88.40	16	7.36	200		0.69
149	Mirror L	9/6/2003	17.1	5.60	1.0	0.007	0.02	0.01			7	7.40	219		1.58
149	Mirror L	9/22/2003	15.1	5.00		0.006	0.00	0.02	0.15	23.41	5	7.32	225	8.9	1.50
149	Mirror L	6/28/2004	14.3	4.95	1.5	0.004	0.01	0.01	0.28	65.56	19	6.84	241		0.40
149	Mirror L	7/20/2004	13.8	5.65	1.5		0.01	0.01	0.33		3	8.31	240		0.28
149	Mirror L	8/5/2004	13.9	5.30	1.5	0.005	0.02	0.03	0.22	49.10	5	7.81	197		0.80
149	Mirror L	8/24/2004	13.9	6.80	1.5	0.006	0.05	0.03	0.32	57.07	10	7.76	237		1.90
149	Mirror L	9/13/2004	14.6	7.63	1.5	0.006	0.02	0.01	0.32	58.08	8	7.51	174	9.0	0.60
149	Mirror L	10/5/2004	14.7	7.45	1.5	0.003	0.01	0.01	0.24	73.28	10	6.61	173		
149	Mirror L	11/1/2004	14.8	5.55	1.5	0.006	0.01	0.01			5	7.58	211		1.80
149	Mirror L	11/17/2004	12.5	7.50	1.5	0.005	0.03	0.09			6	6.72	202		1.10
149	Mirror L	6/27/2005	13.40	5.50	1.5	0.007	0.01	0.02	0.10	13.85		7.03	208	8.5	1.21
149	Mirror L	7/13/2005	14.10	5.50	1.5	0.004	0.02	0.01	0.17	39.91	12	6.56	169		
149	Mirror L	8/1/2005	14.10	4.75		0.010	0.02	0.01	0.25	25.59	17	7.63	213		1.00
149	Mirror L	8/18/2005	11.40	6.00	1.5	0.004	0.01	0.01	0.09	24.93	9	7.58	171		1.01
149	Mirror L	9/1/2005	12.50	5.60	1.5	0.005	0.03	0.01	0.18	38.86	8	7.42	210	8.5	1.12
149	Mirror L	9/21/2005	10.90	7.25	1.5	0.003	0.01	0.10	0.21	63.68	9	7.47	216		0.32
149	Mirror L	10/5/2005	9.90	7.55	1.5	0.002	0.02	0.03	0.17	72.98	5	6.76	199		0.89
149	Mirror L	10/24/05	10.50	6.50	1.5	0.015	0.03	0.02	0.21	14.65	7	8.02	209		1.30
149	Mirror L	6/24/2006	12.5	5.95	1.5	0.005	0.02	0.02	0.44	95.41	31	7.63	184	7.9	0.27
149	Mirror L	7/14/2006	12.5	5.35	1.5	0.009	0.09	0.06	0.62	66.33		7.83	168		0.75
149	Mirror L	8/1/2006	12.0	4.65	1.5	0.005	0.02	0.02	0.51	110.20		8.08	181		1.50
149	Mirror L	8/14/2006	11.0	4.40	1.5	0.007	0.01	0.02	0.52	79.36	5	8.30	187		2.11
149	Mirror L	8/25/2006	11.0	4.35	1.5	0.006	0.00	0.01	0.46	83.69	3	7.36	131	8.2	0.10
149	Mirror L	9/20/2006	12.0	8.60	1.5	0.007			0.45	67.47	7	7.14	188		1.35
149	Mirror L	10/10/2006	12.0	5.40	1.5	0.006	0.00	0.02	0.45	74.48	7	6.74	116		1.48
149	Mirror L	10/27/2006	13.0	5.45	1.5	0.005	0.04	0.04	0.38	85.33	6	8.16	164		
149	Mirror L	7/7/2007	11.5	5.15	1.5	0.005	0.04	0.03	0.58	267.8	14	7.9	170	9.1	0.55
149	Mirror L	7/22/2007	14.0	9.50		0.005	0.01	0.01	0.34	168.7	9	8.1	179		1.70
149	Mirror L	8/16/2007	10.0	5.45			0.01	0.02	0.46	27.8	8	8.1	149		3.74
149	Mirror L	8/31/2007	9.0	6.15		0.008	0.00	0.01	0.61	169.9	5	7.4	155		1.30
149	Mirror L	9/21/2007	8.0	6.05	1.5	0.006	0.05	0.10	0.61	242.9	8	7.8	176	8.4	0.10
149	Mirror L	10/1/2007	9.0	6.15	1.5	0.006	0.01	0.27	0.48	190.4	1	7.7	164		1.21
149	Mirror L	10/10/2007	9.0	7.35	1.5	0.010	0.02	0.01	0.53	121.6	5				1.15
149	Mirror L	10/24/2007	9.0	8.15	1.5	0.009	0.02	0.05	0.22	52.8	3	7.1	217		1.23
149	Mirror L	6/22/2008	8.0	7.25	1.5	0.005	0.01	0.01	0.29	128.84	11	7.91	152	8.6	0.10
149	Mirror L	7/12/2008	9.5	5.55	1.5	0.007	0.11	0.03	0.19	59.48	6	7.45	168		0.34
149	Mirror L	8/4/2008	8.0	4.15	1.5	0.004					9	7.99	153		1.40
149	Mirror L	8/19/2008	9.0	3.68	1.5	0.007	0.07	0.02	0.26	78.16		8.05	203		1.46

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
149	Mirror L	8/28/2008	8.5	5.55	1.5	0.008	0.00	0.01	0.18	48.30	9	6.83	177	8.5	1.18
149	Mirror L	9/8/2008	8.0	5.05	1.5	0.016	0.01	0.02	0.24	33.54	8	6.87	182		0.36
149	Mirror L	9/23/2008	8.0	5.03	1.5	0.011	0.01	0.03	0.26	53.70	4	7.42	177		0.23
149	Mirror L	10/15/2008	8.0	5.85	1.5						8	7.05	159		0.45
149	Mirror L	07/26/2009	8.5	6.60	1.5	0.009	0.01	0.02	0.16	42.19	18	7.54	139	9.0	0.30
149	Mirror L	08/05/2009	8.5	5.95	1.5	0.013	0.03	0.05	0.44	76.65	10	6.53	122		1.13
149	Mirror L	08/16/2009	8.0	7.40	1.5	0.006	0.01	0.01	0.20	77.38	17	7.89	140		0.80
149	Mirror L	08/30/2009	8.5	5.50	1.5	0.009	0.01	0.03	0.23	54.88	16	7.35	159		2.30
149	Mirror L	09/13/2009	8.5	5.55	1.5	0.008	0.01	0.05	0.20	59.25	16	7.82	207	7.1	1.20
149	Mirror L	09/20/2009	8.5	7.50	1.5	0.006	0.02	0.02	0.20	72.13	12	7.42	158		1.30
149	Mirror L	10/14/2009	8.0	6.80	1.5	0.012		0.02	0.30	53.12	8	7.52	157		1.00
149	Mirror L	07/06/2010	13.0	6.78	1.5	0.011	0.01	0.04	0.44	87.21	5	7.26	187	9.8	0.20
149	Mirror L	07/16/2010	13.0	5.45	1.5	0.005	0.02	0.02	0.22	101.57	11	8.59	197		0.90
149	Mirror L	08/05/2010	8.5	5.30	1.5	0.006	0.01	0.02	0.22	83.75	7	8.17	185		0.20
149	Mirror L	08/17/2010	9.0	5.35	1.5	0.021	0.01	0.03	0.37	38.11	6	7.61	186		0.30
149	Mirror L	08/31/2010	13.5	7.83		0.007	0.04	0.03	0.31	92.22	15	7.50	184	9.5	0.20
149	Mirror L	09/16/2010	8.5	6.45	1.5	0.007	0.02	0.03	0.29	91.83	8	7.12	188		0.20
149	Mirror L	10/06/2010	9.0	6.45	1.5	0.010	0.03	0.03			8	6.84	194		0.30
149	Mirror L	10/11/2010	8.5	6.15	1.5	0.012	0.03	0.03	0.32	58.25	11	6.69	180		0.40
149	Mirror L	07/07/2011	9.5	6.15	1.5	0.011	0.01	0.02	0.24	46.12	19	7.53	149	7.5	0.40
149	Mirror L	07/29/2011	8.5	6.20	1.5	0.007	0.02	0.03	0.38	129.97	22	7.50	152		0.30
149	Mirror L	08/18/2011	7.5	5.30	1.5	0.006	0.01	0.02	0.19	67.42	13	6.60	158		0.30
149	Mirror L	09/02/2011	7.3	5.35	1.5	0.012	0.02	0.03	0.46	87.05	12	8.83	156		1.70
149	Mirror L	09/13/2011	7.5	3.05	1.5	0.004	0.01	0.02	0.27	161.73	19	8.37	164	9.5	1.00
149	Mirror L	09/27/2011	7.5	6.15	1.5	0.004	0.01	0.02	0.26	131.00	14	7.76	153		0.80
149	Mirror L	10/10/2011	7.0	5.25	1.5	0.007	0.01	0.01	0.33	108.06	20	7.80	169		1.80
149	Mirror L	10/20/2011	8.0	4.85	1.5	0.008	0.02	0.02	0.34	92.40	15	7.70	173		3.00
149	Mirror L	07/11/2013	9.0	5.05	1.5	0.011	0.01	0.01	0.32	65.58	23	7.21	144		1.70
149	Mirror L	07/22/2013	8.5	4.05	1.5	0.009			0.49	126.25	16	7.53	154		1.40
149	Mirror L	08/08/2013	8.5	5.05	1.5	0.011	0.03	0.09	0.23	46.44	11	6.88	189		
149	Mirror L	08/22/2013	8.0	5.35	1.5	0.006			0.44	158.66	13	7.25	156		0.60
149	Mirror L	09/08/2013	8.5	4.05	1.5	0.008	0.01	0.01	0.35	95.81	12	7.70	157		1.40
149	Mirror L	09/28/2013	9.0	4.25	1.5	0.007			0.38	111.96	12	7.55	167		1.00
149	Mirror L	10/10/2013	8.5	4.05	1.5	0.006	0.01	0.01	0.33	128.36	9	7.56	169		1.40
149	Mirror L	10/29/2013	7.5	4.55	1.5	0.013			0.56	96.66	12	7.09	193		1.30
149	Mirror L	6/23/2014	8.5	6.35	1.5	0.013	0.00	0.04	0.33	56.38	6	7.09	175	8.4	1.00
149	Mirror L	7/10/2014	9.0	5.45	1.5	0.014			0.25	38.97	9	6.44	112		1.50
149	Mirror L	7/20/2014	9.0	5.35	1.5	0.017	0.01	0.05	0.44	57.28	11	7.80	172		1.50
149	Mirror L	8/14/2014		5.45	1.5	0.013			0.28	47.98	4	7.63	183		1.90
149	Mirror L	9/8/2014	8.5	5.35	1.5	0.008	0.01	0.03	0.35	93.63	7	8.13	181		1.10
149	Mirror L	9/21/2014		5.15	1.5	0.017	0.01	0.03	0.44	57.12	7	7.88	179	10.2	1.00
149	Mirror L	10/5/2014	9.0	5.15	1.5	0.011			0.31	61.13	4	6.99	178		1.30
149	Mirror L	10/20/2014	9.0	5.15	1.5	0.009			0.43	106.09	7	7.36	193		1.40
149	Mirror L	8/14/2003				0.023	0.00	0.01	0.29	13.05					
149	Mirror L	9/6/2003				0.055	0.05	0.53							
149	Mirror L	9/22/2003			1.5	0.016	0.03	0.13	0.29	18.10					
149	Mirror L	8/24/2004				0.020	0.21	0.08	0.53	26.72					
149	Mirror L	9/13/2004				0.006	0.03	0.03	0.24	39.21					
149	Mirror L	10/5/2004				0.013	0.09	0.03	0.28	21.50					
149	Mirror L	11/1/2004				0.006	0.02	0.10							
149	Mirror L	11/17/2004				0.009	0.02	0.04							
149	Mirror L	6/27/2005			9.5	0.006									
149	Mirror L	7/13/2005			9.0	0.005									
149	Mirror L	8/1/2005			9.5	0.006									
149	Mirror L	8/18/2005			10.0	0.005									
149	Mirror L	9/1/2005			9.5	0.006									
149	Mirror L	9/21/2005			9.5	0.012									
149	Mirror L	10/5/2005			9.5	0.008									
149	Mirror L	10/24/05			9.0	0.006									
149	Mirror L	6/24/2006	12.5		9.0	0.004									
149	Mirror L	7/14/2006	12.5		9.5	0.006									
149	Mirror L	8/1/2006	12.0		9.5	0.006									
149	Mirror L	8/14/2006	11.0		9.5	0.048									
149	Mirror L	8/25/2006	11.0		9.5	0.006									
149	Mirror L	9/20/2006	12.0		9.5	0.009									
149	Mirror L	10/10/2006	12.0		9.5	0.006									

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
149	Mirror L	10/27/2006	13.0		9.5	0.005									
149	Mirror L	7/7/2007	11.5		9.5	0.006									
149	Mirror L	7/22/2007	14.0			0.008									
149	Mirror L	8/16/2007	10.0			0.012									
149	Mirror L	8/31/2007				0.009									
149	Mirror L	9/21/2007	8.0		7.0	0.005									
149	Mirror L	10/1/2007	9.0		7.0	0.011									
149	Mirror L	10/10/2007	9.0		8.0	0.009									
149	Mirror L	10/24/2007	9.0		7.5	0.012									
149	Mirror L	6/22/2008			7.0	0.008									
149	Mirror L	7/12/2008			7.5	0.018									
149	Mirror L	8/4/2008			7.0	0.007									
149	Mirror L	8/19/2008			7.5	0.007									
149	Mirror L	8/28/2008			7.0	0.010									
149	Mirror L	9/8/2008			7.0	0.036									
149	Mirror L	9/23/2008			7.0	0.020									
149	Mirror L	10/15/2008			7.0	0.011									
149	Mirror L	07/26/2009	8.5		7.5	0.010		0.03							
149	Mirror L	08/05/2009	8.5		7.0	0.017									
149	Mirror L	08/16/2009	8.0		7.0	0.011		0.01							
149	Mirror L	08/30/2009	8.5		7.5	0.008									
149	Mirror L	09/13/2009	8.5		7.0	0.012		0.01							
149	Mirror L	09/20/2009	8.5		7.0	0.005									
149	Mirror L	10/14/2009	8.0		7.0	0.008		0.03							
149	Mirror L	7/6/2010	13.0		7.5	0.010		0.07							
149	Mirror L	8/5/2010	8.5		7.0	0.007		0.02							
149	Mirror L	8/31/2010	13.5			0.005		0.02							
149	Mirror L	10/6/2010	9.0		7.0	0.013		0.04							
149	Mirror L	7/7/2011	9.5	6.15	7.5	0.008		0.05							
149	Mirror L	8/18/2011	7.5	5.30	7.0	0.016		0.03							
149	Mirror L	9/13/2011	7.5	3.05	7.0	0.006		0.02							
149	Mirror L	10/10/2011	7.0	5.25	6.0	0.006		0.01							
149	Mirror L	7/11/2013				0.008		0.02							
149	Mirror L	8/8/2013				0.019		0.02							
149	Mirror L	9/8/2013				0.016		0.02							
149	Mirror L	10/10/2013				0.006		0.01							
149	Mirror L	6/23/2014			7.0	0.014		0.09							
149	Mirror L	7/10/2014			7.0	0.028									
149	Mirror L	7/20/2014			7.0	0.015		0.04							
149	Mirror L	8/14/2014			7.0	0.009									
149	Mirror L	9/8/2014			7.0	0.032		0.02							
149	Mirror L	9/21/2014			7.0	0.008		0.02							
149	Mirror L	10/5/2014			7.0	0.012									
149	Mirror L	10/20/2014			7.0	0.010									

LNum	PName	Date	Site	TAir	TH20	QA	QB	QC	QD	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cyl	FP-Chl	FP-BG	HABform	Shore HAB
149	Mirror L	6/23/1998	epi	20	9	2	1	1												
149	Mirror L	7/6/1998	epi	21	20	2	1	1												
149	Mirror L	7/21/1998	epi	27	24															
149	Mirror L	8/11/1998	epi	24	22	2	1	1	5											
149	Mirror L	8/23/1998	epi	23	22	2	1	2												
149	Mirror L	9/13/1998	epi	16	18	1	1	1												
149	Mirror L	9/26/1998	epi	15	17	1	1	1												
149	Mirror L	10/13/1998	epi	14	13	1	1	1												
149	Mirror L	6/20/1999	epi	20	21	1	1	2												
149	Mirror L	7/26/1999	epi	26	25	1	2	1												
149	Mirror L	8/12/1999	epi	23	20	1	2	1												
149	Mirror L	8/28/1999	epi	24	21	2	3	1												
149	Mirror L	9/27/1999	epi	23	18	2	3	2												
149	Mirror L	6/17/2000	epi	23	20	1	1	1	5											
149	Mirror L	7/12/2000	epi	21	20	1	1	1												
149	Mirror L	8/4/2000	epi	18	21	1	2	1												
149	Mirror L	8/28/2000	epi	19	20	2	3	2												
149	Mirror L	6/28/2001	epi	24	22	2	1	1												

LNum	PName	Date	Site	TAir	TH20	QA	QB	QC	QD	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cyl	FP-Chl	FP-BG	HAB form	Shore HAB
149	Mirror L	7/17/2001	epi	22	20	2	3	1												
149	Mirror L	7/31/2001	epi	22	21	2	3	2												
149	Mirror L	8/27/2001	epi	24	22	2	3	1												
149	Mirror L	9/5/2001	epi	16	20	2	2	2												
149	Mirror L	9/24/2001	epi	20	17	2	2	2												
149	Mirror L	7/25/2003	epi	20	21	2	3	1	0											
149	Mirror L	8/14/2003	epi	23	23	1	3	2	0											
149	Mirror L	9/6/2003	epi	19	22	2	3	2	0											
149	Mirror L	9/22/2003	epi	20	18	2	3	2	0											
149	Mirror L	6/28/2004	epi	17	19															
149	Mirror L	7/20/2004	epi	23	21	2	3	2	0											
149	Mirror L	8/5/2004	epi	17	22	2	2	2	8											
149	Mirror L	8/24/2004	epi	16	19	2	3	2	0											
149	Mirror L	9/13/2004	epi	17	19	2	3	2	0											
149	Mirror L	10/5/2004	epi	9	15	2	2	2	0											
149	Mirror L	11/1/2004	epi	2	8	2	2	2	5											
149	Mirror L	11/17/2004	epi	10	4	2	3	2	5											
149	Mirror L	6/27/2005	epi	24	20	2	2	2	0											
149	Mirror L	7/13/2005	epi	27	21	2	3	2	6											
149	Mirror L	8/1/2005	epi	21	18	2	3	2	6											
149	Mirror L	8/18/2005	epi	26	22	2	3	2	0											
149	Mirror L	9/1/2005	epi	26	20	2	3	2	0											
149	Mirror L	9/21/2005	epi	19	19	2	3	2	0											
149	Mirror L	10/5/2005	epi	21	21	1	2	1	0											
149	Mirror L	10/24/05	epi	16	20	2	2	4	45											
149	Mirror L	6/24/2006	epi	22	20	3	2	3	56											
149	Mirror L	7/14/2006	epi	28	21	2	3	2	0											
149	Mirror L	8/1/2006	epi	30	26	2	3	3	56											
149	Mirror L	8/14/2006	epi	20	21	2	3	2	56											
149	Mirror L	8/25/2006	epi	16	20	2	3	2	0											
149	Mirror L	9/20/2006	epi	14	16	2	3	2	0											
149	Mirror L	10/10/2006	epi	9	11	2	2	2	5											
149	Mirror L	10/27/2006	epi	6	7	2	2	2	5											
149	Mirror L	7/7/2007	epi	21	19	2	3	2	0											
149	Mirror L	7/22/2007	epi	17	21	2	2	2	57											
149	Mirror L	8/16/2007	epi	18	21	2	3	3	6											
149	Mirror L	8/31/2007	epi	15	20	2	3	2												
149	Mirror L	9/21/2007	epi	15	17	2	2	2	0											
149	Mirror L	10/1/2007	epi	15	17	2	2	2	8											
149	Mirror L	10/10/2007	epi	12	15	2	3	2	0											
149	Mirror L	10/24/2007	epi	9	12	2	2	2	0											
149	Mirror L	6/22/2008	epi	17	19	2	2	2	5											
149	Mirror L	7/12/2008	epi	20	21	2	3	2	6											
149	Mirror L	8/4/2008	epi	18	21	2	3	2	5											
149	Mirror L	8/19/2008	epi	15	20	2	2	2	5											
149	Mirror L	8/28/2008	epi	21	20	2	2	2	5											
149	Mirror L	9/8/2008	epi	19	19	2	2	2	0											
149	Mirror L	9/23/2008	epi	11	16	2	2	2	0											
149	Mirror L	10/15/2008	epi	10	12	2	2	2	8											
149	Mirror L	07/26/2009	epi	20	21	2	3	2	7											
149	Mirror L	08/05/2009	epi	21	21	2	2	2	0											
149	Mirror L	08/16/2009	epi	24	22	1	2	2	0											
149	Mirror L	08/30/2009	epi	16	20	2	3	2	0											
149	Mirror L	09/13/2009	epi	16	18	2	3	2	0			5.0								
149	Mirror L	09/20/2009	epi	13	15	2	3	2	0			8.2								
149	Mirror L	10/14/2009	epi	3	8	2	2	2	5											
149	Mirror L	07/06/2010	epi	21	21	1	1	1	0	0	0									
149	Mirror L	07/16/2010	epi	19	23	2	2	2	0	0	0									
149	Mirror L	08/05/2010	epi	20	22	2	3	2	8	0	0	53.6								
149	Mirror L	08/17/2010	epi	22	20	2	3	2	0	0	0	48.0								
149	Mirror L	08/31/2010	epi	20	19	2	3	2	0	0	0	31.4								

LNum	PName	Date	Site	TAir	TH20	QA	QB	QC	QD	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cyl	FP-Chl	FP-BG	HAB form	Shore HAB
149	Mirror L	09/16/2010	epi	11	14	2	3	2	0	0	0									
149	Mirror L	10/06/2010	epi	7	5	2	2	2	8	0	0									
149	Mirror L	10/11/2010	epi	3	9	2	3	2	0	0	0									
149	Mirror L	07/07/2011	epi	26	24	1	2	0	0	0		2.6	2.00							
149	Mirror L	07/29/2011	epi	19	21	1	1	1	0	0	0	1.5	1.50							
149	Mirror L	08/18/2011	epi	19	19	2	2	2	0	0	0									
149	Mirror L	09/02/2011	epi	18	17	2	3	2	56	0	0	6.7	1.60							
149	Mirror L	09/13/2011	epi	17	16	2	2	2	0	0	0	3.0	1.30							
149	Mirror L	09/27/2011	epi	16	16	2	3	2	0	0	0	1.8	1.10							
149	Mirror L	10/10/2011	epi	14	11	2	3	1	0	0	0	4.3	1.30							
149	Mirror L	10/20/2011	epi	9	10	2	3	2	0	0	0	4.2	1.30							
149	Mirror L	07/11/2013	epi	19	21	2	2	3	56	7	7	2.6	0.60	<0.30	<0.370		0.50	0.00	I	
149	Mirror L	07/22/2013	epi	27	22	2	2	3	67	3	3	5.2	0.90	<0.30	<0.370		0.90	0.10	I	I
149	Mirror L	08/08/2013	epi	17	18	2	2	3	67	3	3	4.7	1.80	<0.30	<0.340					
149	Mirror L	08/22/2013	epi	18	17	2	3	3	67	3		2.7	0.70	<0.30	<0.650				i	
149	Mirror L	09/08/2013	epi	10	12	2	3	2	6			3.4	1.30				1.50	0.00		
149	Mirror L	09/28/2013	epi	10	10	2	3	3	6	3	3	3.5	0.60	<0.30	<0.100		0.60	0.10	I	
149	Mirror L	10/10/2013	epi	14	11	2	3	2	6	0	0	4.0	0.80	<0.30	<0.090		0.60	0.00	I	
149	Mirror L	10/29/2013	epi	0	5	2	3	2	6	0	0	3.9	0.80	<0.30	<0.090		0.60	0.00	I	
149	Mirror L	6/23/2014	epi	19	18	2	2	2	6	7	7	1.40	0.20	<0.58	<0.44	<0.002	0.64	0.00	i	
149	Mirror L	7/10/2014	epi	14	18	2	2	2	7	0	0	2.50	0.20	<0.40	<0.21	<0.003	0.55	0.00	i	i
149	Mirror L	7/20/2014	epi	19	19	2	3	2	6	0	0	2.20	0.20	<0.39	<0.21	<0.003	1.07	0.45	i	i
149	Mirror L	8/14/2014	epi	10	17	2	3	3	67	7	7	3.00	0.20	<0.39	<0.03	<0.001	0.65	0.10	i	i
149	Mirror L	9/8/2014	epi	15	17	2	3	2	6	0	0	5.00	0.20	<0.29	<0.14	<0.002	0.93	0.34		
149	Mirror L	9/21/2014	epi	14	12	2	3	2	6	0	0	2.70	0.10	<0.48	<0.04	<0.001	0.86	0.22		
149	Mirror L	10/5/2014	epi	9	12	2	3	2	6	0	0	2.40	0.20	<0.59	<0.12	<0.001	0.92	0.01	i	i
149	Mirror L	10/20/2014	epi	4	8	2	3	2	5	0	0	2.40	0.20	<0.95	<0.09	<0.006	1.57	0.48		
149	Mirror L	7/10/2014	hypo		8															
149	Mirror L	7/20/2014	hypo		10															
149	Mirror L	8/14/2014	hypo		12															
149	Mirror L	9/8/2014	hypo		13															
149	Mirror L	9/21/2014	hypo		12															
149	Mirror L	10/5/2014	hypo		11															
149	Mirror L	10/20/2014	hypo		9															

Legend Information

Indicator	*Description*	*Detection Limit*	*Standard (S) / Criteria (C)*
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	calcium (mg/l)	1 mg/l	none
Chl.a	chlorophyll a (ug/l)	0.01 ug/l	none
Fe	iron (mg/l)	0.1 mg/1	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 (aquaflor) (unitless)	1 unit	none
AQ-Chl	Chlorophyll *a* (aquaflor) (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	Cylindrospermposin (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 Mirror Lake

Mirror Lake (1004-0067) NoKnownImpct

Waterbody Location Information Revised: 03/05/2009

Water Index No: C- 25-26-35-3-P250
Hydro Unit Code: 02010004/060 **Str Class:** B(T)
Waterbody Type: Lake (Oligotrophic)
Waterbody Size: 121.1 Acres
Seg Description: entire lake

Drain Basin: Lake Champlain
AuSable/Boquet
Reg/County: 5/Essex Co. (16)
Quad Map: LAKE PLACID (D-25-B)

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

Use(s) Impacted	Severity	Problem Documentation
NO USE IMPAIRMNT		

Type of Pollutant(s)
Known: - - -
Suspected: - - -
Possible: - - -

Source(s) of Pollutant(s)
Known: - - -
Suspected: - - -
Possible: - - -

Resolution/Management Information

Issue Resolvability: 8 (No Known Use Impairment)
Verification Status: (Not Applicable for Selected RESOLVABILITY)
Lead Agency/Office: n/a **Resolution Potential:** n/a
TMDL/303d Status: n/a

Further Details

Water Quality Sampling
Mirror Lake has been sampled as part of the NYSDEC Citizen Statewide Lake Assessment Program (CSLAP) beginning in 1998 and continuing through the present. An Interpretive Summary report of the findings of this sampling was published in 2007. These data indicate that the lake continues to be best characterized as oligotrophic, or unproductive. This has been the condition of the lake throughout the recent sampling. Phosphorus levels in the lake fall well below the state guidance values indicating impacted/stressed recreational uses. Corresponding transparency measurements significantly exceed the recommended minimum for swimming beaches. Measurements of pH are somewhat low but typically fall within the state water quality standard range of 6.5 to 8.5. The lake water is weakly colored, and color does not limit water transparency. (DEC/DOW, BWAM/CSLAP, September 2007)

Recreational Assessment
Public perception of the lake and its uses is also evaluated as part of the CSLAP program. This assessment indicates recreational suitability of the lake to be very favorable since the lake was first evaluated and continuing through the most recent assessment. The recreational suitability of the lake is described most frequently as "excellent." The lake itself is most often described as "not quite crystal clear," an assessment that is somewhat less favorable than expected given the measured water quality characteristics. Assessments have noted that aquatic plants typically grow to the lake surface but are not dense

enough to impact uses. Aquatic plants are dominated by native species. (DEC/DOW, BWAM/CSLAP, September 2007)

Lake Uses

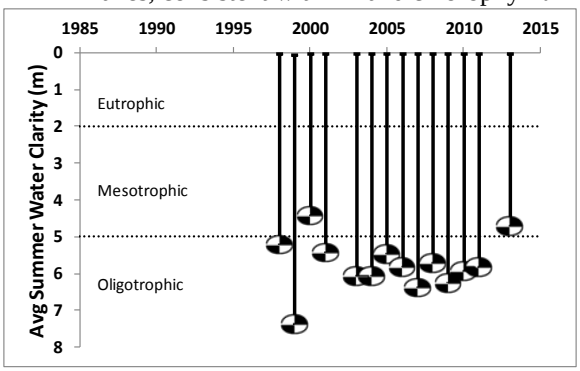
This lake waterbody is designated class B(T), suitable for use as a public bathing beach, general recreation and aquatic life support, but not as a public water supply. Water quality monitoring by NYSDEC focuses primarily on support of general recreation and aquatic life. Samples to evaluate the bacteriological condition and bathing use of the lake or to evaluate contamination from organic compounds, metals or other inorganic pollutants have not been collected as part of the CSLAP monitoring program. Monitoring to assess potable water supply and public bathing use is generally the responsibility of state and/or local health departments. Segment description

This segment includes the total area of Mirror Lake (P250).

Appendix C- Long Term Trends: Mirror Lake

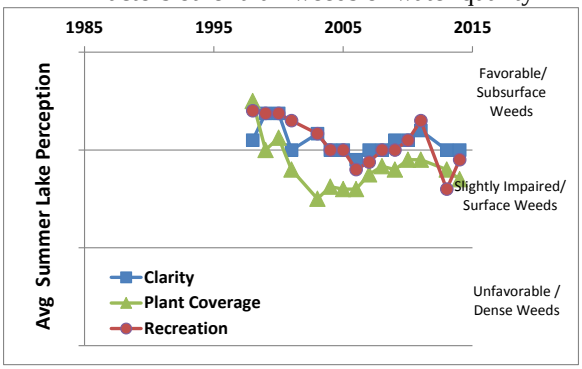
Long Term Trends: Water Clarity

- No trends apparent; slightly lower in 2014
- Most readings typical of *mesoligotrophic* lakes, consistent with TP and chlorophyll *a*



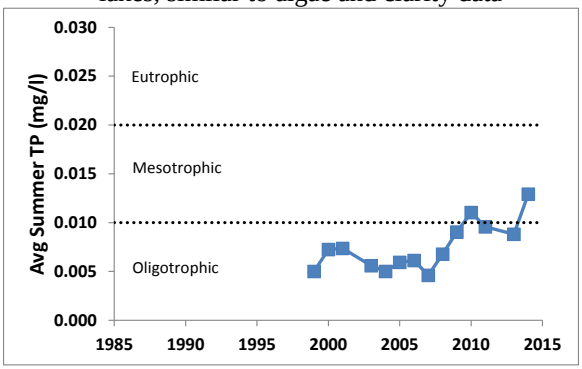
Long Term Trends: Lake Perception

- Slightly degrading unrelated to WQ/weeds
- Changes in recreational perception linked to factors other than weeds or water quality



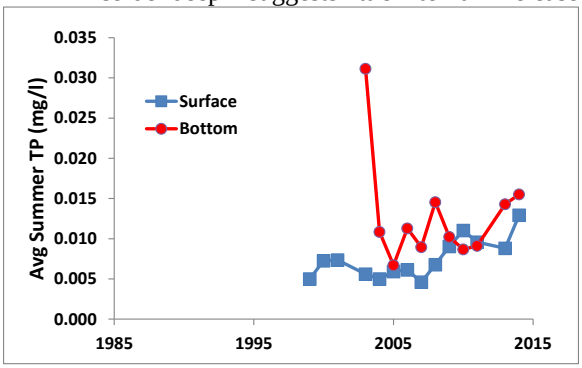
Long Term Trends: Phosphorus

- ↑ TP since late 2000s
- Most readings typical of *mesoligotrophic* lakes, similar to algae and clarity data



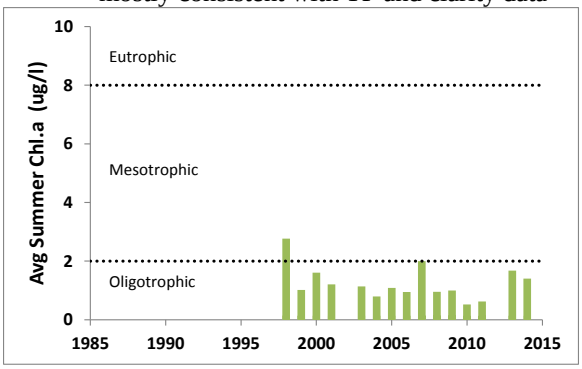
Long Term Trends: Bottom Phosphorus

- Bottom TP similar but also ↑ since late 00s
- Similar surface/bottom TP readings but colder deep T suggests little internal P release



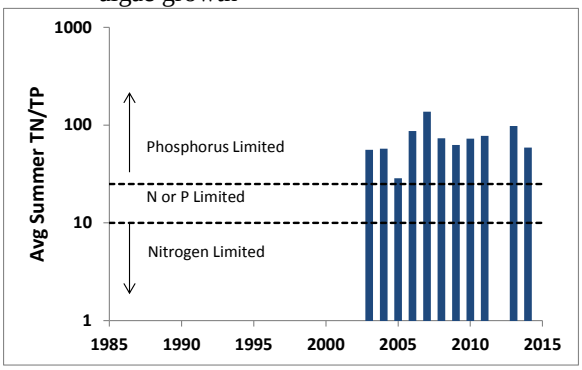
Long Term Trends: Chlorophyll a

- No trends apparent
- Most readings typical of *oligotrophic* lakes, mostly consistent with TP and clarity data



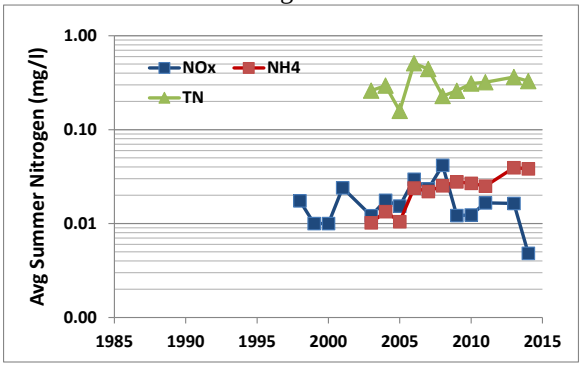
Long Term Trends: N:P Ratio

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



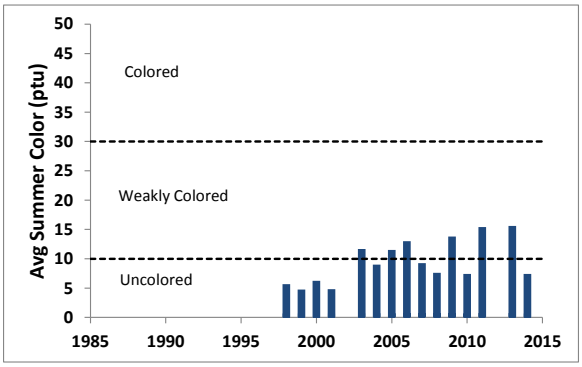
Long Term Trends: Nitrogen

- NH4 ↑ and NOx ↓ slightly since mid-2000s
- All nitrogen indicators low and typical of lakes with low algae levels



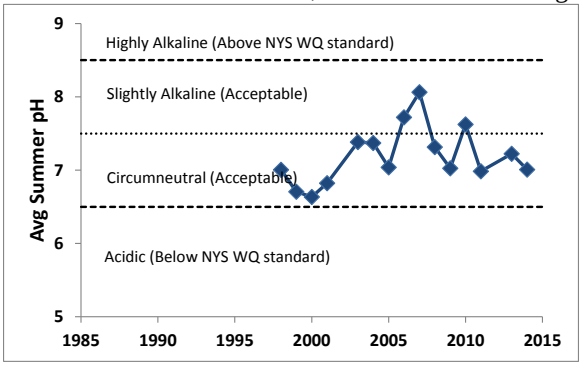
Long Term Trends: Color

- Higher after 2002 lab change
- Most readings still typical of *uncolored* lakes



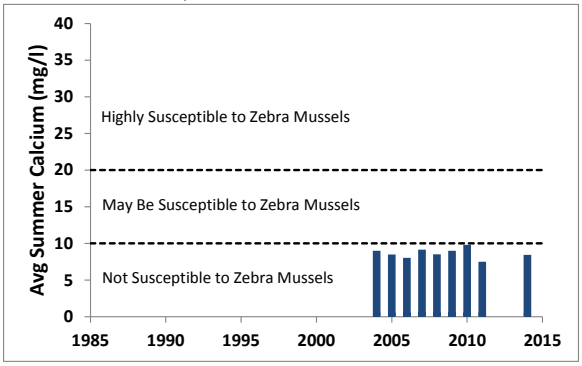
Long Term Trends: pH

- No trends apparent; highly variable
- Most readings typical of *slightly alkaline* to *circumneutral* lakes, with some low readings



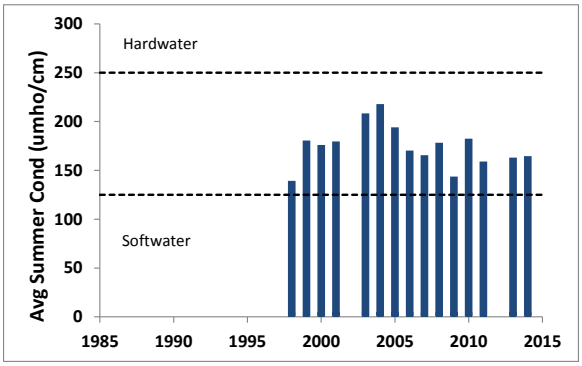
Long Term Trends: Calcium

- No trends apparent
- Data indicates low susceptibility to zebra mussels, which are not found in lake



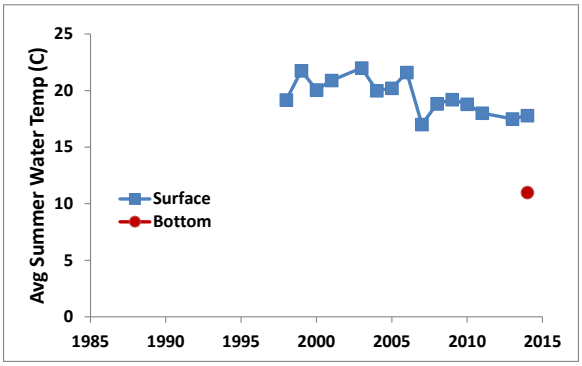
Long Term Trends: Conductivity

- No trends apparent; ↓ since early 2000s
- Most readings typical of lakes with *softwater* to *intermediate* hardness



Long Term Trends: Water Temperature

- Surface T ↓, deep T lower than surface
- Deepwater water quality data indicates weak thermal stratification



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.

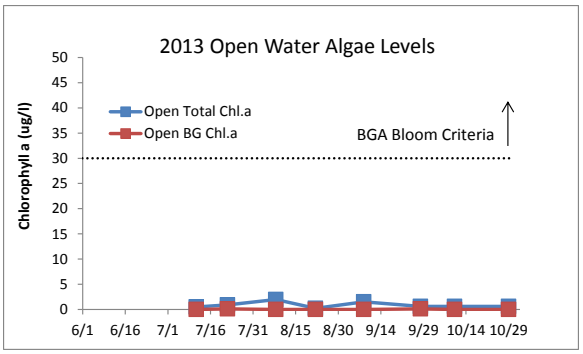


Figure D1:
2013 Open Water Total and BGA Chl.a

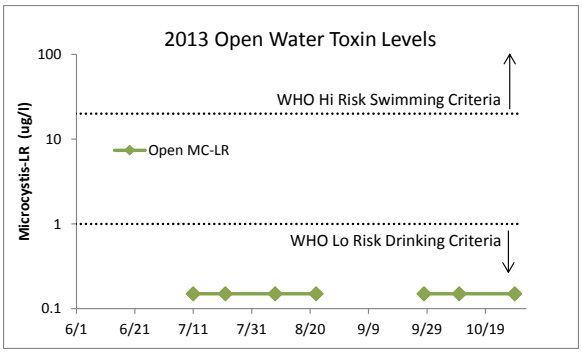


Figure D2:
2013 Open Water Microcystin-LR

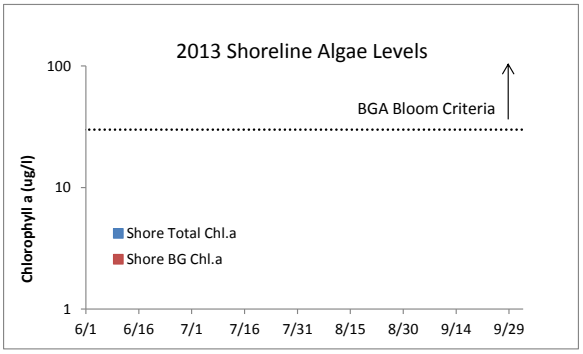


Figure D3:
2013 Shoreline Total and BGA Chl.a

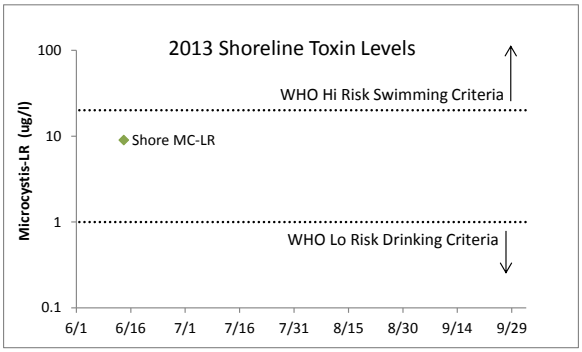


Figure D4:
2013 Shoreline Microcystin-LR

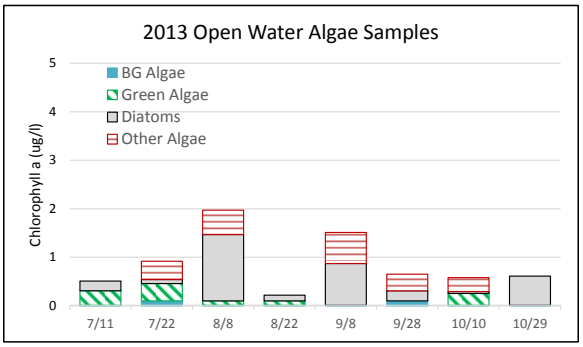


Figure D5:
2013 Open Water Algae Types

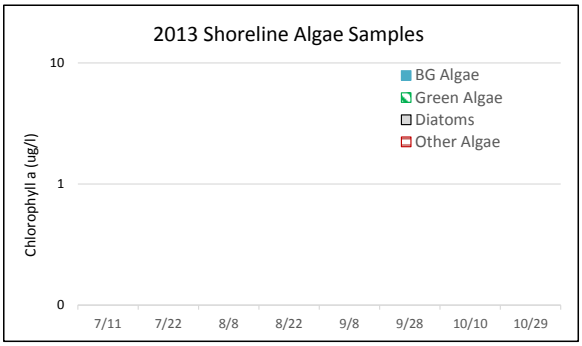


Figure D6:
2013 Shoreline Algae Types

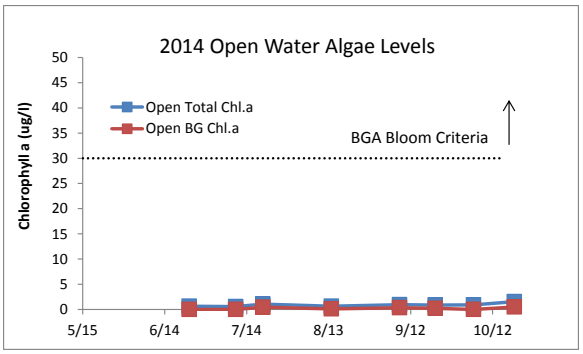


Figure D7:
2014 Open Water Total and BGA Chl.a

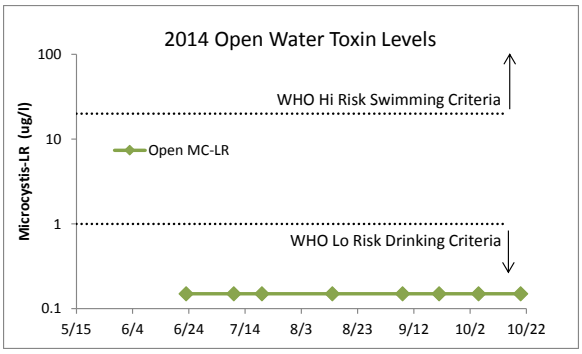


Figure D8:
2014 Open Water Microcystin-LR

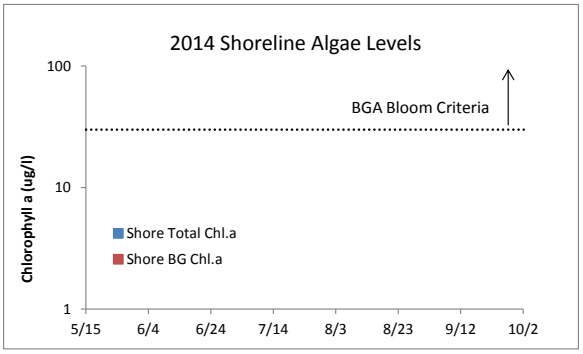


Figure D9:
2014 Shoreline Total and BGA Chl.a

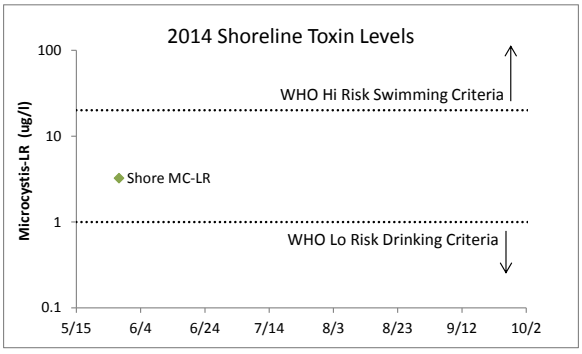


Figure D10:
2014 Shoreline Microcystin-LR

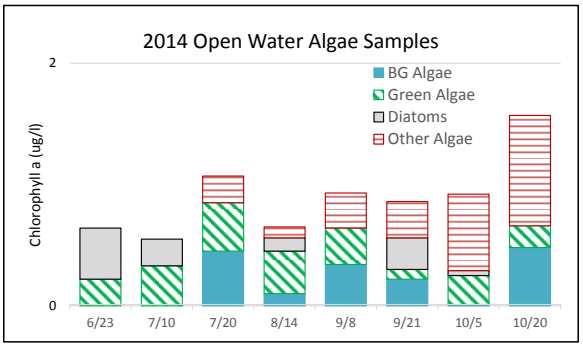


Figure D11:
2014 Open Water Algae Types

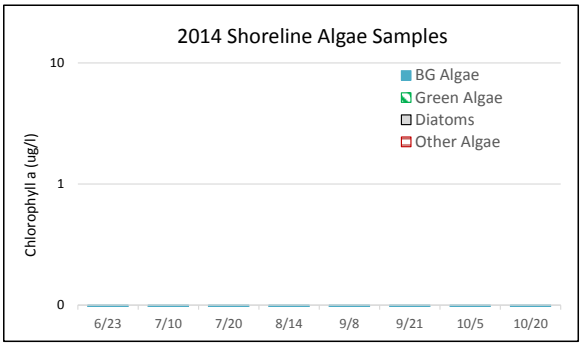


Figure D12:
2014 Shoreline Algae Types

Appendix E:
AIS Species in Essex County

The table below shows the invasive aquatic plants and animals that have been documented in Essex 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 - Essex County			
Waterbody	**Kingdom**	**Common name**	**Scientific name**
Augur Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Bartlett Pond	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Butternut Pond	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Chapel Pond	Animal	Allegheny crayfish	*Orconectes obscurus*
Eagle Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Franklin Falls Pond	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Franklin Falls Pond	Plant	Curly leafed pondweed	*Potamogeton crispus*
Franklin Falls Pond	Plant	Curly leafed pondweed	*Potamogeton crispus*
Goodnow Flowage	Plant	Brittle naiad	*Najas minor*
Highlands Forge Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Lake Champlain	Animal	Spiny waterflea	*Bythotrephes longimanus*
Lake Champlain	Animal	Zebra mussel	*Dreissena polymorpha*
Lake Champlain	Plant	Variable watermilfoil	*Myriophyllum heterophyllum*
Lake Champlain	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Lake Champlain	Plant	Water chestnut	*Trapa natans*
Lake Eaton	Plant	European frogbit	*Hydrocharis morsus-ranae*
Lake Flower	Plant	Variable watermilfoil	*Myriophyllum heterophyllum*
Lake George	Animal	Zebra mussel	*Dreissena polymorpha*
Lake George	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Lake George	Animal	Virile crayfish	*Orconectes virilis*
Lake George	Plant	Curly leafed pondweed	*Potamogeton crispus*
Lake Placid	Plant	Variable watermilfoil	*Myriophyllum heterophyllum*
Lake Placid	Plant	Variable watermilfoil	*Myriophyllum heterophyllum*
Lincoln Pond	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*

Waterbody	Kingdom	Common name	Scientific name
Long Pond	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Long Pond	Animal	Allegheny crayfish	*Orconectes obscurus*
Minerva Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Mirror Lake	Plant	Broadleaf Water-milfoil	*Myriophyllum heterophyllum*
Mirror Lake	Plant	Curly leafed pondweed	*Potamogeton crispus*
Nichols Pond	Animal	Allegheny crayfish	*Orconectes obscurus*
North Pond	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Oseetah Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Paradox Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Paradox Lake	Plant	Curly leafed pondweed	*Potamogeton crispus*
Paradox Lake	Plant	Curly leafed pondweed	*Potamogeton crispus*
Penfield Pond	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Putnam Pond	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Rogers Pond	Plant	European frogbit	*Hydrocharis morsus-ranae*
Schroon Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Schroon Lake	Plant	Curly leafed pondweed	*Potamogeton crispus*
Schroon Lake	Animal	Rudd	*Scardinius erythrophthalmus*
Webb Royce Swamp	Plant	European frogbit	*Hydrocharis morsus-ranae*
Woodruff Pond	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*

Appendix F: Watershed and Land Use Map for Mirror 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.