

Queechy Lake Questions and Answers, 2015 CSLAP

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

A1. The condition of Queechy Lake was again close to normal (or at least usual for the lake) in 2015. Water clarity was high, with low nutrient and algae levels, and no blue green algae blooms were reported in the open water or along the shoreline. Aquatic plant (weed) coverage may have been higher than usual.

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

A2. Chloride testing results were typical of lakes with moderate impacts from road salt runoff, although biological impacts have not been reported or measured.

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

A3. Queechy Lake had much higher water clarity, and much lower nutrient and algae levels, than most other nearby lakes. Aquatic plant coverage was higher than in many other nearby lakes, and has increased over the last decade

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

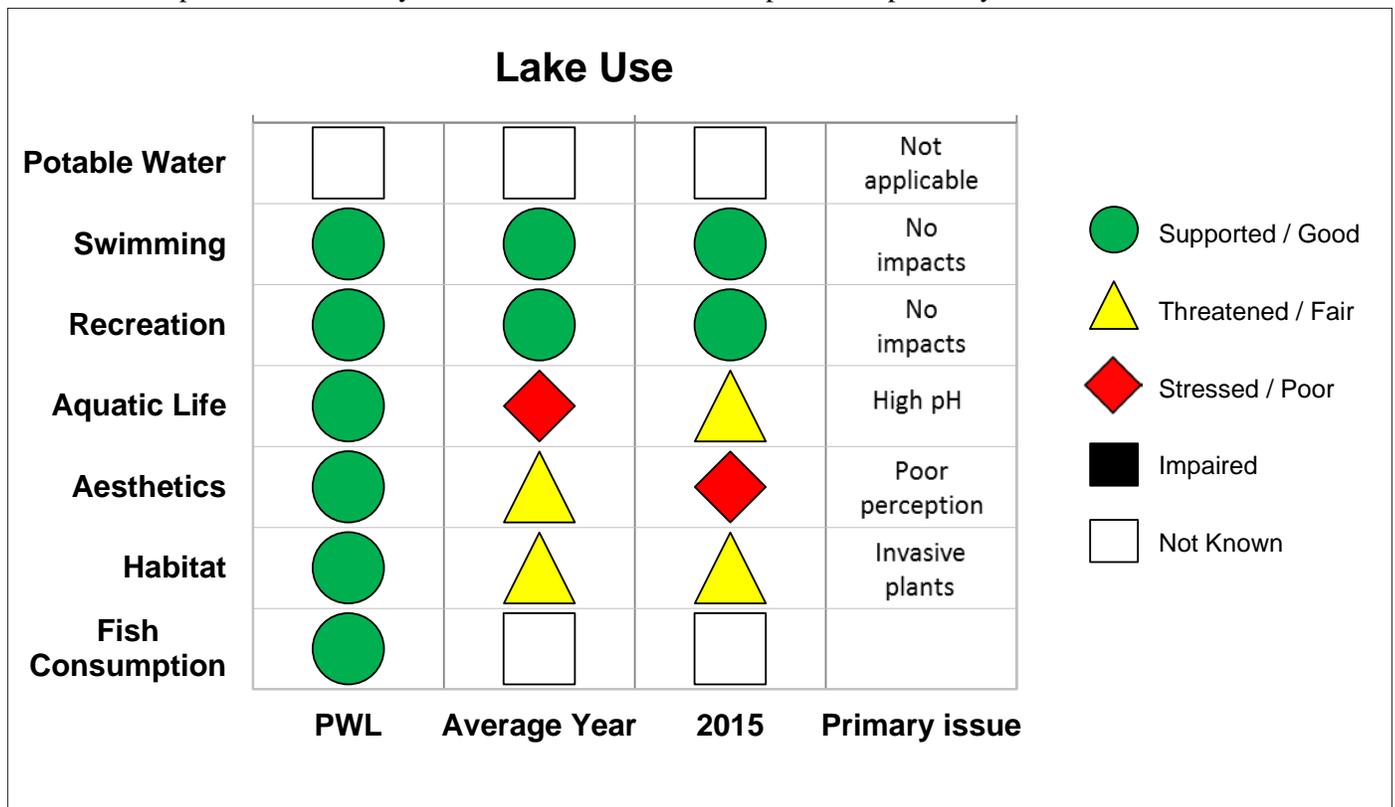
A4. Several of the CSLAP indicators have changed slightly or exhibited cyclical patterns in Queechy Lake. Water clarity has increased slightly in the last few years, and generally over the last 15 or so years, perhaps contributing to greater coverage of aquatic plants (and a resulting drop-off in recreational assessments). pH dropped after the early 2000s, but has been stable since then. Ammonia readings have increased slightly over the last decade.

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

A5. Queechy Lake may be susceptible to shoreline blue green algae blooms, but this has not been apparent in recent years. The rise in plant coverage may be due to a cyclical increase in water clarity, but this should continue to be watched. Lake residents should be on the lookout for, report, and avoid exposure to any shoreline surface scums.

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

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

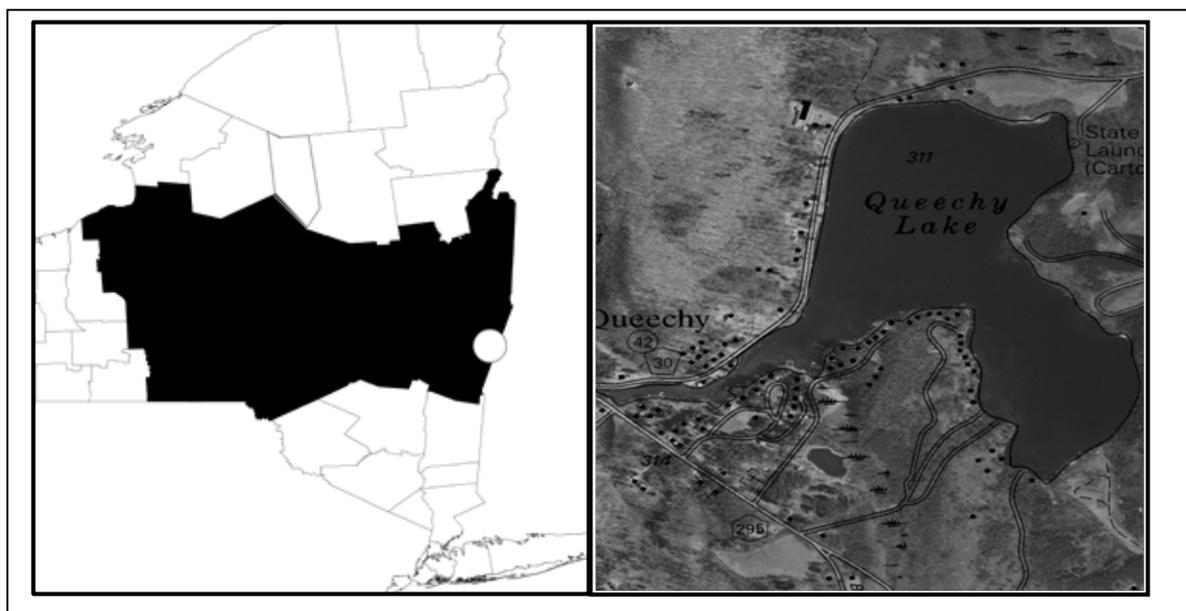


CSLAP 2015 Lake Water Quality Summary: Queechy Lake

General Lake Information

Location	Town of Canaan
County	Columbia
Basin	Lower Hudson River
Size	51.8 hectares (127.9 acres)
Lake Origins	Natural
Watershed Area	220 hectares (543 acres)
Retention Time	2.8 years
Mean Depth	5.6 meters
Sounding Depth	12.5 meters
Public Access?	private camp
Major Tributaries	no named tribs
Lake Tributary To...	Queechy Lake Brook to Stony Kill to Kinderhook Creek to Hudson River
WQ Classification	B(T) (contact recreation = swimming)
Lake Outlet Latitude	42.404
Lake Outlet Longitude	-73.426
Sampling Years	1988-1992, 1995, 1997-2015
2015 Samplers	Betsy Janes, David Patzwahl, Jan Durgin, Charlie Long and Bill Shephard
Main Contact	Betsy Janes

Lake Map



Background

Queechy Lake is a 128 acre, class B(T) lake found in the Town of Canaan in Columbia County, just south of the Capitol Region of New York State. It has been sampled as part of CSLAP since 1988.

It is one of five CSLAP lakes among the nearly 450 lakes and ponds found in Columbia County, and one of 67 CSLAP lakes among the more than 3680 lakes and ponds in the Lower Hudson River drainage basin.

Lake Uses

Queechy 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—boating and fishing, aesthetics, and aquatic life. The (T) designation indicates that the lake is classified for trout survival. The lake is used by lake residents and invited guests for boating and swimming, through residential shoreline access to the lake. There is no public access to the lake, although a private camp also offers access to the lake.

Queechy Lake has been stocked by the state for many years. 1500-2000 nine inch brown trout and 1500-7000 three to nine inch rainbow trout are stocked annually. Fish species found in the lake include brown trout, bullhead, largemouth bass, pickerel, pumpkinseed sunfish, rainbow trout, smallmouth bass, sunfish, and yellow perch.

General statewide fishing regulations are applicable in Queechy Lake. In addition, the open season for trout is open (all year), with a minimum size of 12 inches, and a daily take limit of three fish. Ice fishing is allowed.

There are no lake-specific fish consumption advisories on Queechy Lake.

Historical Water Quality Data

CSLAP sampling was conducted on Queechy Lake from 1988 to 1992, 1995, and 1997 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 and scorecard for Queechy Lake can also be found on the NYSDEC web page at <http://www.dec.ny.gov/lands/77877.html>.

Queechy Lake was sampled by New York State as part of the Biological Survey of the Lower Hudson River basin conducted by the Conservation Department (the predecessor to the NYSDEC) on August 23, 1934. The majority of the water quality indicators evaluated as part of CSLAP were not included in this survey, although pH readings in 1934 appeared to be only slightly higher (>8.4) than those measured at present (average readings from 1988 to present have been about 8.35). The lake was thermally stratified, with the transition from warm water to cold water occurring at a depth of about 30 feet. Deepwater oxygen levels were depressed near the lake bottom (readings about 1.4 ppm, versus about 9.1 ppm at the lake surface). The field notes from this survey indicated the following:

“This is a small lake with a maximum depth of 44 ft. The water is clear and white and the bottom temperatures are low in deep water... The lake is unsuitable for (lake trout and cisco) because of the low oxygen content of the bottom water.”

Neither the primary inlet to the lake (Fish Creek), nor the outlet of the lake (Queechy Lake Brook), have been monitored through the NYSDEC Rotating Intensive Basins (RIBS) or stream biomonitoring programs. The lake has been sampled by DEC regional fisheries staff in 1988 and 2004, and these results show water quality conditions mostly comparable to those measured through CSLAP.

Lake Association and Management History

Queechy Lake is served by the Queechy Lake Club, Inc., incorporated in 1919. The lake association is involved in a variety of activities, including:

- boat parade
- water quality monitoring via George Knoecklein
- coliform sampling 30+ sites
- coordinating boat launching at Berkshire Farm

The lake association maintains a web site at <http://www.queechylake.org/QueechyFrames.htm>.

Summary of 2015 CSLAP Sampling Results

Evaluation of 2015 Annual Results Relative to 1988-2014

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 – Queechy Lake” section in Appendix C.

Evaluation of Eutrophication Indicators

Water clarity has increased slightly since the early 2000s, although 2014 and 2015 readings were close to the long-term average for the lake. This rise in clarity has not been mirrored by changes in algae (chlorophyll *a*) or phosphorus readings. There has been a slight but annually variable drop in algae levels since the early 1990s, and chlorophyll *a* readings were lower than usual in 2015. Phosphorus readings in 2015 may not have been accurate due to bottle (lot) contamination apparent with some CSLAP lakes; the values presented here (lower than usual) were corrected based on readings from other indicators.

Color readings increased significantly from 2002 through about 2010, and then leveled off over the last few years (with much lower color in 2014), but these do not appear to be well correlated with changes in water clarity. In short, these eutrophication indicators are in the same range with each other (see note below), but seem to vary independently of each other.

In the typical summer, lake productivity does not change much in early summer. Water clarity increases slightly from July through October, consistent with a slight decrease in phosphorus over the same period. However, algae levels vary unpredictably during the summer and then increase in the fall, perhaps associated with lake turnover. In 2015, water clarity increased in early summer, then decreased through the fall. The latter was coincident with a late summer increase in phosphorus readings, although algae levels did not vary seasonally in 2015.

The lake can be characterized as *mesoligotrophic*, or moderately unproductive, based on chlorophyll *a* (typical of *mesotrophic* lakes), water clarity and total phosphorus readings (typical

of *oligotrophic* lakes). Each of these indicators was indicative of *oligotrophic* lakes in 2014 and 2015. The trophic state indices (TSI) evaluation suggests that each of the trophic indicators is “internally consistent”—that is, each trophic indicator can be predicted from 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 not high enough to render the lake susceptible to taste and odor compounds or elevated DBP (disinfection by product) compounds that could affect the potability of the water, but the lake is not classified for use for drinking water. Deepwater ammonia and phosphorus readings are higher than those measured at the lake surface, so deepwater intakes may not support “unofficial” potable water use. Both deepwater phosphorus and ammonia were close to normal in 2015, even after the sampling site was moved slightly, although deepwater phosphorus readings have steadily decreased over the last decade. Potable water conditions, at least as measurable through CSLAP, are summarized in the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Limnological Indicators

pH was lower than normal in each of the last three years, part of a long-term decrease since the early 2000s, although the lake is still alkaline and has moderately hard water. Conductivity readings have increased over the last decade, after a large drop in the early 2000s. Color readings rose steadily from 2002 (corresponding to the lab change) to 2010, and have decreased since then. Ammonia readings have increased slightly over since the early 2000s. These limnological indicators have varied somewhat over the last decade, but there is no indication that this has otherwise affected lake ecology or other lake indicators.

Chloride levels in the 2015 samples, conducted for the first time through CSLAP and cited in Appendix A, ranged from 30 to 33 mg/l. These values are within the range of “moderate” road salt runoff levels cited by the New Hampshire DES. These readings are well below the state potable water quality standard of 250 mg/l but within the range of values found in a number of NYS lakes

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

Evaluation of Biological Condition

The fluoroprobe screening samples analyzed by SUNY ESF in the last few years indicate both low algae levels and low blue green algae levels in the open water samples, with most samples associated with green algae or other algae types. The few reports of shoreline blooms since 2011 have been associated with green algae, not blue green algae, also consistent with very low toxicity in these samples. Lake residents should continue to be on the lookout for surface scums or heavily discolored water usually associated with blue green algae blooms.

Macrophyte surveys have been conducted through CSLAP and by George Knoecklein. At least 20 aquatic plant species have been found, including at least one exotic plant species (*Myriophyllum spicatum*, Eurasian watermilfoil) and one protected species (*Potamogeton strictifolius*, narrow-leaf pondweed). The modified floristic quality index (FQI) for the lake indicates that the quality of the aquatic plant community is “fair”.

The 1992 zooplankton survey of the lake indicated that the zooplankton community was dominated by rotifers, while the water quality conditions in the lake are more typical of other CSLAP lakes dominated by copepods. It is not known if this zooplankton community structure is representative of the lake.

The composition of the fish community is comprised of at least five warmwater fish species, at least two coolwater fish species, and at least two coolwater fish species. This suggests that the lake can most likely be characterized as a coldwater, or two story, fishery.

Macroinvertebrates have not been evaluated through CSLAP in Queechy Lake.

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

Evaluation of Lake Perception

Aquatic plant coverage has increased slightly over the last 10-15 years, although it is not known if this change is associated with native or exotic (Eurasian watermilfoil) plants and if this is due to the higher water clarity. In 2015, plant coverage may have been greater than usual, and there were varying reports about the relative density and coverage of milfoil. Water quality assessments have degraded slightly over the same period, despite the slight increase in water clarity over the last few years. Both of these changes have resulted in slightly less favorable recreational assessments.

Water quality assessments improve during the typical late summer, consistent with increasing water clarity over the same period. In 2015, recreational assessments degraded in mid-summer. Overall lake perception is summarized on the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Local Climate Change

Water temperature readings in the summer index period were close to normal in the last few years, and neither air nor water temperature readings has exhibited any long-term trends. It is not known if this is an indication of the lack of local climate change or if these changes cannot be well evaluated through CSLAP.

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 open water samples, and open water toxin levels are low. No shoreline blue green blooms were reported or sampled in the last few years- limited blooms have been associated with green algae or diatoms. The toxin levels in these samples have also been low.

Lake Condition Summary

Category	Indicator	Min	Overall Avg	Max	2015 Avg	Classification	2015 Change?	Long-term Change?
Eutrophication Indicators	Water Clarity	3.10	5.39	8.90	5.42	Oligotrophic	Within Normal Range	No Change
	Chlorophyll <i>a</i>	0.05	2.41	20.62	1.89	Mesotrophic	Within Normal Range	No Change
	Total Phosphorus	0.004	0.009	0.023	0.008	Oligotrophic	Within Normal Range	No Change
Potable Water Indicators	Hypolimnetic Ammonia	0.01	0.21	0.89	0.16	Elevated Deepwater NH4	Lower Than Normal	Not known
	Hypolimnetic Arsenic							Not known
	Hypolimnetic Iron							Not known
	Hypolimnetic Manganese							Not known
Limnological Indicators	Hypolimnetic Phosphorus	0.004	0.042	0.340	0.011	Close to Surface TP Readings	Lower Than Normal	Not known
	Nitrate + Nitrite	0.00	0.01	0.09	0.02	Low NOx	Higher than Normal	No Change
	Ammonia	0.00	0.02	0.12	0.03	Low Ammonia	Within Normal Range	No Change
	Total Nitrogen	0.09	0.39	1.59	0.31	Low Total Nitrogen	Within Normal Range	No Change
	pH	6.81	8.01	8.68	7.23	Alkaline	Lower Than Normal	Decreasing Significantly
	Specific Conductance	104	264	343	245	Hardwater	Within Normal Range	Decreasing Slightly
	True Color	0	14	54	7	Intermediate Color	Within Normal Range	Increasing Slightly
	Calcium	22.2	27.9	34.9	26.3	Highly Susceptible to Zebra Mussels	Within Normal Range	No Change
Lake Perception	WQ Assessment	1	1.8	5	2.0	Not Quite Crystal Clear	Within Normal Range	No Change
	Aquatic Plant Coverage	1	2.4	4	3.1	Subsurface Plant Growth	Less Favorable than Normal	No Change
	Recreational Assessment	1	1.9	4	2.9	Excellent	Less Favorable than Normal	No Change
Biological Condition	Phytoplankton					Low biomass dominated by bacteria and green algae	Not known	Not known
	Macrophytes					Fair quality of the aquatic plant community	Not known	Not known
	Zooplankton					Dominated by rotifers	Not known	Not known
	Macroinvertebrates					Not measured through CSLAP	Not known	Not known
	Fish					Two story fishery?	Not known	Not known
	Invasive Species					Eurasian watermilfoil	Not known	Not known
Local Climate Change	Air Temperature	10	23.0	42	20.8		Lower Than Normal	No Change
	Water Temperature	14	23.3	30	22.3		Within Normal Range	No Change

Category	Indicator	Min	Overall Avg	Max	2015 Avg	Classification	2015 Change?	Long-term Change?
Harmful Algal Blooms	Open Water Phycocyanin	0	5	36	3	No readings indicate high risk of BGA	Not known	Not known
	Open Water FP Chl.a	0	1	5	1	No readings indicate high algae levels	Not known	Not known
	Open Water FP BG Chl.a	0	0	2	0	No readings indicate high BGA levels	Not known	Not known
	Open Water Microcystis	<DL	<DL	0.8	<DL	Low to undetectable open water microcystins	Not known	Not known
	Open Water Anatoxin a	<DL	<DL	0.0	<DL	Open water Anatoxin-a at times detectable	Not known	Not known
	Shoreline Phycocyanin					No shoreline blooms sampled for PC	Not known	Not known
	Shoreline FP Chl.a	1	27	122	44	Some readings indicate high algae levels	Not known	Not known
	Shoreline FP BG Chl.a	0	6	22	10	Few readings indicate high BGA levels	Not known	Not known
	Shoreline Microcystis	<DL	6.1	17.5	<DL	At times elevated shoreline bloom MC-LR	Not known	Not known
	Shoreline Anatoxin a	<DL	<DL	0.4	<DL	Shoreline bloom Anatoxin-a at times detectable	Not known	Not known

Evaluation of Lake Condition Impacts to Lake Uses

Queechy Lake is presently among the lakes listed on the Lower Hudson River drainage basin Priority Waterbody List (PWL) as having “no known impact.” The PWL listing for Queechy Lake is listed in Appendix B.

Potable Water (Drinking Water)

The CSLAP dataset at Queechy 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. The low algae levels may support any “unofficial” potable water use from the surface waters, although slightly elevated deepwater phosphorus and ammonia levels point to potential impacts to potable water “unofficially” drawn from the bottom waters of the lake.

Public Bathing

The CSLAP dataset at Queechy 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 in the open water, but at times may be *threatened* by poor perception associated with algal blooms. Additional information about bacterial levels is needed to evaluate the safety of the water for swimming.

Recreation (Swimming and Non-Contact Uses)

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

Aquatic Life

The CSLAP dataset on Queechy Lake, including water chemistry data, physical measurements, and volunteer samplers’ perception data, suggest that aquatic life may be *stressed* by high pH and hypolimnetic hypoxia (slightly depressed deepwater oxygen readings), although these impacts have been lower in recent years. Road salt runoff may also *threaten* this use, although additional data are needed to evaluate the food and habitat conditions for aquatic organisms in the lake.

Aesthetics and Habitat

The CSLAP dataset on Queechy Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aesthetics and habitat may be only *fair* due to poor perception from shoreline algae blooms and excessive invasive plant growth.

Fish Consumption

There are no fish consumption advisories posted for Queechy Lake.

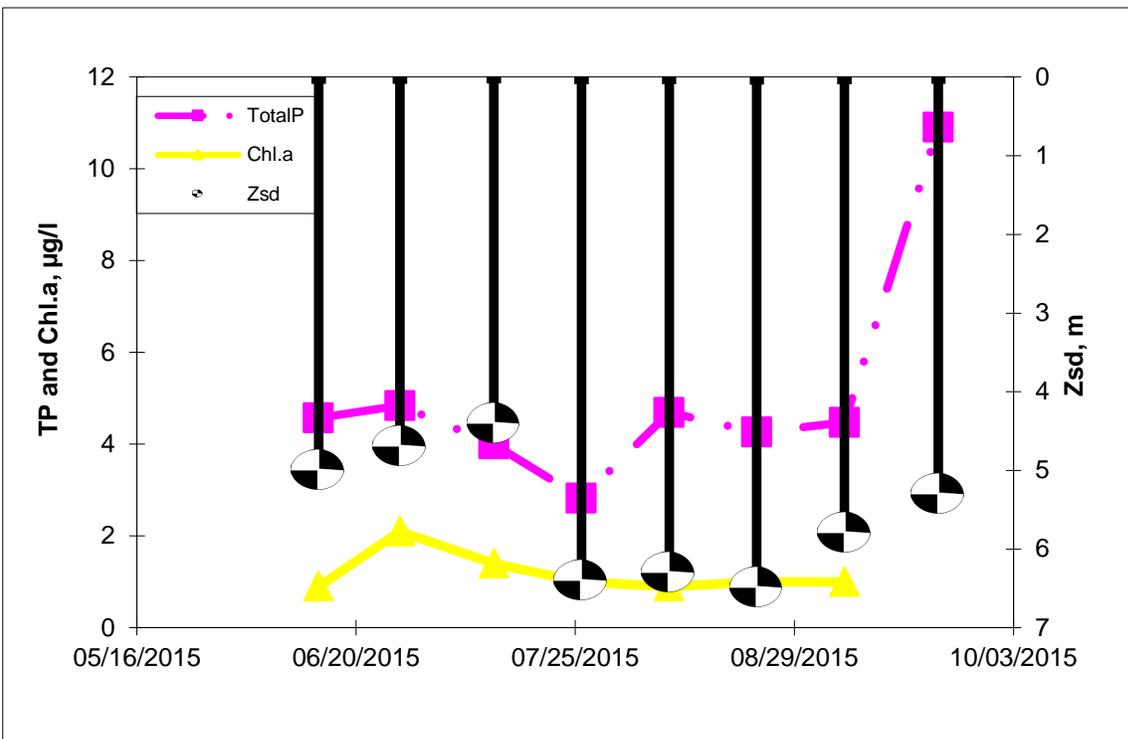
Additional Comments and Recommendations

Additional shoreline bloom sampling may help to determine if blue green algae blooms commonly occur at Queechy Lake. Lake residents should avoid exposure to these blooms.

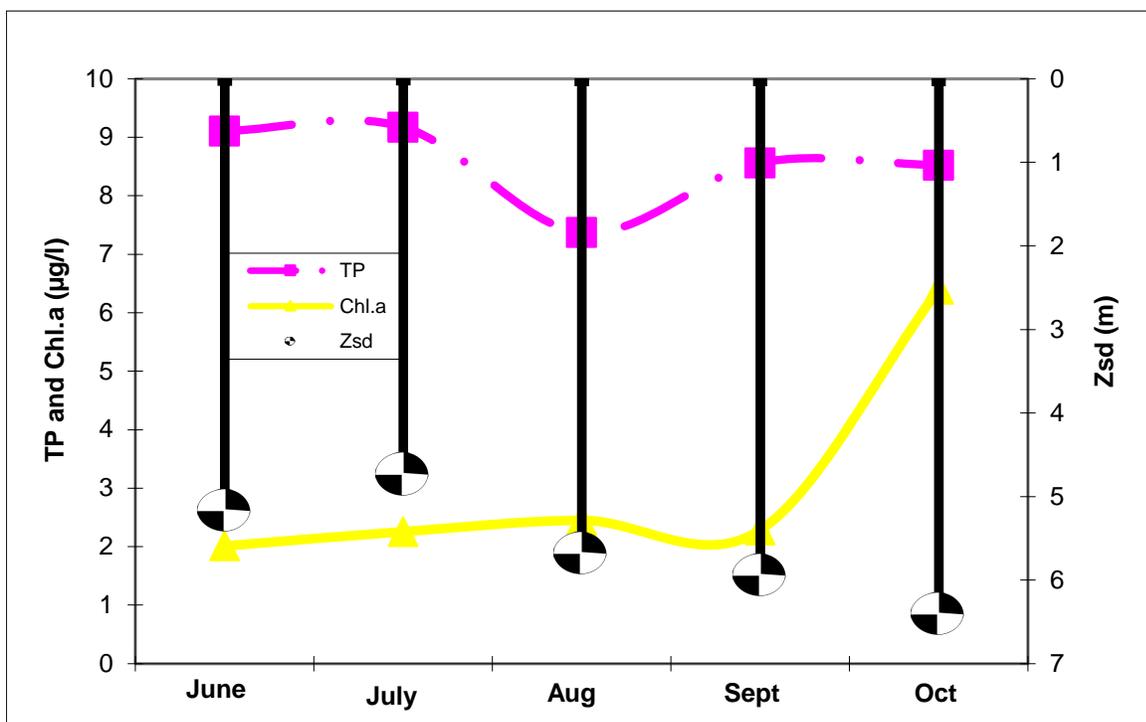
Aquatic Plant IDs-2015

None submitted for identification in 2015.

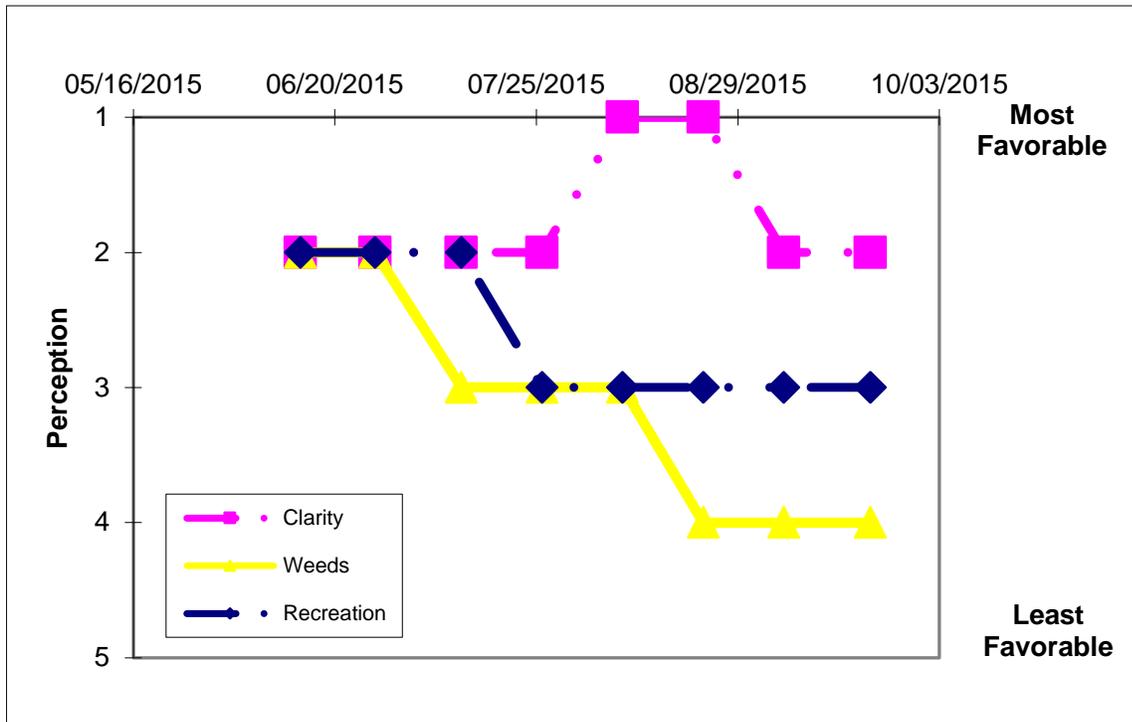
Time Series: Trophic Indicators, 2015



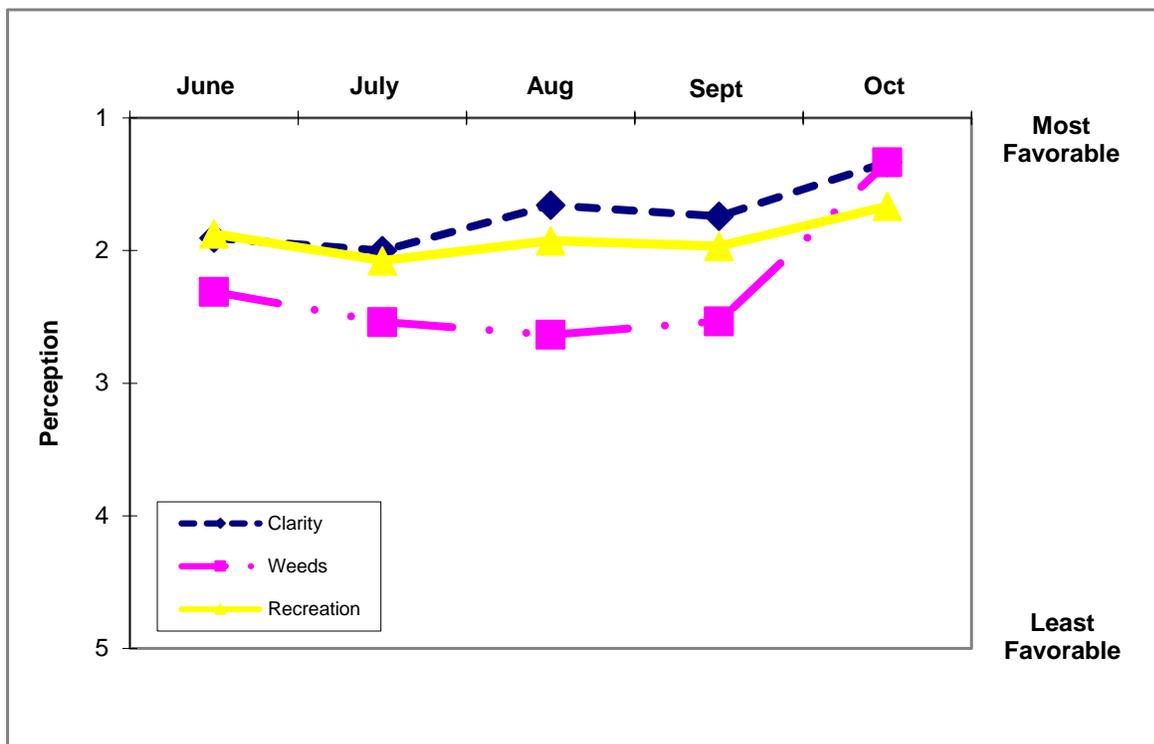
Time Series: Trophic Indicators, Typical Year (1988-2015)



Time Series: Lake Perception Indicators, 2015



Time Series: Lake Perception Indicators, Typical Year (1988-2015)



Appendix A- CSLAP Water Quality Sampling Results for Queechey Lake

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a	Cl
52	Queechey L	6/18/1988	13.5	7.75	1.5	0.010	0.01				10	8.38	226		3.63	
52	Queechey L	6/27/1988	13.3	7.50	1.5	0.010	0.01				7	8.57	310		3.11	
52	Queechey L	7/5/1988	13.3	6.25	1.5	0.009	0.01				1	8.64	308		2.00	
52	Queechey L	7/12/1988	13.0	5.15	1.5	0.008	0.01				5	8.59	301		1.85	
52	Queechey L	7/20/1988	13.0	4.88	1.5	0.014	0.01				5	8.51	298			
52	Queechey L	7/26/1988	13.0	5.00	1.5	0.023	0.01				2	8.26	289		2.96	
52	Queechey L	8/2/1988	13.0	5.25	1.5	0.008	0.01				5	8.62	292		1.65	
52	Queechey L	8/8/1988	13.0	5.00	1.5		0.01				10	8.54	287		1.78	
52	Queechey L	8/19/1988	13.0	5.75	1.5	0.008	0.01				7	8.51	234		1.73	
52	Queechey L	8/30/1988	13.0	4.75	1.5	0.012	0.01				4	8.52	290		2.74	
52	Queechey L	9/6/1988	13.0	4.50	1.5	0.016	0.01				5	8.53	289		3.11	
52	Queechey L	9/13/1988	13.0	4.75	1.5	0.010	0.01				6	8.59	271		1.92	
52	Queechey L	9/20/1988	12.8	4.75	1.5	0.012	0.01				7	8.54	296		1.92	
52	Queechey L	9/27/1988	12.3	6.00	1.5	0.010	0.01				2	8.47	299		2.74	
52	Queechey L	10/4/1988	12.5	5.88	1.5	0.011	0.01				3	8.47	302		3.40	
52	Queechey L	6/27/1989	13.0	7.38	1.5	0.009	0.01				3	8.47	296		1.28	
52	Queechey L	7/3/1989	13.0	7.13	1.5	0.013					7	8.45	297		0.97	
52	Queechey L	7/11/1989	13.0	6.50	1.5	0.014					5	8.45	293		1.70	
52	Queechey L	7/18/1989	12.5	6.00	1.5	0.008	0.01				7	8.56	297		1.91	
52	Queechey L	7/24/1989	12.5	6.25	1.5	0.005					5	8.58	292		1.54	
52	Queechey L	8/1/1989	12.5	6.13	1.5	0.006					5	8.50	293		2.13	
52	Queechey L	8/8/1989	12.8	5.63	1.5	0.007	0.01				4	8.57	303		2.89	
52	Queechey L	8/14/1989	12.5	5.38	1.5	0.005					5	8.56	290			
52	Queechey L	8/21/1989	12.5	4.75	1.5	0.007					6	7.88	290		2.60	
52	Queechey L	8/28/1989	12.5	5.29	1.5	0.012	0.01				5	8.50	293		3.09	
52	Queechey L	9/12/1989	13.0	5.25	1.5	0.009					4	8.56	293		1.87	
52	Queechey L	9/27/1989	13.0	6.50	1.5	0.010					4	8.42	298		6.01	
52	Queechey L	6/27/1990	13.0	4.63	1.5	0.009	0.02				5	8.61	285		7.44	
52	Queechey L	7/11/1990	13.0	4.00	1.5	0.010					5	8.47	294		3.29	
52	Queechey L	7/18/1990	13.0	4.38	1.5	0.007	0.01				5	8.60	292		2.86	
52	Queechey L	8/1/1990	13.0	5.00	1.5	0.006					3	8.52	294		2.39	
52	Queechey L	8/15/1990	13.0	5.38	1.5	0.008	0.01				3	8.51	283		2.30	
52	Queechey L	8/29/1990	13.0	5.13	1.5	0.011					7	8.45	282		2.13	
52	Queechey L	9/12/1990	13.0	5.50	1.5	0.008					4	8.51	287		2.75	
52	Queechey L	9/26/1990	13.0	6.00	1.5	0.009	0.01				8	8.42	298		3.73	
52	Queechey L	6/19/1991	13.0	4.88	1.5	0.008	0.01				4	8.51	286		2.90	
52	Queechey L	7/2/1991	12.5	4.95	1.5	0.008					14	7.27	289		4.00	
52	Queechey L	7/16/1991	12.5	4.25	1.5	0.009	0.01				5	8.08	296		2.87	
52	Queechey L	7/31/1991	13.0	3.50	1.5	0.010						8.36	289		4.04	
52	Queechey L	8/14/1991	13.0	4.50	1.5	0.011	0.01				5	8.54	287		3.14	
52	Queechey L	8/28/1991	13.0	4.00	1.5	0.011						8.47	286		3.10	
52	Queechey L	9/11/1991	13.0	5.50	1.5	0.009	0.01				5	8.45	282		2.61	
52	Queechey L	9/24/1991	13.0	6.50	1.5	0.008					2	8.49	288		3.96	
52	Queechey L	6/3/1992	13.0	5.63	1.5	0.010	0.05				2	8.22	312		2.67	
52	Queechey L	6/17/1992	13.0	4.50	1.5	0.010	0.01				4	8.51	282		2.23	
52	Queechey L	6/29/1992	13.5	3.95	1.5	0.008	0.01				8	8.58	277		2.14	
52	Queechey L	7/14/1992	13.0	4.50	1.5	0.010					5	8.47	282		2.63	
52	Queechey L	7/28/1992	13.0	5.75	1.5	0.009	0.01				3	8.49	286		2.72	
52	Queechey L	8/12/1992	13.0	6.50	1.5	0.010					5	8.52	286		2.96	
52	Queechey L	8/26/1992	13.0	5.63	1.5	0.006	0.01				4	8.47	290		2.31	
52	Queechey L	9/16/1992	13.0	4.38	1.5	0.010					7	8.50	294		2.80	
52	Queechey L	9/21/1998	12.1	6.05	1.5	0.009					4	8.32	290		0.74	
52	Queechey L	7/6/1998	12.6	4.65	1.5		0.01				1	8.47	286		1.62	
52	Queechey L	7/20/1998	12.3	3.80	1.5	0.013	0.01				1	8.59	290		1.97	
52	Queechey L	8/4/1998	12.7	5.30	1.5		0.01				2	8.60	291		2.89	
52	Queechey L	8/18/1998	12.3	4.15	1.5						3	8.62	280		3.83	
52	Queechey L	8/31/1998	12.5	4.45	1.5		0.01				6	8.42	288		2.31	
52	Queechey L	6/1/1999	12.2	5.15	1.5	0.009	0.01				6	8.39	315		0.44	
52	Queechey L	6/15/1999	12.7	4.95	1.5	0.007	0.01				6	8.50	308		1.41	
52	Queechey L	6/29/1999	12.2	3.45	1.5	0.007	0.01				3	8.61	300		1.38	
52	Queechey L	7/14/1999	12.2	3.95	1.5	0.010	0.01				5	8.42	293		0.56	
52	Queechey L	7/27/1999	12.0	5.45	1.5	0.009	0.01				6	8.53	285		0.86	
52	Queechey L	8/11/1999	12.9	6.90	1.5	0.007	0.01				4	8.38	294		0.69	

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a	Cl
52	Queechy L	8/23/1999	12.0	7.30	1.5	0.006	0.01				4	8.41	292		0.48	
52	Queechy L	9/14/1999	12.2	5.35	1.5	0.007	0.01				6	8.15	295		3.21	
52	Queechy L	6/13/2000	11.5	4.85	1.5	0.009	0.01				6	8.21	308		5.90	
52	Queechy L	6/27/2000	12.4	3.30	1.5	0.006	0.01				6	8.63	302		4.60	
52	Queechy L	7/11/2000	12.5	4.40	1.5	0.007	0.01				2	8.45	306		1.56	
52	Queechy L	7/25/2000	12.5	4.40	1.5		0.01				4	7.73	304		3.89	
52	Queechy L	8/8/2000	12.4	4.55	1.5	0.011	0.01				3	8.45	301		1.62	
52	Queechy L	8/23/2000	12.9	6.55	1.5	0.006	0.01				3	8.23	300		0.72	
52	Queechy L	9/5/2000	12.3	6.05	1.5	0.012	0.01				6	8.38	301		3.43	
52	Queechy L	9/18/2000	12.5	6.25	1.5	0.009	0.01				6	8.32	303		1.57	
52	Queechy L	6/12/2001	12.4	4.10	1.5		0.01				4	8.34	319		1.03	
52	Queechy L	6/25/2001	11.0	4.25	1.5	0.010	0.01				1	7.33	315		1.96	
52	Queechy L	7/10/2001	13.0	4.00	1.5	0.007	0.01				3	7.57	310		1.69	
52	Queechy L	7/24/2001	12.3	3.65	1.5	0.005	0.01				4	8.17	301		0.60	
52	Queechy L	8/7/2001	12.4	5.40	1.5	0.008	0.01				3	8.68	295		1.89	
52	Queechy L	8/21/2001	12.8	6.15	1.5	0.006					2	8.43	293			
52	Queechy L	9/4/2001	12.2	4.50	1.5	0.007					5	8.47	289		2.06	
52	Queechy L	9/18/2001	12.4	7.15	1.5	0.006					6	8.55	290		0.35	
52	Queechy L	05/21/02	12.3	7.00	1.5		0.01	0.02	0.62		8	8.37	305		1.13	
52	Queechy L	06/11/02	12.7	5.25	1.5		0.01	0.03	0.61		3	8.58	313			
52	Queechy L	06/25/02	12.6	4.98	11.5	0.009	0.01	0.02	0.43	104.42	14	8.61	320		0.09	
52	Queechy L	07/09/02	12.0	3.85	1.5	0.008	0.01	0.03	0.48	129.17	3	8.66	314		1.78	
52	Queechy L	07/23/02	12.1	4.05	1.5	0.009	0.02	0.04	0.61	153.07	7	8.64	304		1.24	
52	Queechy L	08/06/02	12.7	4.85	1.5	0.008	0.00	0.01	0.69	196.86	7	8.49	315		1.14	
52	Queechy L	08/20/02	12.5	5.30	1.5	0.007	0.00	0.04	0.63	205.52	6	8.62	309		0.91	
52	Queechy L	09/03/02	12.2	6.20	1.5	0.005	0.01	0.02	0.60	244.33	1	8.18	313		2.97	
52	Queechy L	6/17/2003	12.4	3.70	1.5											
52	Queechy L	6/30/2003	12.7	3.95	1.5	0.011	0.00	0.00	0.27	55.41	2	8.51	343		0.57	
52	Queechy L	7/15/2003	12.8	3.30	1.5	0.013	0.00	0.03	0.71	120.72	6	8.31	334		2.56	
52	Queechy L	7/28/2003	12.6	4.45	1.5	0.009	0.01	0.01	0.19	44.68	11	8.48	332		1.14	
52	Queechy L	8/12/2003	12.4	5.15	1.5	0.008	0.00	0.04	0.32	93.49	18	8.45	322	30.0	1.91	
52	Queechy L	8/24/2003	12.5	5.05	1.5	0.009	0.01	0.01	0.35	90.41	8	8.05	323		2.08	
52	Queechy L	9/8/2003	12.7	6.65	1.5	0.009	0.02	0.01			7	8.50	322		1.06	
52	Queechy L	9/30/2003	11.7	6.60	1.5	0.004	0.00	0.01	0.33	197.25	12	8.09	303		0.77	
52	Queechy L	6/28/2004	12.3	3.10	1.5	0.005	0.01	0.01	0.34	166.04	38	7.05	295		0.50	
52	Queechy L	7/11/2004	13.0	4.00	1.5	0.007	0.01	0.01	0.18	53.69						
52	Queechy L	8/2/2004	11.7	5.00	1.5	0.010	0.04	0.01	0.49	112.16	8	7.76	279		1.60	
52	Queechy L	8/9/2004	12.7	5.00	1.5	0.008	0.01	0.01	1.59	424.40	15	7.63	238		0.71	
52	Queechy L	8/23/2004	12.5	5.40	1.5	0.005	0.01	0.01	0.30	127.23	26	7.41	310	28.5	1.60	
52	Queechy L	9/6/2004	12.3	6.00	1.5	0.007	0.01	0.01	0.25	78.81	3	8.12	177		2.00	
52	Queechy L	9/20/2004	12.8	4.80	1.5	0.007	0.02	0.03	0.48	150.13	10	7.16	249		1.80	
52	Queechy L	10/10/2004				0.008	0.05	0.01	0.59	155.10	0	7.76	169			
52	Queechy L	7/4/2005	13.0	4.30		0.007	0.03	0.01	0.27	79.46	20	7.08		26.6	4.79	
52	Queechy L	7/17/2005	12.8	4.15		0.005	0.01	0.01	0.23	96.68	1	7.20	241		8.38	
52	Queechy L	7/31/2005	12.6	6.45		0.008	0.01	0.01	0.40	111.32	17	7.40	206		15.64	
52	Queechy L	8/14/2005	12.8	6.75		0.005	0.03	0.01	0.15	68.89	16	7.20	244		20.62	
52	Queechy L	8/28/2005	12.8	5.30		0.007	0.03	0.01	0.12	36.47	13	7.53	298	23.2	13.01	
52	Queechy L	9/11/2005	12.8	5.50		0.005	0.01	0.01	0.16	67.34	15	7.85	196		1.87	
52	Queechy L	9/25/2005	12.9	6.25		0.009	0.02	0.02	0.36	87.90	1	8.09	285		2.04	
52	Queechy L	10/19/05	12.9	6.55		0.007	0.01	0.01	0.14	45.10	5	7.70	191		2.94	
52	Queechy L	6/18/2006	13.0	6.75	1.0	0.009	0.02	0.02	0.43	104.28	11	8.44	314	28.9	1.10	
52	Queechy L	7/5/2006	13.1	5.25		0.006	0.00	0.01	0.40	141.68	28				0.94	
52	Queechy L	7/17/2006	12.9	4.50		0.007	0.01	0.01	0.55	171.15	4	8.47	262		0.92	
52	Queechy L	8/4/2006	12.9	5.95		0.006	0.02	0.01	0.51	204.84	16	7.04	234		0.96	
52	Queechy L	8/20/2006	12.9	6.85		0.006	0.00	0.03	0.49	186.39	34	7.84	201	25.3	1.76	
52	Queechy L	9/4/2006	12.9	6.35		0.007			0.40	128.39	30	7.41	225		1.80	
52	Queechy L	9/17/2006	12.9	7.60		0.005	0.01	0.01	0.57	233.62	13	8.44	240		1.50	
52	Queechy L	10/2/2006	13.0	7.30		0.006	0.00	0.02	0.37	134.98	23	6.88	188		1.81	
52	Queechy L	7/8/2007	12.5	4.10	1.5	0.010	0.00	0.01	0.35	78.05	21	7.30	241	25.3	1.78	
52	Queechy L	7/22/2007	12.8	4.50	1.5	0.007	0.01	0.02	0.45	132.36	31	7.40	190		1.89	
52	Queechy L	8/5/2007	12.6	6.10	1.5	0.007	0.01	0.02	0.80	238.96	19	7.97	199		2.99	
52	Queechy L	8/19/2007		6.35	1.5	0.006	0.00	0.03	0.40	138.19	23	7.55	187			
52	Queechy L	9/3/2007	12.7	5.45	1.5	0.008	0.01	0.02	0.60	174.29	18	8.31	104	22.2	1.44	
52	Queechy L	9/7/2007	12.5	6.35	1.5											
52	Queechy L	9/16/2007	13.1	5.55	1.5	0.009	0.00	0.01	0.43	107.98	20	7.87	146		9.44	
52	Queechy L	9/29/2007	12.5	6.35	1.5	0.006	0.01	0.05	0.59	207.88	28	7.85	202		4.96	

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a	Cl
52	Queechy L	10/14/2007	13.0	5.90		0.010	0.01	0.03	0.61	131.21	29	7.68	207		17.46	
52	Queechy L	6/7/2008	12.3	5.15		0.009	0.02	0.04	0.39	94.15	27	7.10	159	28.8	2.40	
52	Queechy L	6/22/2008	12.3	5.05		0.008	0.01	0.01	0.23	59.43	37	7.49	183		1.93	
52	Queechy L	7/4/2008	12.4	4.35		0.007	0.01	0.02	0.30	100.30	47	7.77	227		1.29	
52	Queechy L	7/20/2008	11.5	4.70		0.007	0.01	0.02			36	8.19	175	25.1	1.75	
52	Queechy L	8/3/2008	10.9	5.40		0.008	0.01	0.03	0.35	94.12	24	7.65	210		2.18	
52	Queechy L	8/16/2008	12.5	5.50		0.006	0.00	0.02	0.21	85.84	28	7.89	195		1.46	
52	Queechy L	8/30/2008	11.4	6.30		0.006	0.00	0.01	0.28	98.74	32	7.61	202		2.32	
52	Queechy L	9/13/2008	10.9	6.13		0.017	0.01	0.12	0.68	85.77	23	7.67	215		3.67	
52	Queechy L	06/20/2009	12.2	4.30		0.009	0.01	0.04	0.32	82.64	35	7.16	210	34.9	0.50	
52	Queechy L	07/03/2009	12.6	4.95		0.008	0.02	0.02	0.23	62.15	37	7.71	234		1.84	
52	Queechy L	07/19/2009	0.5	4.50		0.008	0.01	0.02	0.27	74.35	30	7.06	148		1.88	
52	Queechy L	08/03/2009	11.9	4.60		0.008	0.01	0.08	0.09	25.90	33	7.66	193		1.54	
52	Queechy L	08/14/2009	13.0	5.55		0.007	0.01	0.02	0.26	84.72	26	8.07	196	31.0	1.40	
52	Queechy L	08/30/2009	12.7	7.05		0.008	0.01	0.03	0.20	56.29	46	6.81	214		1.10	
52	Queechy L	09/13/2009				0.009	0.01	0.02	0.30	73.75	13	8.23	192		2.00	
52	Queechy L	09/26/2009	12.7	7.33		0.006	0.01	0.08	0.40	139.33	38	7.60	198		1.30	
52	Queechy L	06/04/2010	12.3	6.70		0.011	0.01	0.03			37	7.64	284	33.8	0.80	
52	Queechy L	06/20/2010	12.2	5.70		0.013	0.06	0.02	0.43	72.55	21	7.10	275		2.40	
52	Queechy L	07/05/2010	12.8	4.90		0.012	0.02	0.03	0.46	86.51	21	7.32	249		1.90	
52	Queechy L	07/18/2010		4.60		0.008	0.01	0.03	0.35	98.58	35	7.25	262		1.10	
52	Queechy L	07/31/2010		5.45		0.008	0.02	0.03	0.42	113.22	44	7.87	218	23.7	1.30	
52	Queechy L	08/16/2010	11.7	5.48		0.011	0.01	0.01	0.33	68.47	48	7.45	220		2.30	
52	Queechy L	08/25/2010	12.6	6.05		0.010	0.04	0.03	0.40	88.90	26	7.72	279		3.20	
52	Queechy L	09/12/2010	11.5	5.00		0.011	0.09	0.06	0.45	93.35	24	7.38	257		1.90	
52	Queechy L	06/05/2011	10.9	5.05		0.014	0.01	0.02	0.18	28.55	54	7.55	301	31.5	2.00	
52	Queechy L	06/19/2011	12.7	4.75		0.012	0.01	0.03	0.29	53.61	29	7.56	258		2.80	
52	Queechy L	07/04/2011	12.2	3.90		0.011	0.04	0.05	0.33	64.26	35	7.51	254		0.30	
52	Queechy L				bloom											
52	Queechy L	07/17/2011	12.3	4.95		0.010	0.01	0.03	0.31	70.08	26	7.42	222			
52	Queechy L	07/31/2011	12.2	5.90	1.5	0.008	0.01	0.02	0.32	84.07	27	7.66	190	27.2	1.00	
52	Queechy L	08/14/2011	11.9	5.73			0.02	0.01	0.40	13.12	25	8.17	164		1.10	
52	Queechy L	09/05/2011	11.5	7.05		0.008	0.03	0.02	0.32	90.57	18	7.47	237		1.20	
52	Queechy L	09/11/2011	11.3	7.00		0.011	0.01	0.04	0.34	67.00	27	8.20	174		2.00	
52	Queechy L	06/09/2012	11.6	5.58	1.5	0.010	0.01	0.01	0.38	86.17	27	7.10	264	30.9	1.50	
52	Queechy L	06/24/2012	12.1	7.45	1.5	0.015	0.01	0.04	0.52	76.12	27	7.53	242		1.30	
52	Queechy L	07/09/2012	12.9	4.10	1.5	0.008	0.01	0.01	0.31	82.43	34	7.49	240		1.80	
52	Queechy L	07/22/2012	10.9	3.80	1.5	0.012	0.02	0.02			27	8.20	273		1.90	
52	Queechy L	08/05/2012	11.0	6.33	1.5	0.014	0.01	0.03	0.49	75.14	21	7.52	189	27.6	1.10	
52	Queechy L	08/18/2012	11.9	6.28	1.5	0.008	0.03	0.02	0.40	116.66	6	7.43	234		1.50	
52	Queechy L	09/03/2012	11.4	5.53	1.5	0.011	0.01	0.04	0.31	61.40	6	7.94	181		1.20	
52	Queechy L	09/16/2012	12.0	5.58	1.5	0.008	0.01	0.03	0.24	62.82	6	8.07	151		0.50	
52	Queechy L	09/17/2012			bloom											
52	Queechy L	06/02/2013	11.0	6.20	1.5	0.015	0.03	0.03	0.32	46.66	25	7.46	231	29.4	0.50	
52	Queechy L	06/16/2013	11.7	6.00	1.5	0.007			0.29	94.15		7.26	245		1.30	
52	Queechy L	06/30/2013	11.4	5.25	1.5	0.013	0.01	0.01	0.23	38.63	30	7.13	269		1.20	
52	Queechy L	07/14/2013	11.2	4.60	1.5	0.010			0.30	63.92	37	7.34	260		0.05	
52	Queechy L	07/28/2013	10.8	4.55	1.5	0.009	0.01	0.01	0.14	36.33	25	7.30	256			
52	Queechy L	08/11/2013	11.3	8.90	1.5	0.007			0.47	147.38	29	7.52	246		0.50	
52	Queechy L	08/25/2013	11.2	6.58	1.5	0.008	0.01	0.02	0.36	99.14	22	7.50	254		0.80	
52	Queechy L	09/08/2013	11.2	7.65	1.5	0.007			0.46	138.45	26	7.39	251		1.00	
52	Queechy L	6/1/2014	11.4	6.50	1.5	0.010	0.02	0.03	0.33	72.16	12	7.12	215	28.8	2.00	
52	Queechy L	6/15/2014	11.7	5.30	1.5	0.009			0.31	75.53	5	7.42	241		2.20	
52	Queechy L	6/29/2014	11.5	3.85	1.5	0.009	0.06	0.03	0.30	75.75	6	7.49	233		2.20	
52	Queechy L	7/13/2014	11.5	3.60	1.5	0.008			0.38	103.68	12	6.95	267		1.80	
52	Queechy L	7/27/2014	11.8	5.60	1.5	0.007	0.01	0.03	0.30	96.09	5	6.92	246	23.8	1.10	
52	Queechy L	8/10/2014	11.6	5.88	1.5	0.007			0.28	95.11	5	7.13	249		2.30	
52	Queechy L	8/24/2014	11.3	6.05	1.5	0.006	0.02	0.01	0.33	123.42	4	7.28	257		2.10	
52	Queechy L	9/8/2014														
52	Queechy L	9/7/2014	11.3	6.58	1.5	0.005			0.27	111.25	6	7.51	252		1.40	
52	Queechy L	6/14/2015	13.0	5.00	1.5	0.005	0.01	0.04	0.33	72	3	7.46	289	18.8	0.90	
52	Queechy L	6/27/2015	11.2	4.70	1.5	0.005			0.40	83	3	7.26	296		2.10	
52	Queechy L	7/12/2015	11.7	4.40	1.5	0.004	0.00	0.04	0.33	83	8	7.13			1.40	32.5
52	Queechy L	7/26/2015	11.9	6.40	1.5	0.003			0.32	112	6	7.84	266		1.00	
52	Queechy L	8/9/2015	11.8	6.30	1.5	0.005	0.01	0.03	0.39	83	6	7.40	282	15.1	0.90	
52	Queechy L	8/23/2015	11.8	6.50	1.5	0.004			0.37	86	7	7.29	251		1.00	

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a	Cl
52	Queechy L	9/6/2015	11.1	5.80	1.5	0.004	0.01	0.07	0.18	40	6	8.10	265		1.00	30.2
52	Queechy L	7/19/2015			Bloom											
52	Queechy L	8/24/2015			Bloom											
52	Queechy L	8/24/2015			bloom											
52	Queechy L	9/21/2015	11.6	5.30	1.5	0.011										
52	Queechy L	6/15/1999			12.0	0.020										
52	Queechy L	7/14/1999			11.5	0.120										
52	Queechy L	8/11/1999			12.0	0.340										
52	Queechy L	9/14/1999			11.5	0.290										
52	Queechy L	6/27/2000			11.5	0.034										
52	Queechy L	7/25/2000			11.5	0.120										
52	Queechy L	8/23/2000			11.5	0.066										
52	Queechy L	9/18/2000			11.5	0.190										
52	Queechy L	05/21/02	12.3	7.00	11.0	0.016	0.01	0.15	0.67	42.34						
52	Queechy L	06/11/02	12.7	5.25	11.6		0.01	0.14	0.43							
52	Queechy L	06/25/02	12.6	4.98	11.5	0.012	0.01	0.36	0.64	53.11						
52	Queechy L	07/09/02	12.0	3.85	11.0	0.039	0.02	0.17	0.51	13.05						
52	Queechy L	07/23/02	12.1	4.05	11.0	0.070	0.00	0.18	0.55	7.92						
52	Queechy L	08/06/02	12.7	4.85	11.0	0.018	0.00	0.01	0.67	38.37						
52	Queechy L	08/20/02	12.5	5.30	11.0	0.019	0.00	0.05	0.40	21.04						
52	Queechy L	09/03/02	12.2	6.20	11.0		0.36	0.45	1.31							
52	Queechy L	6/28/2004	12.3		11.5	0.035	0.01	0.48	1.32	37.25						
52	Queechy L	7/11/2004	13.0		12.0	0.020	0.01	0.43	0.55	27.09						
52	Queechy L	8/2/2004	11.7		11.0	0.027	0.01	0.36	0.47	17.74						
52	Queechy L	8/9/2004	12.7		11.7	0.059	0.04	0.85	0.51	8.71						
52	Queechy L	8/23/2004	12.5		11.5	0.008	0.03	0.01	0.17	20.36						
52	Queechy L	9/6/2004	12.3		11.3	0.027	0.01	0.13	0.32	12.13						
52	Queechy L	9/20/2004	12.8		11.8	0.158	0.04	0.89	1.22	7.73						
52	Queechy L	10/10/2004					0.02	0.01	0.61							
52	Queechy L	7/4/2005			12.5	0.004										
52	Queechy L	7/17/2005				0.035										
52	Queechy L	7/31/2005			11.6	0.019										
52	Queechy L	8/14/2005			11.8	0.031										
52	Queechy L	8/28/2005				0.022										
52	Queechy L	9/11/2005			11.8	0.059										
52	Queechy L	9/25/2005			12.9	0.033										
52	Queechy L	6/18/2006	13.0		12.8	0.025										
52	Queechy L	7/5/2006	13.1		13.0	0.014										
52	Queechy L	7/17/2006	12.9		12.9	0.017										
52	Queechy L	8/4/2006	12.9		12.9	0.019										
52	Queechy L	8/20/2006	12.9		12.9	0.049										
52	Queechy L	9/4/2006	12.9		12.9	0.029										
52	Queechy L	9/17/2006	12.9		12.9	0.051										
52	Queechy L	10/2/2006	13.0		13.0	0.033										
52	Queechy L	7/8/2007	12.5		12.4	0.017										
52	Queechy L	7/22/2007	12.8		12.8	0.010										
52	Queechy L	8/5/2007	12.6		12.0	0.079										
52	Queechy L	8/19/2007			13.0	0.083										
52	Queechy L	9/3/2007	12.7		12.7	0.021										
52	Queechy L	9/16/2007	13.1		13.1	0.072										
52	Queechy L	9/29/2007	12.5		13.0	0.035										
52	Queechy L	10/14/2007				0.040										
52	Queechy L	6/7/2008			12.3	0.011										
52	Queechy L	6/22/2008			12.0	0.025										
52	Queechy L	7/4/2008			12.1	0.013										
52	Queechy L	7/20/2008			11.0	0.020										
52	Queechy L	8/3/2008			10.8	0.016										
52	Queechy L	8/16/2008			12.5	0.168										
52	Queechy L	8/30/2008			11.0	0.048										
52	Queechy L	9/13/2008			10.6	0.015										
52	Queechy L	06/20/2009				0.024		0.36								
52	Queechy L	07/03/2009				0.013										
52	Queechy L	07/19/2009				0.024		0.24								
52	Queechy L	08/03/2009				0.022										
52	Queechy L	08/14/2009				0.050		0.34								
52	Queechy L	08/30/2009				0.049										

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP					NO2	
52	Queechy L	09/13/2009				0.050		0.10								
52	Queechy L	09/26/2009				0.026										
52	Queechy L	6/4/2010	12.3		12.0	0.023		0.33								
52	Queechy L	7/5/2010	12.8			0.022		0.30								
52	Queechy L	7/31/2010			11.0	0.027		0.21								
52	Queechy L	9/12/2010			11.0	0.032		0.02								
52	Queechy L	6/5/2011	10.9			0.056		0.13								
52	Queechy L	7/4/2011	12.2		12.2	0.026		0.29								
52	Queechy L	7/31/2011	12.2		12.0	0.014		0.07								
52	Queechy L	9/5/2011	11.5			0.018		0.01								
52	Queechy L	6/24/2012			11.5	0.044		0.41						0.00		
52	Queechy L	7/9/2012			12.5	0.021		0.17								
52	Queechy L	8/5/2012			10.0	0.014		0.02								
52	Queechy L	9/3/2012			11.0	0.015		0.03								
52	Queechy L	6/2/2013			10.5	0.013		0.06								
52	Queechy L	6/30/2013			11.0	0.022		0.04								
52	Queechy L	7/28/2013			10.0	0.012		0.02								
52	Queechy L	8/25/2013			11.0	0.015		0.13								
52	Queechy L	6/1/2014			11.2	0.030		0.20								
52	Queechy L	6/15/2014			11.0	0.009										
52	Queechy L	6/29/2014			11.0	0.010		0.17								
52	Queechy L	7/13/2014			10.0	0.010										
52	Queechy L	7/27/2014			10.0	0.004		0.19								
52	Queechy L	8/10/2014			10.0	0.007										
52	Queechy L	8/24/2014			9.8	0.010		0.07								
52	Queechy L	9/7/2014			9.8	0.010										
52	Queechy L	6/14/2015			11.5	0.032		0.35								
52	Queechy L	6/27/2015			9.7	0.037										
52	Queechy L	7/12/2015			10.2	0.042		0.23								
52	Queechy L	7/26/2015			10.4	0.037										
52	Queechy L	8/9/2015			10.3	0.037		0.19								
52	Queechy L	8/23/2015			10.3	0.020										
52	Queechy L	9/6/2015			9.6	0.073		0.05								
52	Queechy L	9/21/2015			10.1	0.038										

LNum	PName	Date	Site	TAir	TH20	QA	QB	QC	QD	QE	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cyl	FP-Chl	FP-BG	HAB form	Shore HAB
52	Queechy L	6/18/1988	epi	26	22																
52	Queechy L	6/27/1988	epi	18	20																
52	Queechy L	7/5/1988	epi	30	23																
52	Queechy L	7/12/1988	epi	27	26																
52	Queechy L	7/20/1988	epi	27	25																
52	Queechy L	7/26/1988	epi	29	24																
52	Queechy L	8/2/1988	epi	28	26																
52	Queechy L	8/8/1988	epi	24	26																
52	Queechy L	8/19/1988	epi	22	25																
52	Queechy L	8/30/1988	epi	17	20																
52	Queechy L	9/6/1988	epi	13	20																
52	Queechy L	9/13/1988	epi	19	20																
52	Queechy L	9/20/1988	epi	20	20																
52	Queechy L	9/27/1988	epi	15	18																
52	Queechy L	10/4/1988	epi	12	17																
52	Queechy L	6/27/1989	epi	28	24																
52	Queechy L	7/3/1989	epi	27	24																
52	Queechy L	7/11/1989	epi	21	24																
52	Queechy L	7/18/1989	epi	22	23																
52	Queechy L	7/24/1989	epi	26	24																
52	Queechy L	8/1/1989	epi	24	24																
52	Queechy L	8/8/1989	epi	17	24																
52	Queechy L	8/14/1989	epi	26	23																
52	Queechy L	8/21/1989	epi	24	24																
52	Queechy L	8/28/1989	epi	23	22																
52	Queechy L	9/12/1989	epi	20	22																

LNum	PName	Date	Site	TAir	TH20	QA	QB	QC	QD	QE	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cyl	FP-Chl	FP-BG	HAB-form	Shore HAB
52	Queechy L	9/27/1989	epi	10	16																
52	Queechy L	6/27/1990	epi	25	22																
52	Queechy L	7/11/1990	epi	18	22																
52	Queechy L	7/18/1990	epi	28	25																
52	Queechy L	8/1/1990	epi	20	25																
52	Queechy L	8/15/1990	epi	22	24																
52	Queechy L	8/29/1990	epi	22	23																
52	Queechy L	9/12/1990	epi	23	22																
52	Queechy L	9/26/1990	epi	17	17																
52	Queechy L	6/19/1991	epi	24	23																
52	Queechy L	7/2/1991	epi	19	22																
52	Queechy L	7/16/1991	epi	24	23																
52	Queechy L	7/31/1991	epi	23	24																
52	Queechy L	8/14/1991	epi	21	23																
52	Queechy L	8/28/1991	epi	25	24																
52	Queechy L	9/11/1991	epi	19	22																
52	Queechy L	9/24/1991	epi	16	18																
52	Queechy L	6/3/1992	epi	20	17	2	3	3	2												
52	Queechy L	6/17/1992	epi	23	22	3	3	3	234												
52	Queechy L	6/29/1992	epi	25	22																
52	Queechy L	7/14/1992	epi	27	22	2	3	2	2												
52	Queechy L	7/28/1992	epi	21	22	2	3	2	2												
52	Queechy L	8/12/1992	epi	20	22	1	2	2													
52	Queechy L	8/26/1992	epi	29	23	2	2	2													
52	Queechy L	9/16/1992	epi	23	21	2	2	2	0												
52	Queechy L	9/21/1998	epi	25	24	1	3	2	5												
52	Queechy L	7/6/1998	epi	23	26	2	3	2													
52	Queechy L	7/20/1998	epi	27	26	2	3	2	5												
52	Queechy L	8/4/1998	epi	30	26	2	2	2													
52	Queechy L	8/18/1998	epi	24	26	2	3	2	5												
52	Queechy L	8/31/1998	epi	23	25	2	3	2	5												
52	Queechy L	6/1/1999	epi	29	22	1	2	1	0												
52	Queechy L	6/15/1999	epi	20	24	1	3	2													
52	Queechy L	6/29/1999	epi	27	26	2	3	2													
52	Queechy L	7/14/1999	epi	27	25																
52	Queechy L	7/27/1999	epi	27	28	1	3	2	0												
52	Queechy L	8/11/1999	epi	21	24	1	3	2	5												
52	Queechy L	8/23/1999	epi	21	23	1	3	1													
52	Queechy L	9/14/1999	epi	25	24	1	3	2	5												
52	Queechy L	6/13/2000	epi	19	20	2	1	2	5												
52	Queechy L	6/27/2000	epi	26	25	2	2	2	35												
52	Queechy L	7/11/2000	epi	22	24	1	3	3	2												
52	Queechy L	7/25/2000	epi	25	24	2	3	2	6												
52	Queechy L	8/8/2000	epi	29	25	2	3	1													
52	Queechy L	8/23/2000	epi	20	22	1	2	1													
52	Queechy L	9/5/2000	epi	13	22	1	1	1	6												
52	Queechy L	9/18/2000	epi	22	20	1	2	1													
52	Queechy L	6/12/2001	epi	21	21	1	2	1	5												
52	Queechy L	6/25/2001	epi	22	23	2	3	2	0												
52	Queechy L	7/10/2001	epi	26	25	1	2	1	0												
52	Queechy L	7/24/2001	epi	30	27	2	2	2	2												
52	Queechy L	8/7/2001	epi	27	28	2	2	2	2												
52	Queechy L	8/21/2001	epi	28	26	1	3	2													
52	Queechy L	9/4/2001	epi	21	24	1	2	2													
52	Queechy L	9/18/2001	epi	18	21	1	3	1	6												
52	Queechy L	05/21/02	epi	13	14	1	2	1	5												
52	Queechy L	06/11/02	epi	25	22	1	2	1	6												
52	Queechy L	06/25/02	epi	25	24	5	3	3	236												
52	Queechy L	07/09/02	epi	29	27	2	3	2	27												
52	Queechy L	07/23/02	epi	29	28	2	3	2	2												
52	Queechy L	08/06/02	epi	17	25	1	3	1	25												

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
52	Queechy L	08/20/02	epi	21	26	1	3	2	5											
52	Queechy L	09/03/02	epi	24	22	1	3	1	8											
52	Queechy L	6/17/2003	epi	26	22	2	2	1												
52	Queechy L	6/30/2003	epi	25	26	1	2	1	5											
52	Queechy L	7/15/2003	epi	26	25	3	2	2	13											
52	Queechy L	7/28/2003	epi	25	26	2	2	1												
52	Queechy L	8/12/2003	epi	29	27	1	2	1	5											
52	Queechy L	8/24/2003	epi	21	26	1	2	1												
52	Queechy L	9/8/2003	epi	22	22	1	2	1												
52	Queechy L	9/30/2003	epi	16	19	1	2	1	5											
52	Queechy L	6/28/2004	epi	20	23	2	2	2	0											
52	Queechy L	7/11/2004	epi	24	25	2	2	3	7											
52	Queechy L	8/2/2004	epi	28	28	2	2	2	0											
52	Queechy L	8/9/2004	epi	27	25	1	2	1	8											
52	Queechy L	8/23/2004	epi	25	25	1	2	1	0											
52	Queechy L	9/6/2004	epi	22	23	2	2	2	8											
52	Queechy L	9/20/2004	epi	20	20	2	2	1	0											
52	Queechy L	7/4/2005	epi	24	27	2	2	2	8											
52	Queechy L	7/17/2005	epi	27	27	1	2	2	5											
52	Queechy L	7/31/2005	epi	32	28	2	2	1	0											
52	Queechy L	8/14/2005	epi	42	30	1	2	2	8											
52	Queechy L	8/28/2005	epi	23	24	2	2	2	5											
52	Queechy L	9/11/2005	epi	23	24	2	3	3	8											
52	Queechy L	9/25/2005	epi	18	21	1	1	2	58											
52	Queechy L	10/19/05	epi	18	15	1	1	1	8											
52	Queechy L	6/18/2006	epi	26	24	2	2	2	7											
52	Queechy L	7/5/2006	epi	28	26	2	3	2	6											
52	Queechy L	7/17/2006	epi	28	29	2	2	2	7											
52	Queechy L	8/4/2006	epi	28	29	1	2	2	0											
52	Queechy L	8/20/2006	epi	30	25	2	2	2	6											
52	Queechy L	9/4/2006	epi	18	20	1	2	1	5											
52	Queechy L	9/17/2006	epi	22	21	1	2	2	8											
52	Queechy L	10/2/2006	epi	15	18	1	1	1	0											
52	Queechy L	7/8/2007	epi	30	24	2	1	1	5											
52	Queechy L	7/22/2007	epi	17	25	2	1	2	8											
52	Queechy L	8/5/2007	epi	22	27	2	3	2	0											
52	Queechy L	8/19/2007	epi	20	23	3	3	2	2											
52	Queechy L	9/3/2007	epi	26	23	2	3	2	68											
52	Queechy L	9/7/2007	epi	24	20	3	3	2	0											
52	Queechy L	9/16/2007	epi	14	19	2	1	2	8											
52	Queechy L	9/29/2007	epi	24	20	3	3	2	0											
52	Queechy L	10/14/2007	epi	10	17	2	2	3	5											
52	Queechy L	6/7/2008	epi	22	20	2	1	2	8											
52	Queechy L	6/22/2008	epi	20	22	2	2	1	5											
52	Queechy L	7/4/2008	epi	19	24	2	1	3	5											
52	Queechy L	7/20/2008	epi	25	26	2	3	3	2											
52	Queechy L	8/3/2008	epi	20	25	2	3	2	25											
52	Queechy L	8/16/2008	epi	23	23	2	1	2	5											
52	Queechy L	8/30/2008	epi	21	23	3	3	3	25											
52	Queechy L	9/13/2008	epi	25	22	3	4	3	125											
52	Queechy L	06/20/2009	epi	25	20	2	2	2	5											
52	Queechy L	07/03/2009	epi	21	23	2	2	2	0											
52	Queechy L	07/19/2009	epi	19	24	2	3	2	68											
52	Queechy L	08/03/2009	epi	22	23	2	2	1	8											
52	Queechy L	08/14/2009	epi	23	24	2	3	2	0											
52	Queechy L	08/30/2009	epi	23	22	2	3	2	0											
52	Queechy L	09/13/2009	epi									6.9								
52	Queechy L	09/26/2009	epi	14	18	2	2	1	0			36.3								
52	Queechy L	06/04/2010	epi	30	23	2	2	2	0	0	0									
52	Queechy L	06/20/2010	epi	27	22	2	2	2	0	0	0									
52	Queechy L	07/05/2010	epi	27	24	2	3	1	0	0	0									

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
52	Queechy L	07/18/2010	epi	26	27	2	4	2	0	0	0									
52	Queechy L	07/31/2010	epi	22	25	2	2	1	8	7	7									
52	Queechy L	08/16/2010	epi	25	24	3	3	1	5	0	0									
52	Queechy L	08/25/2010	epi	28	23	2	3	2	0	0	0									
52	Queechy L	09/12/2010	epi	13	20	2		2	5	0	0									
52	Queechy L	06/05/2011	epi	25	25	1	1	1	0	0	0		6.10							
52	Queechy L	06/19/2011	epi	27	29	2	1	1	0	0	0	12.60	1.20							
52	Queechy L	07/04/2011	epi	27	30	2	1	3	0	0	0	11.10	1.40	0.50	<0.5	<0.1				
52	Queechy L		bloom											17.50	<0.5	<0.2				
52	Queechy L	07/17/2011	epi	22	27	3	3	3	12	4	4	15.60	1.90							
52	Queechy L	07/31/2011	epi	28	28	3	3	3	1	4	4	10.70	1.60							
52	Queechy L	08/14/2011	epi	27	26	2	3	2	5	0	0	13.20	1.00	0.10						
52	Queechy L	09/05/2011	epi	22	23	2	2	2	0	0	0	16.80	1.30							
52	Queechy L	09/11/2011	epi	14	21	2	2	4	5	0	0		9.60							
52	Queechy L	06/09/2012	epi	19	20	2	3	2	56	7	0	3.40	0.20	<0.30	<0.417		1.08	0.78	I	
52	Queechy L	06/24/2012	epi	24	24	1	3	1	0	0	0	2.50	0.20	<0.30	<0.410		1.47	0.73		
52	Queechy L	07/09/2012	epi	23	25	2	3	1	2	0	0									
52	Queechy L	07/22/2012	epi	30	26	3	3	2	0	4	0	13.40	0.40	<0.30	<0.292		4.17	2.09		
52	Queechy L	08/05/2012	epi	29	27	2	3	2	5	0	0	3.20	0.00	<0.30	<0.330		1.78	1.04		
52	Queechy L	08/18/2012	epi	20	24	1	3	2	2			2.10	0.30	<0.30	<0.223		3.10	1.74		
52	Queechy L	09/03/2012	epi	22	24	3	3	2	0			1.40	0.20	0.52	<0.725		2.66	1.72		
52	Queechy L	09/16/2012	epi	15	21	2	4	3	23	4		3.10	0.20	<0.30	<3.299		2.39	1.49	H	
52	Queechy L	09/17/2012	bloom											0.65	<1.111		1.80	0.34		
52	Queechy L	06/02/2013	epi	25	23	2	3	2	23	4		0.05	0.30	<0.30	<0.630	0.00	0.00	0.05	F	F
52	Queechy L	06/16/2013	epi	19	19	2	3	2	2	4	4	0.90	0.60	<0.30	<0.440	0.30	0.00	0.90	F	ef
52	Queechy L	06/30/2013	epi	28	24	2	3	3	28	4	4	2.30	0.50	<0.30	<0.650	1.00	0.00	2.30	F	F
52	Queechy L	07/14/2013	epi	25	26	2	3	2	2	4	4	2.20	0.70	<0.30	<0.490	1.80	0.20	2.20	F	F
52	Queechy L	07/28/2013	epi	24	25	2	3	2	2	0	0	3.10	0.90	<0.30	<0.400	0.50	0.50	3.10	F	F
52	Queechy L	08/11/2013	epi	28	23	2	3	2	2	4	4	3.50	0.60	<0.30	<0.380	0.60	0.00	3.50	F	F
52	Queechy L	08/25/2013	epi	19	22	1	3	3	2	0	0	2.60	0.60	<0.30	<0.390	0.40	0.00	2.60	I	E
52	Queechy L	09/08/2013	epi	26	21	2	3	2	5	0	0	5.10	0.60	<0.30	<1.100	1.30	0.80	5.10	I	I
52	Queechy L	6/1/2014	epi	19	19	2	3	2	0	4	4	0.05	0.60	<0.53	<0.40	<0.001	0.23	0.00	f	
52	Queechy L	6/15/2014	epi	20	19	2	3	2	56	4	4	0.05	0.05	<0.61	<0.17	<0.001	0.00	0.00	i	
52	Queechy L	6/29/2014	epi	26	24	2	3	3	127	0	0	2.40	0.20	<1.60	<0.48	<0.002	5.24	0.00	i	
52	Queechy L	7/13/2014	epi	22	25	2	3	3	2	4	4	4.20	0.20	<0.40	<0.21	<0.003	1.80	0.41	i	
52	Queechy L	7/27/2014	epi	20	24	2	3	3	25	4	46	3.80	0.10	<0.63	<0.03	<0.001	0.72	0.00	i	e
52	Queechy L	8/10/2014	epi	21	23	2	3	3	26	4	0	0.90	0.20	<0.28	<0.05	<0.001	0.27	0.00	i	e
52	Queechy L	8/24/2014	epi	20	21	2	4	4	2	4	4	2.80	0.20	<0.26	<0.10	<0.002	1.08	0.31	i	e
52	Queechy L	9/8/2014	bloom											<0.58	<0.28	<0.003	0.82	0.00	e	de
52	Queechy L	9/7/2014	epi	19	23	2	3	3	236	4	4	1.20	0.20	<0.29	<0.14	<0.002	0.70	0.00	d	de
52	Queechy L	6/14/2015	epi	25	23	2	2	2	268	4	4	2.30	0.30	<0.55	<0.027	<0.318	0.46	0.00	F	E
52	Queechy L	6/27/2015	epi	24	22	2	2	2	5	0	6	5.10	0.30	<1.01	<0.007	<0.000	2.09	0.26	F	EG
52	Queechy L	7/12/2015	epi	24	24	2	3	2	2	4	4	4.20	0.20	<0.76	<0.003	<0.011	1.01	0.00	I	EFG
52	Queechy L	7/26/2015	epi	23	24	2	3	3	23	46	4	5.30	0.05	<0.30	<0.002	<0.014	0.19	0.00	F	EG
52	Queechy L	8/9/2015	epi	22	24	1	3	3	2	4	4	1.10	0.30	<0.44	<0.002	<0.009	0.14	0.00	F	EGH
52	Queechy L	8/23/2015	epi	22	24	1	4	3	268	457	47	3.10	0.50	<0.28	<0.008	<0.021	0.55	0.00	FH	EGH
52	Queechy L	9/6/2015	epi	23	23	2	4	3	2	4	4	0.00	0.00	<0.26	<0.023	<0.086	0.44	0.00	F	EG
52	Queechy L	7/19/2015	epi											<0.72	0.37	<0.098	122.35	21.66		ac
52	Queechy L	8/24/2015	epi											<0.95	<0.010	<0.031	8.69	8.17		H
52	Queechy L	8/24/2015	epi											<0.95	<0.010	<0.031	0.64	0.00		H
52	Queechy L	9/21/2015	epi	13	21	2	4	3	2	4	4	4.70	0.20	<0.39	0.03	<0.025	0.72	0.00	I	CDEFG
52	Queechy L	6/15/1999	hypo		11															
52	Queechy L	7/14/1999	hypo		12															
52	Queechy L	8/11/1999	hypo		11															
52	Queechy L	9/14/1999	hypo		12															
52	Queechy L	05/21/02	hypo	13	10	1	2	1	5											
52	Queechy L	06/11/02	hypo	25	11	1	2	1	6											
52	Queechy L	06/25/02	hypo	25	12	5	3	3	236											
52	Queechy L	07/09/02	hypo	29	11	2	3	2	27											
52	Queechy L	07/23/02	hypo	29	13	2	3	2	2											
52	Queechy L	08/06/02	hypo	17	12	1	3	1	25											

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
52	Queechy L	08/20/02	hypo	21	13	1	3	2	5											
52	Queechy L	09/03/02	hypo	24	12	1	3	1	8											
52	Queechy L	6/17/2003	hypo		15															
52	Queechy L	6/30/2003	hypo		10															
52	Queechy L	7/15/2003	hypo		10															
52	Queechy L	7/28/2003	hypo		11															
52	Queechy L	8/12/2003	hypo		10															
52	Queechy L	8/24/2003	hypo		10															
52	Queechy L	9/8/2003	hypo		11															
52	Queechy L	9/30/2003	hypo		10															
52	Queechy L	6/28/2004	hypo		10															
52	Queechy L	7/11/2004	hypo		11															
52	Queechy L	8/2/2004	hypo		12															
52	Queechy L	8/9/2004	hypo		11															
52	Queechy L	8/23/2004	hypo		15															
52	Queechy L	9/6/2004	hypo		12															
52	Queechy L	9/20/2004	hypo		11															
52	Queechy L	7/4/2005	hypo		10															
52	Queechy L	7/17/2005	hypo		11															
52	Queechy L	7/31/2005	hypo		13															
52	Queechy L	8/14/2005	hypo		12															
52	Queechy L	8/28/2005	hypo		19															
52	Queechy L	9/11/2005	hypo		11															
52	Queechy L	9/25/2005	hypo		11															
52	Queechy L	10/19/05	hypo		11															
52	Queechy L	6/18/2006	hypo		11															
52	Queechy L	7/5/2006	hypo		11															
52	Queechy L	7/17/2006	hypo		12															
52	Queechy L	8/4/2006	hypo		13															
52	Queechy L	8/20/2006	hypo		12															
52	Queechy L	9/4/2006	hypo		12															
52	Queechy L	9/17/2006	hypo		12															
52	Queechy L	10/2/2006	hypo		12															
52	Queechy L	7/8/2007	hypo		10															
52	Queechy L	7/22/2007	hypo		22															
52	Queechy L	8/5/2007	hypo		19															
52	Queechy L	8/19/2007	hypo		10															
52	Queechy L	9/3/2007	hypo		11															
52	Queechy L	9/7/2007	hypo		12															
52	Queechy L	9/16/2007	hypo		9															
52	Queechy L	9/29/2007	hypo		12															
52	Queechy L	10/14/2007	hypo		11															
52	Queechy L	6/7/2008	hypo		16															
52	Queechy L	6/22/2008	hypo		10															
52	Queechy L	7/4/2008	hypo		11															
52	Queechy L	7/20/2008	hypo		12															
52	Queechy L	8/3/2008	hypo		11															
52	Queechy L	8/16/2008	hypo		11															
52	Queechy L	8/30/2008	hypo		11															
52	Queechy L	9/13/2008	hypo		14															
52	Queechy L	06/20/2009	hypo		10															
52	Queechy L	07/03/2009	hypo		10															
52	Queechy L	07/19/2009	hypo		12															
52	Queechy L	08/03/2009	hypo		11															
52	Queechy L	08/14/2009	hypo		10															
52	Queechy L	08/30/2009	hypo		10															
52	Queechy L	09/26/2009	hypo		12															
52	Queechy L	6/4/2010	hypo		10															
52	Queechy L	7/5/2010	hypo		10															
52	Queechy L	7/31/2010	hypo		11															
52	Queechy L	9/12/2010	hypo		12															

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
52	Queechy L	6/5/2011	hypo		10															
52	Queechy L	7/4/2011	hypo		10															
52	Queechy L	7/31/2011	hypo		11															
52	Queechy L	9/5/2011	hypo		12															
52	Queechy L	6/24/2012	hypo		10															
52	Queechy L	7/9/2012	hypo		10															
52	Queechy L	8/5/2012	hypo		16															
52	Queechy L	9/3/2012	hypo		13															
52	Queechy L	6/2/2013	hypo		11															
52	Queechy L	6/30/2013	hypo		14															
52	Queechy L	7/28/2013	hypo		12															
52	Queechy L	8/25/2013	hypo		12															
52	Queechy L	6/1/2014	hypo		8															
52	Queechy L	6/15/2014	hypo		10															
52	Queechy L	6/29/2014	hypo		10															
52	Queechy L	7/13/2014	hypo		12															
52	Queechy L	7/27/2014	hypo		12															
52	Queechy L	8/10/2014	hypo		12															
52	Queechy L	8/24/2014	hypo		9															
52	Queechy L	9/7/2014	hypo		11															
52	Queechy L	6/14/2015	hypo		9															
52	Queechy L	6/27/2015	hypo		10															
52	Queechy L	7/12/2015	hypo		11															
52	Queechy L	7/26/2015	hypo		11															
52	Queechy L	8/9/2015	hypo		11															
52	Queechy L	8/23/2015	hypo		11															
52	Queechy L	9/6/2015	hypo		13															
52	Queechy L	9/21/2015	hypo		13															

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 Queechy Lake

Queechy Lake (1310-0033)

NoKnownImpct

Waterbody Location Information

Revised: 04/16/2008

Water Index No: H-204- 2-10-P57 Drain Basin: Lower Hudson River
Hydro Unit Code: Str Class: B(T)
Waterbody Type: Lake Reg/County: 4/Columbia Co. (11)
Waterbody Size: 137.2 Acres Quad Map: CANAAN (L-27-1)
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

Further Details

Water Quality Sampling

Queechy Lake has been sampled as part of the NYSDEC Citizen Statewide Lake Assessment Program (CSLAP) beginning in 1988 and most recently in 2006. 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 meso-oligotrophic, or moderately unproductive. The most recent data (2006) suggest conditions typical of an oligotrophic or unproductive lake. Phosphorus levels in the lake are significantly below the state guidance values indicating impacted/stressed recreational uses. Corresponding transparency measurements that greatly exceed the recommended minimum for swimming beaches. Measurements of pH are typically high relative to the state water quality range of 6.5 to 8.5, but this does not result in ecological impacts. The lake water is moderately to weakly colored, but color does not limit water transparency. (DEC/DOW, BWAM/CSLAP, April 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" to "excellent." The lake itself is most often described as "crystal clear" to "not quite crystal clear," an assessment that is

consistent with the perceived water quality conditions in the lake and its measured water quality characteristics. Assessments have noted that aquatic plants rarely grows to the lake surface. (DEC/DOW, BWAM/CSLAP, April 2007)

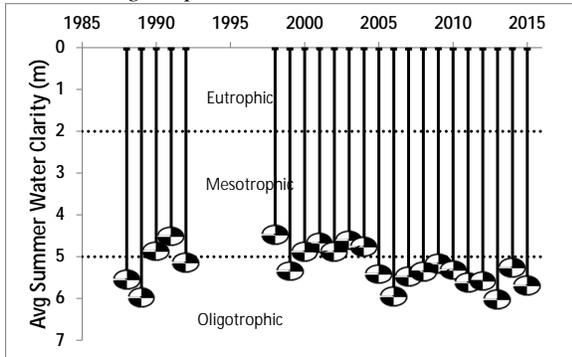
Lake Uses

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 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.

Appendix C- Long Term Trends: Queechey Lake

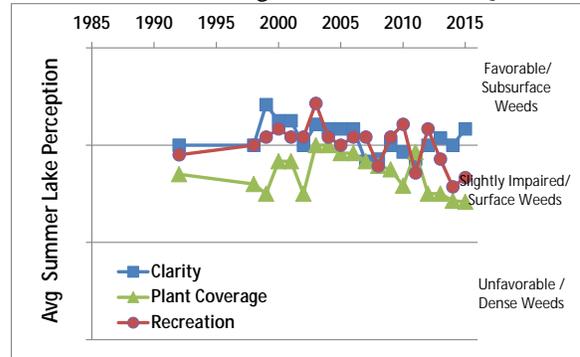
Long Term Trends: Water Clarity

- Slight increase since late 1990s
- Most readings typical of *mesotrophic* to *oligotrophic* lakes



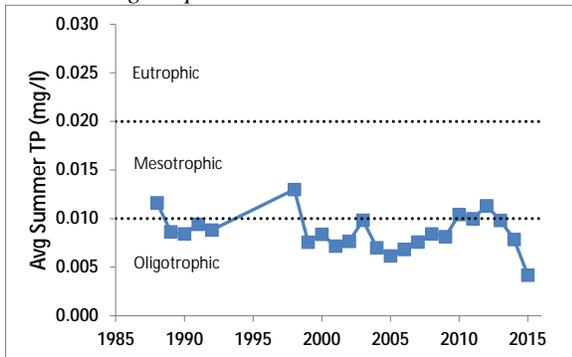
Long Term Trends: Lake Perception

- ↑ plant coverage, ↓ rec perception since '03
- Recreational perception may be more closely linked to changes in weeds than WQ



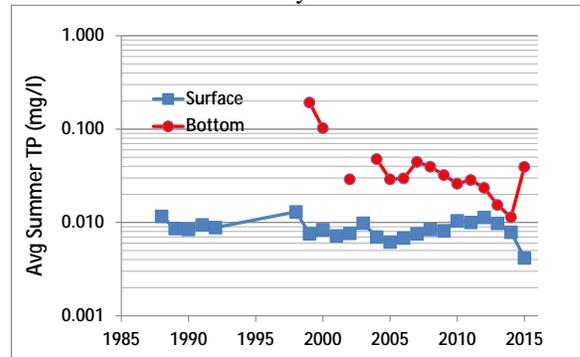
Long Term Trends: Phosphorus

- ↓ last 3yrs ('15 correct?) after slight ↑ 05-12
- Most readings typical of *mesotrophic* to *oligotrophic* lakes



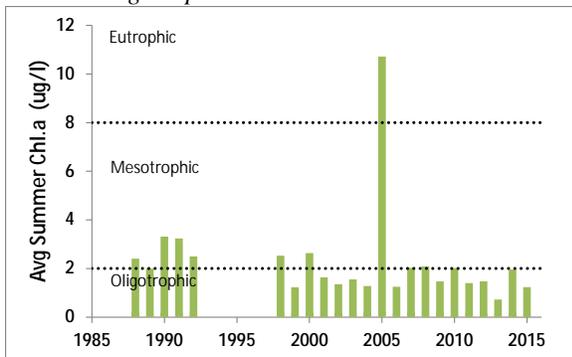
Long Term Trends: Bottom Phosphorus

- Deep TP dropping most recent years
- Readings confirm once strong internal P load, but less so recently



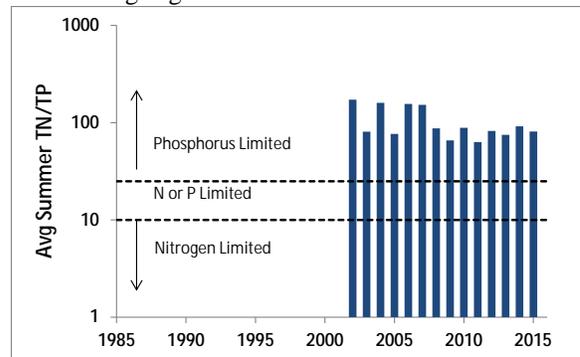
Long Term Trends: Chlorophyll a

- No trends apparent; lower than early 90s
- Most readings typical of *mesotrophic* to *oligotrophic* lakes



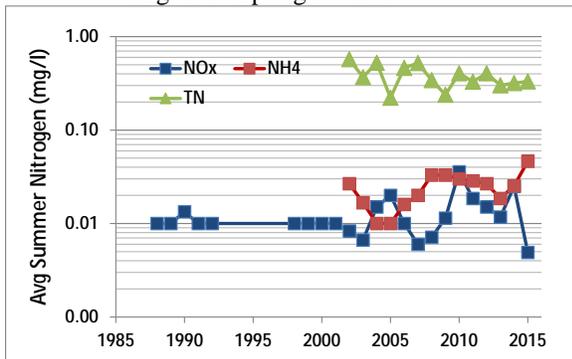
Long Term Trends: N:P Ratio

- Slight decrease since 2002
- Most readings still indicate phosphorus limits algae growth



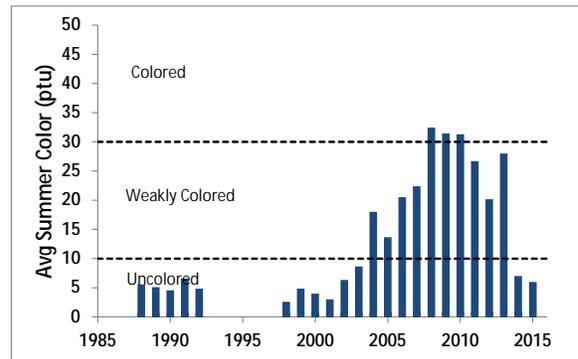
Long Term Trends: Nitrogen

- Slight ↓ TN, slight ↑ NH4 since early 00s
- Low NOx, ammonia and total nitrogen during all sampling seasons



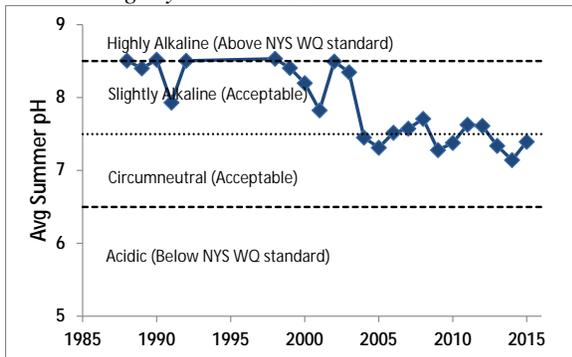
Long Term Trends: Color

- Color ↑ '02 to '09, but ↓ thru 2015
- Most readings typical of *weakly to slightly colored lakes*



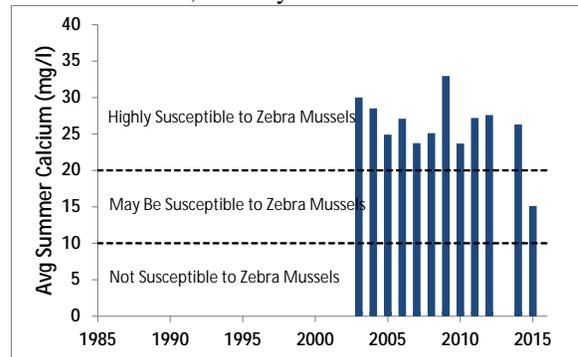
Long Term Trends: pH

- pH decreased since 2002 but now stable
- Most readings typical of *circumneutral to slightly alkaline lakes*



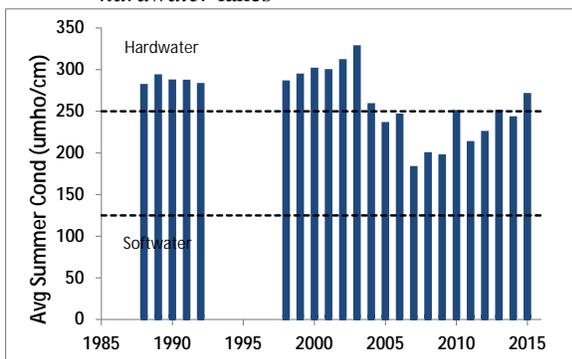
Long Term Trends: Calcium

- Slight decrease since '02; '15 accurate?
- Data indicates high susceptibility to zebra mussels, but they are not found in lake



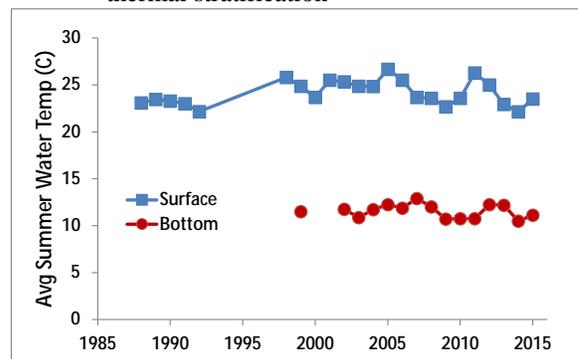
Long Term Trends: Conductivity

- Readings much lower since '03 but rising
- Most readings typical of intermediate to *hardwater lakes*



Long Term Trends: Water Temperature

- No trends apparent; drop surface T recently
- Low deepwater temperatures indicate 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.

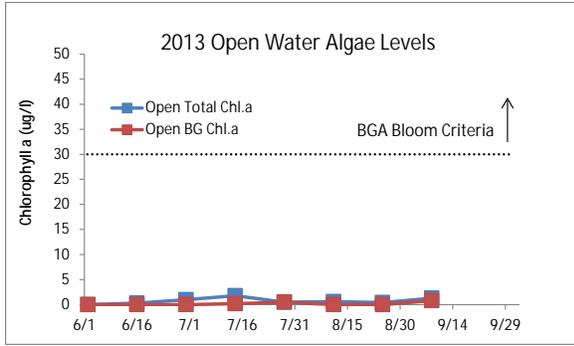


Figure D1:
2013 Open Water Total and BGA Chl.a

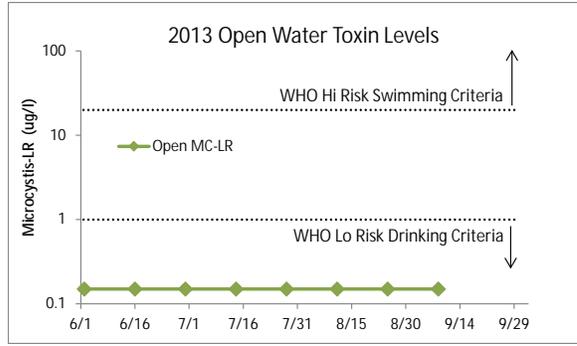


Figure D2:
2013 Open Water Microcystin-LR



Figure D3:
2013 Shoreline Total and BGA Chl.a

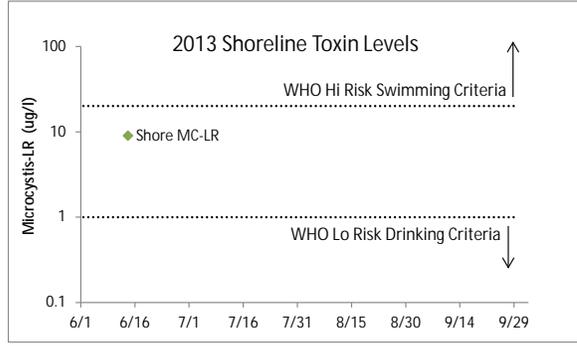


Figure D4:
2013 Shoreline Microcystin-LR

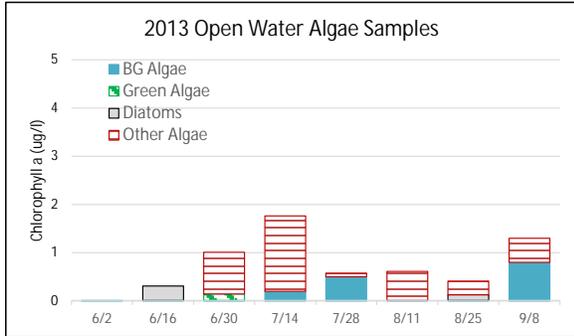


Figure D5:
2013 Open Water Algae Types

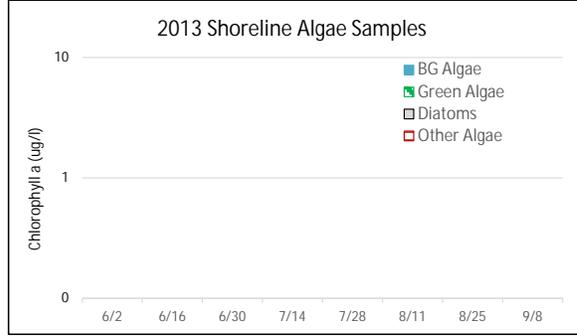


Figure D6:
2013 Shoreline Algae Types

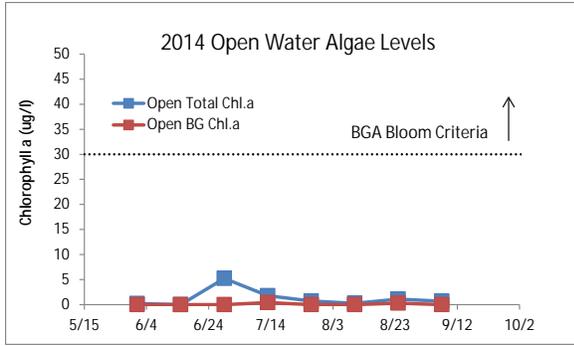


Figure D7:
2014 Open Water Total and BGA Chl.a

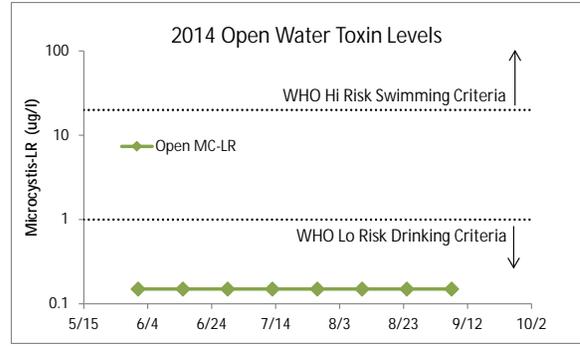


Figure D8:
2014 Open Water Microcystin-LR

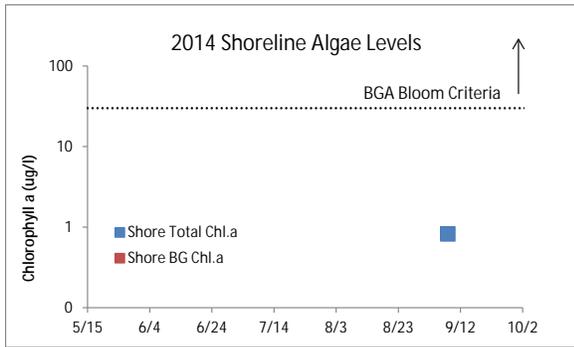


Figure D9:
2014 Shoreline Total and BGA Chl.a

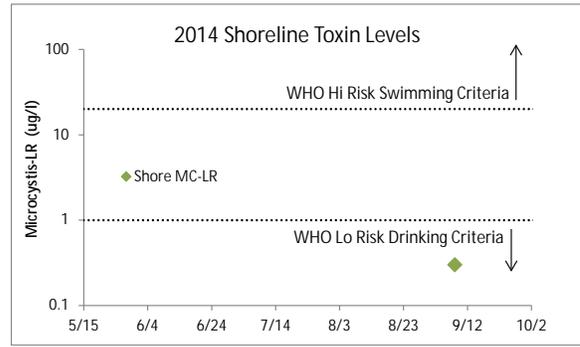


Figure D10:
2014 Shoreline Microcystin-LR

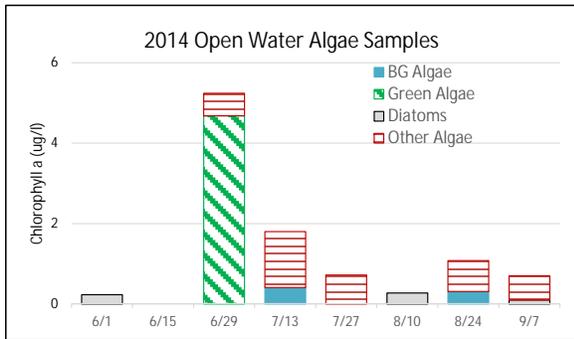


Figure D11:
2014 Open Water Algae Types

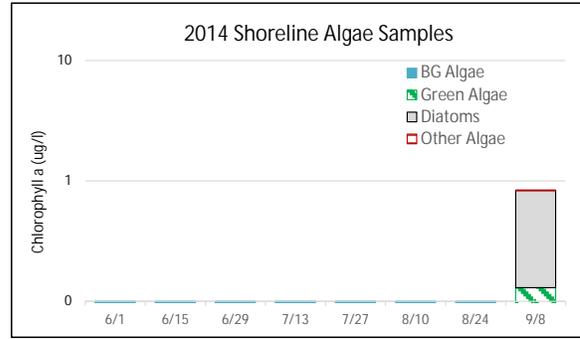


Figure D12:
2014 Shoreline Algae Types

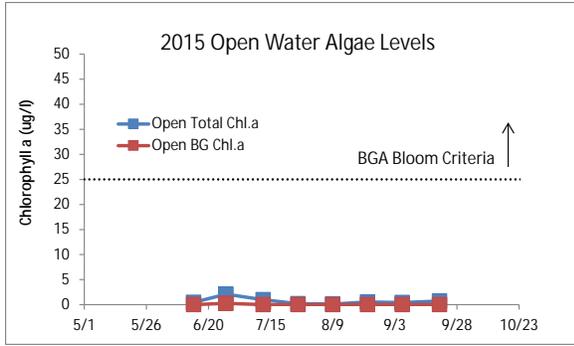


Figure D13:
2015 Open Water Total and BGA Chl.a

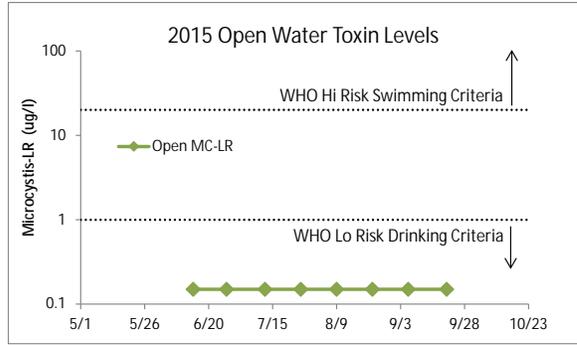


Figure D15:
2015 Open Water Microcystin-LR

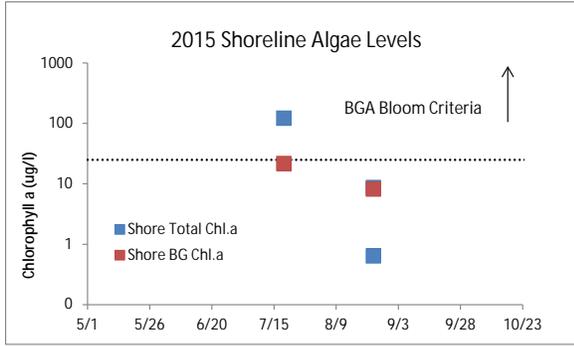


Figure D15:
2015 Shoreline Total and BGA Chl.a

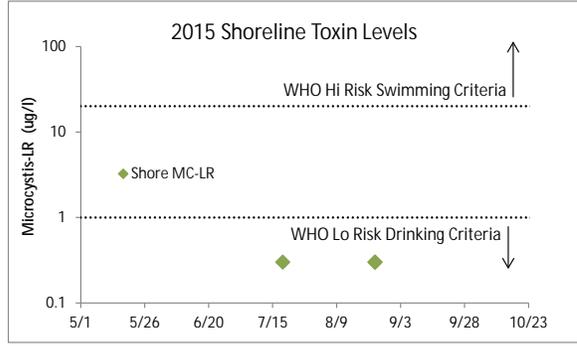


Figure D16:
2015 Shoreline Microcystin-LR

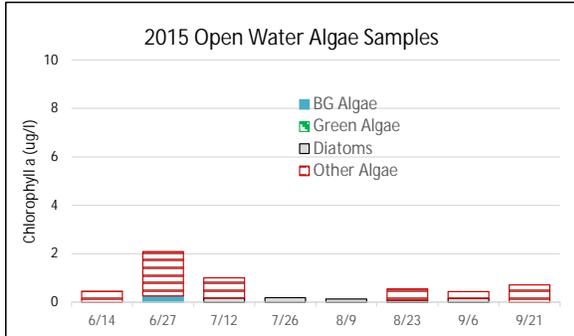


Figure D17:
2015 Open Water Algae Types

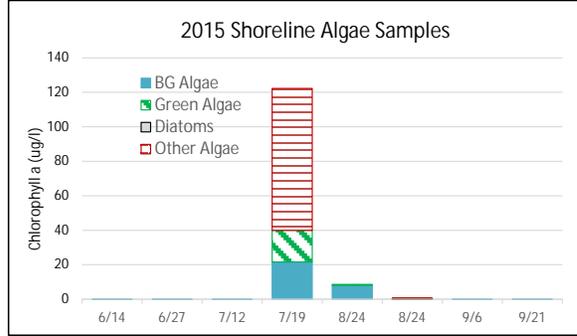


Figure D18:
2015 Shoreline Algae Types

Appendix E: AIS Species in Columbia County

The table below shows the invasive aquatic plants and animals that have been documented in Columbia 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 - Columbia County			
Waterbody	Kingdom	Common name	Scientific name
Beaver Pond	Plant	Water chestnut	<i>Trapa natans</i>
Beaver Pond	Plant	Water chestnut	<i>Trapa natans</i>
Copake Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Copake Lake	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Copake Lake	Animal	Rudd	<i>Scardinius erythrophthalmus</i>
Copake Lake	Plant	Water chestnut	<i>Trapa natans</i>
Hudson River	Animal	Zebra mussel	<i>Dreissena polymorpha</i>
Hudson River	Plant	Water chestnut	<i>Trapa natans</i>
Iron Mine Pond	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Kinderhook Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Kinderhook Lake	Plant	Brittle naiad	<i>Najas minor</i>
Kinderhook Lake	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Kinderhook Lake	Plant	Water chestnut	<i>Trapa natans</i>
Lake Taghkanic	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Long Pond	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Lower Rhoda Pond	Plant	Water chestnut	<i>Trapa natans</i>
Miller Pond	Plant	Water chestnut	<i>Trapa natans</i>
Olana Pond	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Olana Pond	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Olana Pond	Plant	Water chestnut	<i>Trapa natans</i>
Queechy Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Queechy Lake	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Queechy Lake	Animal	Banded mystery snail	<i>Viviparus georgianus</i>
Robinson Pond	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>

Waterbody	Kingdom	Common name	Scientific name
Robinson Pond	Plant	Brittle naiad	<i>Najas minor</i>
Robinson Pond	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Robinson Pond	Plant	Water chestnut	<i>Trapa natans</i>

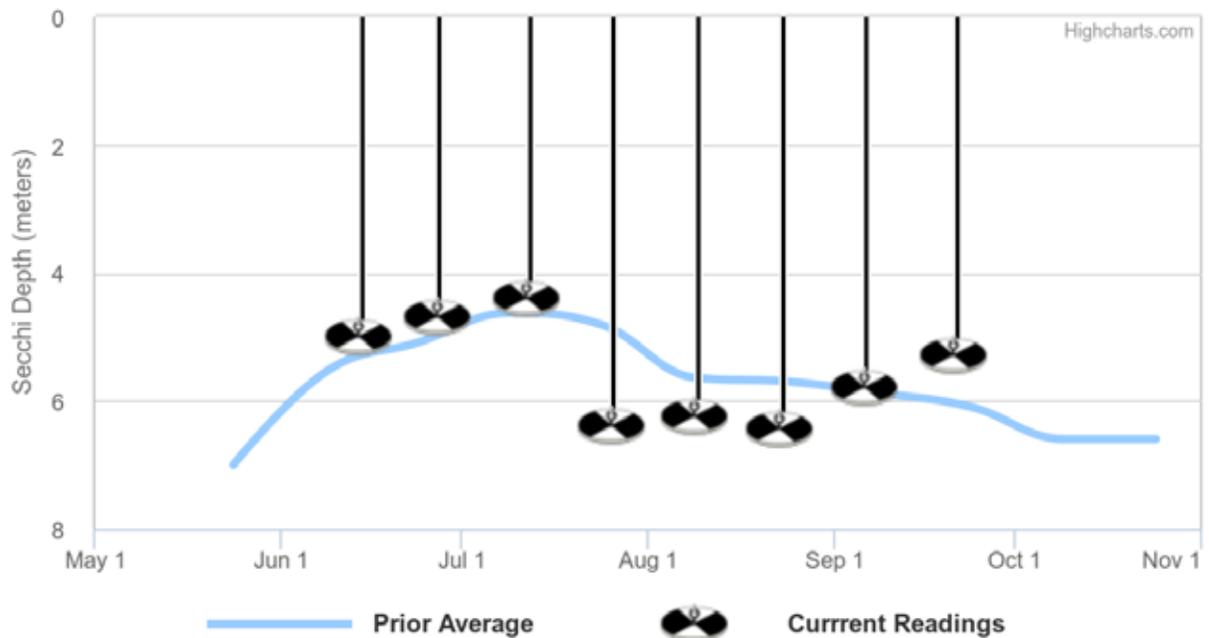
Appendix F: Current Year vs. Prior Averages for Queechy Lake

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 1988 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 1998 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 1988 to 2014

Appendix G: Watershed and Land Use Map for Queechy 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.

