

Chenango Lake Questions and Answers, 2015 CSLAP

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

A1. Water quality conditions in Chenango Lake were more favorable than usual in 2015. Water clarity was higher, due to lower nutrient and algae levels. No shoreline blooms were reported.

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

A2. Chloride sampling results were typical of lakes with moderate to high impacts from road salt runoff, although no biological impacts have been measured or reported.

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

A3. Chenango Lake has higher water clarity, and lower algae and nutrient levels, than other central NY lakes. The frequency of shoreline algae blooms does appear to be lower, and nuisance weed issues are not as common as in these other lakes (despite the presence of several invasive plants in the lake).

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

A4. Conductivity readings have increased in the lake, particularly in recent years. The lake has been slightly less productive- higher water clarity and lower algae levels- over the last decade, and deepwater phosphorus levels have decreased and water temperatures have increased.

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

A5. Chenango Lake does not appear to be particularly susceptible to algae blooms, although some blooms have been reported in the past. Lake residents should continue to look out for (and avoid exposure to) any shoreline blooms, particularly those resembling blue green algae blooms.

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 maintain water quality by reducing nutrient and sediment loading to the lake. Additional sources of nutrients and sediment that might have caused the rise in conductivity over the last decade should be investigated. Visiting boats should be inspected to reduce the risk of new invasive species, since nearby lakes harbor several invasive plants not presently found in the lake.

Lake Use				
Potable Water				Bottom Pollutants
Swimming				No impacts
Recreation				No impacts
Aquatic Life				Road salt
Aesthetics				Poor perception
Habitat				Invasive plants
Fish Consumption				
	PWL	Average Year	2015	Primary issue

	Supported / Good
	Threatened / Fair
	Stressed / Poor
	Impaired
	Not Known

CSLAP 2015 Lake Water Quality Summary: Chenango Lake

General Lake Information

Location	Town of New Berlin
County	Chenango
Basin	Susquehanna River
Size	49.2 hectares (121.5 acres)
Lake Origins	Natural
Watershed Area	180.4 hectares (445.7 acres)
Retention Time	2.4 years
Mean Depth	4.3 meters
Sounding Depth	9.2 meters
Public Access?	private launch
Major Tributaries	no named tribs
Lake Tributary To...	unnamed outlet to Great Brook to Unadilla River to Susquehanna River
WQ Classification	A (potable water)
Lake Outlet Latitude	42.578
Lake Outlet Longitude	-75.439
Sampling Years	2000-2010, 2012-2015
2015 Samplers	Brian Brennan and Col Fraser
Main Contact	Brian Brennan

Lake Map



Background

Chenango Lake is a 122 acre, class A lake found in the Town of New Berlin in Chenango County, in the central-southern tier region of New York State. It was first sampled as part of CSLAP in 2000.

It is one of eight CSLAP lakes among the more than 150 lakes and ponds found in Chenango County, and one of 25 CSLAP lakes among the nearly 900 lakes and ponds in the Susquehanna River drainage basin.

Lake Uses

Chenango Lake is a Class B lake; this means that the best intended use for the lake is for potable water—drinking, contact recreation—swimming and bathing, and non-contact recreation—boating and aesthetics, and by aquatic life. The lake is used by lake residents and the public, the latter through an informal hand launch site.

Chenango Lake has been stocked annually by the state with tiger muskellunge—usually 300-450 nine to ten inch fish. Other fish species in the lake include brown bullhead, chain pickerel, largemouth bass, pumpkinseed sunfish, rock bass, smallmouth bass, and yellow perch.

General statewide fishing regulations are applicable in Chenango Lake. In addition, open season for trout runs from April 1st to October 15th, with no size limit and a take limit of five fish, with no more than two fish more than 12 inches long and five brook trout under eight inches.

Historical Water Quality Data

CSLAP sampling was conducted on Chenango Lake from 2000 to 2010, and in 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 Chenango Lake can also be found on the NYSDEC web page at <http://www.dec.ny.gov/lands/77879.html>.

Chenango Lake was sampled by the NYSDEC as part of the state ambient lake monitoring program (referred to as the LCI, or Lake Classification and Inventory Survey) in 1998, and by SUNY Oneonta from 1986 through and 1988. These sampling programs generally indicated water quality conditions similar to those measured through CSLAP—surface nutrient levels were higher in the SUNY samples, but this may have reflected different analytical methodologies rather than differences in actual water quality. Conductivity readings have steadily increased from the 1980s sampling to the present day, but this has also occurred in most NYS lakes, and at present the increase in conductivity has not been connected to any other water quality changes.

Chenango Lake was also sampled in 1933 as part of the Conservation Department (predecessor to the NYSDEC) Biological Survey of the Susquehanna River basin. This survey showed slightly lower water clarity and pH than in the typical CSLAP (or other contemporary monitoring program) sampling season, and oxygen deficits starting at a depth between 20 and 28 feet from the lake surface. The LCI survey results showed oxygen deficits rapidly occurring at a depth of about 23 feet, probably similar to those measured in 1935. The field notes for the 1935 survey included the following:

“Chenango Lake is an excellent small-mouthed bass lake. It is unfortunate that large-mouthed bass were introduced about 20 years ago. Although a few pike-perch were introduced about stocking with this species is not recommended. Golden shiners are present but not abundant. It is hoped that this food supply will increase when pike-perch stocking is discontinued. Bullheads are not plentiful and are recommended for stocking. Natural spawning is considered adequate for the yellow perch and large-mouthed bass..... vegetation is fair.”

Water quality conditions were evaluated as part of a survey of Chenango County surface and ground waters in 1992 (via the county Emergency Management Office) and in 1989 as part of a real estate development study, but it does not appear that any additional water quality data were collected within these evaluations.

None of the unnamed ephemeral tributaries, nor the outlet of the lake have been monitored through the NYSDEC Rotating Intensive Basins (RIBS) program or the state stream macroinvertebrate monitoring program. The lake has not been sampled by DEC fisheries staff in support of fish stocking activities or any other statewide monitoring programs.

Lake Association and Management History

Chenango Lake is represented by the Chenango Lake Property Owners Association. The Association maintains a Facebook webpage at http://www.facebook.com/note.php?note_id=104598024694#/note.php?note_id=104598024694, but it is otherwise not known to what extent the lake association is involved in lake management activities.

Summary of 2015 CSLAP Sampling Results

Evaluation of 2015 Annual Results Relative to 2000-2014

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 – Chenango Lake” section in Appendix C.

Evaluation of Eutrophication Indicators

Trophic conditions were more favorable than usual in 2015. Secchi disk transparency readings were higher than usual, consistent with a slight increase in water clarity since the mid-2000s. The higher clarity was due to lower than normal algae levels, also part of a long-term decrease. Total phosphorus were lower than normal in 2015, but phosphorus levels have not changed in a similar manner over the same period. Deepwater phosphorus readings were also lower than normal in 2014 and 2015, and these readings have decreased since the mid-2000s. However, this does not appear to have resulted in a change in surface phosphorus readings.

Lake productivity generally decreases from the spring to early summer (water clarity increases as algae and nutrient levels decrease), but then productivity increases from mid-summer through the fall. This seasonal pattern was not apparent in 2015; while water clarity decreased from May

through July, these readings (and nutrient and algae levels) did not change significantly during the rest of the sampling season.

The lake continues to be characterized as *mesotrophic*, or moderately productive, based on water clarity, chlorophyll *a* and total phosphorus readings (all typical of *mesotrophic* lakes), although nutrient and water clarity readings were more typical of unproductive (*oligotrophic*) lakes. The trophic state indices (TSI) evaluation suggests that each of the trophic indicators was “internally consistent” in 2015. In other words, water clarity, chlorophyll *a* and total phosphorus readings were each 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

Algae levels are usually not high enough to render the lake susceptible to taste and odor compounds or elevated DBP (disinfection by product associated with chlorination of organic matter) compounds that could affect the potability of the water, and it is not known if these compounds are formed during the treatment of lake water. The deepwater manganese readings are much higher than those measured at the lake surface, and deepwater arsenic and phosphorus readings are higher than expected- none of these were measured in the last few years. The low deepwater ammonia and phosphorus readings in recent years indicate that deepwater oxygen was not depleted. 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 close to normal in 2015, but these readings have increased since the mid-2000s. This increase in conductivity does not appear to have resulted in any clear ecological changes, but this is coincident with the slight increase in water clarity and decrease in algae levels over the same period. Calcium levels were slightly lower than normal in 2014 and 2015. Each of the other limnological indicators was close to normal in 2014, and none of these indicators has exhibited a long-term change (although ammonia and color readings have also dropped slightly over the last decade). It is likely that the small changes in most of these indicators from year to year represent normal variability.

Chloride levels in the 2015 samples, collected for the first time through CSLAP and cited in Appendix A, ranged from 34 to 38 mg/l. These values fall within the “moderate” to “major” 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 within or above the range of values found in most NYS lakes. These readings suggest a moderate to high 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

Macrophyte surveys conducted through CSLAP and other programs identified at least 19 aquatic plant species, including at least two exotic plant species (*Myriophyllum spicatum*, Eurasian

watermilfoil, and *Potamogeton crispus*, curly-leafed pondweed). The modified floristic quality index (FQI) for the lake indicates that the quality of the aquatic plant community is “fair.”

Incomplete information about the composition of the fish community indicates at least four warmwater fish species and at least two coolwater fish species. It is likely that Chenango Lake supports a coolwater fishery.

The fluoroprobe screening results from SUNY ESF in the last three years indicated low overall algae levels and low levels of blue green algae within the open water. The algal community is comprised of a mix of algae species, although the occurrence of blue green algae increases somewhat as the summer progresses (as in many lakes). The 2012 shoreline algae bloom was not a blue green bloom, although the small and ephemeral 2013 bloom was dominated by blue green algae species. No blooms were reported in 2014 or 2014. Toxin levels have been low in all samples.

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

Evaluation of Lake Perception

Water quality assessments, aquatic plant coverage, and recreational assessments in Chenango Lake were close to normal in 2015, and continue to be typical of lakes with good water quality and highly favorable recreational assessments (and these assessments have improved as water clarity has increased). Aquatic plant coverage has decreased since the early 2000s, perhaps in response to active management, although plant coverage in the last several years was close to normal. Recreational assessments are fairly stable during the typical summer, although water quality assessments degraded slightly and plant coverage increased in late summer of 2015. Overall lake perception is summarized on the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Local Climate Change

Water temperatures were slightly higher than normal in 2014 and 2015, but neither air nor water temperature readings has changed significantly in the last decade. Deepwater temperatures have increased slightly over the last decade. It is not known if temperature measurements in Chenango Lake can be used to identify local evidence of climate change, particularly in the absence of historical data.

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 below the thresholds for harmful algal blooms (HABs) in the open water for the last several years. The shoreline bloom in 2013 exhibited much higher blue green algae levels, but this was ephemeral and no shoreline blooms were reported in 2014 or 2015. An analysis of algae samples showed microcystin levels below those needed to support safe swimming in both the center of the lake and along the shoreline within shoreline blooms in all samples. However, lake residents and their pets are still advised to avoid exposure to any shoreline blooms or discolored water.

Lake Condition Summary

Category	Indicator	Min	Annual Avg	Max	2015 Avg	Classification	2015 Change?	Long-term Change?
Eutrophication Indicators	Water Clarity	1.85	4.42	7.08	5.34	Mesotrophic	Higher Than Normal	No Change
	Chlorophyll <i>a</i>	0.15	4.26	36.40	2.25	Mesotrophic	Lower Than Normal	No Change
	Total Phosphorus	0.004	0.011	0.038	0.008	Mesotrophic	Lower Than Normal	No Change
Potable Water Indicators	Hypolimnetic Ammonia	0.00	0.08	0.80	0.11	Close to Surface NH4 Readings	Higher than Normal	Not known
	Hypolimnetic Arsenic	0.34	1.37	2.50		Elevated Deepwater As		Not known
	Hypolimnetic Iron	0.03	0.33	0.59		Low Iron Levels		Not known
	Hypolimnetic Manganese	0.05	0.63	1.27		Highly Elevated Deepwater Mn		Not known
Limnological Indicators	Hypolimnetic Phosphorus	0.001	0.040	0.448	0.026	Close to Surface TP Readings	Lower Than Normal	Not known
	Nitrate + Nitrite	0.00	0.01	0.12	0.01	Low NOx	Within Normal Range	No Change
	Ammonia	0.00	0.03	0.27	0.03	Low Ammonia	Within Normal Range	No Change
	Total Nitrogen	0.09	0.30	0.73	0.24	Low Total Nitrogen	Within Normal Range	No Change
	pH	6.54	7.53	8.73	7.56	Alkaline	Within Normal Range	No Change
	Specific Conductance	72	138	211	141	Intermediate Hardness	Within Normal Range	Increasing Significantly
	True Color	1	8	36	5	Uncolored	Within Normal Range	No Change
	Calcium	7.0	11.4	15.5	8.3	May be Susceptible to Zebra Mussels	Lower Than Normal	No Change
Lake Perception	WQ Assessment	1	1.8	3	1.5	Not Quite Crystal Clear	Within Normal Range	No Change
	Aquatic Plant Coverage	1	1.6	4	1.8	Subsurface Plant Growth	Within Normal Range	No Change
	Recreational Assessment	1	1.5	4	1.3	Could Not Be Nicer	Within Normal Range	No Change
Biological Condition	Phytoplankton					Open water-low blue green algae biomass; Shoreline-moderate blue algae in bloom	Not known	Not known
	Macrophytes					Fair quality of the aquatic plant community	Not known	Not known
	Zooplankton					Not evaluated through CSLAP	Not known	Not known
	Macroinvertebrates					Not evaluated through CSLAP	Not known	Not known
	Fish					Coolwater fishery?	Not known	Not known
	Invasive Species					Eurasian watermilfoil, curly-leaved pondweed	Not known	Not known
Local Climate Change	Air Temperature	12	23.1	34	22.7		Within Normal Range	No Change
	Water Temperature	12	21.9	27	23.3		Higher Than Normal	No Change
Harmful Algal Blooms	Open Water Phycocyanin	0	10	75	4	No readings indicate high risk of BGA	Not known	Not known
	Open Water FP Chl.a	0	2	8	1	No readings indicate high algae levels	Not known	Not known
	Open Water FP BG Chl.a	0	0	5	0	No readings indicate high BGA levels	Not known	Not known
	Open Water Microcystis	<DL	<DL	0.9	<DL	Low to undetectable open water microcystin levels	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	6	109	212		Most readings indicate high algae levels	Not known	Not known
	Shoreline FP BG Chl.a	0	7	205	7	Few readings indicate high BGA levels	Not known	Not known
	Shoreline Microcystis	<DL	0.8	1.2		Mostly undetectable shoreline bloom MC-LR	Not known	Not known
	Shoreline Anatoxin a	<DL	<DL	<DL		Shoreline bloom Anatoxin-a consistently not detectable	Not known	Not known

Evaluation of Lake Condition Impacts to Lake Uses

Chenango Lake is presently among the lakes listed on the Susquehanna River Basin Priority Waterbody List (PWL) as having *no use impairment*. The 2009 PWL listing for the lake is shown in Appendix B.

Potable Water (Drinking Water)

The CSLAP dataset at Chenango Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, is inadequate to evaluate the use of the lake for potable water, although the lake is not classified for this use. These data suggest that any use of the lake for potable water may occasionally be *stressed* by deepwater manganese levels and by shoreline algae blooms.

Public Bathing

The CSLAP dataset at Chenango Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggests that public bathing, if conducted at a public swimming beach, should be supported, although bacterial data are needed to evaluate the safety of the lake for swimming. This use may be *threatened* by small blue green algae blooms, but this appears to be limited to highly ephemeral blooms found only in small parts of the lake in some years.

Recreation (Swimming and Non-Contact Uses)

The CSLAP dataset on Chenango Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that recreation should be supported, although at times this use may be *threatened* by periodic blooms and excessive weeds.

Aquatic Life

The CSLAP dataset on Chenango Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aquatic life may be *threatened* by road salt runoff and by exotic weeds, particularly Eurasian watermilfoil. Additional data are needed to evaluate the food and habitat conditions for aquatic organisms in the lake.

Aesthetics and Habitat

The CSLAP dataset on Chenango Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aesthetics may at times be only *fair* due to shoreline blooms or weeds, and habitat may be *fair* due to invasive weeds. However, these impacts are not always apparent.

Fish Consumption

There is no fish consumption advisories posted for Chenango Lake.

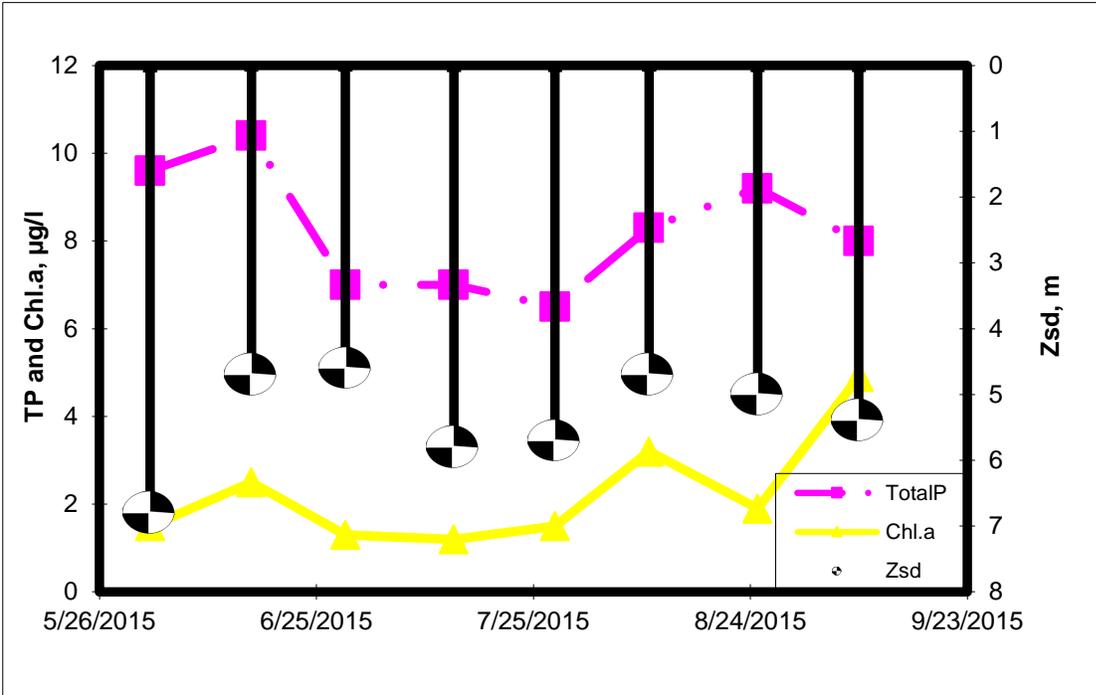
Additional Comments and Recommendations

An aquatic plant inventory would help to evaluate whether the presence of exotic plant species in the lake has compromised the native plant community in the lake. Lake residents should report any shoreline algae blooms, and lake users and pets are encouraged to avoid exposure to surface scums or heavily discolored water.

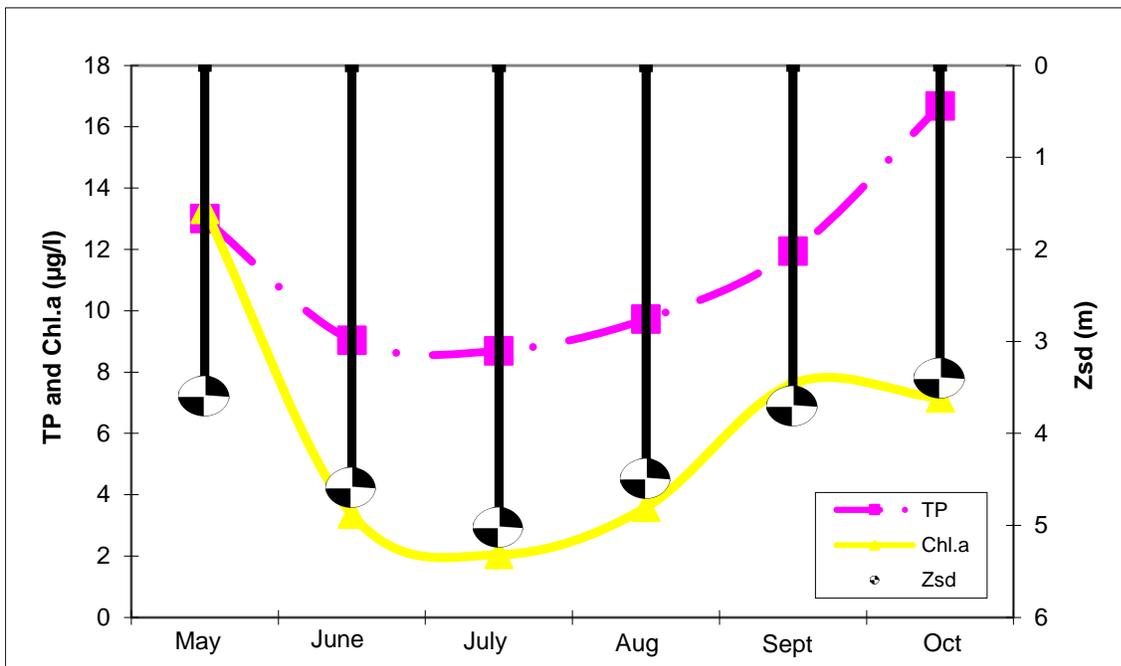
Aquatic Plant IDs-2015

None submitted for identification in 2015.

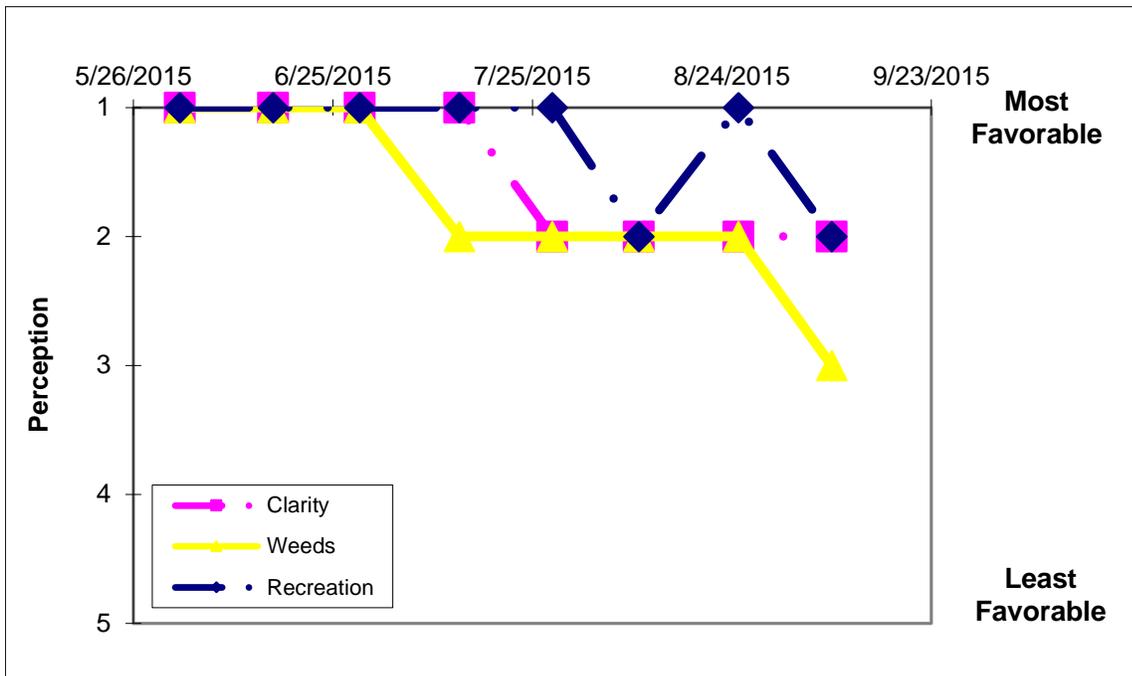
Time Series: Trophic Indicators, 2015



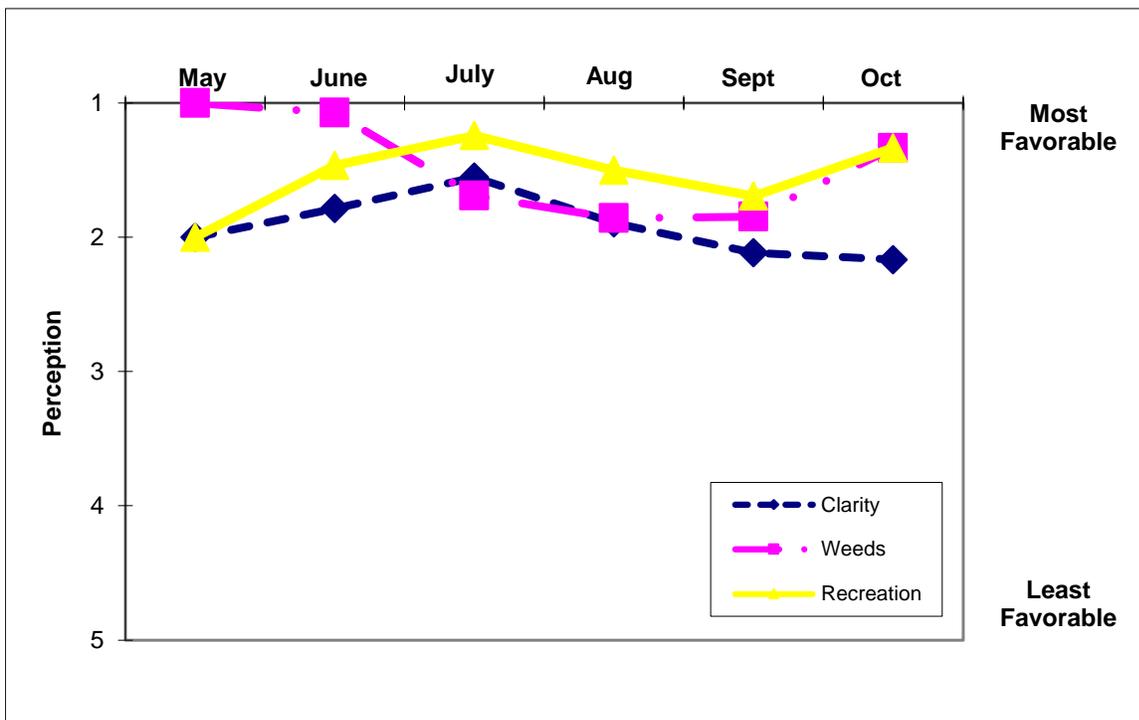
Time Series: Trophic Indicators, Typical Year (2000-2015)



Time Series: Lake Perception Indicators, 2015



Time Series: Lake Perception Indicators, Typical Year (2000-2015)



Appendix A- CSLAP Water Quality Sampling Results for Chenango Lake

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a	Cl
168	Chenango L	5/21/2000		3.60	1.5	0.013	0.01				6	6.81	118		13.30	
168	Chenango L	6/5/2000		4.08	1.3	0.013	0.01				8	7.73	117		36.40	
168	Chenango L	6/26/2000	7.6	3.65	1.5	0.010	0.01				8	7.81	115		0.90	
168	Chenango L	7/9/2000	5.6	4.90	1.5	0.009	0.01				4	7.66	117		2.79	
168	Chenango L	7/23/2000	7.0	2.00	1.5	0.010	0.01				2	7.78	117		3.45	
168	Chenango L	8/7/2000	7.7	4.00	1.5	0.006	0.01				4	7.30	118		3.96	
168	Chenango L	8/21/2000	8.5	3.95	1.0	0.012	0.01				3	7.02	118		5.15	
168	Chenango L	9/6/2000	7.5	3.40	1.5	0.014	0.01				9	7.81	118		6.70	
168	Chenango L	6/13/2001	6.2	4.50	1.5	0.009	0.01				4	7.70	125		1.95	
168	Chenango L	6/25/2001	9.2	5.45	1.0	0.008	0.01				4	7.86	122		2.58	
168	Chenango L	7/9/2001	9.5	5.60	1.0	0.017	0.01				4	6.66	124		2.35	
168	Chenango L	7/24/2001	9.5	5.55	1.0	0.012	0.01				2	7.15	124		0.72	
168	Chenango L	8/7/2001	9.0	5.50	1.0	0.009	0.01				2	7.96	126		1.28	
168	Chenango L	8/22/2001	9.8	4.90	1.0	0.012	0.01				5	7.54	124		0.50	
168	Chenango L	9/12/2001	9.4	4.35	1.0	0.009	0.01				6	6.78	128			
168	Chenango L	9/26/2001	8.7	4.30	1.5	0.013	0.01				6	6.68	129			
168	Chenango L	06/04/02	9.6	4.25	1.0	0.010	0.00	0.03	0.43	97.45	5	7.92	131		1.56	
168	Chenango L	06/18/02	9.8	5.90	1.0	0.006	0.00	0.01	0.39	141.40	8	7.50	125		1.08	
168	Chenango L	07/01/02	9.5	5.00	1.0	0.007	0.00	0.04	0.28	82.72	8	8.21	125		2.63	
168	Chenango L	07/15/02				0.011	0.00	0.07	0.45	92.58	32	8.02	125		4.45	
168	Chenango L	07/29/02	9.1	3.95	1.0	0.009	0.01	0.08	0.36	86.13	11	7.76	127		3.03	
168	Chenango L	08/12/02	8.5	3.25	1.0	0.012	0.01	0.27	0.42	76.08	15	7.20	130		2.24	
168	Chenango L	08/26/02		6.75	6.1	0.013	0.01	0.13	0.58	98.53	13	7.31	131		1.34	
168	Chenango L	09/11/02	8.5	3.45	1.0	0.010	0.00	0.01	0.43	97.45	15	7.95	130		1.06	
168	Chenango L	6/7/2003	10.0	4.02	1.0	0.011	0.00	0.01	0.26	51.53	11	7.92	135	7.7	2.71	
168	Chenango L	6/30/2003	9.2	3.45	1.0	0.011	0.01	0.18	0.19	38.70	7	7.87	139		2.04	
168	Chenango L	7/29/2003	9.4	5.00	1.0	0.015	0.01	0.13	0.28	40.77	16	7.55	136		1.95	
168	Chenango L	9/2/2003	9.4	3.35	1.0	0.012	0.00	0.07	0.22	40.00	8	7.47	136	12.0	11.61	
168	Chenango L	9/16/2003	9.3	2.80	1.0	0.026	0.01	0.01	0.30	25.57	8	7.49	137		7.30	
168	Chenango L	9/30/2003	9.1	1.95	1.0	0.026	0.00	0.00	0.13	11.08	7	7.55	137		28.53	
168	Chenango L	10/19/2003	9.0	2.70	9.0	0.025	0.01	0.01	0.11	9.58	19	7.60	139		12.19	
168	Chenango L	6/15/2004	9.3	5.01	1.0	0.038	0.01	0.01	0.46	27.17	7	7.24	131		0.15	
168	Chenango L	6/28/2004	9.3	2.83	1.0	0.008	0.01	0.01	0.27	74.75	14	6.72	122		4.60	
168	Chenango L	7/10/2004	9.0	3.85	1.0	0.007	0.02	0.02	0.48	144.90	10	7.03	141		2.50	
168	Chenango L	7/28/2004	9.5	3.55	1.5	0.008	0.04	0.02	0.49	129.10	15	6.80	109		3.50	
168	Chenango L	8/10/2004	9.1	3.95	1.5	0.011	0.04	0.01	0.25	51.52	5	7.39	114	13.2	5.10	
168	Chenango L	8/22/2004	9.0	3.00	1.5	0.012	0.01	0.01	0.18	32.89	36	7.59	162		11.50	
168	Chenango L	9/7/2004	9.3	3.45	1.0	0.010	0.01	0.01	0.29	62.37	6	7.94	76		8.70	
168	Chenango L	9/21/2004	8.9	1.85	1.5	0.012	0.01	0.01	0.58	107.37	5	7.83	126		20.90	
168	Chenango L	6/16/2005	9.1	5.15	1.0	0.010	0.12	0.01	0.26	55.04	4	7.31	103	10.1	1.37	
168	Chenango L	6/30/2005	8.9	5.93	1.0	0.011	0.01	0.03	0.09	17.28	7	7.05	142		1.83	
168	Chenango L	7/13/2005	9.1	5.75	1.0	0.007	0.09	0.01	0.18	53.51	14	7.38	117			
168	Chenango L	7/28/2005	8.8	5.45	1.0	0.009	0.01	0.20	0.32	76.22	7	7.10	135		2.46	
168	Chenango L	8/9/2005	8.7	5.18	1.0	0.004	0.01	0.01	0.29	146.69		7.19	144	11.7	2.87	
168	Chenango L	8/24/2005	9.0	3.40	1.0	0.018	0.06	0.01	0.11	12.94	3	7.75	134		8.13	
168	Chenango L	9/7/2005	9.0	2.45	1.0	0.017	0.02	0.02	0.29	39.19	7	8.55	138		11.81	
168	Chenango L	9/19/2005	8.8	1.85	1.0	0.017	0.02	0.01	0.24	30.79	6	8.44	127		19.71	
168	Chenango L	6/20/2006	9.2	4.25	1.0	0.007	0.02	0.02	0.37	117.81	8	7.68	127	11.1	2.13	
168	Chenango L	7/18/2006	9.4	4.75	1.0	0.008	0.01	0.03	0.67	192.35	9	7.51	72		0.39	
168	Chenango L	8/1/2006	9.6	3.90	1.0	0.008	0.01	0.02	0.62	165.53	16	7.78	131		3.43	
168	Chenango L	8/14/2006	8.9	3.35	1.0	0.010	0.02	0.01	0.53	122.39	17	7.60	125		5.02	
168	Chenango L	8/30/2006	9.1	3.18	1.0	0.013	0.00	0.02	0.61	102.54	5	7.30	86	10.4	10.18	
168	Chenango L	9/12/2006	9.2	2.65	1.0	0.013	0.01	0.01	0.42	72.08	19	7.89	108		8.23	
168	Chenango L	9/26/2006	8.8	2.40	1.0	0.013	0.00	0.01	0.40	66.17	9	7.04	113		10.42	
168	Chenango L	10/10/2006	8.8	2.60	1.0	0.014	0.00	0.02	0.34	56.03	12	7.13	132		9.03	
168	Chenango L	6/27/2007	9.0	5.10	1.5	0.007	0.00	0.01	0.27	83.85	10	7.76	119	12.3	1.23	
168	Chenango L	7/13/2007	8.9	5.05	1.0	0.006	0.01	0.02	0.36	133.77	7	7.96	92		2.45	
168	Chenango L	7/24/2007	9.1	3.60	3.0	0.007	0.00	0.01	0.36	112.56	1	7.75	97		2.35	
168	Chenango L	8/9/2007	9.2	5.45	1.0	0.012					5	7.49	149		1.21	
168	Chenango L	8/26/2007	8.6	4.63	1.0	0.010	0.01	0.01	0.51	110.74	9	7.05	146	12.3	2.98	
168	Chenango L	9/4/2007	8.7	6.03	1.0	0.006	0.01	0.02	0.52	201.79	23	7.66	79		1.88	
168	Chenango L	9/18/2007	9.0	4.30	1.0	0.011	0.00	0.09	0.41	84.54	10	7.17	147		4.42	
168	Chenango L	10/2/2007	9.1	4.00	1.0	0.011	0.01	0.02	0.51	99.59	10	7.77	100		4.65	

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a	Cl
168	Chenango L	6/24/2008	9.0	4.75	1.0	0.011	0.03	0.10	0.73	147.83		7.39	148	11.6	1.70	
168	Chenango L	7/8/2008	8.8	5.25	1.0	0.008	0.11	0.03	0.21	58.36	7	8.28	162		0.83	
168	Chenango L	7/22/2008	9.2	5.85	1.0	0.007	0.02	0.02	0.33	100.80	5	8.13	98		1.42	
168	Chenango L	8/4/2008	8.9	5.63	1.0	0.008	0.00	0.01	0.26	70.42	9	7.83	174		2.10	
168	Chenango L	8/26/2008	9.0	4.68	1.0	0.008	0.01	0.00	0.14	36.32	10	7.77	155	10.5	2.60	
168	Chenango L	9/9/2008	9.1	3.40	1.0	0.009	0.00	0.00	0.22	54.13	25	8.02	173		5.53	
168	Chenango L	9/23/2008	9.0	3.40	1.0	0.009	0.01	0.03	0.25	63.38	6	7.45	148		5.77	
168	Chenango L	10/7/2008	8.7	2.65	1.0	0.015	0.01	0.02	0.28	42.38	3	7.84	176		9.40	
168	Chenango L	06/21/2009	8.4	4.55	1.0	0.007	0.03	0.05	0.21	64.87	12	8.31	106	10.4	2.26	
168	Chenango L	07/09/2009	9.0	6.25	1.0	0.010	0.00	0.01	0.14	31.24	12	7.27	155		1.15	
168	Chenango L	07/22/2009	9.0	5.88	1.0	0.009	0.00	0.01	0.24	55.83	9	7.55	144		1.68	
168	Chenango L	08/04/2009	9.3	4.85	1.0	0.010	0.01	0.02	0.22	50.25	6	8.18	84		2.26	
168	Chenango L	08/27/2009	9.1	5.80	1.5	0.011	0.01	0.03	0.23	44.99	7	6.54	152	13.2		
168	Chenango L	09/05/2009	9.1	5.28	1.5	0.010	0.02	0.01	0.19	42.40	13	7.86	138		1.50	
168	Chenango L	09/15/2009	8.9	5.28	1.5	0.011	0.01	0.01	0.23	46.22	16	7.99	90		2.60	
168	Chenango L	10/04/2009	9.2	5.45	1.5	0.014	0.01	0.05	0.34	53.41	14	7.02	152		1.41	
168	Chenango L	6/10/2010	9.1	3.10	1.5	0.012	0.01	0.03			5	8.04	202	15.5	5.20	
168	Chenango L	6/23/2010	8.9	3.80	1.5	0.012	0.03	0.02	0.26	47.30	5	8.73	149		3.20	
168	Chenango L	7/7/2010	8.9	6.70	1.5	0.008	0.01	0.02	0.20	52.90	4	7.70	186		1.10	
168	Chenango L	7/22/2010	8.9	7.08	1.5	0.008	0.02	0.03	0.26	69.26	1	7.55	174		0.70	
168	Chenango L	8/18/2010	9.1	4.35	1.5	0.010	0.01	0.02			2	7.50	211	10.7	3.70	
168	Chenango L	9/2/2010	9.2	4.35	1.5	0.010	0.01	0.02	0.14	31.65	5	7.49	189		2.10	
168	Chenango L	9/14/2010	8.9	4.35	1.5	0.012	0.02	0.05	0.33	58.02	8	6.71	104		4.40	
168	Chenango L	9/28/2010	9.1	4.38	1.5	0.011	0.01	0.03	0.26	51.14	4	7.10	192		2.70	
168	Chenango L	6/13/2012	9.3	5.73	1.5	0.013	0.01	0.01	0.16	27.41	6	7.20	169	13.3	1.00	
168	Chenango L	6/25/2012	9.1	5.75	1.5	0.010	0.01	0.03	0.19	41.80	7	7.21	158		1.90	
168	Chenango L	7/10/2012	8.9	5.75	1.5	0.012	0.01	0.02	0.33	61.64	7	7.68	157		0.50	
168	Chenango L	7/24/2012	9.1	4.85	1.5	0.010	0.01	0.02	0.18	40.26	5	7.47	181		1.40	
168	Chenango L	8/21/2012	9.4	4.45	2.0	0.013	0.01	0.01	0.22	39.07	7	7.52	127	14.4	2.30	
168	Chenango L	8/21/2012			bloom											
168	Chenango L	9/4/2012	9.2	5.30	1.5	0.014	0.01	0.03	0.15	24.20	5	7.01	128		1.60	
168	Chenango L	9/17/2012	9.1	4.60	1.5	0.014	0.01	0.02	0.23	35.83	8	6.68	137		1.80	
168	Chenango L	10/1/2012	8.9	3.05	1.5	0.022	0.01	0.03	0.32	32.04	9	7.05	157		6.20	
168	Chenango L	6/5/2013	9.1	4.40	1.5	0.010	0.01	0.02	0.19	39.77	6	7.71	184	13.8	3.00	
168	Chenango L	6/17/2013	9.5	3.35	1.0	0.009			0.25	59.78	7	7.47	185		2.70	
168	Chenango L	6/29/2013	9.5	3.98	1.5	0.010	0.01	0.01	0.14	29.62	11	7.43	161		3.60	
168	Chenango L	7/16/2013	9.5	3.70	1.5	0.010			0.25	52.16	10	8.14	179		2.60	
168	Chenango L	7/30/2013	9.2	5.35	1.5	0.008	0.01	0.01	0.24	66.84	5	7.74	139		1.10	
168	Chenango L				bloom											
168	Chenango L	8/12/2013	9.2	4.38	1.5	0.011			0.42	86.66	9	7.57	156		3.20	
168	Chenango L	8/27/2013	9.1	4.68	1.5	0.009	0.01	0.02	0.36	94.21	8	7.34	107		2.30	
168	Chenango L	9/10/2013	9.4	3.00	1.5	0.013			0.30	48.80	14	7.77	152		7.80	
168	Chenango L	6/4/2014	9.2	4.55	1.5	0.009	0.01	0.03			17	7.22	180	11.3	1.40	
168	Chenango L	6/17/2014	9.4	5.18	1.5	0.009			0.38	96.85	2	7.27	144		2.20	
168	Chenango L	7/1/2014	9.2	5.65	1.5	0.007	0.02	0.04	0.19	57.38	5	6.96	178		2.10	
168	Chenango L	7/16/2014	9.2	4.45	1.5	0.008			0.25	70.86	10	7.62	179		1.70	
168	Chenango L	7/29/2014	8.8	3.60	1.5	0.013	0.01	0.03	0.35	60.03	2	6.75	183	8.9	5.30	
168	Chenango L	8/13/2014	9.0	4.50	1.5	0.012			0.24	44.00	2	7.20	178		3.30	
168	Chenango L	8/26/2014	9.3	4.25	1.5	0.012	0.01	0.01	0.30	53.30	6	7.33	174		2.40	
168	Chenango L	9/9/2014	9.6	3.60	1.5	0.015			0.29	41.25	4	8.21	179		3.80	
168	Chenango L	6/2/2015	8.7	6.80	1.5	0.010	0.01	0.03	0.20	21.15	7	7.20	85	9.5	1.50	
168	Chenango L	6/16/2015	8.8	4.70	1.5	0.010			0.26	24.90	3	7.55	179		2.50	
168	Chenango L	6/29/2015	9.1	4.60	1.5	0.007	0.01	0.04	0.29	41.71	4	7.01	103		1.30	34.8
168	Chenango L	7/14/2015	9.9	5.80	1.5	0.007			0.24	33.57	6	7.73	111		1.20	
168	Chenango L	7/28/2015	9.1	5.70	1.5	0.007	0.01	0.03	0.21	32.46	7	7.63	177	7.0	1.50	
168	Chenango L	8/10/2015	9.2	4.70	1.5	0.008			0.32	38.67	6	7.99	182		3.20	
168	Chenango L	8/25/2015	9.1	5.00	1.5	0.009			0.11	12.07	4	8.02	169		1.90	
168	Chenango L	9/8/2015	9.4	5.40	1.5	0.008			0.29	36.38	6	7.34	127		4.90	37.9
168	Chenango L	06/04/02	9.6													
168	Chenango L	06/18/02	9.8	5.90	8.0	0.012	0.00	0.01	0.41	75.93						
168	Chenango L	07/01/02	9.5	5.00	8.5	0.020	0.00	0.04	0.28	30.11						
168	Chenango L	07/15/02					0.00	0.17	0.65							
168	Chenango L	07/29/02	9.1	3.95	8.0	0.020	0.01	0.07	0.46	52.17						
168	Chenango L	08/12/02	8.5	3.25		0.209	0.01	0.13	0.48	5.08						
168	Chenango L	08/26/02				0.012	0.00	0.08	0.57	102.25						
168	Chenango L	09/11/02	8.5	3.45	7.5	0.035	0.00	0.01	0.45	28.45						

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP			Fe	Mn	As
168	Chenango L	6/7/2003			8.0	0.024	0.00	0.01	0.26	24.02					
168	Chenango L	6/30/2003			8.4	0.043	0.00	0.00	0.30	15.49					
168	Chenango L	7/29/2003			8.4	0.109	0.00	0.00	0.05	1.01					
168	Chenango L	9/2/2003			8.0	0.053	0.01	0.00	0.41	17.05					
168	Chenango L	9/16/2003			8.0	0.056	0.00	0.00	0.35	13.69					
168	Chenango L	9/30/2003			8.0	0.040	0.00	0.00	0.14	7.73					
168	Chenango L	10/19/2003				0.016	0.01	0.00	0.23	31.63					
168	Chenango L	6/15/2004			8.0	0.012	0.01	0.03	0.55	101.61					
168	Chenango L	6/28/2004			8.0	0.072	0.02	0.07	0.08	2.31					
168	Chenango L	7/10/2004			8.0	0.040	0.08	0.01	0.36	20.18					
168	Chenango L	7/28/2004			8.5	0.043	0.02	0.02	0.37	18.89					
168	Chenango L	8/10/2004			8.0		0.01	0.03	0.21						
168	Chenango L	8/22/2004			8.0	0.036	0.01	0.10	0.33	20.29					
168	Chenango L	9/7/2004			8.0	0.133			0.25	4.09					
168	Chenango L	9/21/2004			7.9	0.023	0.01	0.08	0.32	30.02					
168	Chenango L	6/16/2005	9.1		8.0	0.026									
168	Chenango L	6/30/2005	8.9		8.0	0.036									
168	Chenango L	7/13/2005	9.1		8.0	0.255									
168	Chenango L	7/28/2005	8.8		7.8	0.079									
168	Chenango L	8/9/2005	8.7		7.5	0.050									
168	Chenango L	8/24/2005	9.0		8.0	0.070									
168	Chenango L	9/7/2005	9.0		8.0	0.090									
168	Chenango L	9/19/2005	8.8		7.8	0.096									
168	Chenango L	6/20/2006	9.2		8.0	0.024									
168	Chenango L	7/18/2006	9.4		8.0	0.046									
168	Chenango L	8/1/2006	9.6		8.6	0.448									
168	Chenango L	8/14/2006	8.9		8.0	0.040									
168	Chenango L	8/30/2006	9.1		8.0	0.039									
168	Chenango L	9/12/2006	9.2		8.0	0.017									
168	Chenango L	9/26/2006	8.8		7.8	0.027									
168	Chenango L	10/10/2006	8.8		7.8	0.025									
168	Chenango L	6/27/2007	9.0		8.0	0.029									
168	Chenango L	7/13/2007	8.9			0.025									
168	Chenango L	7/24/2007	9.1		8.1	0.028									
168	Chenango L	8/9/2007	9.2		8.0	0.045									
168	Chenango L	8/26/2007	8.6		7.6	0.028									
168	Chenango L	9/4/2007	8.7		7.5	0.019									
168	Chenango L	9/18/2007	9.0		8.0	0.011									
168	Chenango L	10/2/2007	9.1		8.0	0.018									
168	Chenango L	6/24/2008	9.0		8.0	0.021									
168	Chenango L	7/8/2008	8.8		7.8	0.014									
168	Chenango L	7/22/2008	9.2		8.0	0.020									
168	Chenango L	8/4/2008	8.9			0.021									
168	Chenango L	8/26/2008	9.0			0.023									
168	Chenango L	9/9/2008	9.1		8.0	0.033									
168	Chenango L	9/23/2008	9.0		8.0	0.013									
168	Chenango L	10/7/2008	8.7			0.015									
168	Chenango L	06/21/2009	8.4			0.040		0.19							
168	Chenango L	07/09/2009	9.0		8.0	0.021									
168	Chenango L	07/22/2009	9.0		8.0	0.023		0.80							
168	Chenango L	08/04/2009	9.3		8.3	0.012									
168	Chenango L	08/27/2009	9.1		8.0	0.040		0.24				0.51	1.23	2.50	
168	Chenango L	09/05/2009	9.1		8.0	0.030									
168	Chenango L	09/15/2009	8.9		8.0	0.012		0.02				0.1	0.14	0.34	
168	Chenango L	10/04/2009	9.2		8.0	0.014									
168	Chenango L	6/10/2010	9.1		8.0	0.031		0.10							
168	Chenango L	7/7/2010	8.9		7.9	0.021		0.02							
168	Chenango L	8/18/2010	9.1		8.0	0.039		0.03							
168	Chenango L	9/14/2010	8.9			0.021		0.06						2.00	
168	Chenango L	6/13/2012			7.8	0.031		0.14							
168	Chenango L	6/25/2012			7.6							0.03	0.05		
168	Chenango L	7/10/2012			7.4	0.005		0.04							
168	Chenango L	7/24/2012			7.6							0.59	0.88		
168	Chenango L	8/21/2012			7.4	0.026		0.01							
168	Chenango L	9/4/2012			7.2							0.41	1.27	1.00	
168	Chenango L	9/17/2012				0.015		0.02							

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP			Fe	Mn	As
168	Chenango L	10/1/2012											0.34	0.23	1.00
168	Chenango L	6/5/2013			8.0	0.022		0.11							
168	Chenango L	6/17/2013			8.5										
168	Chenango L	6/29/2013				0.001		0.04							
168	Chenango L	7/16/2013			8.0										
168	Chenango L	7/30/2013			8.2	0.005		0.01							
168	Chenango L	8/12/2013			8.2										
168	Chenango L	8/27/2013						0.03							
168	Chenango L	9/10/2013			8.0										
168	Chenango L	6/4/2014			8.2	0.017		0.03							
168	Chenango L	6/17/2014			8.5	0.017									
168	Chenango L	7/1/2014			8.0	0.021		0.09							
168	Chenango L	7/16/2014			8.2	0.013									
168	Chenango L	7/29/2014			7.3	0.009		0.05							
168	Chenango L	8/13/2014			8.0	0.001									
168	Chenango L	8/26/2014			8.0	0.039		0.13							
168	Chenango L	9/9/2014			8.6	0.006									
168	Chenango L	6/2/2015			7.7	0.014		0.02							
168	Chenango L	6/16/2015			7.8	0.032									
168	Chenango L	6/29/2015			8.0	0.023		0.25							
168	Chenango L	7/14/2015			8.5	0.037									
168	Chenango L	7/28/2015			8.0	0.015		0.07							
168	Chenango L	8/10/2015			8.2	0.041									
168	Chenango L	8/25/2015			8.4	0.033									
168	Chenango L	9/8/2015			8.0	0.014									

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
168	Chenango L	5/21/2000	epi	13	14	2	1	2	5											
168	Chenango L	6/5/2000	epi	16	19	2	1	2	5											
168	Chenango L	6/26/2000	epi	24	23	2	1	2												
168	Chenango L	7/9/2000	epi	26	21	2	2	1												
168	Chenango L	7/23/2000	epi	24	22	2	3	2												
168	Chenango L	8/7/2000	epi	31	24	2	3	3	5											
168	Chenango L	8/21/2000	epi	26	21	2	3	1	2											
168	Chenango L	9/6/2000	epi	22	21	2	2	2												
168	Chenango L	6/13/2001	epi	24	19	3	1	1	0											
168	Chenango L	6/25/2001	epi	27	24	2	1	1												
168	Chenango L	7/9/2001	epi	29	24	2	2	2												
168	Chenango L	7/24/2001	epi	32	25	2	3	1												
168	Chenango L	8/7/2001	epi	32	27	2	2	1												
168	Chenango L	8/22/2001	epi	25	26	1	2	1												
168	Chenango L	9/12/2001	epi	27	22	3	2	2												
168	Chenango L	9/26/2001	epi	14	17	3	2	2												
168	Chenango L	06/04/02	epi	17	18	3	1	3	5											
168	Chenango L	06/18/02	epi	18	19	3	1	1	5											
168	Chenango L	07/01/02	epi	34	25	2	2	2												
168	Chenango L	07/29/02	epi	27	23	2	3	3	2											
168	Chenango L	08/12/02	epi	31	26	3	3	3	126											
168	Chenango L	08/26/02	epi	24	23	2	3	2	2											
168	Chenango L	09/11/02	epi	13	22	3	4	3	256											
168	Chenango L	6/7/2003	epi	24	19	1	1	1	5											
168	Chenango L	6/30/2003	epi	24	23	2	2	2	0											
168	Chenango L	7/29/2003	epi	29	23	1	2	2	2											
168	Chenango L	9/2/2003	epi	16	20	2	3	2	5											
168	Chenango L	9/16/2003	epi	23	21	2	2	1	0											
168	Chenango L	9/30/2003	epi	12	16	3	1	1	5											
168	Chenango L	10/19/2003	epi	13	12	3	2	1	5											
168	Chenango L	6/15/2004	epi	29	22	1	1	1	0											
168	Chenango L	6/28/2004	epi	21	20	1	1	1	0											
168	Chenango L	7/10/2004	epi	24	22	1	1	1	0											
168	Chenango L	7/28/2004	epi	22	23	1	1	1	0											
168	Chenango L	8/10/2004	epi	24	22	1	1	1	0											

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
168	Chenango L	8/22/2004	epi	19	21	1	1	1	0											
168	Chenango L	9/7/2004	epi	23	21	1	1	1	0											
168	Chenango L	9/21/2004	epi	22	19	2	1	1	8											
168	Chenango L	6/16/2005	epi	20	23	1	1	1	0											
168	Chenango L	6/30/2005	epi	23	26	1	1	1	0											
168	Chenango L	7/13/2005	epi	27	26	1	1	1	0											
168	Chenango L	7/28/2005	epi	21	24	2	3	1	0											
168	Chenango L	8/9/2005	epi	29	26	2	2	2	0											
168	Chenango L	8/24/2005	epi	23	23	3	2	2	0											
168	Chenango L	9/7/2005	epi	27	23	3	3	2	12											
168	Chenango L	9/19/2005	epi	24	22	3	3	3	1											
168	Chenango L	6/20/2006	epi	22	22	1	1	1	0											
168	Chenango L	7/18/2006	epi	28	27	1	2	1	0											
168	Chenango L	8/1/2006	epi	31	26	2	3	2	0											
168	Chenango L	8/14/2006	epi	25	24	2	2	2	0											
168	Chenango L	8/30/2006	epi	23	22	2	2	2	0											
168	Chenango L	9/12/2006	epi	21	19	3	1	2	0											
168	Chenango L	9/26/2006	epi	17	17	3	1	2	0											
168	Chenango L	10/10/2006	epi	19	16	2	1	1	0											
168	Chenango L	6/27/2007	epi	26	24	2	1	1	0											
168	Chenango L	7/13/2007	epi	22	23	1	1	2	0											
168	Chenango L	7/24/2007	epi	23	22	2	1	1	0											
168	Chenango L	8/9/2007	epi	23	24	2	2	2	0											
168	Chenango L	8/26/2007	epi	25	23	2	2	1	0											
168	Chenango L	9/4/2007	epi	19	21	1	2	1	0											
168	Chenango L	9/18/2007	epi	24	20	2	2	1	0											
168	Chenango L	10/2/2007	epi	19	18	2	1	2	0											
168	Chenango L	6/24/2008	epi	21	21	2	1	4	5											
168	Chenango L	7/8/2008	epi	27	24	1	1	1	0											
168	Chenango L	7/22/2008	epi	26	25	1	1	1	0											
168	Chenango L	8/4/2008	epi	26	23	1	1	1	0											
168	Chenango L	8/26/2008	epi	23	22	1	1	1	0											
168	Chenango L	9/9/2008	epi	20	21	1	1	1	0											
168	Chenango L	9/23/2008	epi	18	19	2	1	1	0											
168	Chenango L	10/7/2008	epi	16	16	3	1	1	0											
168	Chenango L	06/21/2009	epi	19	19	2	1	1	5											
168	Chenango L	07/09/2009	epi	26	23	1	1	1	0											
168	Chenango L	07/22/2009	epi	23	22	2	1	1	0											
168	Chenango L	08/04/2009	epi	26	24	1	1	1	0											
168	Chenango L	08/27/2009	epi	20	23	1	1	1	0					0.01						
168	Chenango L	09/05/2009	epi	24	21	1	2	1	0			18.59		0.00						
168	Chenango L	09/15/2009	epi	23	20	2	1	1	0			24.83								
168	Chenango L	10/04/2009	epi	19	16	1	1	1	0			22.79		0.13						
168	Chenango L	6/10/2010	epi	21	14	3	1	2	0	4	0									
168	Chenango L	6/23/2010	epi	28	23	2	1	1	0	0	0									
168	Chenango L	7/7/2010	epi	24	26	1	1	1	0	0	0									
168	Chenango L	7/22/2010	epi	24	25	1	1	1	0	0	0									
168	Chenango L	8/18/2010	epi	26	24	2	1	1	0	0	0	24.00		0.02						
168	Chenango L	9/2/2010	epi	25	24	3	2	2	6	0	0	62.53								
168	Chenango L	9/14/2010	epi	19	19	2	1	1	0	0	0	75.00		0.02						
168	Chenango L	9/28/2010	epi	22	18	2	1	1	0	0	0									
168	Chenango L	6/13/2012	epi	16	19	1	1	1	5	0	0	3.50	0.50	<0.30	<0.417		0.92	0.62	I	
168	Chenango L	6/25/2012	epi	20	23	1	2	2	5	0	0	1.50	0.30	<0.30	<0.428		0.55	0.14	I	
168	Chenango L	7/10/2012	epi	29	26	1	1	1	0	0	0	3.10	0.20	<0.30	<0.423		1.30	0.45	I	
168	Chenango L	7/24/2012	epi	24	25	1	2	1	0	0	0	0.20	0.30	<0.30	<0.292		1.00	0.20	I	
168	Chenango L	8/21/2012	epi	24	24	2	2	1	2	0	0	5.10	1.10	<0.30	<0.551		2.69	1.91	F	
168	Chenango L	8/21/2012	bloom											<0.60	<0.446		6.29	3.01		
168	Chenango L	9/4/2012	epi	22	23	1	2	2	2	0	0	1.40	0.40	<0.30	<0.725		2.05	0.86	I	
168	Chenango L	9/17/2012	epi	21	21	1	3	3	25	0	0	3.50	0.50	<0.30	<3.205		0.95	0.75	I	
168	Chenango L	10/1/2012	epi	15	17	2	2	2	0	0	0	16.70	0.60	<0.30	<3.205		2.92	1.26	I	
168	Chenango L	6/5/2013	epi	18	19	3	1	2	0	0	0	3.20	1.70	<0.30	<0.630		3.90	0.00	F	F

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
168	Chenango L	6/17/2013	epi	26	19	2	1	1	5	0	0	4.80	4.10	<0.30	<0.600		2.90	0.00	I	
168	Chenango L	6/29/2013	epi	22	23	2	1	2	5	6	6	4.00	1.80	<0.30	<0.610		2.10	0.00		I
168	Chenango L	7/16/2013	epi	26	26	3	2	1	0	0	0	6.00	1.80	<0.30	<0.910		1.20	0.00	F	F
168	Chenango L	7/30/2013	epi	20	23	2	2	1	0	0	0	1.70	1.20	<0.30	<0.390		1.10	0.00	F	F
168	Chenango L		bloom											1.23	<1.290		212.1	204.5		
168	Chenango L	8/12/2013	epi	22	22	3	1	1	0	0	0			<0.02	<0.570		7.90	5.00	F	F
168	Chenango L	8/27/2013	epi	25	24	3	2	2	0	0	0	10.50	1.60	0.42	<0.570		2.10	1.20	F	D
168	Chenango L	9/10/2013	epi	26	27	2	1	2	0	0	0			0.23	<19.130		2.10	0.00	F	F
168	Chenango L	6/4/2014	epi	23	22	2	1	1	0	0	0	0.10	1.00	<1.83	<0.17	<0.001	0.80	0.00	i	i
168	Chenango L	6/17/2014	epi	27	23	2	1	2	0	4	4	2.80	0.20	<0.53	<0.08	<0.002	0.50	0.00	f	
168	Chenango L	7/1/2014	epi	33	26	2	1	1	0	0	0	1.10	0.20	<0.62	<0.03	<0.002	0.10	0.00	i	i
168	Chenango L	7/16/2014	epi	27	24	2	2	1	0	0	0	0.90	0.05	<0.71	<0.48	<0.001	0.00	0.00		
168	Chenango L	7/29/2014	epi	20	23	2	2	1	0	0	0	5.40	0.30	<0.31	<0.24	<0.002	1.22	0.05		
168	Chenango L	8/13/2014	epi	24	24	2	2	2	0	0	0	11.30	0.30	<0.35	<0.03	<0.001	2.35	1.15	f	f
168	Chenango L	8/26/2014	epi	28	24	2	2	1	2	0	0	7.80	0.30	<1.06	<0.16	<0.002	1.60	0.40	f	f
168	Chenango L	9/9/2014	epi	22	22	2	1	2	2	0	0			<0.64	<0.03	<0.001	0.80	0.00	f	i
168	Chenango L	6/2/2015	epi	19	19	1	1	1	5	0	0								I	I
168	Chenango L	6/16/2015	epi	24	23	1	1	1	0	0	0	3.60	0.50	<0.55	<0.018	<0.139	1.17	0.00	I	I
168	Chenango L	6/29/2015	epi	18	20	1	1	1	5	0	0	6.00	0.30	<0.63	<0.007	<0.000	0.62	0.00	I	I
168	Chenango L	7/14/2015	epi		24	1	2	1	5	0	0	0.05	0.10				0.43	0.00	I	I
168	Chenango L	7/28/2015	epi	29	26	2	2	1	0	0	0	2.30	0.30	<0.23	<0.002	<0.014	0.42	0.00	I	I
168	Chenango L	8/10/2015	epi	20	24	2	2	2	0	0	0	6.90	0.30	<0.44	<0.035	<0.023	0.88	0.42	F	I
168	Chenango L	8/25/2015	epi	28	26	2	2	1	0	0	0	3.50	0.30	<0.21	<0.003	<0.010	1.07	0.34	I	I
168	Chenango L	9/8/2015	epi	21	24	2	3	2	8	0	0	3.60	0.40	<0.39	<0.004	<0.012	1.12	0.47	I	I
168	Chenango L	06/18/02	hypo	18	19	3	1	1	5											
168	Chenango L	07/01/02	hypo	34		2	2	2												
168	Chenango L	07/29/02	hypo	27	16	2	3	3	2											
168	Chenango L	08/12/02	hypo	31	15	3	3	3	126											
168	Chenango L	09/11/02	hypo	13	18	3	4	3	256											
168	Chenango L	6/7/2003	hypo		11															
168	Chenango L	6/30/2003	hypo		12															
168	Chenango L	7/29/2003	hypo		11															
168	Chenango L	9/2/2003	hypo		15															
168	Chenango L	9/16/2003	hypo		13															
168	Chenango L	10/19/2003	hypo		11															
168	Chenango L	6/15/2004	hypo		13															
168	Chenango L	6/28/2004	hypo		14															
168	Chenango L	7/10/2004	hypo		13															
168	Chenango L	7/28/2004	hypo		14															
168	Chenango L	8/10/2004	hypo		14															
168	Chenango L	8/22/2004	hypo		14															
168	Chenango L	9/7/2004	hypo		14															
168	Chenango L	9/21/2004	hypo		17															
168	Chenango L	6/16/2005	hypo		13															
168	Chenango L	6/30/2005	hypo		13															
168	Chenango L	7/13/2005	hypo		14															
168	Chenango L	7/28/2005	hypo		14															
168	Chenango L	8/9/2005	hypo		18															
168	Chenango L	8/24/2005	hypo		17															
168	Chenango L	9/7/2005	hypo		16															
168	Chenango L	9/19/2005	hypo		18															
168	Chenango L	6/20/2006	hypo		13															
168	Chenango L	7/18/2006	hypo		14															
168	Chenango L	8/1/2006	hypo		13															
168	Chenango L	8/14/2006	hypo		14															
168	Chenango L	8/30/2006	hypo		16															
168	Chenango L	9/12/2006	hypo		16															
168	Chenango L	9/26/2006	hypo		16															
168	Chenango L	10/10/2006	hypo		14															
168	Chenango L	6/27/2007	hypo		13															
168	Chenango L	7/13/2007	hypo		14															

LNum	PName	Date	Site	TAir	TH20	QA	QB	QC	QD	QE	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cylin	FP-Chl	FP-BG	HAB form	Shore HAB
168	Chenango L	7/24/2007	hypo		15																
168	Chenango L	8/9/2007	hypo		14																
168	Chenango L	8/26/2007	hypo		16																
168	Chenango L	9/4/2007	hypo		18																
168	Chenango L	9/18/2007	hypo		18																
168	Chenango L	10/2/2007	hypo		18																
168	Chenango L	6/24/2008	hypo		13																
168	Chenango L	7/8/2008	hypo		14																
168	Chenango L	7/22/2008	hypo		15																
168	Chenango L	8/4/2008	hypo		16																
168	Chenango L	8/26/2008	hypo		18																
168	Chenango L	9/9/2008	hypo		18																
168	Chenango L	9/23/2008	hypo		18																
168	Chenango L	10/7/2008	hypo		16																
168	Chenango L	06/21/2009	hypo		14																
168	Chenango L	07/09/2009	hypo		15																
168	Chenango L	07/22/2009	hypo		16																
168	Chenango L	08/04/2009	hypo		18																
168	Chenango L	08/27/2009	hypo		18																
168	Chenango L	09/05/2009	hypo		19																
168	Chenango L	09/15/2009	hypo		19																
168	Chenango L	10/04/2009	hypo		15																
168	Chenango L	6/10/2010	hypo		19																
168	Chenango L	7/7/2010	hypo		16																
168	Chenango L	8/18/2010	hypo		19																
168	Chenango L	9/14/2010	hypo		19																
168	Chenango L	6/13/2012	hypo		12																
168	Chenango L	6/25/2012	hypo		22																
168	Chenango L	7/10/2012	hypo		16																
168	Chenango L	7/24/2012	hypo		16																
168	Chenango L	8/21/2012	hypo		18																
168	Chenango L	9/4/2012	hypo		20																
168	Chenango L	9/17/2012	hypo		20																
168	Chenango L	10/1/2012	hypo		17																
168	Chenango L	6/5/2013	hypo		17																
168	Chenango L	6/17/2013	hypo		14																
168	Chenango L	6/29/2013	hypo		14																
168	Chenango L	7/16/2013	hypo		19																
168	Chenango L	7/30/2013	hypo		17																
168	Chenango L	8/12/2013	hypo		15																
168	Chenango L	8/27/2013	hypo		17																
168	Chenango L	9/10/2013	hypo		16																
168	Chenango L	6/4/2014	hypo		12																
168	Chenango L	6/17/2014	hypo		15																
168	Chenango L	7/1/2014	hypo		14																
168	Chenango L	7/16/2014	hypo		17																
168	Chenango L	7/29/2014	hypo		17																
168	Chenango L	8/13/2014	hypo		15																
168	Chenango L	8/26/2014	hypo		15																
168	Chenango L	6/2/2015	hypo		10																
168	Chenango L	6/16/2015	hypo		15																
168	Chenango L	6/29/2015	hypo		13																
168	Chenango L	7/14/2015	hypo		14																
168	Chenango L	7/28/2015	hypo		16																
168	Chenango L	8/10/2015	hypo		14																
168	Chenango L	8/25/2015	hypo		17																
168	Chenango L	9/8/2015	hypo		25																

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 Chenango Lake

Chenango Lake (0601-0013)

NoKnownImpct

Waterbody Location Information

Revised: 07/06/2009

Water Index No:	SR-146-19- 6-1-P213	Drain Basin:	Susquehanna River
Hydro Unit Code:	02050101/170	Str Class:	A
Waterbody Type:	Lake(R)	Reg/County:	7/Chenango Co. (9)
Waterbody Size:	133.9 Acres	Quad Map:	HOLMESVILLE (K-19-4)
Seg Description:	entire lake		

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->B	

Further Details

Water Quality Sampling

Chenango Lake has been sampled as part of the NYSDEC Citizen Statewide Lake Assessment Program (CSLAP) beginning in 2000 and continuing through 20006. 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 mesotrophic, or moderately productive. Phosphorus levels in the lake rarely exceed the state guidance values indicating impacted/stressed recreational uses. Corresponding transparency measurements typically exceed the recommended minimum for swimming beaches. Measurements of pH typically fall within the state water quality range of 6.5 to 8.5. The lake water is weakly colored, but color does not limit water transparency. (DEC/DOW, BWAM/CSLAP, July 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 "could not be nicer" or "excellent." The lake itself is most often described as "not quite crystal clear," an assessment that is consistent measured water quality characteristics. Assessments have noted that aquatic plants only rarely grows to the lake surface. Aquatic plants are dominated by a mix of native species and non-native Eurasian milfoil and have not been cited as impacting

recreational uses. (DEC/DOW, BWAM/CSLAP, July 2007)

Lake Uses

This lake waterbody is designated class A, suitable for use as a water supply, public bathing beach, general recreation and aquatic life support. 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.

Source (Drinking) Water Assessment

A source water assessment of Chenango Lake found no elevated susceptibility to contaminants. This assessment was conducted through the NYSDOH Source Waters Assessment Program (SWAP) which compiles, organizes, and evaluates information regarding possible and actual threats to the quality of public water supply (PWS) sources. The information contained in SWAP assessment reports assists in the oversight and protection of public water systems. It is important to note that SWAP reports estimate the potential for untreated drinking water sources to be impacted by contamination and do not address the quality of treated finished potable tap water. This water supply source provides water to the City of Norwich. (NYSDOH, Source Water Assessment Program, 2005)

Previous Assessment

Concerns regarding threats to recreational uses in Chenango Lake were raised during previous assessments in 2000. These concerns were based on conditions noted during a 1998 Lake Classification and Inventory (LCI) evaluation and the identification of inadequate and/or failing on-site septic systems serving homes around the lake that were identified by the Norwich Water Department and the local lake association. Conversion of summer cottages to year-round residences coupled with poor site conditions (high water table, small lots, inadequate soils), and poor design of systems were noted. Although efforts to address on-site septic system issues should continue, more recent sampling indicates that any impacts from this or other sources is limited and does not impact uses. (DEC/DOW, BWAM/WQAS, June 2009)

Section 303(d) Listing

Chenango Lake is included on the NYS 2008 Section 303(d) List of Impaired Waters. The lake is included among the waters listed in Appendix B - Waters Not Meeting Dissolved Oxygen Standards. This part of the List recognizes waterbodies where low dissolved oxygen in lake bottom waters may be the result of morphology and other natural conditions in thermally stratified lakes. This updated assessment suggests that there are no significant impacts to the fishery and other uses are fully supported. Based on this assessment the lake is assessed as having no known impacts. However because NYS water quality standards for dissolved oxygen do not include an explicit exception for natural conditions or averaging of dissolved oxygen over lake depth, USEPA requires that the Section 303(d) List recognize such waters.

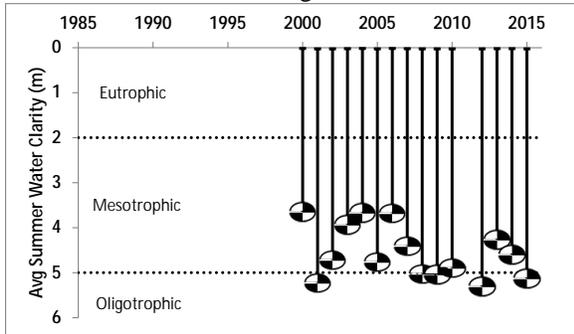
Segment Description

This segment includes the total area of the lake.

Appendix C- Long Term Trends: Chenango Lake

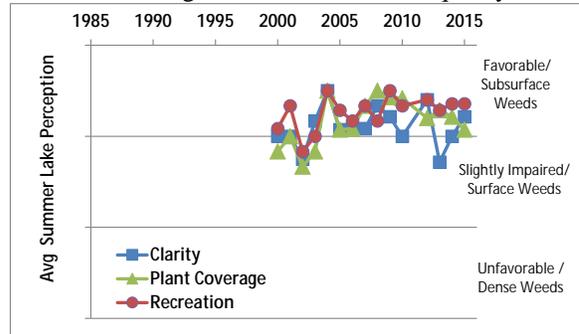
Long Term Trends: Water Clarity

- No trends apparent; slight rise since mid '00s
- Most readings typical of *mesoligotrophic* lakes, consistent algae and color levels



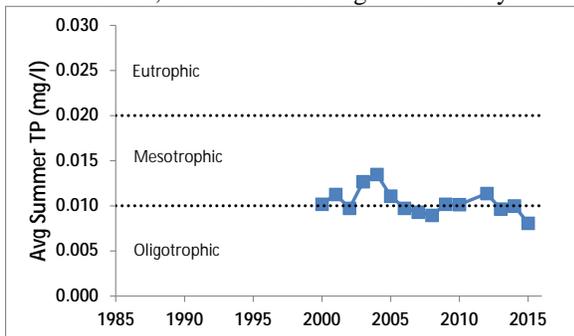
Long Term Trends: Lake Perception

- Overall ↓ plant coverage, ↑ rec. assessment
- Recreational perception only slightly linked to changes in weeds and water quality



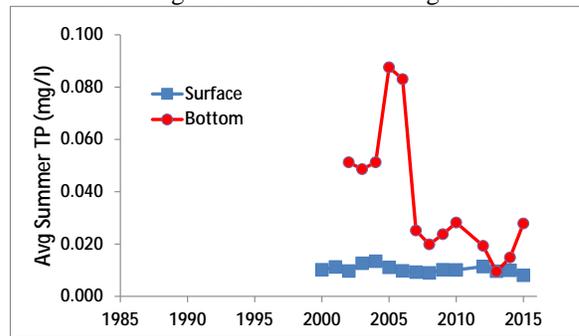
Long Term Trends: Phosphorus

- No trends apparent; perhaps ↓ since 04-12
- Most readings typical of *mesoligotrophic* lakes, consistent with algae and clarity



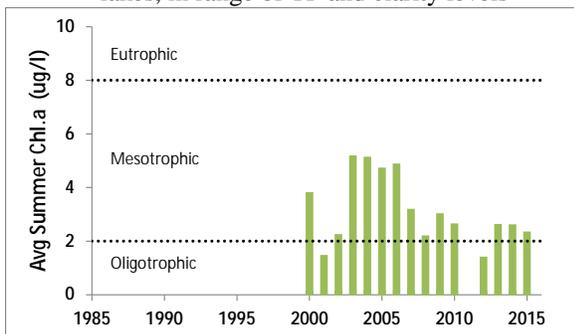
Long Term Trends: Bottom Phosphorus

- Bottom TP at times high but recently lower
- Bottom TP may indicate some nutrient loading to surface levels during late summer



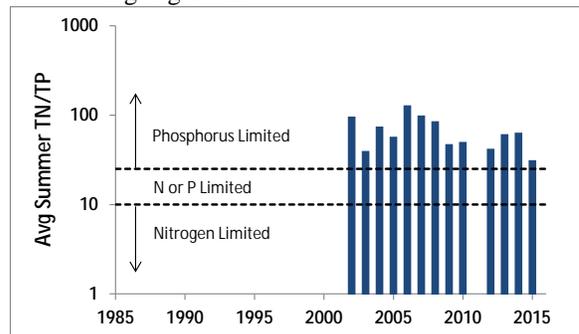
Long Term Trends: Chlorophyll a

- ↓ since mid-2000s
- Most readings typical of *mesoligotrophic* lakes, in range of TP and clarity levels



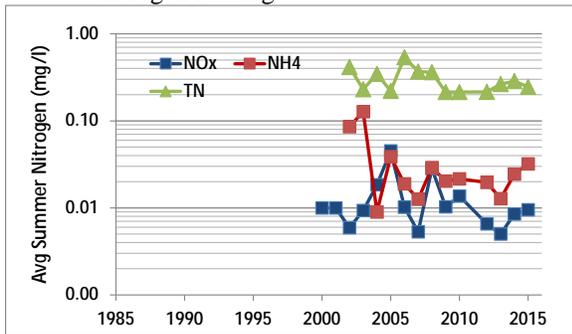
Long Term Trends: N:P Ratio

- ↓ since mid-2000s
- Most readings indicate phosphorus limits algae growth



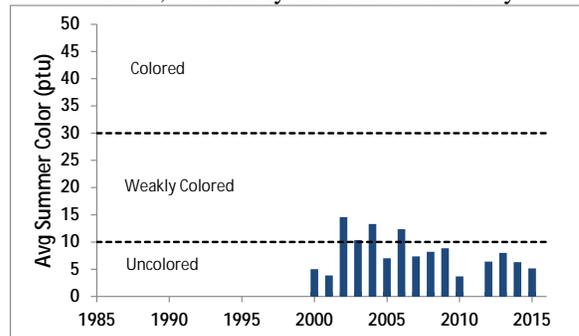
Long Term Trends: Nitrogen

- No trends apparent; perhaps slight ↓ in NH₄
- Generally low NO_x, ammonia, and total nitrogen readings



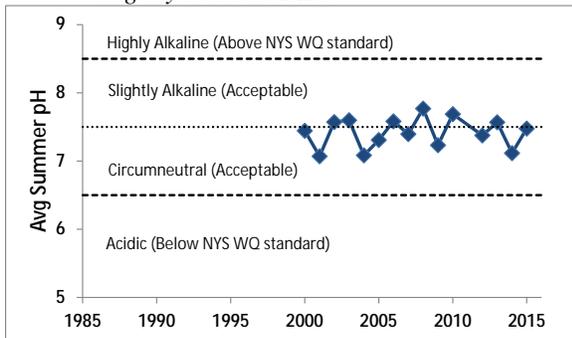
Long Term Trends: Color

- No trends apparent; lower since early 00's
- Most readings typical of *weakly colored* lakes, with likely little effect on clarity



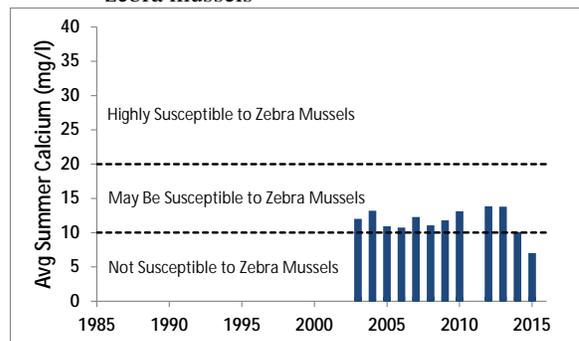
Long Term Trends: pH

- No trends apparent; alternates small ↑ and ↓
- Most readings typical of *circumneutral* to *slightly alkaline* lakes



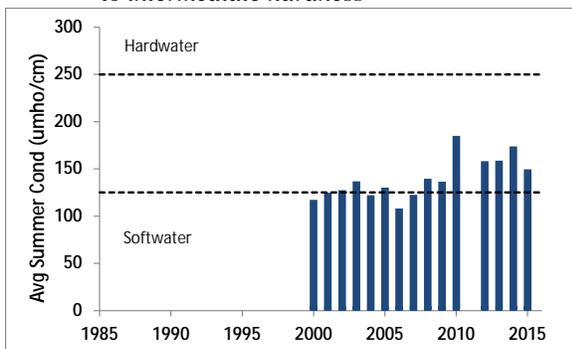
Long Term Trends: Calcium

- No trends apparent; recently lower
- Most readings indicate low susceptibility to zebra mussels



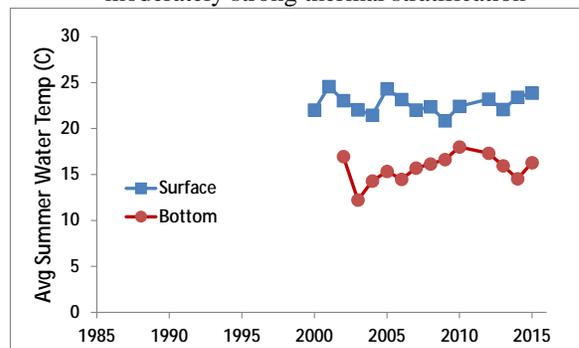
Long Term Trends: Conductivity

- Much higher readings since 2009
- Most readings typical of lakes with *soft water* to *intermediate hardness*



Long Term Trends: Water Temperature

- Slight rise in bottom T, but not since '10
- Slightly colder bottom temperatures indicate moderately strong 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 25-30 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.

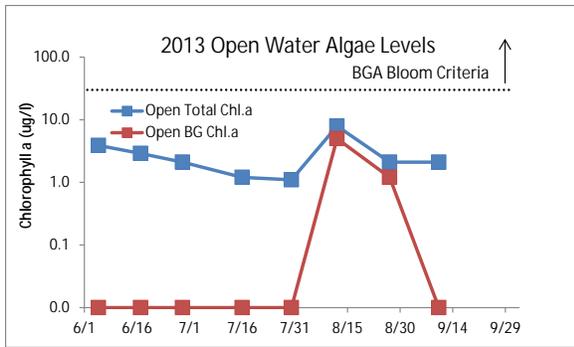


Figure D1:
2013 Open Water Total and BGA Chl.a

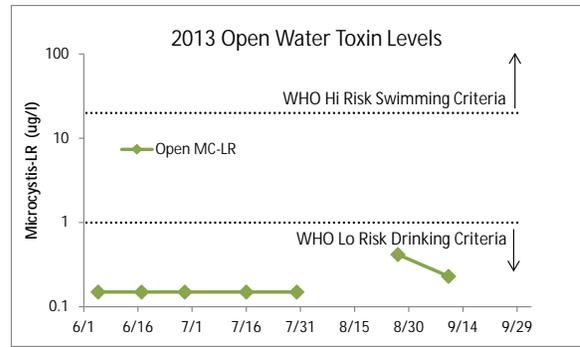


Figure D2:
2013 Open Water Microcystin-LR



Figure D3:
2013 Shoreline Total and BGA Chl.a

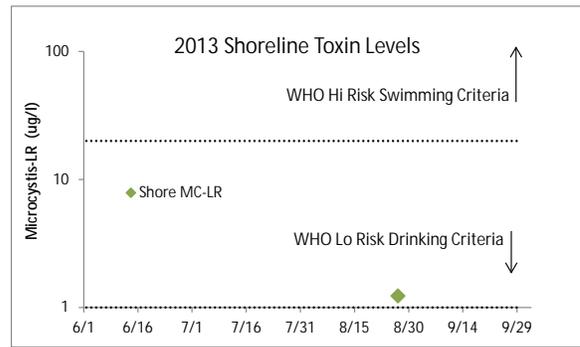


Figure D4:
2013 Shoreline Microcystin-LR

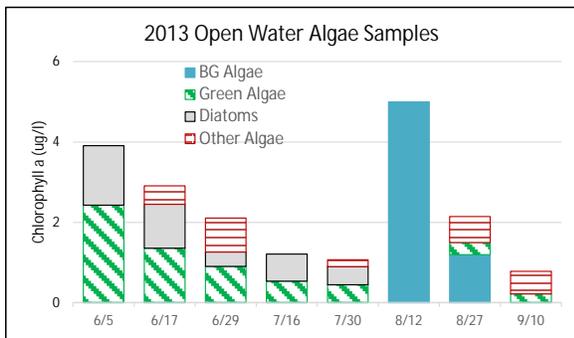


Figure D5:
2013 Open Water Algae Types

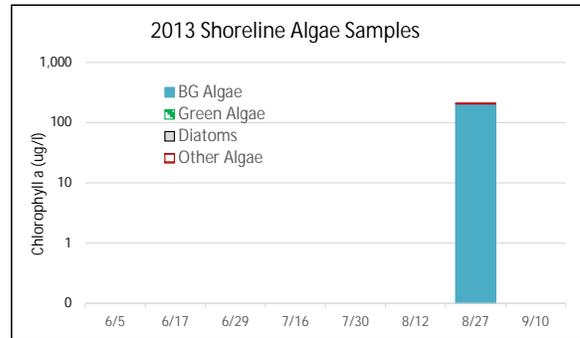


Figure D6:
2013 Shoreline Algae Types

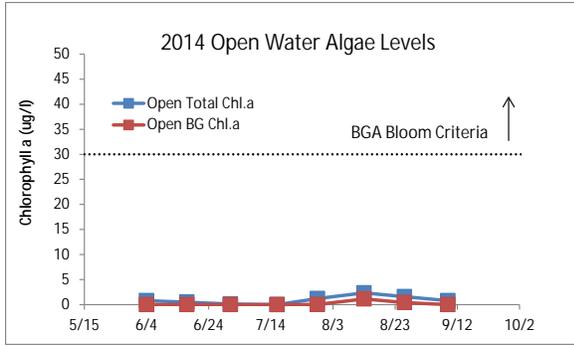


Figure D7:
2014 Open Water Total and BGA Chl.a

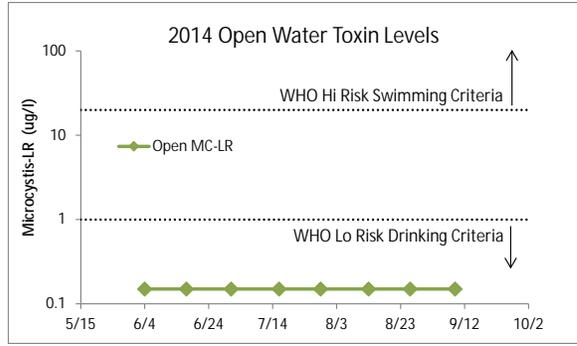


Figure D8:
2014 Open Water Microcystin-LR



Figure D9:
2014 Shoreline Total and BGA Chl.a

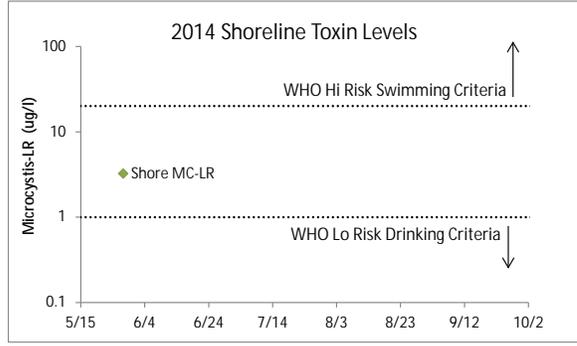


Figure D10:
2014 Shoreline Microcystin-LR

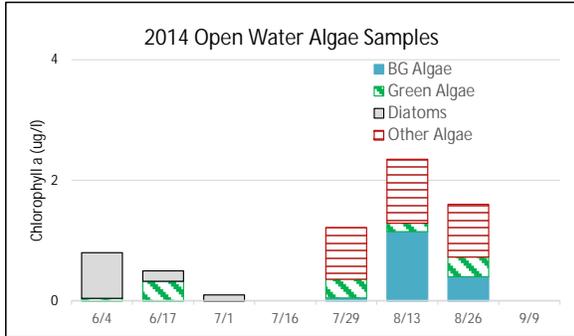


Figure D11:
2014 Open Water Algae Types

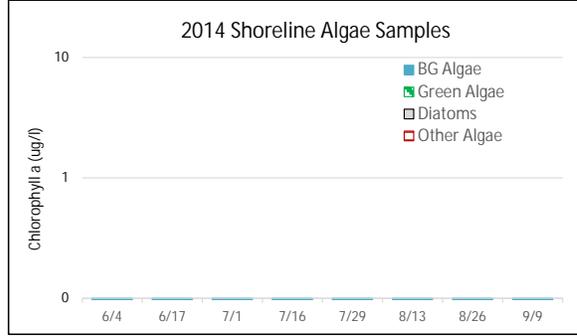


Figure D12:
2014 Shoreline Algae Types

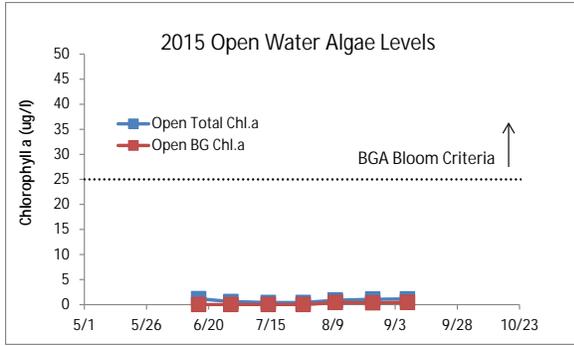


Figure D13:
2015 Open Water Total and BGA Chl.a

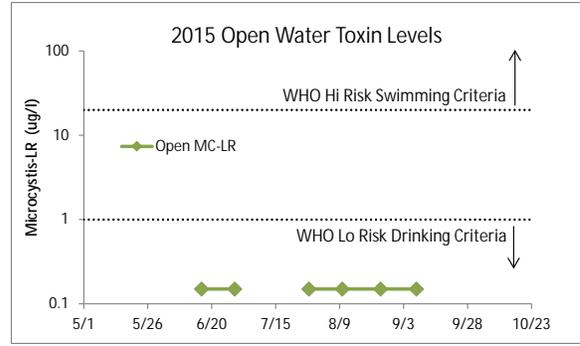


Figure D14:
2015 Open Water Microcystin-LR

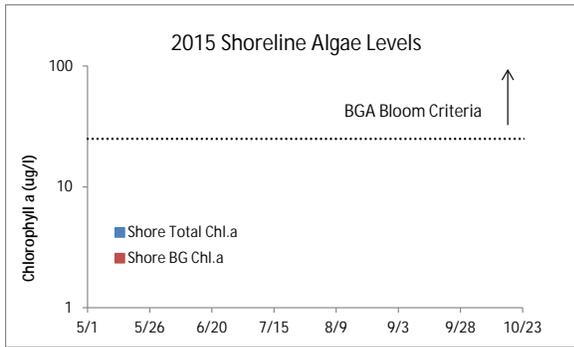


Figure D15:
2015 Shoreline Total and BGA Chl.a

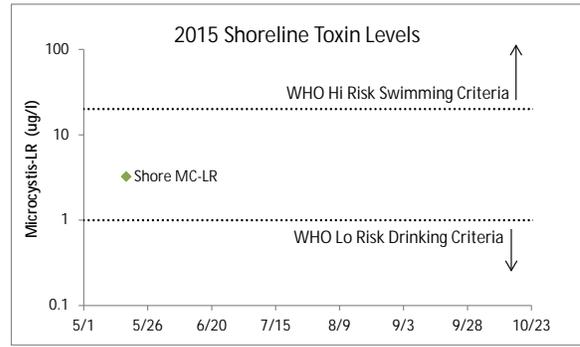


Figure D16:
2015 Shoreline Microcystin-LR

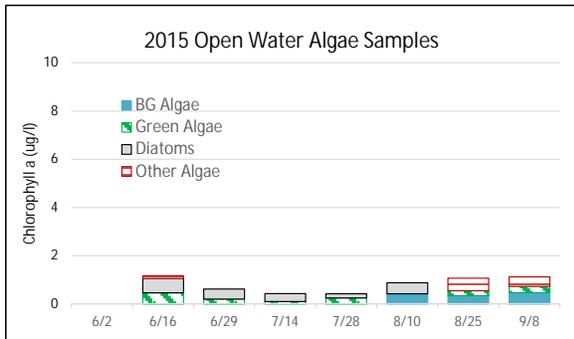


Figure D17:
2015 Open Water Algae Types

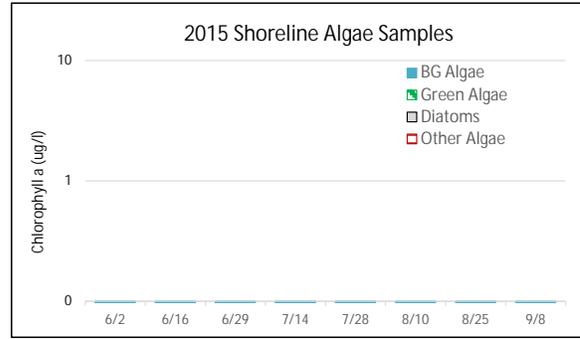


Figure D18:
2015 Shoreline Algae Types

Appendix E: AIS Species in Chenango County

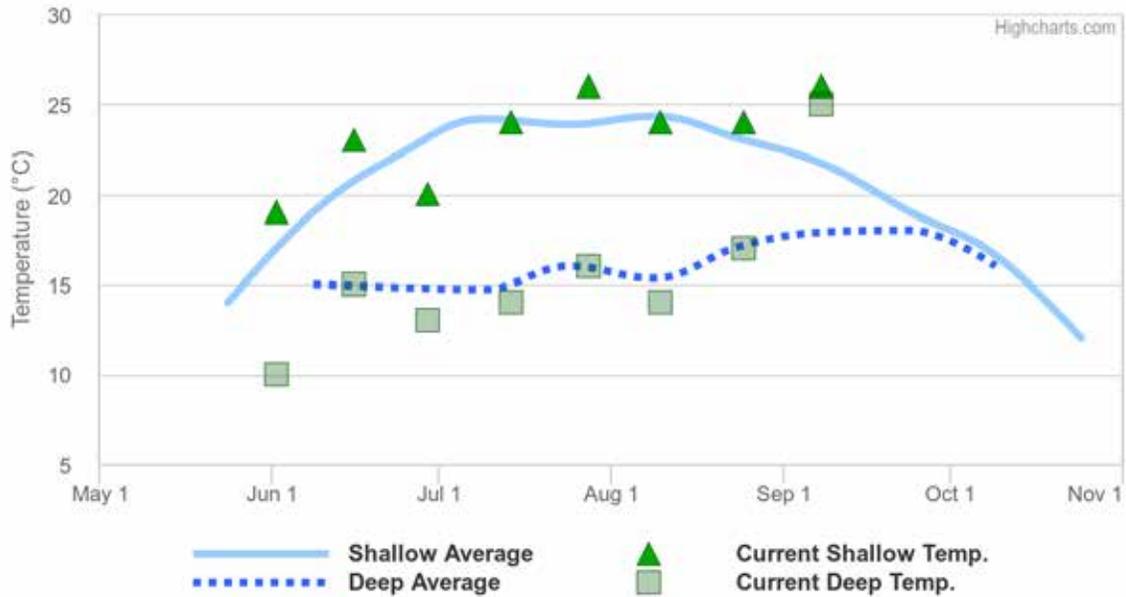
The table below shows the invasive aquatic plants and animals that have been documented in Chenango County, as cited in either the iMapInvasives database (<http://www.imapinvasives.org/>) or in the NYSDEC Division of Water database. These databases may include some, but not all, non-native plants or 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 – Chenango County			
Waterbody	Kingdom	Common name	Scientific name
Balsam Pond	Plant	Variable watermilfoil	<i>Myriophyllum heterophyllum</i>
Bowman Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Chenango Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Chenango River near Greene	Animal	Asian clam	<i>Corbicula fluminea</i>
Chenango River near Oxford	Animal	Asian clam	<i>Corbicula fluminea</i>
Guilford Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Hunt Pond	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Jackson Pond	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Long Pond	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Mill Brook Reservoir	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Mud Creek e of Cortland	Animal	Asian clam	<i>Corbicula fluminea</i>
Otselic River near Pitcher	Animal	Asian clam	<i>Corbicula fluminea</i>
Plymouth Reservoir	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Warn Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Warn Lake	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>

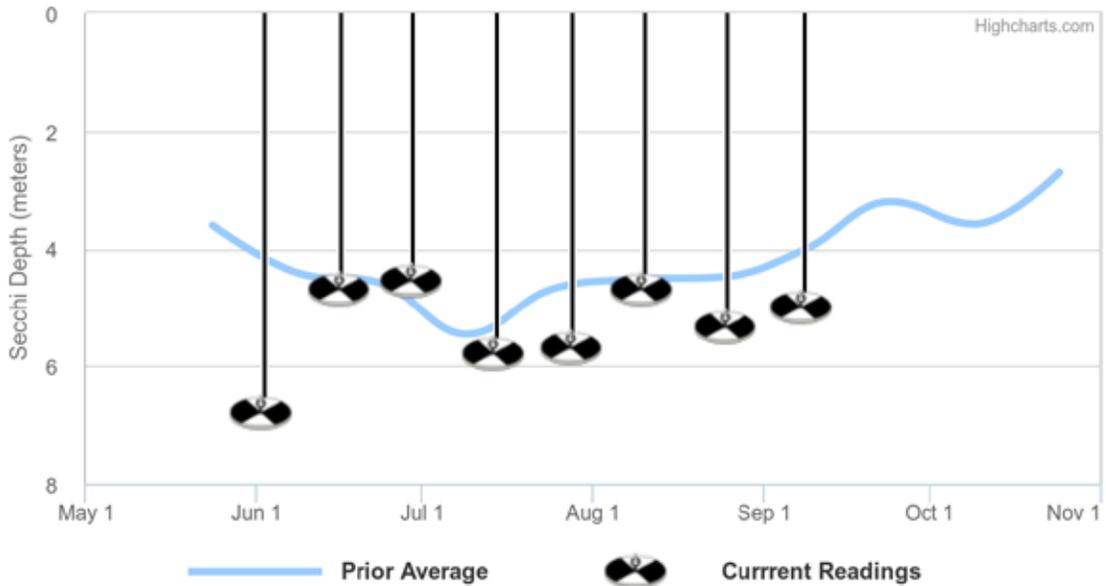
Appendix G: Current Year vs. Prior Averages for Chenango Lake

Current Year Water Temperatures vs. Prior Average



This year's shallow water sample temperatures are tending to be higher than normal when compared to the average of readings collected from 2000 to 2014. This year's deep water sample temperatures are tending to be higher than normal when compared to the average of readings collected from 2002 to 2014.

Current Year Secchi Readings vs. Prior Average



This year's session Secchi readings are tending to be higher than normal when compared to the average of readings collected from 2000 to 2014.

Appendix G: Watershed and Land Use Map for Chenango 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.

