

Taconic Pond Questions and Answers, 2015 CSLAP

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

A1. The condition of Taconic Pond was similar in 2015 to previous years. Water clarity was similar, and while phosphorus readings were slightly higher than usual, algae levels were slightly lower, suggesting normal variability. No shoreline blooms or invasive species have been reported.

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

A2. Chloride testing results are typical of lakes with no to low impacts from road salt runoff, and no biological impacts have been reported or measured.

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

A3. Taconic Pond had slightly higher water clarity, and slightly lower nutrient and algae levels, than most other nearby lakes. Aquatic plant coverage was slightly higher than the plant coverage in many other nearby lakes.

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

A4. Algae (chlorophyll *a*) levels have decreased slightly over the last decade, although water clarity has not responded with similar changes. Plant coverage has increased slightly over the last fifteen years; it is not known if this is due to native or invasive plants.

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

A5. Taconic Pond has not shown a susceptible to shoreline blue green algae blooms, consistent with low nutrient and open water algae levels, and shoreline blooms have not been reported in recent years. However, the trophic data indicates a potential susceptibility to small increases in nutrient levels, so the lake association would be well advised to try to reduce nutrient loading to the lake.

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.

Lake Use				
	PWL	Average Year	2015	Primary issue
Potable Water				Not applicable
Swimming				Not applicable
Recreation				No impacts
Aquatic Life				High pH
Aesthetics				Native plants
Habitat				No impacts
Fish Consumption				

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

CSLAP 2015 Lake Water Quality Summary: Taconic Pond

General Lake Information

Location	Town of Grafton
County	Rensselaer
Basin	Upper Hudson River
Size	13 hectares (32.1 acres)
Lake Origins	Natural
Watershed Area	114.5 hectares (282.8 acres)
Retention Time	2.6 years
Mean Depth	4.5 meters
Sounding Depth	9.8 meters
Public Access?	no
Major Tributaries	no named tribs
Lake Tributary To...	unnamed outlet to Little Hoosic River to Hoosic River to Hudson River
WQ Classification	C(T) (non-contact recreation = boating, angling)
Lake Outlet Latitude	42.738
Lake Outlet Longitude	-73.413
Sampling Years	2002-2003, 2006-2007, 2009-2011, 2013-2015
2015 Samplers	Paul Thomas
Main Contact	Paul Thomas

Lake Map



Background

Taconic Pond (aka Taconic Lake) is a 32 acre, class C(T) lake found in the Town of Grafton in Rensselaer County, just east of the Capital District region of New York State. It was first sampled as part of CSLAP in 1995.

It is one of 15 CSLAP lakes among the more than 370 lakes and ponds found in Rensselaer County, and one of 32 CSLAP lakes among the more than 1370 lakes and ponds in the Upper Hudson River drainage basin.

Lake Uses

Taconic Pond is a Class C(T) lake; this means that the best intended use for the lake is for non-contact recreation—fishing and boating, aquatic life, and aesthetics. It is likely that the lake is also used for contact recreation, although it is not classified for this use. The (T) designation indicates that the lake should support trout survival. The lake is used by lake residents and invited guests for a variety of recreational purposes—the lake has no public access.

It is not known by the report authors if Taconic Pond has been stocked by lake residents or municipal officials.

General statewide fishing regulations are applicable in Taconic Pond.

Historical Water Quality Data

CSLAP sampling was conducted on Taconic Pond from 1995, 2002 to 2003, 2006 to 2007, 2009 to 2011, and 2013 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 reports for Taconic Pond can also be found on the NYSDEC web page at <http://www.dec.ny.gov/lands/77846.html>.

Taconic Pond was sampled by Rensselaer Polytechnic Institute (RPI) in 1972. These data showed water clarity readings slightly higher than but otherwise similar to those recorded in the contemporary studies of the lake. The lake was also sampled through CSLAP-Light (Secchi disk transparency and lake perception measurements only) in 1995; these data are included in this assessment.

It is not known if the lake has been sampled by the regional fisheries staff as part of fisheries management activities on the lake, or through any local monitoring programs or activities.

Lake Association and Management History

Taconic Pond is represented by the Taconic Lake Association. It is not known to what extent the lake association is involved in lake management actions and maintains a website.

Summary of 2015 CSLAP Sampling Results

Evaluation of 2015 Annual Results Relative to 1995-2014

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 – Taconic Pond” section in Appendix C.

Evaluation of Eutrophication Indicators

Lake conditions in Taconic Pond were probably close to normal in 2015. Water clarity readings were close to the long-term average, despite higher than usual phosphorus readings and lower than usual algae levels (as measured by chlorophyll *a*). The lower algae levels was part of a slight long-term decrease since the early 2000s. However, neither water clarity nor phosphorus readings have exhibited a long-term change.

Lake productivity usually increases during the summer, as manifested in decreasing water clarity readings in response to seasonally increasing nutrient and algae levels from May through the fall. Seasonal patterns in lake productivity were not as clear as usual in 2015, in part due to only limited data (four sample points).

The lake continues to be characterized as *mesoligotrophic*, based on water clarity, chlorophyll *a* (typical of *mesotrophic* lakes), and total phosphorus readings (typical of *oligotrophic* lakes), although chlorophyll *a* readings were typical of *oligotrophic* lakes in 2015. The trophic state indices (TSI) evaluation indicate that phosphorus levels are usually lower than expected given the algae and water clarity levels in the lake. This suggests that small changes in phosphorus readings may lead to large changes in algae levels, although this was not apparent in 2015. Overall trophic conditions are summarized on the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Potable Water Indicators

Algae levels are not 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, although the lake is not classified for this purpose. The lack of deepwater anoxia (based on deepwater nutrient readings) suggests that bottom waters may also support potable water use. Potable water conditions, at least as measurable through CSLAP, are summarized in the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Limnological Indicators

Total nitrogen readings were higher than normal in 2014, but lower than usual in 2015, and TN has decreased over the last decade. pH was higher than usual in 2015, and at times exceeded the state water quality standards. pH readings have increased slightly over the last fifteen years, although no biological impacts have been apparent. None of these limnological indicators has exhibited any clear long-term trends. It is likely that the small changes in these other indicators from year to year represent normal variability.

Chloride levels in the 2015 samples, conducted for the first time through CSLAP and cited in Appendix A, were about 5 mg/l. These values are within the lower end of the range of “low”

road salt” runoff levels cited by the New Hampshire DES, well below the state potable water quality standard of 250 mg/l and below 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

Macrophyte, zooplankton, and macroinvertebrate surveys have not been conducted through CSLAP at Taconic Pond. The composition of the fish community is not known, although it is likely that Taconic Pond supports a warmwater fishery.

The most recent fluoroprobe results (raw water samples analyzed by SUNY ESF) showed low overall algae levels and a low percentage of blue green algae within the open water (center of lake) samples. The algae samples have been comprised of a mix of green algae, diatoms and other algae. No shoreline blooms have been reported or sampled, at least in recent years (including 2015).

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

Evaluation of Lake Perception

Aquatic plant coverage was more extensive than normal in each of the last three years, and increases during the summer; it is not known if this is due to invasive or native plant growth. This appears to be part of a longer-term trend, although there is no indication that this has otherwise affected recreational assessments. Recreational and water quality assessments typically degrade from June through September, consistent with increasing lake productivity. These assessments were close to normal in 2015. Overall lake perception is summarized on the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Local Climate Change

Water temperature readings were close to normal in 2015, and no clear long-term trends have been apparent. 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 thresholds for harmful algal blooms (HABs) in the open water, and no shoreline blooms have been reported or sampled in recent years, including 2015. Algal toxins have been consistently below the analytical detection limit, further suggesting little evidence of significant blue green algae levels.

Lake Condition Summary

Category	Indicator	Min	Overall Avg	Max	2015 Avg	Classification	2015 Change?	Long-term Change?
Eutrophication Indicators	Water Clarity	2.23	4.25	5.80	4.13	Mesotrophic	Within Normal Range	No Change
	Chlorophyll <i>a</i>	0.10	2.16	9.04	1.30	Mesotrophic	Within Normal Range	No Change
	Total Phosphorus	0.001	0.007	0.014	0.010	Oligotrophic	Higher than Normal	No Change
Potable Water Indicators	Hypolimnetic Ammonia							Not known
	Hypolimnetic Arsenic							Not known
	Hypolimnetic Iron							Not known
	Hypolimnetic Manganese							Not known
Limnological Indicators	Hypolimnetic Phosphorus							Not known
	Nitrate + Nitrite	0.00	0.02	0.08	0.01	Low NOx	Within Normal Range	No Change
	Ammonia	0.01	0.04	0.18	0.03	Low Ammonia	Within Normal Range	No Change
	Total Nitrogen	0.11	0.47	3.97	0.31	Low Total Nitrogen	Lower Than Normal	Decreasing Slightly
	pH	4.68	7.38	8.78	8.16	Circumneutral	Higher than Normal	No Change
	Specific Conductance	10	31	47	35	Softwater	Within Normal Range	No Change
	True Color	1	10	20	8	Intermediate Color	Within Normal Range	No Change
	Calcium	3.2	3.9	5.7	3.8	Not Susceptible to Zebra Mussels	Within Normal Range	No Change
Lake Perception	WQ Assessment	1	2.1	3	1.8	Not Quite Crystal Clear	More Favorable Than Normal	No Change
	Aquatic Plant Coverage	1	2.5	4	3.0	Subsurface Plant Growth	Within Normal Range	Slightly Degrading
	Recreational Assessment	1	1.9	3	2.0	Excellent	Within Normal Range	No Change
Biological Condition	Phytoplankton					Open water-low blue green algae biomass	Not known	Not known
	Macrophytes					Not measured through CSLAP	Not known	Not known
	Zooplankton					Not measured through CSLAP	Not known	Not known
	Macroinvertebrates					Not measured through CSLAP	Not known	Not known
	Fish					Warmwater fishery?	Not known	Not known
	Invasive Species					None observed	Not known	Not known
Local Climate Change	Air Temperature	14	24.3	32	25.5		Within Normal Range	No Change
	Water Temperature	11	22.5	27	23.5		Within Normal Range	No Change
Harmful Algal Blooms	Open Water Phycocyanin	1	3	14	4	No readings indicate high risk of BGA	Not known	Not known
	Open Water FP Chl.a	0	1	2	1	No readings indicate high algae levels	Not known	Not known
	Open Water FP BG Chl.a	0	0	1	0	No readings indicate high BGA levels	Not known	Not known
	Open Water Microcystis	<DL	<DL	1.1	<DL	Low to undetectable open water microcystins	Not known	Not known
	Open Water Anatoxin a	<DL	<DL	<DL	<DL	Open water Anatoxin-a consistently not detectable	Not known	Not known
	Shoreline Phycocyanin					No shoreline blooms sampled for PC	Not known	Not known
	Shoreline FP Chl.a					No shoreline blooms sampled for FP	Not known	Not known
	Shoreline FP BG Chl.a					No shoreline blooms sampled for FP	Not known	Not known
	Shoreline Microcystis					No shoreline bloom MC-LR data	Not known	Not known
	Shoreline Anatoxin a					No shoreline bloom anatoxin data	Not known	Not known

Evaluation of Lake Condition Impacts to Lake Uses

The 2006 NYSDEC Priority Waterbody Listings (PWL) for the Upper Hudson River drainage basin do not include Taconic Pond.

Potable Water (Drinking Water)

The CSLAP dataset at Taconic Pond, 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 classified for this use. The CSLAP data, particularly the low algae levels, suggest that any "unofficial" use of the lake for potable water may be supported.

Public Bathing

The CSLAP dataset at Taconic Pond, 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. It should be noted that the lake is not classified for this use.

Recreation (Swimming and Non-Contact Uses)

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

Aquatic Life

The CSLAP dataset on Taconic Pond, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aquatic life should be supported, although this use at times may be *stressed* by elevated pH. Additional data are needed to evaluate the food and habitat conditions for aquatic organisms in the lake.

Aesthetics and Habitat

The CSLAP dataset on Taconic Pond, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aesthetics may at times be only *fair* due to excessive (probably native) plant growth. Habitat should be *good*.

Fish Consumption

There is no fish consumption advisories posted for Taconic Pond.

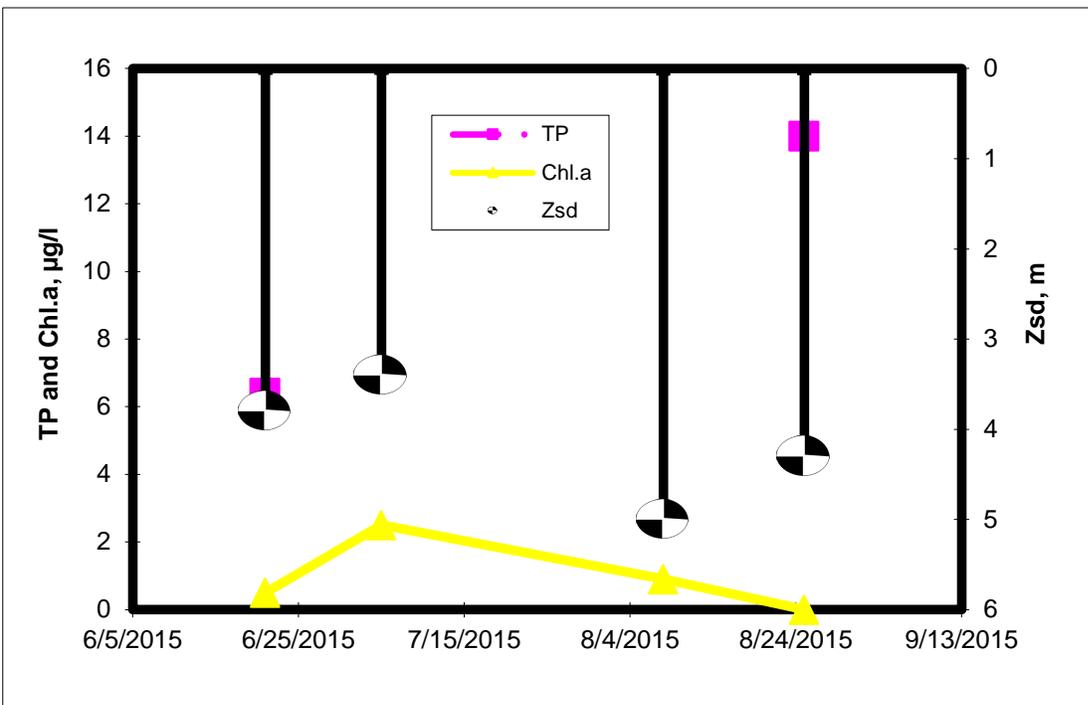
Additional Comments and Recommendations

It is not known if any exotic plant species have been introduced to the lake; the sampling volunteers can submit aquatic plants for identification. Lake residents are advised to report and avoid exposure to surface scums or heavily discolored water.

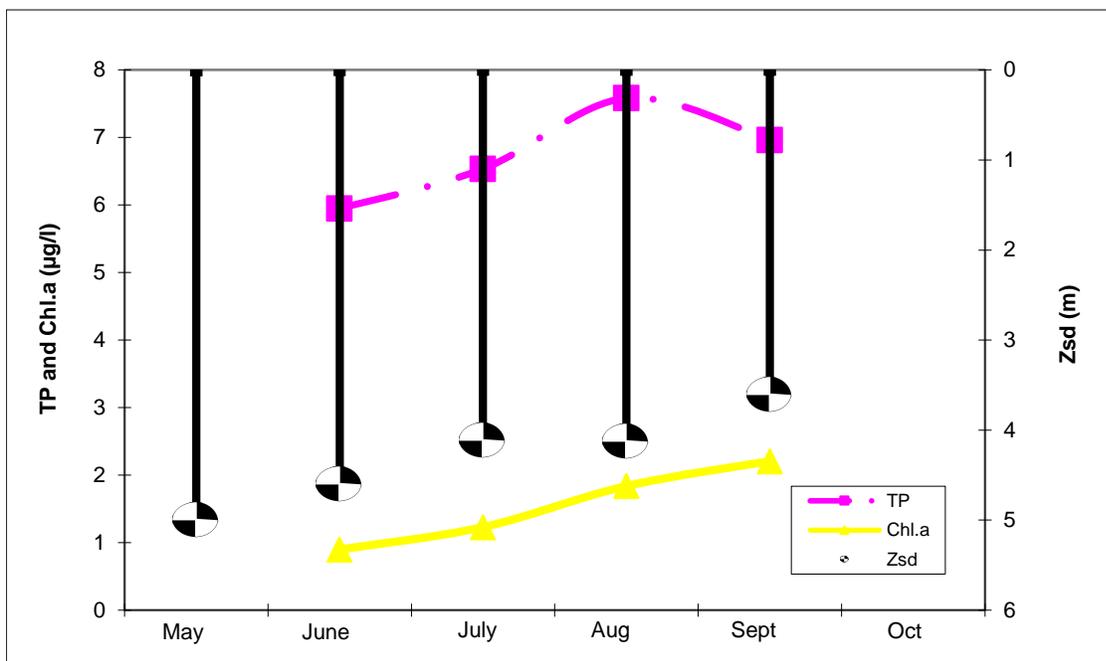
Aquatic Plant IDs-2015

None submitted for identification in 2015.

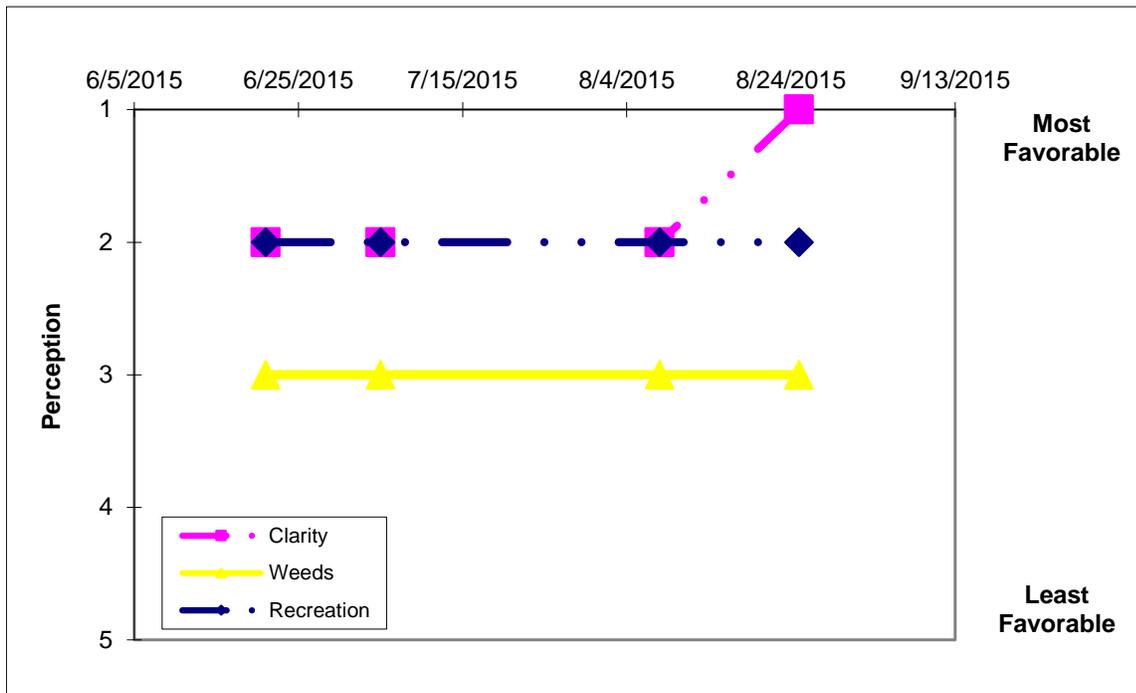
Time Series: Trophic Indicators, 2015



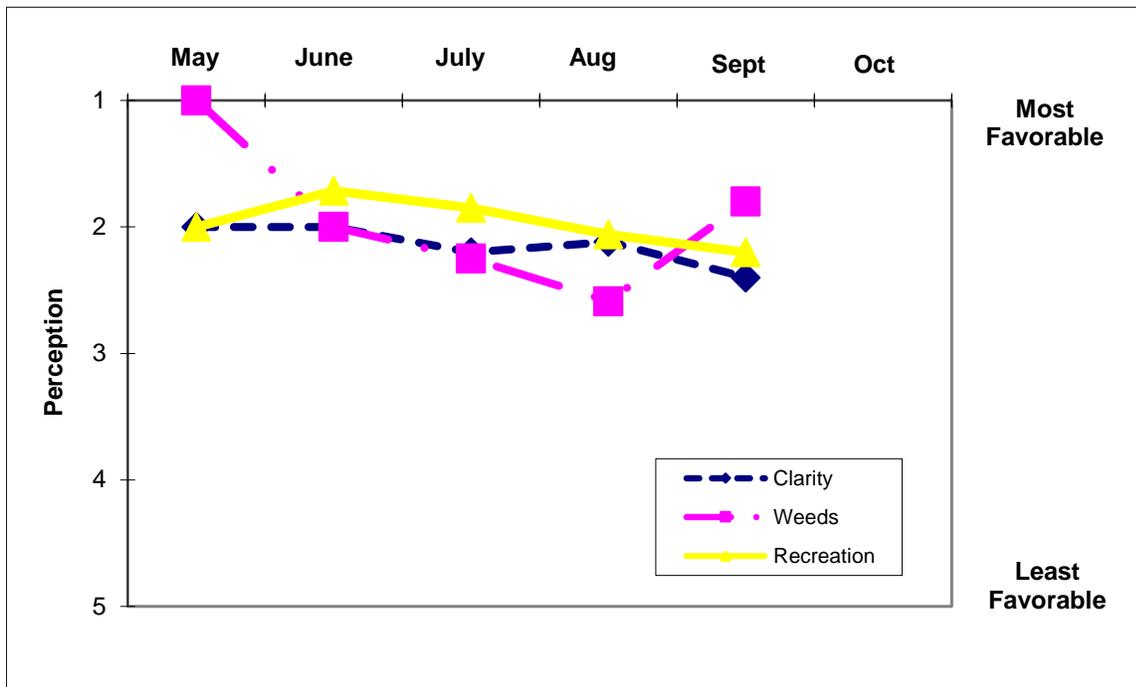
Time Series: Trophic Indicators, Typical Year (1995-2015)



Time Series: Lake Perception Indicators, 2015



Time Series: Lake Perception Indicators, Typical Year (1995-2015)



Appendix A- CSLAP Water Quality Sampling Results for Taconic Pond

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a	Cl
181	Taconic L	5/21/1995	9.0	5.00												
181	Taconic L	6/3/1995	9.0	4.80												
181	Taconic L	6/18/1995	9.0	4.80												
181	Taconic L	6/25/1995	9.0	4.75												
181	Taconic L	7/3/1995	9.0	5.05												
181	Taconic L	7/4/1995	9.0	4.90												
181	Taconic L	7/16/1995	9.0	4.60												
181	Taconic L	7/23/1995	9.0	4.35												
181	Taconic L	7/27/1995	9.0	4.35												
181	Taconic L	8/9/1995	9.6	4.10												
181	Taconic L	8/20/1995	10.0	4.65												
181	Taconic L	9/4/1995	10.0	3.60												
181	Taconic L	05/12/02	9.8	3.60	1.5	0.007	0.01	0.02	0.46	141.76	6	6.60	33		1.45	
181	Taconic L	05/26/02	9.8	5.80	1.5	0.009	0.01	0.03	0.46	111.30	8	6.96	30		1.61	
181	Taconic L	06/02/02		2.65	1.5	0.008	0.00	0.04	0.35	101.29	14	6.61	30		2.26	
181	Taconic L	07/07/02		3.73		0.008	0.00		0.37	99.61	10	7.06	30		9.04	
181	Taconic L	08/13/02		4.19	5.0	0.006	0.01	0.02	0.42	148.47	4	7.05	30		5.33	
181	Taconic L	08/18/02		3.65		0.007	0.00	0.08	0.65	198.88	19	7.23	31			
181	Taconic L	09/08/02		4.43	5.0	0.006	0.00	0.01	0.41	156.27					3.86	
181	Taconic L	7/16/2006	7.5	3.60	1.5	0.006			0.47	178.83	14	6.78	29	3.2	0.10	
181	Taconic L	7/29/2006	7.5	3.65	1.5	0.006	0.02	0.04	1.18	473.22	17	7.30	39		0.10	
181	Taconic L	8/13/2006		4.88	1.5	0.003	0.08	0.05	0.50	330.43	18	7.77	28		0.10	
181	Taconic L	8/29/2006		4.28		0.011			0.43	89.41	7	6.50	28		4.40	
181	Taconic L	7/8/2007		3.35	1.5	0.005	0.00	0.01	0.41	167.61	9	8.43	10			
181	Taconic L	8/5/2007		3.91	1.5	0.014	0.08	0.03	0.73	112.51	10	8.43	29	4.1		
181	Taconic L	8/26/2007		4.58	1.5	0.005	0.00	0.01	0.59	277.43	7	7.96	30			
181	Taconic L	07/05/2009		3.90	1.5	0.005	0.00	0.16	0.33	163.29	11	4.68	47	3.2	0.58	
181	Taconic L	07/12/2009		4.10	1.5	0.007	0.02	0.18	0.37	124.33	11	7.01	24		1.19	
181	Taconic L	08/04/2009		3.35	1.5	0.011	0.01	0.04	0.23	47.14	14	7.61	23		1.10	
181	Taconic L	6/27/2010		5.58	1.5	0.005	0.08	0.05			1	7.09	33	5.7	1.10	
181	Taconic L	7/26/2010		4.90	1.5	0.006	0.02	0.02	0.28	113.20	8	8.08	47		1.50	
181	Taconic L	8/10/2010		5.11	1.5	0.007	0.05	0.02	0.32	95.73	2	7.59	35		1.90	
181	Taconic L	8/30/2010		4.80	1.5	0.007	0.02	0.03	0.25	84.33	10	7.03	34		3.20	
181	Taconic L	7/17/2011		3.70	1.5	0.006	0.07	0.03	0.17	60.95	6	8.37	32	3.9	3.40	
181	Taconic L	7/24/2011		2.98		0.007	0.04	0.03	0.23	69.36	10	7.01	17		4.30	
181	Taconic L	8/7/2011		2.23	1.5	0.007	0.01	0.02	0.21	66.32	6	7.41	29		7.40	
181	Taconic L	6/30/2013	9.7	3.85	1.5	0.007	0.01	0.01	0.26	88.34	20	7.51	33		0.50	
181	Taconic L	7/14/2013	9.7	3.59	1.5	0.007			0.24	75.44	17	7.67	31		0.50	
181	Taconic L	7/28/2013	9.7	3.48	1.5	0.010	0.01	0.01	0.11	23.52	16	7.36	30			
181	Taconic L	8/18/2013	9.6	4.43	1.5	0.006			0.37	132.21	13	7.22	30		1.00	
181	Taconic L	9/8/2013	9.8	4.48	1.5	0.003	0.01	0.01	0.34	246.48	16	6.94	31		0.80	
181	Taconic L	6/15/2014		4.65	1.5	0.006	0.01	0.04	0.30	104.50	12	8.78	31	3.3	1.50	
181	Taconic L	7/22/2014		4.70	1.5	0.009			0.25	62.97	7	6.33	29		0.90	
181	Taconic L	8/17/2014		4.75	1.5	0.006	0.01	0.03	0.27	106.46	7	7.15	23		1.50	
181	Taconic L	8/31/2014	8.4	5.15	1.5	0.004			0.21	107.95	7	8.22	38		1.10	
181	Taconic L	9/14/2014	8.4	5.00	1.5	0.001	0.01	0.09	3.97	17459.20	12	6.86	37	3.9	3.50	
181	Taconic L	6/21/2015	9.7	3.80	1.5	0.006	0.01	0.03	0.22	75.28	6	8.56	35	3.8	0.50	
181	Taconic L	7/5/2015	7.5	3.40	1.5				0.30		9	8.60	36		2.50	
181	Taconic L	8/8/2015	7.5	5.00	1.5		0.01	0.03	0.37		13	7.98	35		0.90	5.0
181	Taconic L	8/25/2015	13.4	4.30	1.5	0.014			0.35	54.21	5	7.50	35			
181	Taconic L	05/12/02	9.8				0.01	0.03	0.43							
181	Taconic L	05/26/02	9.8			0.012	0.01	0.03	0.48	85.47						
181	Taconic L	06/02/02		2.65		0.013	0.00	0.09	0.33	54.64						
181	Taconic L	07/07/02		3.73	9.0	0.011	0.00		0.48	99.61						
181	Taconic L	08/13/02		4.19	9.0	0.016	0.00	0.14	0.52	71.05						
181	Taconic L	08/18/02		3.65	9.0	0.006	0.00	0.08	0.66	232.01						
181	Taconic L	09/08/02		4.43	9.0	0.002	0.00	0.23	0.73	823.75						
181	Taconic L	7/8/2007			7.5	0.005										
181	Taconic L	8/5/2007			7.5	0.009										
181	Taconic L	8/26/2007			7.5	0.006										

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
181	Taconic L	5/21/1995	epi			2	1	2	56											
181	Taconic L	6/3/1995	epi			2	1	2	6											
181	Taconic L	6/18/1995	epi			2	1	2	6											
181	Taconic L	6/25/1995	epi			2	1	2	6											
181	Taconic L	7/3/1995	epi			3	1	2	5											
181	Taconic L	7/4/1995	epi			3	1	2	6											
181	Taconic L	7/16/1995	epi			3	1	2	6											
181	Taconic L	7/23/1995	epi			2	1	2	6											
181	Taconic L	7/27/1995	epi			2	1	2	6											
181	Taconic L	8/9/1995	epi			2	1	2	6											
181	Taconic L	8/20/1995	epi			2	1	1	6											
181	Taconic L	9/4/1995	epi			2	1	1	6											
181	Taconic L	05/12/02	epi	22	11	2	1	1	5											
181	Taconic L	05/26/02	epi	16	14	2	1	2	5											
181	Taconic L	06/02/02	epi	23	20	2	3	2	15											
181	Taconic L	07/07/02	epi	25	25	2	3	2	15											
181	Taconic L	08/13/02	epi	29		2	4	2	28											
181	Taconic L	08/18/02	epi	29	26															
181	Taconic L	09/08/02	epi	28	20	1	3	2												
181	Taconic L	7/16/2006	epi	29	24	2	3	2												
181	Taconic L	7/29/2006	epi	24	25	2	3	2												
181	Taconic L	8/13/2006	epi	22	23	2	3	2												
181	Taconic L	8/29/2006	epi	17	20	2	3	2												
181	Taconic L	7/8/2007	epi	26	22	2	3	2	5											
181	Taconic L	8/5/2007	epi	22	25	2	3	2	8											
181	Taconic L	8/26/2007	epi	23	23	2	3	2	8											
181	Taconic L	07/05/2009	epi	22	21	2	3	2	2											
181	Taconic L	07/12/2009	epi	21	22	2	3	2	2											
181	Taconic L	08/04/2009	epi	25	24	2	4	2	2											
181	Taconic L	6/27/2010	epi	28	24	2	2	1	0	5	5									
181	Taconic L	7/26/2010	epi	24	25	2	3	2	8	5	5									
181	Taconic L	8/10/2010	epi	26	27	2	3	2	8	0	0									
181	Taconic L	8/30/2010	epi	27	25	2	3	2	8	0	0									
181	Taconic L	7/17/2011	epi	32	26	3	3	2	8	0	0	3.00	1.20							
181	Taconic L	7/24/2011	epi	28	27	2	3	2	0	0	0	4.90	2.43							
181	Taconic L	8/7/2011	epi	27	24	3	3	3	1	0	0	13.70	11.60	<0.30	<0.178					
181	Taconic L	6/30/2013	epi	27	25	2	3	2	0	0	0	1.30	0.90	<0.30	<0.650		1.20	0.30	F	F
181	Taconic L	7/14/2013	epi	28	27	2	3	1	0	5	0	0.90	0.70	<0.30	<0.370		1.70	0.80	I	I
181	Taconic L	7/28/2013	epi	20	22	2	4	2	0	0	0	1.50	2.00	<0.30	<0.400		0.80	0.30	I	
181	Taconic L	8/18/2013	epi	21	22	2	3	2	0	0	0	3.10	1.00	<0.30	<0.390		0.20	0.00		I
181	Taconic L	9/8/2013	epi	21	21	2	3	2	1	0	0	7.50	0.90	<0.30	<1.100		1.60	0.80	I	I
181	Taconic L	6/15/2014	epi	27	19	2	3	1	0	0	0	0.90	0.10	<0.40	<0.48	<0.001	0.00	0.00		
181	Taconic L	7/22/2014	epi	26	24	2	3	2	0	0	0	1.20	0.20	<0.63	<0.03	<0.001	0.29	0.00	i	i
181	Taconic L	8/17/2014	epi	24	18	2	3	2	0	0	0	0.70	0.20	<0.39	<0.03	<0.001	0.29	0.00	i	i
181	Taconic L	8/31/2014	epi	22	21	2	3	2	0	0	0	1.90	0.20	1.06	<0.14	<0.002	0.47	0.12	i	i
181	Taconic L	9/14/2014	epi	14	17	2	3	2	5	0	0	3.10	0.10	<0.19	<0.12	<0.001	1.11	0.32	i	i
181	Taconic L	6/21/2015	epi	27	22	2	3	2	0	0	0	4.10	0.60	<0.55	<0.004	<0.001	1.88	0.00	I	I
181	Taconic L	7/5/2015	epi	24	23	2	3	2	0	0	0	3.80	0.60	<0.86	<0.008	<0.046	2.20	0.00	I	I
181	Taconic L	8/8/2015	epi	25	24	2	3	2	0	0	0	3.60	0.40	<0.18	<0.002	<0.009	0.29	0.00	I	I
181	Taconic L	8/25/2015	epi	26	25	1	3	2	0	0	0			<0.49	<0.003	<0.014	0.10	0.00	I	I
181	Taconic L	06/02/02	hypo	23	11	2	3	2	15											
181	Taconic L	07/07/02	hypo	25	10	2	3	2	15											
181	Taconic L	08/13/02	hypo	29		2	4	2	28											
181	Taconic L	08/18/02	hypo	29	10															
181	Taconic L	09/08/02	hypo	28	13	1	3	2												
181	Taconic L	7/8/2007	hypo		10															
181	Taconic L	8/5/2007	hypo		11															
181	Taconic L	8/26/2007	hypo		12															

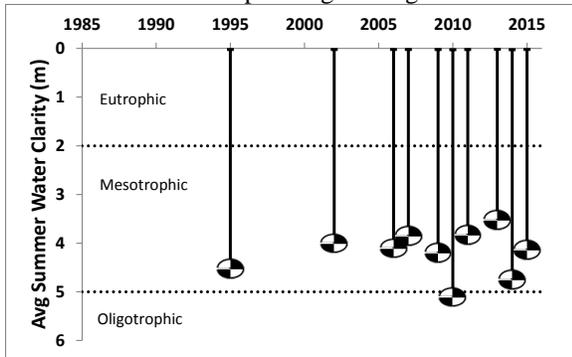
Legend Information

<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 C- Long Term Trends: Taconic Pond

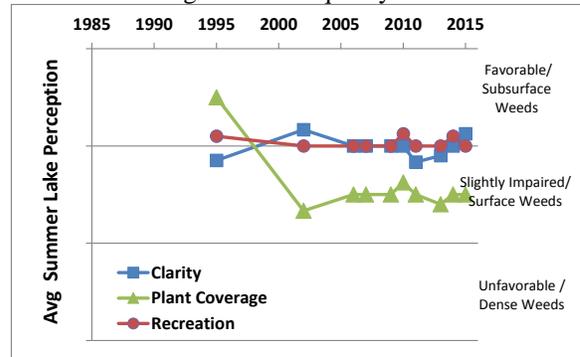
Long Term Trends: Water Clarity

- No trends apparent
- Most readings typical of *mesotrophic* lakes, lower than expected given algae / TP levels



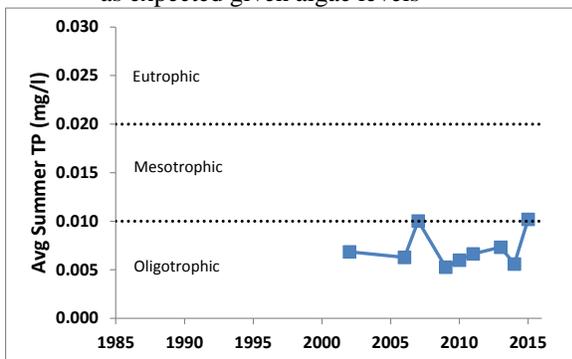
Long Term Trends: Lake Perception

- No trends apparent; higher weeds after '95
- Changes in recreational perception not linked to changes in water quality or weeds



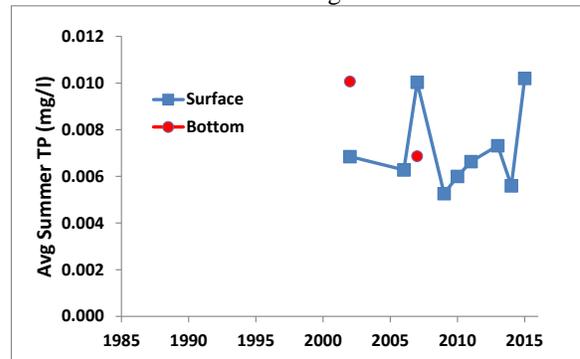
Long Term Trends: Phosphorus

- No clear trends
- Most readings typical of *oligotrophic* lakes, as expected given algae levels



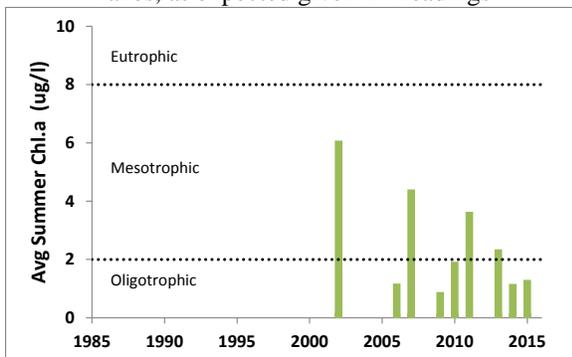
Long Term Trends: Bottom Phosphorus

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



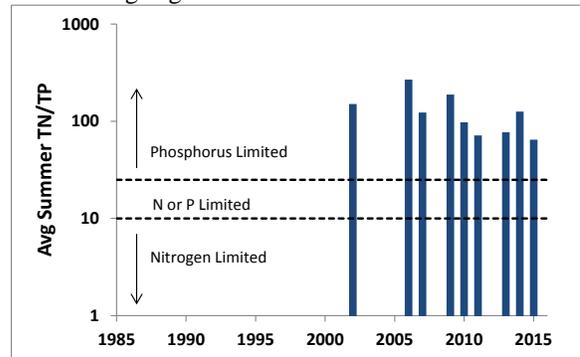
Long Term Trends: Chlorophyll a

- Slight decrease since early 2000s
- Most readings typical of *mesoligotrophic* lakes, as expected given TP readings



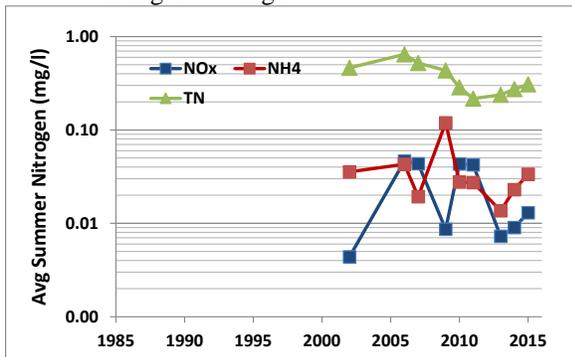
Long Term Trends: N:P Ratio

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



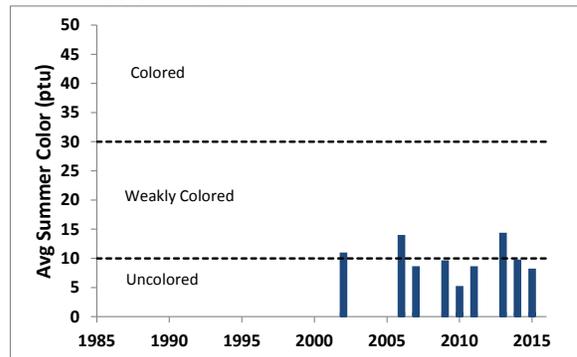
Long Term Trends: Nitrogen

- TN decreasing; NOx and NH4 variable
- Low but variable nitrate, ammonia and total nitrogen readings



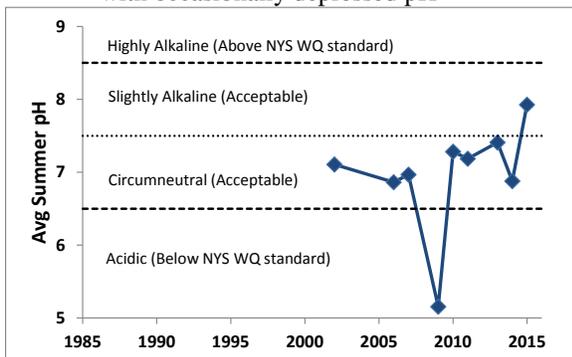
Long Term Trends: Color

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



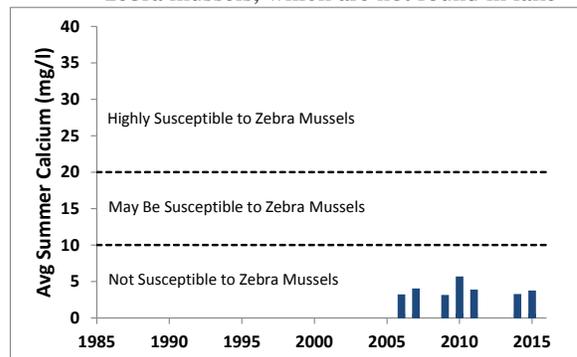
Long Term Trends: pH

- May be increasing, though still fairly low
- Most readings typical of *circumneutral* lakes with occasionally depressed pH



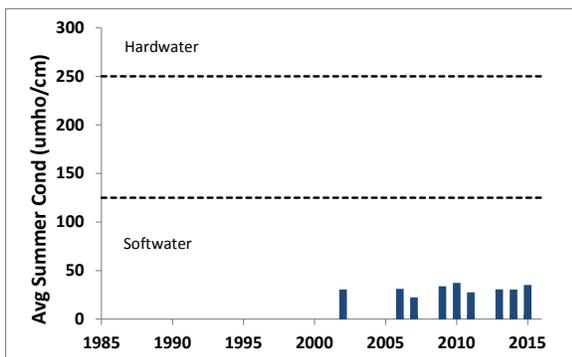
Long Term Trends: Calcium

- No trends apparent
- Most readings indicate low susceptibility to zebra mussels, which are not found in lake



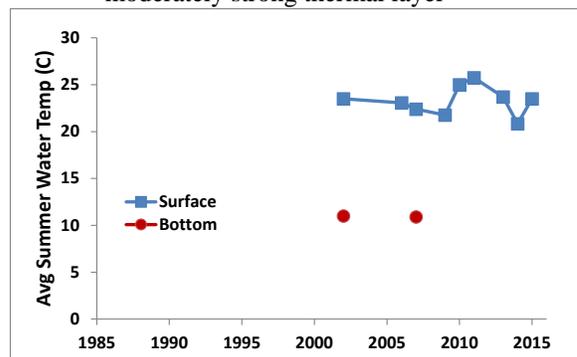
Long Term Trends: Conductivity

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



Long Term Trends: Water Temperature

- No trends but recent drop in surface T
- Low deepwater temperatures indicate moderately strong thermal layer



Appendix D: Algae Testing Results from SUNY ESF Study

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

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

Some of these results are reported in other portions of these reports. This appendix the seasonal change in blue green algae, other algae types, and the primary algal toxin (microcystin-LR, a liver toxin). Analysis was completed on open water samples and, for some lakes, shoreline samples that were collected when visual evidence of blooms were apparent. Results are compared to the DEC criteria of 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

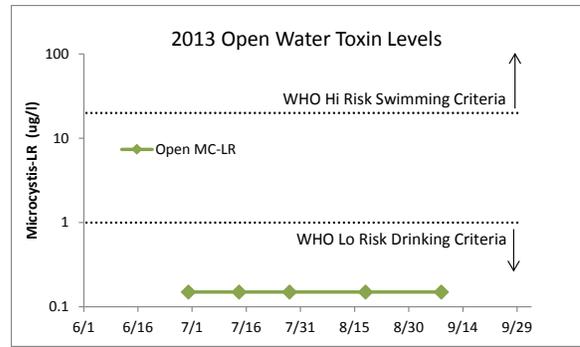


Figure D2:
2013 Open Water Microcystin-LR



Figure D3:
2013 Shoreline Total and BGA Chl.a



Figure D4:
2013 Shoreline Microcystin-LR

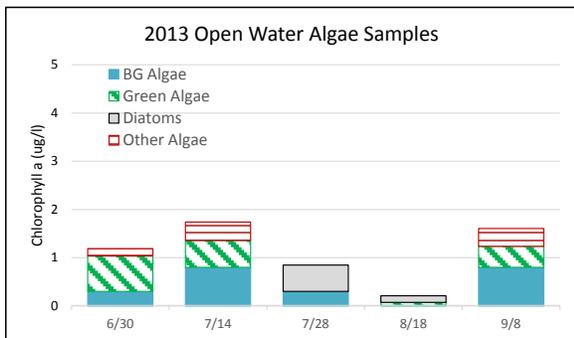


Figure D5:
2013 Open Water Algae Types

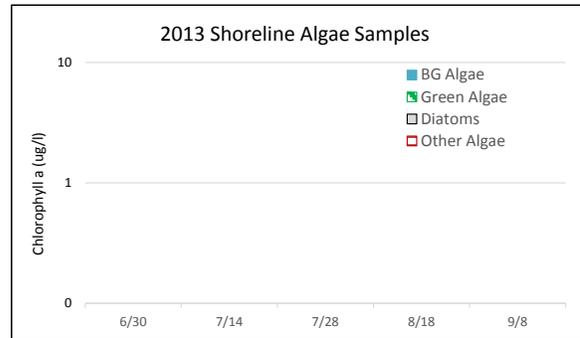


Figure D6:
2013 Shoreline Algae Types

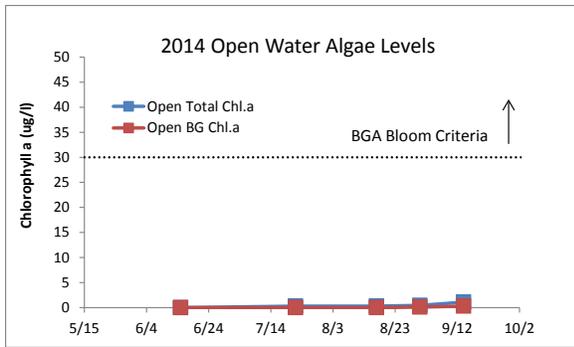


Figure D7:
2014 Open Water Total and BGA Chl.a

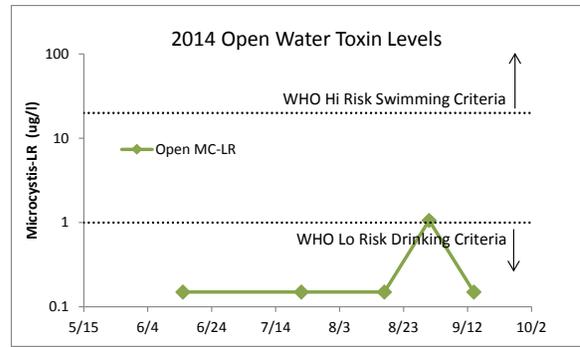


Figure D8:
2014 Open Water Microcystin-LR

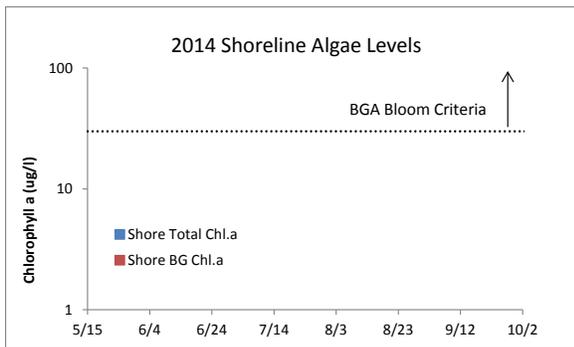


Figure D9:
2014 Shoreline Total and BGA Chl.a

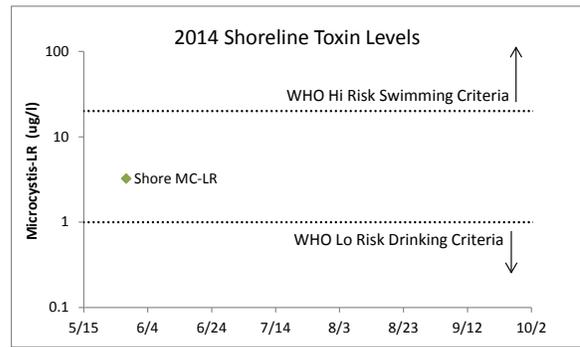


Figure D10:
2014 Shoreline Microcystin-LR

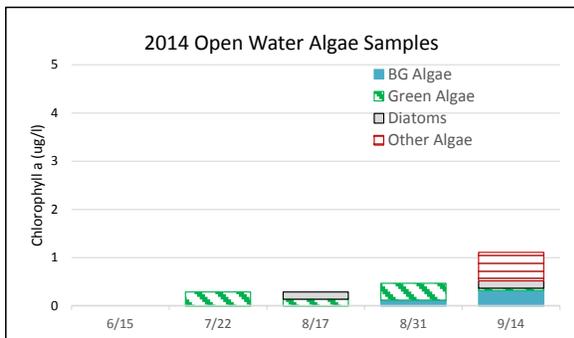


Figure D11:
2014 Open Water Algae Types

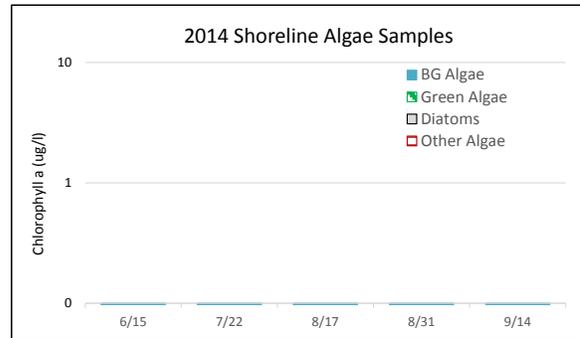


Figure D12:
2014 Shoreline Algae Types

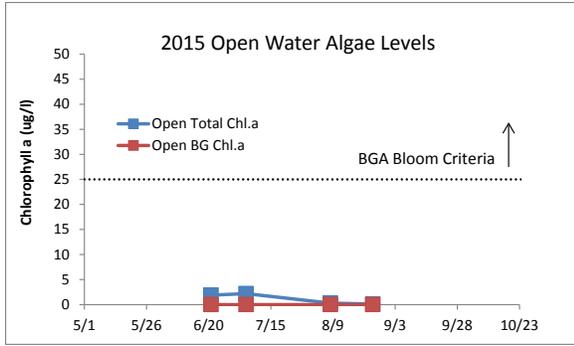


Figure D13:
2015 Open Water Total and BGA Chl.a

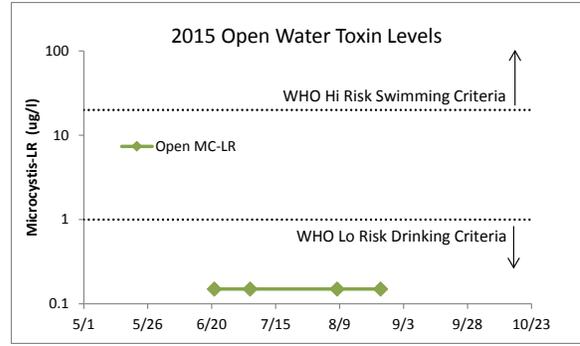


Figure D14:
2015 Open Water Microcystin-LR

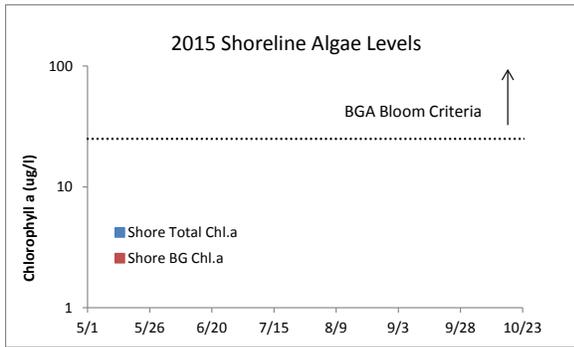


Figure D15:
2015 Shoreline Total and BGA Chl.a

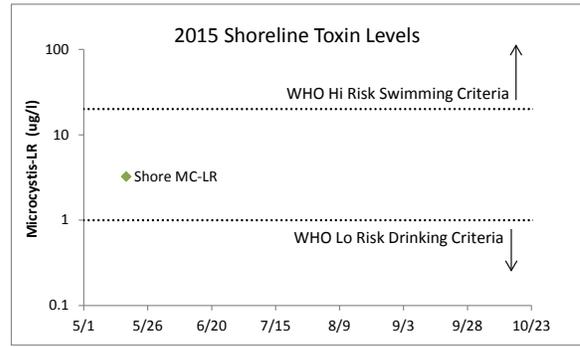


Figure D16:
2015 Shoreline Microcystin-LR

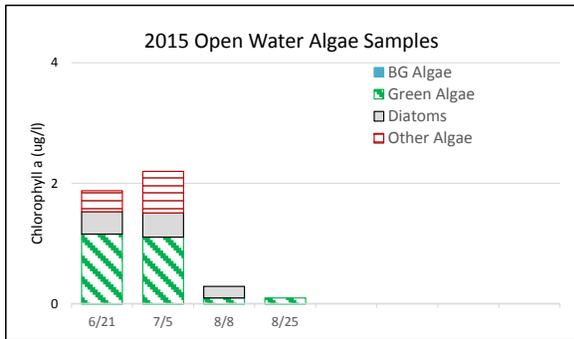


Figure D17:
2015 Open Water Algae Types

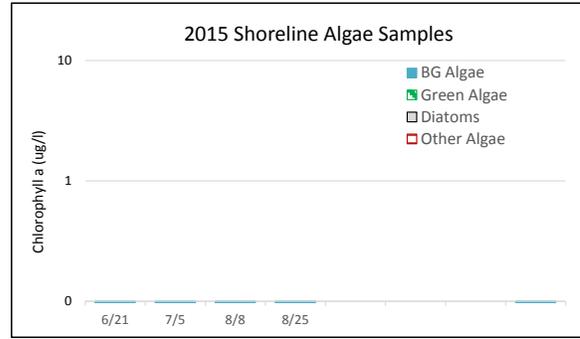


Figure D18:
2015 Shoreline Algae Types

Appendix E: AIS Species in Rensselaer County

The table below shows the invasive aquatic plants and animals that have been documented in Rensselaer 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).

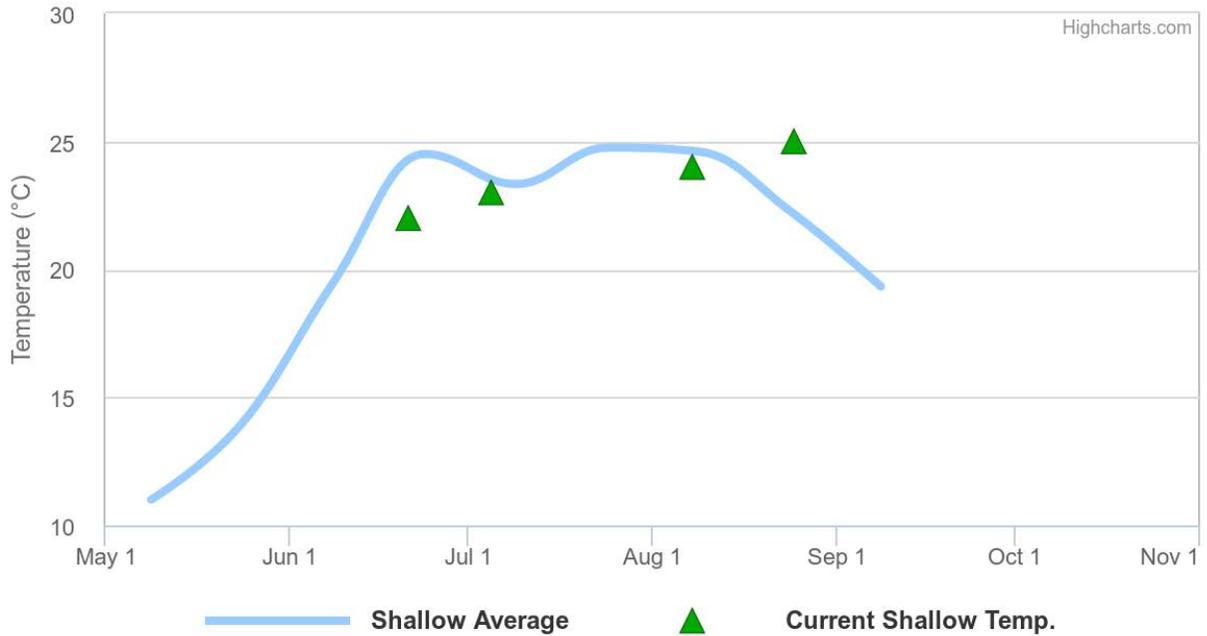
This list is not complete, but instead represents only those species that have been reported and verified within the county. If any additional aquatic invasive species (AIS) are known or suspected in these or other waterbodies in the county, this information should be reported through iMap invasives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

Aquatic Invasive Species - Rensselaer County			
Waterbody	Kingdom	Common name	Scientific name
Burden Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Burden Lake	Animal	Virile crayfish	<i>Orconectes virilis</i>
Burden Lake	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Burden Lake	Plant	Water chestnut	<i>Trapa natans</i>
Burden First Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Burden First Lake	Plant	Water chestnut	<i>Trapa natans</i>
Burden Second Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Burden Second Lake	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Burden Third Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Burden Third Lake	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Castleton Reservoir	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Coopers Pond	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Crooked Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Crystal Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Crystal Lake	Animal	Virile crayfish	<i>Orconectes virilis</i>
Glass Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Glass Lake	Animal	Virile crayfish	<i>Orconectes virilis</i>
Golden Pond	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Golden Pond	Plant	Water chestnut	<i>Trapa natans</i>
Hampton Manor Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Hampton Manor Lake	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Hampton Manor 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>

Waterbody	Kingdom	Common name	Scientific name
Hudson River (Schodack Island Park)	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Johnsonville Reservoir	Plant	Water chestnut	<i>Trapa natans</i>
Johnsonville Reservoir	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Links Pond	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Links Pond	Plant	Water chestnut	<i>Trapa natans</i>
Long Pond	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Mill Pond	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Nassau Lake	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Nassau Lake	Plant	Water chestnut	<i>Trapa natans</i>
Pine Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Pine Lake	Plant	Water chestnut	<i>Trapa natans</i>
Racquet Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Red Pond	Animal	Virile crayfish	<i>Orconectes virilis</i>
Reichards Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Second Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Shaver Pond	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Snyders Lake	Animal	Zebra mussel	<i>Dreissena polymorpha</i>
Snyders Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Snyders Lake	Plant	Brittle naiad	<i>Najas minor</i>
Snyders Lake	Plant	Curly leafed pondweed	<i>Potamogeton crispus</i>
Tamarack Pond	Plant	Water chestnut	<i>Trapa natans</i>
Tomhannock Lake	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Troy Reservoir	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Vanderhyden Reservoir	Plant	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>

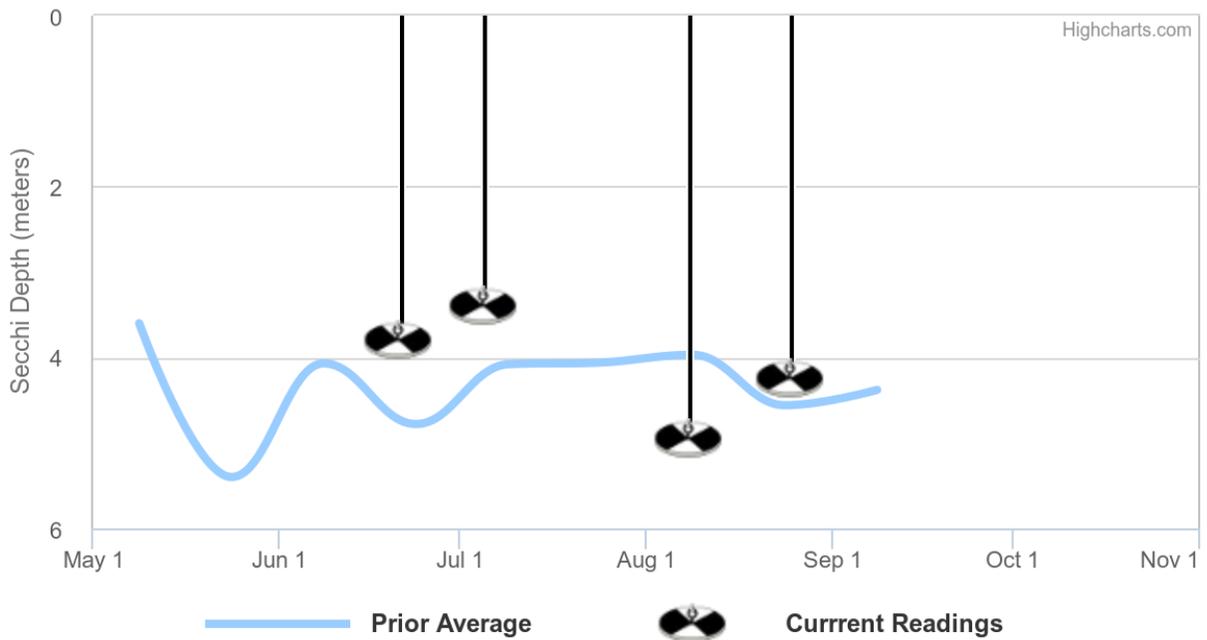
Appendix F: Current Year vs. Prior Averages for Taconic Pond

Current Year Water Temperatures vs. Prior Average



This year's shallow water sample temperatures are about the same as 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 lower than normal when compared to the average of readings collected from 1995 to 2014

Appendix G: Watershed and Land Use Map for Taconic Pond

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.

