We Wah Lake Questions and Answers, 2015 CSLAP

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

A1. The condition of We Wah Lake was slightly less favorable than usual in 2014 and 2015. Water clarity was slightly lower and aquatic plant coverage was higher, although no shoreline blue green algae blooms were reported.

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

A2. Chloride testing results were typical of lakes with moderate to high impacts from road salt runoff, although 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. We Wah Lake had slightly lower water clarity, but similar nutrient and algae levels, than most other nearby lakes. Aquatic plant coverage was similar to that in many other nearby lakes.

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

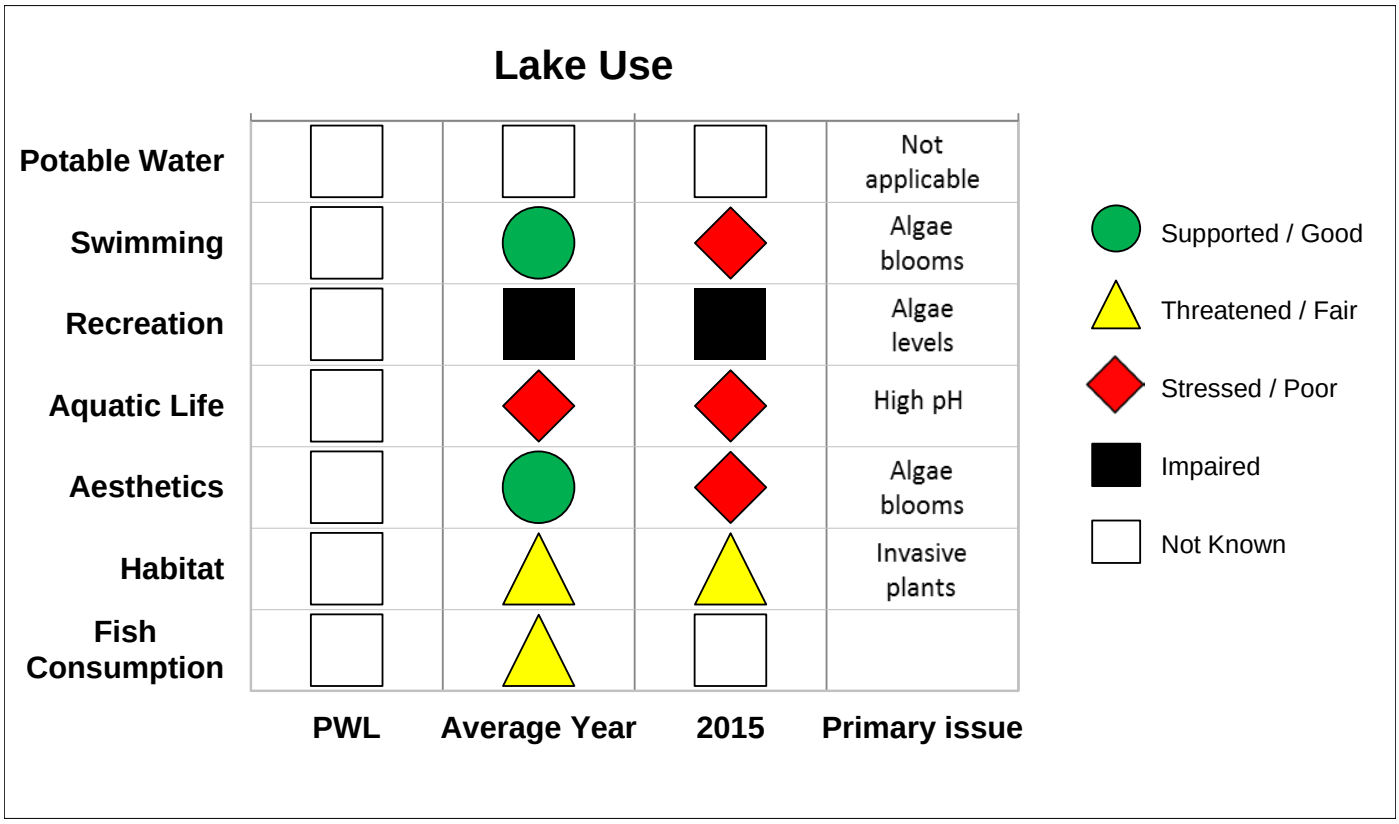
A4. Phosphorus readings have increased slightly, perhaps consistent with an increase in conductivity (both may be associated with materials associated with runoff into the lake). Plant coverage has increased in recent years; it is not known if this is consistent with the recent discovery of Eurasian watermilfoil.

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

A5. We Wah Lake is susceptible to shoreline blue green algae blooms, consistent with increasing phosphorus levels, although it is not yet known what factors lead to these periodic and occasionally persistent blooms. Lake residents should be on the lookout for, report, and avoid exposure to any shoreline surface scums and heavily discolored water.

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.

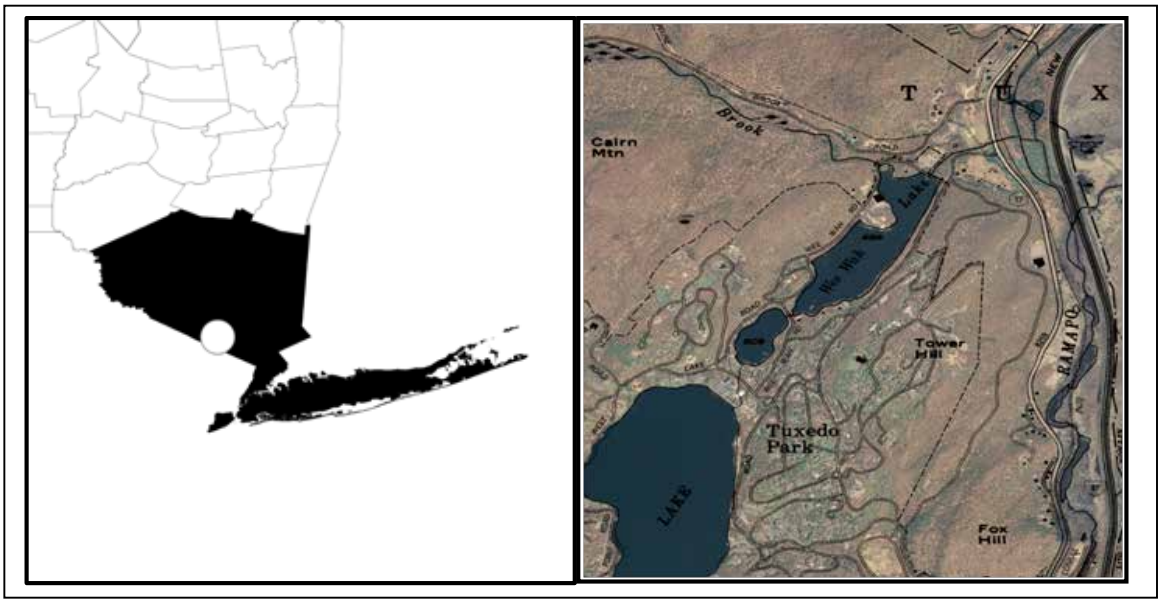


CSLAP 2015 Lake Water Quality Summary:
We Wah Lake

General Lake Information

Location	Town of Tuxedo
County	Orange
Basin	Raritan/Newark Bay
Size	23.3 hectares (57.6 acres)
Lake Origins	Natural
Watershed Area	1,671 hectares (4,127 acres)
Retention Time	0.06 years
Mean Depth	2.5 meters
Sounding Depth	5.3 meters
Public Access?	private beach
Major Tributaries	Little Wee Wah Lake
Lake Tributary To…	unnamed outlet to Ramapo River
WQ Classification	B (contact recreation = swimming)
Lake Outlet Latitude	41.219
Lake Outlet Longitude	-74.192
Sampling Years	2008-2012, 2014-2015
2014 Samplers	Susan Goodfellow and Jean Connelly McGregor
Main Contact	Susan Heywood

Lake Map



Background

We Wah Lake is a 58 acre, class B lake found in the Town of Tuxedo in Orange County, just northwest of New York City. The lake was first sampled as part of CSLAP in 2008.

It is one of 10 CSLAP lakes among the more than 830 lakes and ponds found in Orange County, and one of four CSLAP lakes among the nearly 200 lakes and ponds in the Raritan / Newark Bay drainage basin.

Lake Uses

We Wah Lake is a Class B lake; this means that the best intended use for the lake is for contact recreation—swimming and bathing, non-contact recreation—boating and angling, aquatic life, and aesthetics. The lake is used by Tuxedo Park residents and invited guests for non-power boating and swimming at the residential beach. There is no public access to the lake.

It is not known whether We Wah Lake has been stocked through any state fisheries stocking programs, or if any private stocking has occurred.

General statewide fishing regulations are applicable in We Wah Lake.

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

Historical Water Quality Data

CSLAP sampling was conducted on We Wah Lake from 2008 to 2012, and in 2014 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 We Wah Lake can also be found on the NYSDEC web page at http://www.dec.ny.gov/lands/77852.html.

We Wah Lake was sampled by the NYSDEC via the Lake Classification and Inventory (LCI) survey in 2007. These results from this monitoring were comparable to the results from subsequent CSLAP sampling.

There are no NYSDEC RIBS monitoring sites near We Wah Lake. The primary named tributary to the lake is Tuxedo Lake and Little We Wah Lake, which were monitored through the LCI in 2007 and CSLAP in most of the last several years.

Lake Association and Management History

We Wah Lake is served by Tuxedo Park and the Park Environmental Advisory Committee. The Committee is involved in a variety of lake management activities associated with Tuxedo Lake and We Wah Lake. Rules for the use of the swimming beach are determined by the governing body of Tuxedo Park. This includes work conducted in cooperation with Allied Biological.

The Village maintains a web site for the lake at http://www.tuxedopark-ny.gov.

Summary of 2015 CSLAP Sampling Results

Evaluation of 2015 Annual Results Relative to 2008-2014

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 – We Wah Lake" section in Appendix C.

Evaluation of Eutrophication Indicators

Water clarity was slightly lower than normal in 2014 and 2015, and these readings have decreased slightly since at least 2008. This has been coincident with (and perhaps caused by) an increase in phosphorus readings since 2009. Algae levels have varied from year to year, although in general they have also increased since the late 2000s. Deepwater phosphorus readings have also increased slightly over the same period, although these readings are not substantially higher than those measured at the lake surface, as is typical of shallow lakes.

Lake productivity increases during the typical summer, at least from July through September, based on increasing nutrient and algae levels and decreasing water clarity. These seasonal trends were also apparent in most recent sampling seasons, including 2015. This has contributed to a seasonal increase in blue green algae levels in the open water and along the shoreline, although blue green algae levels are moderate to low in most years.

The lake can be characterized as *mesoeutrophic*, or moderately to highly productive, based on chlorophyll *a*, total phosphorus (both typical of *eutrophic* lakes) and Secchi disk transparency (typical of *mesotrophic* lakes) readings. Each of these indicators was more typical of *eutrophic* lakes in 2015. The trophic state indices (TSI) evaluation suggests that algae levels, as measured by chlorophyll *a*, are slightly higher than expected given the nutrient levels and water clarity in the lake. This suggests that small changes in phosphorus may cause large increases in algae growth. Overall trophic conditions are summarized on the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Potable Water Indicators

Algae levels are 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 used for this purpose. Potable water conditions, at least as measurable through CSLAP, are summarized in the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Limnological Indicators

Conductivity readings were higher than usual in 2015, and these readings have increased over the last decade. Ammonia readings were also higher than usual in 2015, and both TN and ammonia may have increased slightly in recent years. Each of the other limnological indicators has probably varied within a normal range since 2009.

Chloride levels in the 2015 samples, collected for the first time through CSLAP and cited in Appendix A, ranged from 47 to 50 mg/l. These values fall within the "major" road salt runoff levels cited by the New Hampshire DES. These readings are well below the state potable water quality standard of 250 mg/l but above the range of values found in most NYS lakes. These

readings suggest a moderate to high likelihood of biological impacts from road salt. Additional data will help to determine if these represent normal readings for the lake.

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

Evaluation of Biological Condition

Phytoplankton, macrophyte, zooplankton, and macroinvertebrate surveys have not been conducted through CSLAP at We Wah Lake. The fluoroprobe screening results from SUNY ESF indicate that some shoreline blooms and open water algae growth are at times comprised primarily of blue green algae, particularly in mid to late summer, but overall blue green algae levels are usually moderate to low. The highest blue green algae levels were only apparent in some shoreline blooms, and no shoreline blooms were reported in 2015.

Aquatic plant surveys conducted by Allied Biological in 2012 found 8 different aquatic plant species, including Eurasian watermilfoil (*Myriophyllum spicatum*). A modified floristic quality index (mFQI) evaluation indicates a "fair" quality to the aquatic plant community.

The composition of the fish community in We Wah Lake is not known. It is anticipated that data associated with some of these biological indicators will be collected or become available in the coming years.

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

Evaluation of Lake Perception

Aquatic plant coverage was higher than usual in the last few years, and plant coverage has increased slightly since the late 2000s. Over the same period, water quality and recreational assessments degraded slightly, consistent with the decrease in water clarity since the late 2000s. Recreational perception appears to be more closely aligned with changes in water quality than changes in plant coverage. These assessments vary seasonally in sync with seasonal changes in water quality. Overall lake perception is summarized on the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Local Climate Change

Air temperature readings in the summer index period were higher than normal in each of the last few sampling seasons, and water temperatures have increased slightly over the last seven years. Additional data may help to determine if temperature readings in the lake can be used to evaluate local climate change, and if this represents a trend.

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 at times exceed the threshold for harmful algal blooms (HABs) in shoreline blooms and approach these thresholds in the open water. An analysis of open water and shoreline bloom algae samples indicate microcystin readings that are usually well below the levels needed to support safe swimming, although elevated microcystin levels were measured in some shoreline bloom

samples. Since toxin levels cannot be assessed visually, lake residents and pets should continue to avoid exposure to surface scums or heavily discolored water.

Lake Condition Summary

Category	Indicator	Min	Overall Avg	Max	2015 Avg	Classification	2015 Change?	Long-term Change?
Eutrophication Indicators	Water Clarity	0.81	2.05	3.50	1.78	Mesotrophic	Lower Than Normal	No Change
	Chlorophyll *a*	0.55	16.46	69.90	17.19	Eutrophic	Within Normal Range	No Change
	Total Phosphorus	0.004	0.026	0.059	0.028	Eutrophic	Within Normal Range	Increasing Slightly
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	0.16	0.01	Low NOx	Within Normal Range	No Change
	Ammonia	0.01	0.07	1.06	0.29	Low Ammonia	Higher than Normal	No Change
	Total Nitrogen	0.20	0.45	0.86	0.48	Low Total Nitrogen	Within Normal Range	No Change
	pH	6.64	7.70	9.20	7.97	Alkaline	Higher than Normal	No Change
	Specific Conductance	96	164	248	234	Intermediate Hardness	Higher than Normal	Increasing Slightly
	True Color	6	21	60	17	Intermediate Color	Within Normal Range	No Change
	Calcium	9.0	11.2	15.0	12.7	May be Susceptible to Zebra Mussels	Within Normal Range	No Change
Lake Perception	WQ Assessment	1	2.4	5	2.6	Not Quite Crystal Clear	Within Normal Range	No Change
	Aquatic Plant Coverage	1	1.7	3	2.4	Subsurface Plant Growth	Higher than Normal	Highly Improving
	Recreational Assessment	1	2.2	5	2.0	Excellent	Within Normal Range	No Change
Biological Condition	Phytoplankton					Open water-low blue green algae biomass; Shoreline-high blue green algae in bloom	Not known	Not known
	Macrophytes					Fair quality of the aquatic plant community	Not known	Not known
	Zooplankton					Not measured through CSLAP	Not known	Not known
	Macroinvertebrates					Not measured through CSLAP	Not known	Not known
	Fish					Not reported	Not known	Not known
	Invasive Species					Eurasian watermilfoil	Not known	Not known
Local Climate Change	Air Temperature	7	25.9	35	28.8		Higher Than Normal	Increasing Significantly
	Water Temperature	15	26.2	33	28.0		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	1	58	405	22	Some readings indicate high risk of BGA	Not known	Not known
	Open Water FP Chl.a	1	9	26	10	Few readings indicate high algae levels	Not known	Not known
	Open Water FP BG Chl.a	0	3	14	2	Few readings indicate high BGA levels	Not known	Not known
	Open Water Microcystis	<DL	<DL	0.9	<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	6776.0	6776.0	6776.0		All readings indicate high risk of BGA	Not known	Not known
	Screening FP Chl.a	279.2	1383.9	3563.7		All readings indicate very high algae levels	Not known	Not known
	Screening FP BG Chl.a	4.0	1274.6	3563.7		Most readings indicate high BGA levels	Not known	Not known
	Shoreline Microcystis	<DL	3.5	35.9		Occasionally high shoreline bloom MC-LR	Not known	Not known
	Shoreline Anatoxin a	<DL	<DL	<DL		Shoreline bloom Anatoxin-a consistently not detectable	Not known	Not known

Evaluation of Lake Condition Impacts to Lake Uses

We Wah Lake is not among the lakes listed on the 2008 Raritan / Lower Hudson River drainage basin PWL.

Potable Water (Drinking Water)

The CSLAP dataset at We Wah 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 high algae levels and occasional shoreline blooms suggest that potable water use would not be supported.

Public Bathing

The CSLAP dataset at We Wah Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggests that public bathing may be *stressed* in some years by excessive algae, occasional shoreline blue green algae blooms, and low water clarity. 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 We Wah Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that recreation may be *impaired* by shoreline blooms and open water algae levels, and this use may at times be *threatened* by excessive weeds.

Aquatic Life

The CSLAP dataset on We Wah Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aquatic life may be *stressed* by elevated pH, and *threatened* by road salt runoff. Additional data are needed to evaluate the food and habitat conditions for aquatic organisms in the lake.

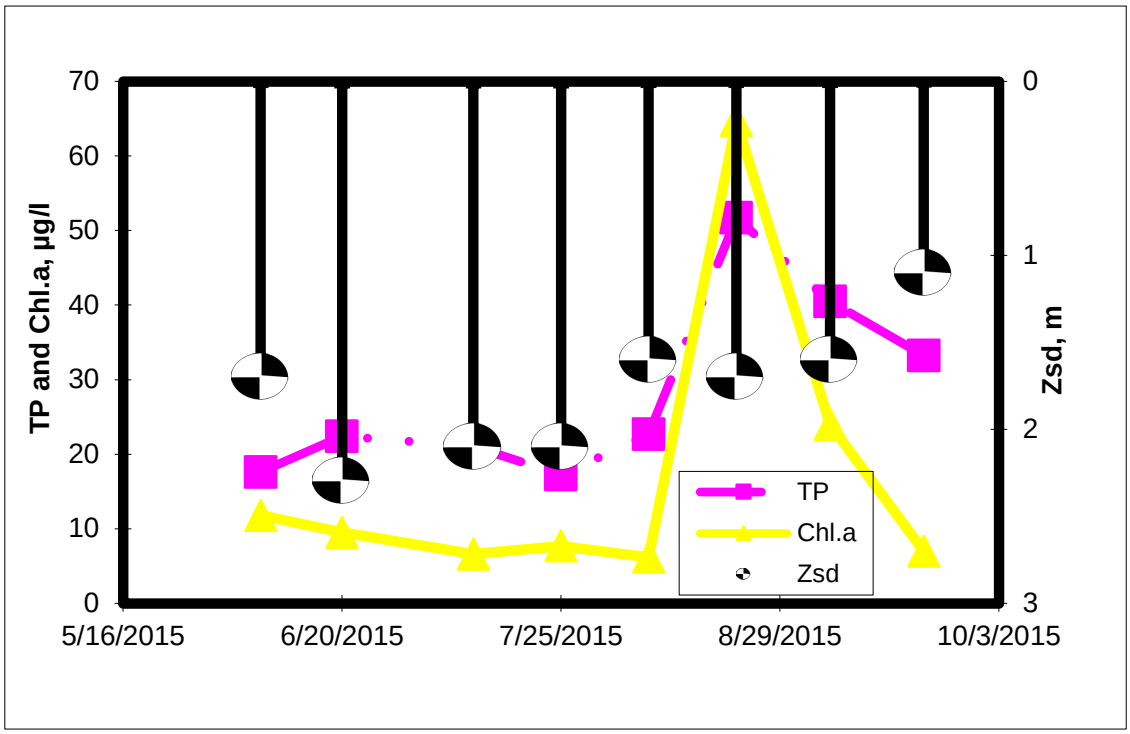
Aesthetics and Habitat
The CSLAP dataset on We Wah Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aesthetics may be *poor* due to excessive algae and shoreline algae blooms, consistent with occasional reports that the lake "looks bad". Habitat may be only *fair* due to invasive plants.

Fish Consumption
There are no fish consumption advisories posted for We Wah Lake.

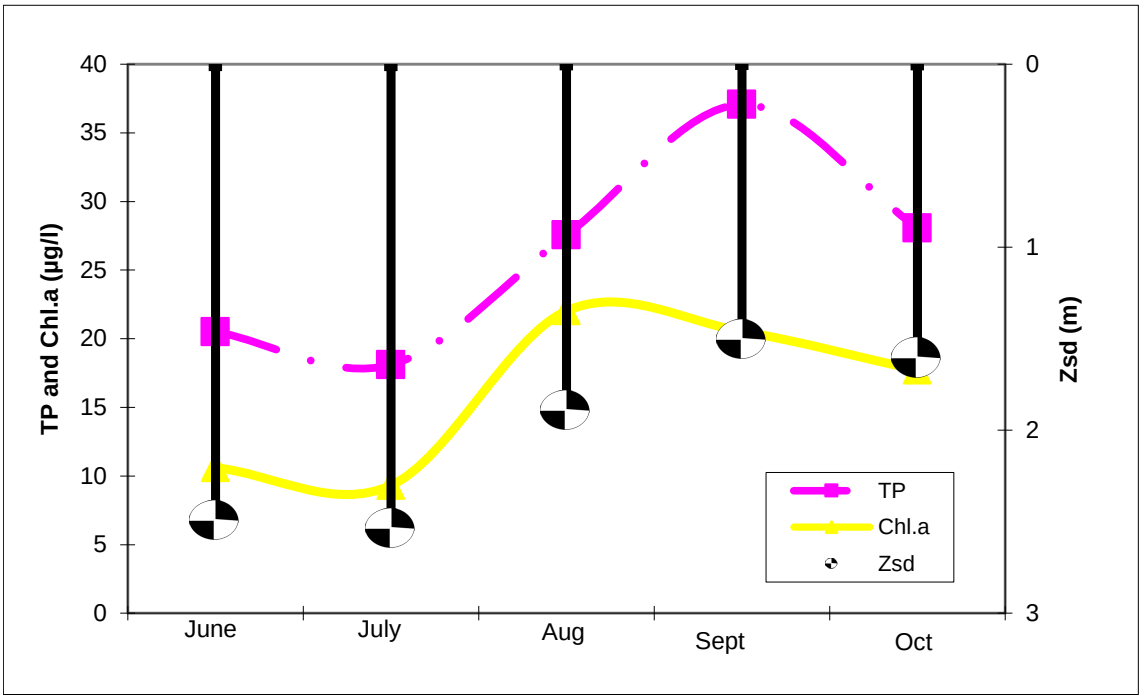
Additional Comments and Recommendations
Aquatic plant survey data may help to contribute to a more comprehensive biological assessment of the lake, and additional water quality data will help to evaluate the representativeness of these data. Lake residents should look for any new or poorly controlled sources of nutrients that might be contributing to the recent increase in phosphorus readings that may be contributing to shoreline blooms. These blooms should be reported to the lake association.

Aquatic Plant IDs-2015
None submitted for identification.

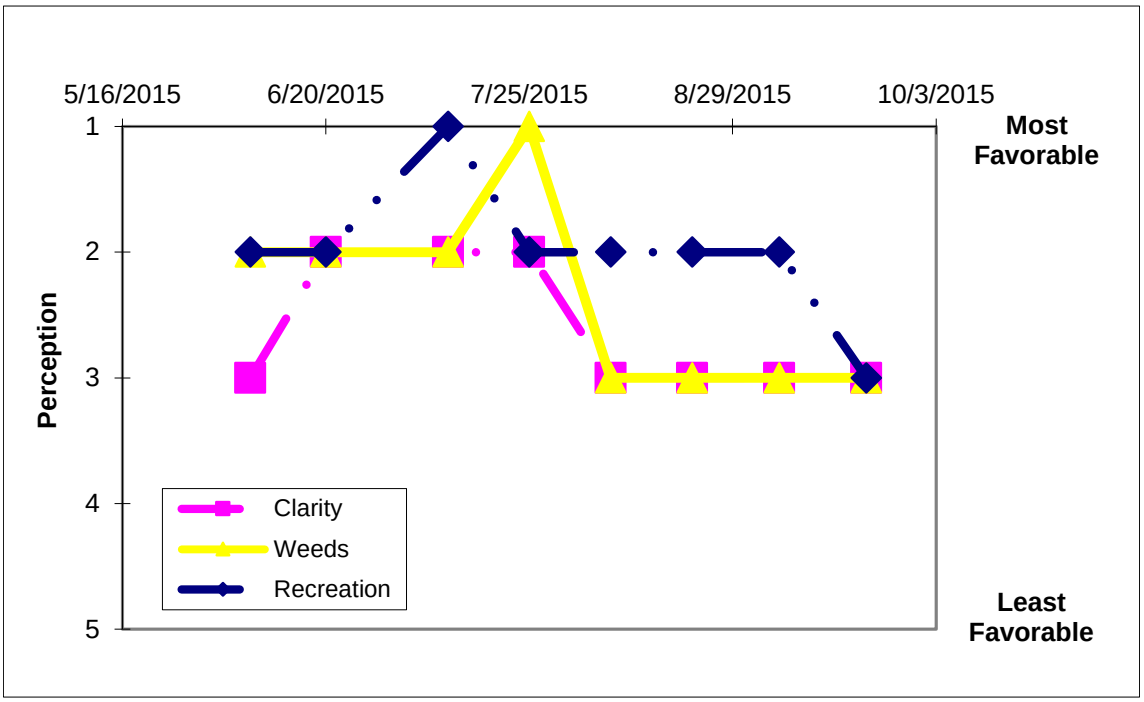
Time Series: Trophic Indicators, 2015



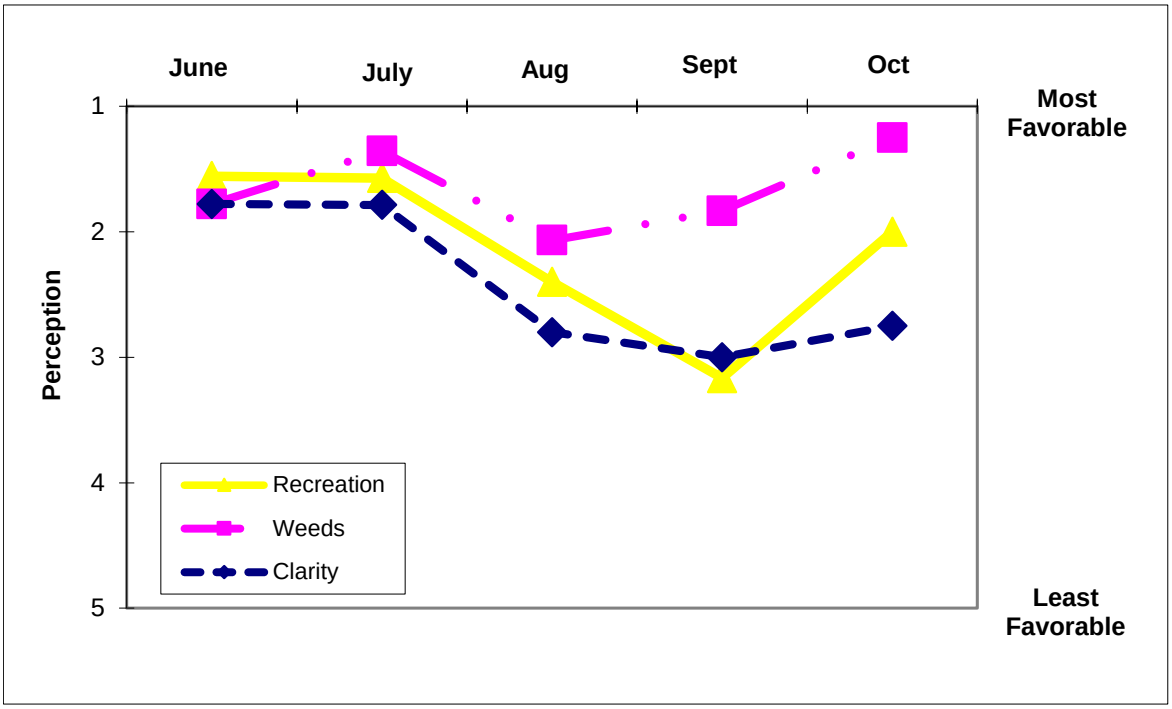
Time Series: Trophic Indicators, Typical Year (2008-2015)



Time Series: Lake Perception Indicators, 2015



Time Series: Lake Perception Indicators, Typical Year (2008-2015)



Appendix A- CSLAP Water Quality Sampling Results for We Wah Lake

LNum	LName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a	Cl
220	Wee Wah L	7/14/2008	5.3	3.50	1.5	0.015	0.04	0.04	0.20	29.51	13	7.26	153	9.4	4.0	
220	Wee Wah L	7/27/2008	4.6	2.78	1.5	0.015	0.01	0.03	0.40	59.20	15	7.68	96		8.4	
220	Wee Wah L	8/9/2008	4.9	2.15	1.5	0.018	0.01	0.01	0.47	55.85	11	8.19	124		16.8	
220	Wee Wah L	8/24/2008	4.5	1.55		0.025	0.01	0.05	0.54	47.33	6	9.20	114		30.1	
220	Wee Wah L	9/7/2008	5.1	2.90	1.0	0.019	0.01	0.03	0.43	51.44	13	7.75	149	10.3	0.6	
220	Wee Wah L	9/21/2008	5.1	1.60	1.0	0.034	0.03	0.10	0.46	29.83	19	7.79	134		19.4	
220	Wee Wah L	10/5/2008	4.9	1.80	1.0	0.028	0.02	0.03	0.35	27.12	17	6.90	145		18.9	
220	Wee Wah L	10/18/2008	4.8	1.90	1.5	0.030	0.01	0.03	0.42	31.02	15	7.50	133		19.4	
220	Wee Wah L	06/14/2009	5.4	2.15	1.5	0.028	0.01	0.02	0.30	23.45		6.64	145	10.6	28.99	
220	Wee Wah L	06/27/2009	4.6	2.05	1.5	0.020	0.00	0.01	0.21	23.76	40				7.15	
220	Wee Wah L	07/11/2009	5.5	2.20	1.5	0.004	0.00	0.01	0.28	142.00	57	7.49	118		39.24	
220	Wee Wah L	07/26/2009	5.0	2.30	1.5	0.017	0.01	0.04	0.24	30.83	37	7.48	104		9.05	
220	Wee Wah L	08/10/2009		2.65	1.5	0.017	0.01	0.02	0.31	39.63	36	7.88	128	10.3	4.35	
220	Wee Wah L	08/21/2009	4.9	3.35	1.5	0.011	0.01	0.02	0.28	58.46	28	7.45	122		4.70	
220	Wee Wah L	09/06/2009	4.5	1.65	1.5	0.025	0.01	0.03	0.47	41.86	56	8.86	118		30.20	
220	Wee Wah L	09/20/2009	4.5	1.55	1.5	0.027	0.01	0.07	0.45	36.69	60	7.44	138		17.60	
220	Wee Wah L	6/19/2010	5.0	3.35	1.5	0.015	0.01	0.02	0.31	45.46	19	7.26	159	11.1	1.70	
220	Wee Wah L	7/4/2010	5.1	2.80	1.5	0.017	0.01	0.02	0.22	28.76	22	8.27	168		5.00	
220	Wee Wah L	7/18/2010	5.1	2.80	1.5	0.018	0.01	0.03	0.46	56.24	26	7.59	176		3.70	
220	Wee Wah L	8/1/2010	4.5	1.80	1.5	0.021	0.01	0.03	0.48	50.60	31	8.51	171		7.30	
220	Wee Wah L	8/15/2010	3.8	1.75	1.5	0.019	0.01	0.01	0.49	56.90	16	9.12	169	12.4	13.00	
220	Wee Wah L	8/27/2010	4.1	1.30	1.5	0.043					24	8.81	175		69.90	
220	Wee Wah L	9/11/2010				0.059	0.16	0.09	0.48	18.20	25	7.63	184		35.50	
220	Wee Wah L	9/24/2010				0.046	0.02	0.03	0.47	22.33	25	7.32	179		23.20	
220	Wee Wah L	10/3/2010														
220	Wee Wah L	6/19/2011	5.6	2.70	1.5	0.018	0.04	0.04	0.21	25.04	16	7.36	162	9.9	4.00	
220	Wee Wah L	7/10/2011	5.4	2.90	1.5	0.020	0.03	0.03	0.40	44.79	12	6.85	147		7.60	
220	Wee Wah L	7/24/2011	4.9	3.00	1.5	0.015	0.06	0.03	0.31	46.11	14	7.52	138		7.10	
220	Wee Wah L	8/7/2011		2.25	1.5	0.018	0.01	0.04	0.65	78.20	13	7.38	147		11.30	
220	Wee Wah L	8/7/2011			bloom											
220	Wee Wah L	8/20/2011	4.2	1.63	1.5	0.028	0.01	0.01	0.55	43.76	11	7.01	111	9.8	19.30	
220	Wee Wah L	9/4/2011	4.1	1.59	1.5	0.035	0.02	0.03	0.44	27.75	20	7.05	117		12.40	
220	Wee Wah L	9/17/2011	4.2	1.45	1.5	0.030	0.01	0.02	0.38	28.00	33	7.10	124		16.80	
220	Wee Wah L	10/10/2011	3.3	1.55	1.5	0.025	0.12	0.02	0.48	41.72	23	7.17	118		13.80	
220	Wee Wah L	6/25/2012	3.3	2.45	1.5	0.023	0.14	0.06	0.61	57.84	19	8.09	180	13.4	16.90	
220	Wee Wah L	7/8/2012	3.1	3.10	1.5	0.023	0.02	0.07	0.45	43.24	21	7.10	185		3.00	
220	Wee Wah L	7/8/2012														
220	Wee Wah L	7/22/2012	3.5	1.20	1.5	0.029	0.01	0.16	0.61	46.75	17	7.50	189			
220	Wee Wah L	8/5/2012	3.2	2.08	1.5	0.034	0.01	0.44	0.46	29.72	15	8.28	185		11.70	
220	Wee Wah L	8/18/2012	3.5	1.35	1.5	0.045	0.02	0.05	0.59	29.09	13	7.21	186	15.0	16.00	
220	Wee Wah L	9/2/2012	3.2	0.81	1.5	0.046	0.01	0.09	0.72	34.34	11	7.92	190		31.50	
220	Wee Wah L	9/2/2012														
220	Wee Wah L	9/16/2012	3.1	1.10	1.5	0.043	0.01	0.14	0.80	40.80	11	7.46	188		17.90	
220	Wee Wah L	9/16/2012														
220	Wee Wah L	10/20/2012	4.0	1.18	1.5	0.029	0.02	0.03	0.55	41.42	23	8.48	151		18.80	
220	Wee Wah L	6/9/2014	4.2	3.45	1.5	0.023	0.01	0.04	0.32	30.93	16	7.98	166	9.0	8.40	
220	Wee Wah L	6/22/2014	4.4	2.30	1.5	0.017			0.34	42.98	16	6.88	157		7.00	
220	Wee Wah L	7/7/2014	4.6	2.40	1.5	0.023	0.02	0.05	0.40	39.04	13	8.09	163		8.70	
220	Wee Wah L	7/21/2014	4.3	2.35	1.5	0.020			0.32	34.57	14	7.05	142		11.00	
220	Wee Wah L	8/5/2014	4.3	1.85	1.5	0.027	0.01	0.03	0.46	37.24	11	7.91	172	10.6	22.40	
220	Wee Wah L	8/5/2014			bloom											
220	Wee Wah L	8/15/2014	3.9	1.40	1.5	0.034			0.82	53.60	16	7.87	182		32.60	
220	Wee Wah L	8/17/2014			bloom											
220	Wee Wah L	9/8/2014	4.3	1.45	1.5	0.031	0.02	0.12	0.56	39.17	17	6.97	190		19.90	
220	Wee Wah L	9/21/2014			bloom											
220	Wee Wah L	9/22/2014	3.6	1.25	1.5	0.052			0.60	25.36	15	7.30	188		31.60	
220	Wee Wah L	6/7/2015	4.3	1.70	1.5	0.018		0.02	0.38	21.43	23	7.75	228	12.1	11.80	
220	Wee Wah L	6/20/2015	4.2	2.30	1.5	0.022			0.28	12.68	16	7.53	228		9.50	
220	Wee Wah L	7/11/2015	4.4	2.10	1.5	0.021	0.02	1.06	0.46	21.82	19	7.29	222		6.60	47.1
220	Wee Wah L	7/25/2015	4.1	2.10	1.5	0.017			0.41	23.68	16	8.07	222		7.70	
220	Wee Wah L	8/8/2015	4.1	1.60	1.5	0.023	0.01	0.04	0.53	23.19	25	8.76	242	13.2	6.20	
220	Wee Wah L	8/22/2015	3.9	1.70	1.5	0.052			0.86	16.56	13	8.61	234		64.70	
220	Wee Wah L	9/6/2015	3.9	1.60	1.5	0.040	0.01	0.06	0.53	13.07	20	8.07	245		24.00	49.4

LNum	LName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a	Cl
220	Wee Wah L	9/21/2015	5.1	1.10	1.5	0.033			0.40	11.95	7	7.71	248		7.00	
220	Wee Wah L	6/7/2015	4.3	1.70	1.5	0.018		0.02	0.38	21.43	23	7.75	228	12.1	11.80	
220	Wee Wah L	6/20/2015	4.2	2.30	1.5	0.022			0.28	12.68	16	7.53	228		9.50	
220	Wee Wah L	08/10/2009				0.043	0.01	0.03								
220	Wee Wah L	09/06/2009			4.5	0.036	0.01	0.07								
220	Wee Wah L	09/20/2009			4.5	0.038	0.01	0.07								
220	Wee Wah L	6/19/2010	5.0		5.0	0.060		0.01								
220	Wee Wah L	7/18/2010	5.1			0.105		0.22								
220	Wee Wah L	8/15/2010	3.8			0.081		0.03								
220	Wee Wah L	9/11/2010				0.055		0.09								43.8
220	Wee Wah L	6/19/2011				0.032		0.02								Cl
220	Wee Wah L	7/24/2011				0.052		0.03								
220	Wee Wah L	8/20/2011				0.103		0.37								

LNum	PName	Date	Site	TAir	TH2O	QA	QB	QC	QD	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cyl	FP-Chl	FP-BG	HAB form	Shore HAB
220	Wee Wah L	7/14/2008	epi	26	22	2	1	2	5											
220	Wee Wah L	7/27/2008	epi	21	26	1	1	1	0											
220	Wee Wah L	8/9/2008	epi	19	25	3	1	2	8											
220	Wee Wah L	8/24/2008	epi	24	24	3	2	3	5											
220	Wee Wah L	9/7/2008	epi	26	25	2	1	2	0											
220	Wee Wah L	9/21/2008	epi	21	21	3	1	2	8											
220	Wee Wah L	10/5/2008	epi	13	17	3	1	2	8											
220	Wee Wah L	10/18/2008	epi	7	15	2	1	1	0											
220	Wee Wah L	06/14/2009	epi	22	21	1	1	1	0											
220	Wee Wah L	06/27/2009	epi	27		1	1	1	0					0.00						
220	Wee Wah L	07/11/2009	epi	26	26	1	1	1	0											
220	Wee Wah L	07/26/2009	epi	25	27	2	1	1	0											
220	Wee Wah L	08/10/2009	epi	24	27	1	1	1	0											
220	Wee Wah L	08/10/2009	bloom											0.00						
220	Wee Wah L	08/21/2009	epi	31	30	2	1	1	0											
220	Wee Wah L	09/06/2009	epi	28	26	2	1	2	1			405.2		0.03						
220	Wee Wah L	09/20/2009	epi	24	23	3	2	4	13			8.223								
220	Wee Wah L	10/4/2009	epi											0.01						
220	Wee Wah L	10/4/2009	bloom											0.66						
220	Wee Wah L	10/4/2009	bloom											0.75						
220	Wee Wah L	6/19/2010	epi	21	25	1	1	1	0	0	0									
220	Wee Wah L	7/4/2010	epi	29	28	1	1	1	0	0	0									
220	Wee Wah L	7/18/2010	epi	32	32	2	2	3	1	3	6									
220	Wee Wah L	8/1/2010	epi	23	26	3	2	2	1	0	0	89.00		0.00						
220	Wee Wah L	8/15/2010	epi	22	28	2	2	2	1	0	0									
220	Wee Wah L	8/27/2010	epi	28	27	3	1	3	0	0	0									
220	Wee Wah L	9/11/2010	epi									225.0		0.00						
220	Wee Wah L	9/24/2010	epi																	
220	Wee Wah L	10/3/2010	epi									394.0		0.00						
220	Wee Wah L	6/19/2011	epi	33	29	2	1	1	0	0	0	9.40	2.00							
220	Wee Wah L	7/10/2011	epi	28	29	2	1	1	0	0	0	21.30	3.10							
220	Wee Wah L	7/24/2011	epi	30	33	1	1	1	0	0	0	31.40	2.19							
220	Wee Wah L	8/7/2011	epi	26	29	3	2	3	14	4	4	99.30	5.40	0.57	<0.5	<0.1				
220	Wee Wah L	8/7/2011	bloom											5.14	<0.9	<0.1				
220	Wee Wah L	8/20/2011	epi	19	27	4	3	4	134	4	4	149.80	6.50							
220	Wee Wah L	9/4/2011	epi	28	28	3	1	3	5	7	4	51.00	7.70							
220	Wee Wah L	9/17/2011	epi	24	23	2	1	2	1	0	0	48.20	12.70							
220	Wee Wah L	10/10/2011	epi	20	19	2	1	2	5	0	0	32.00	7.00							
220	Wee Wah L	6/25/2012	epi	25	28	3	3	3	25	4	4	5.10	1.50	<0.30	<0.428		2.18	0.75	B	
220	Wee Wah L	7/8/2012	epi	33	30	3	2	2	8	7	0	5.20	0.60	<0.30	<0.392		1.78	0.83	FH	
220	Wee Wah L	7/8/2012	bloom											2.34	<1.261		583.0	4.00		
220	Wee Wah L	7/22/2012	epi	24	29	3	2	3	28	4	7	7.40	0.90	<0.30	<0.585		3.55	0.75	F	
220	Wee Wah L	8/5/2012	epi	32	31	3	3	2	8	0	0	15.80	0.50	<0.30	<0.659		4.88	3.03	FI	
220	Wee Wah L	8/18/2012	epi	25	29	2	2	2	0	4		44.40	0.90	0.37	<0.223		13.96	7.04		
220	Wee Wah L	9/2/2012	epi	29	27	5	2	5	134	0	0	99.20	2.20	<0.30	<0.725		15.89	11.08	ABCE	
220	Wee Wah L	9/2/2012	bloom											1.22	<1.101		3563.	3563		
220	Wee Wah L	9/16/2012	epi	28	25	4	2	5	134	4	5	45.50	0.80	<0.30	<3.299		3.74	2.40	AC	

LNum	PName	Date	Site	TAir	TH2O	QA	QB	QC	QD	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cyl	FP-Chl	FP-BG	HAB form	Shore HAB
220	Wee Wah L	9/16/2012	bloom											5.64	<2.978		1323	1307		
220	Wee Wah L	10/20/2012	epi	20	18	4	2	3	1	0	0	13.30	3.10	<0.30	<3.205		9.99	0.00	FI	
220	Wee Wah L	6/9/2014	epi	35	26	1	2	2	8	0	0	0.50	1.60	<1.83	<0.17	<0.001	0.81	0.00	f	
220	Wee Wah L	6/22/2014	epi	28	27	2	3	1	0	0	7	15.60	0.40	<0.58	<0.44	<0.002	3.32	1.24	i	
220	Wee Wah L	7/7/2014	epi	31	28	2	2	2	0	4	4	17.70	0.40	<0.40	<0.48	<0.001	5.76	3.54	f	
220	Wee Wah L	7/21/2014	epi	27	29	1	1	1	0	0	0	7.50	0.50	<0.39	<0.24	<0.002	3.51	0.59	i	i
220	Wee Wah L	8/5/2014	epi	26	28	3	2	2	8	4	4	39.00	1.90	<0.33	<0.01	<0.002	10.94	4.22	ef	e
220	Wee Wah L	8/5/2014	bloom											<0.67	<0.03	<0.003	279.22	264.84		bc
220	Wee Wah L	8/15/2014	epi	29	27	4	3	5	134	4	4	68.90	0.70	<0.39	<0.03	<0.001	16.06	13.91	bcdf	bc
220	Wee Wah L	8/17/2014	bloom											<0.84	<0.19	<0.003	1272.25	1272.25		
220	Wee Wah L	9/8/2014	epi	29	29	3	3	3	15	4	4	27.60	0.30	<0.64	<0.03	<0.001	9.26	8.21		
220	Wee Wah L	9/21/2014	bloom											35.91	<0.08	<0.002	1282.00	1236.00		
220	Wee Wah L	9/22/2014	epi	25	23		2	5	35	7	0	21.20	1.50	<0.48	<0.04	<0.001	15.90	1.34	acd	
220	Wee Wah L	6/7/2015	epi	32	24	3	2	2	0	0	0	22.10	1.30	<0.77	<0.126	<1.739	6.53	1.92	F	l
220	Wee Wah L	6/20/2015	epi	24	27	2	2	2	0	3	0	16.00	1.00	<0.55	<0.004	<0.003	4.73	1.00	F	l
220	Wee Wah L	7/11/2015	epi	32	28	2	2	1	8	0	0	15.60	0.70	<0.30	<0.005	<0.028	4.06	1.75	I	l
220	Wee Wah L	7/25/2015	epi	29	30	2	1	2	0	0	0	20.90	1.20	<0.30	<0.002	<0.014	5.05	1.50	F	l
220	Wee Wah L	8/8/2015	epi	28	30	3	3	2	0	4	47	64.20	1.60	<1.13	0.00	<0.013	11.46	4.81	F	l
220	Wee Wah L	8/22/2015	epi	28	29	3	3	2	0	0	0	1.80	0.40	<0.28	<0.008	<0.021	26.13	5.17	I	l
220	Wee Wah L	9/6/2015	epi	33	30	3	3	2	0	7	0			<0.30	<0.023	<0.086	16.05	0.00	H	l
220	Wee Wah L	9/21/2015	epi	24	26	3	3	3	1	7	7	13.70	1.80	<0.30	<0.007	<0.035	9.40	0.47	EF	l

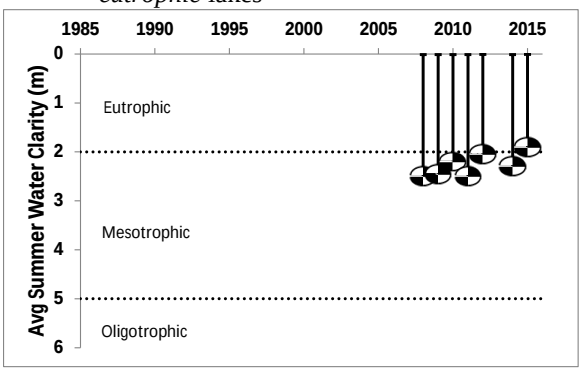
Legend Information

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

Appendix C- Long Term Plots- We Wah Lake

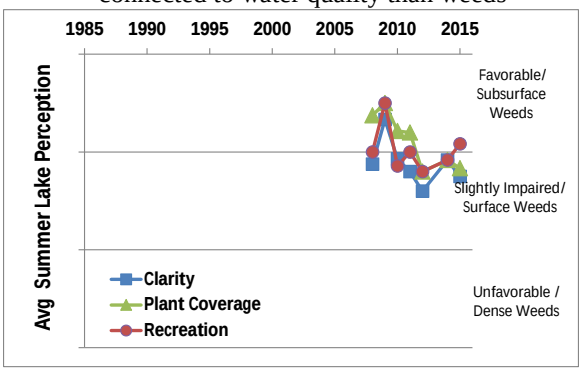
Long Term Trends: Water Clarity

- Drop in water clarity since 2008
- Most readings typical of *mesotrophic* to *eutrophic* lakes



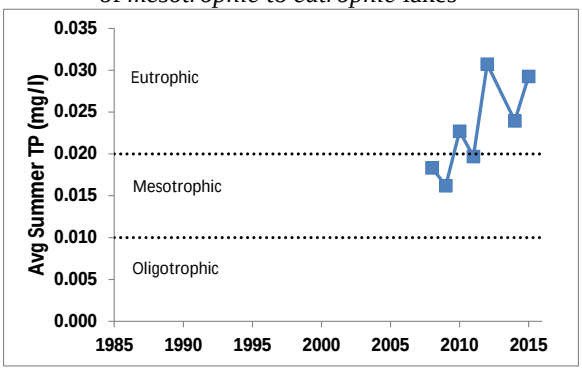
Long Term Trends: Lake Perception

- WQ/Rec degrading; plant coverage ↑
- Recreational perception more closely connected to water quality than weeds



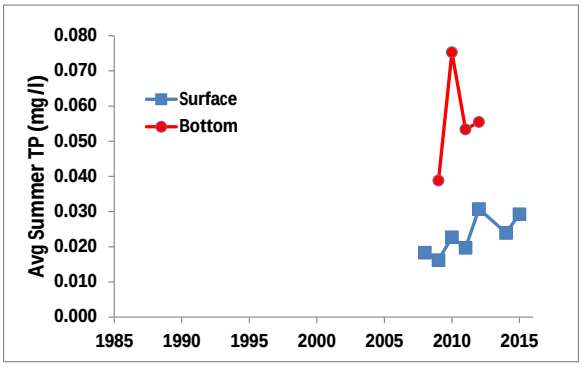
Long Term Trends: Phosphorus

- Increasing TP since 2009 w/some variation
- As with water clarity, most readings typical of *mesotrophic* to *eutrophic* lakes



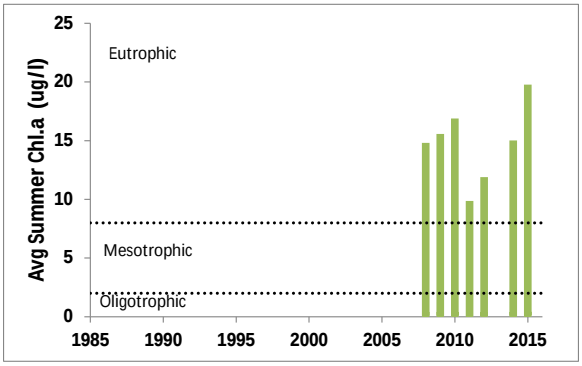
Long Term Trends: Bottom Phosphorus

- Variable, but slightly higher than surface
- Does not appear to have resulted in increase in surface TP levels



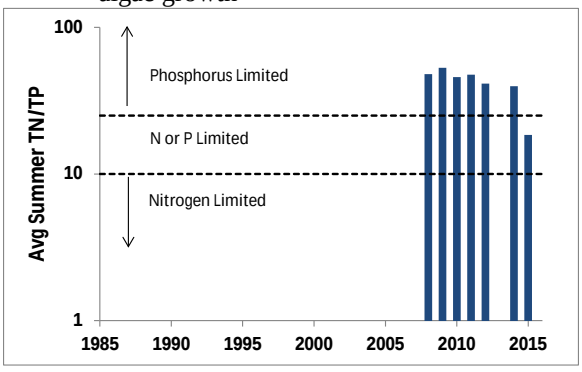
Long Term Trends: Chlorophyll a

- Variable; perhaps slight ↑
- Most readings typical of *eutrophic* lakes



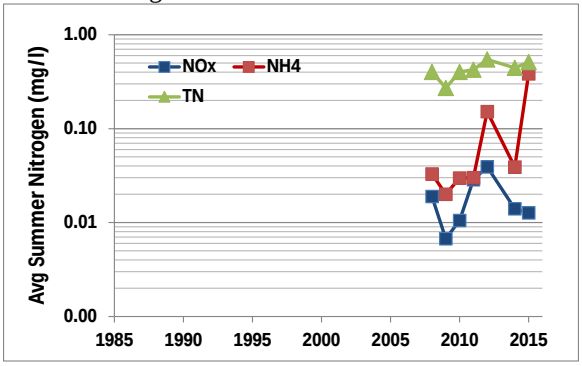
Long Term Trends: N:P Ratio

- Slight decrease, but no clear trend
- Most readings indicate phosphorus limits algae growth



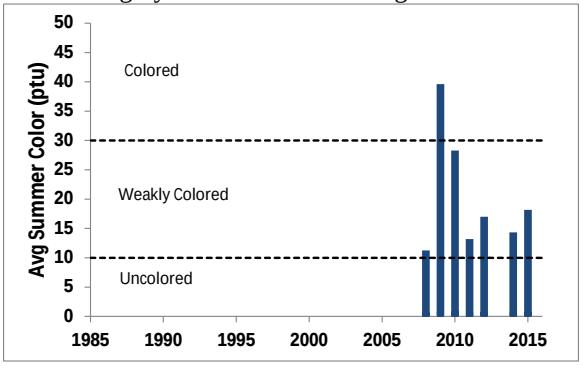
Long Term Trends: Nitrogen

- NH4 and TN increasing since late 2000s
- Still relatively low nitrate, ammonia and total nitrogen



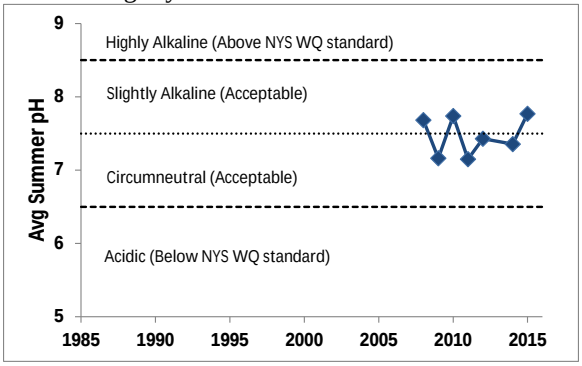
Long Term Trends: Color

- No long term trend; variable year to year
- No consistent color assessments due to highly variable color readings



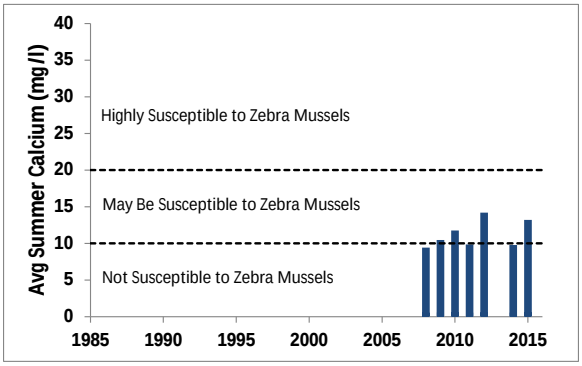
Long Term Trends: pH

- No clear trend
- Most readings typical of *circumneutral* to slightly alkaline lakes



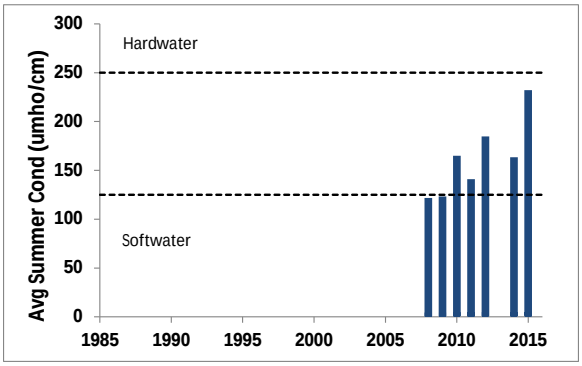
Long Term Trends: Calcium

- No long term trend
- Most readings indicate low susceptibility to zebra mussels



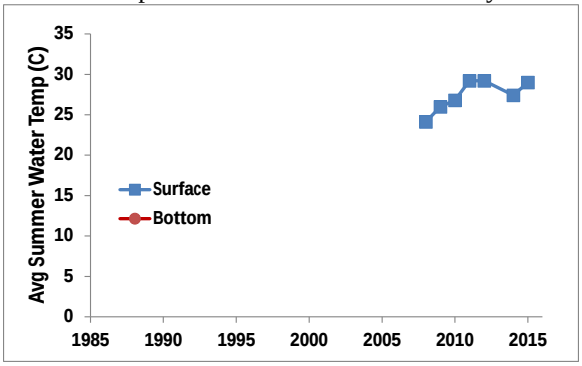
Long Term Trends: Conductivity

- Increasing slightly since late 2000s
- Most readings typical of lakes with softwater to intermediate hardness



Long Term Trends: Water Temperature

- Increasing slightly; stable last few years
- Deepwater T probably similar to surface temperatures due to weak 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.

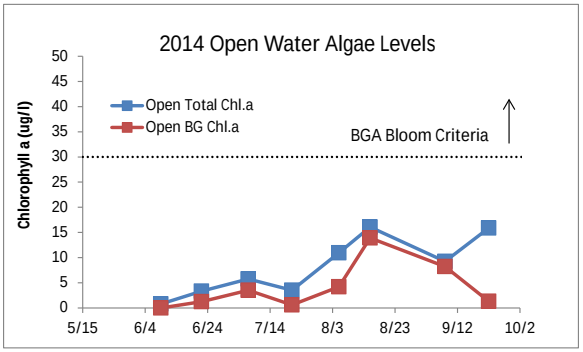


Figure D1:
2014 Open Water Total and BGA Chl.a

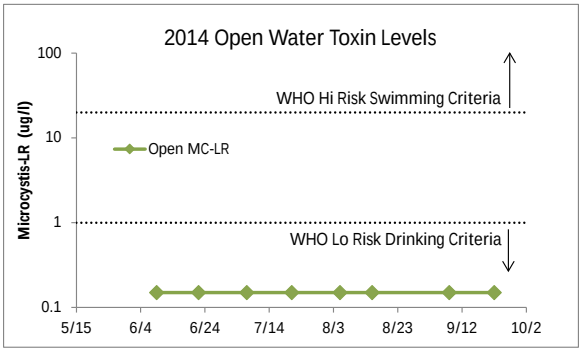


Figure D2:
2014 Open Water Microcystin-LR

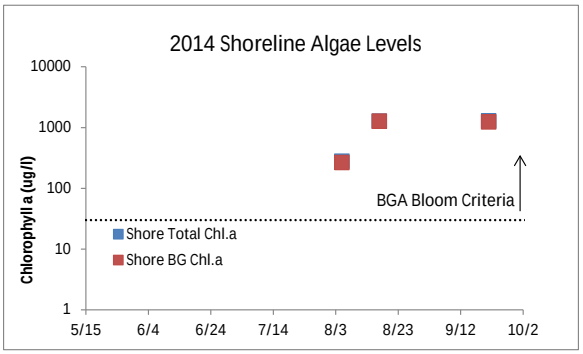


Figure D3:
2014 Shoreline Total and BGA Chl.a

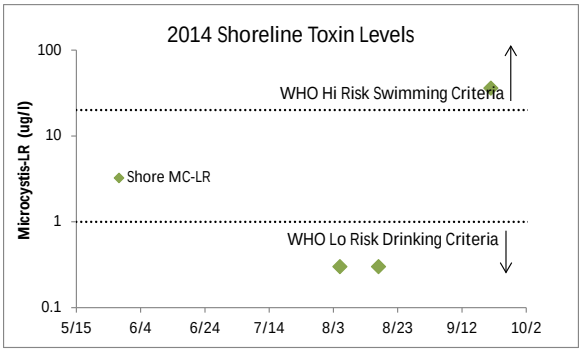


Figure D4:
2014 Shoreline Microcystin-LR

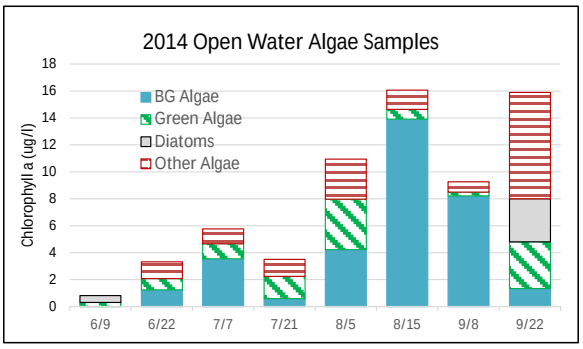


Figure D5:
2014 Open Water Algae Types

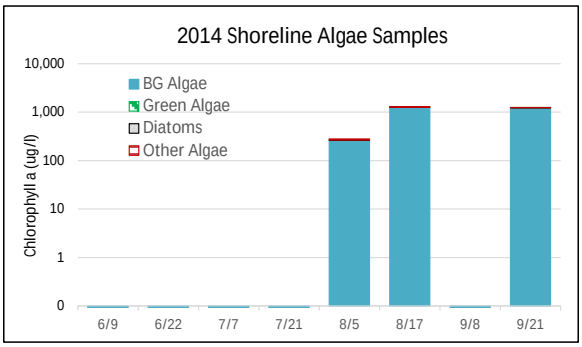


Figure D6:
2014 Shoreline Algae Types

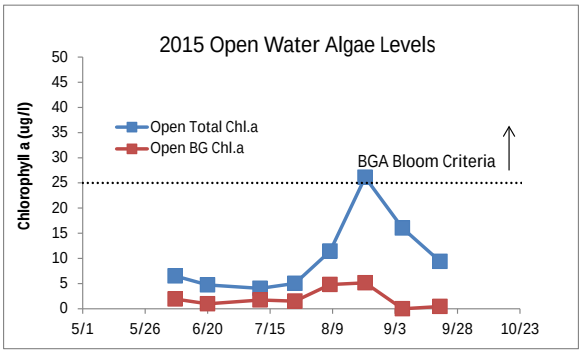


Figure D7:
2015 Open Water Total and BGA Chl.a

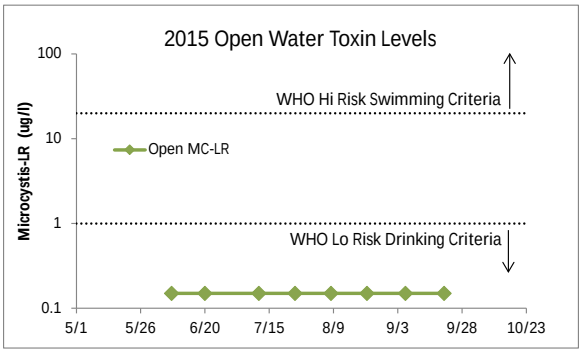


Figure D8:
2015 Open Water Microcystin-LR

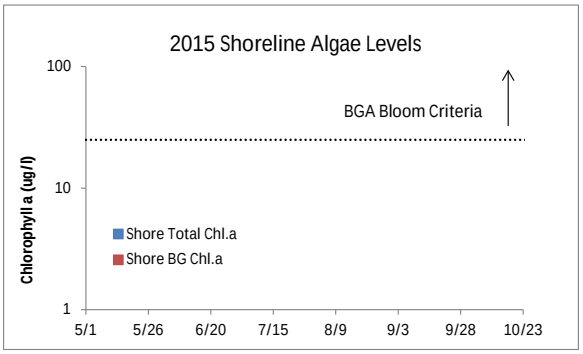


Figure D9:
2015 Shoreline Total and BGA Chl.a

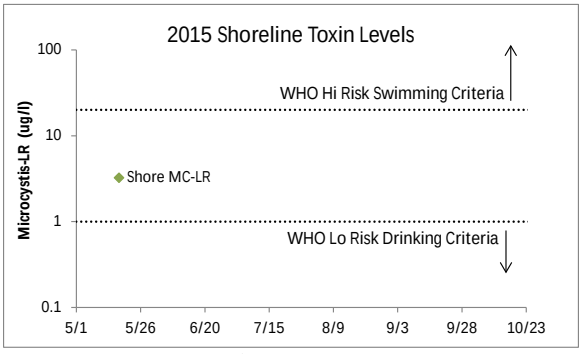


Figure D10:
2015 Shoreline Microcystin-LR

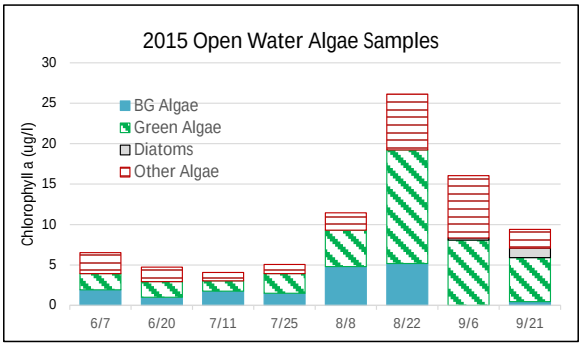


Figure D11:
2015 Open Water Algae Types

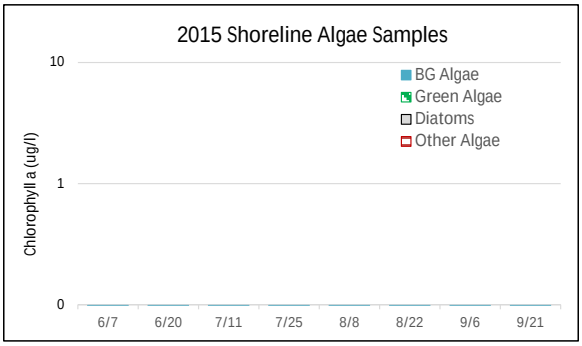


Figure D12:
2015 Shoreline Algae Types

Appendix E:
AIS Species in Orange County

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

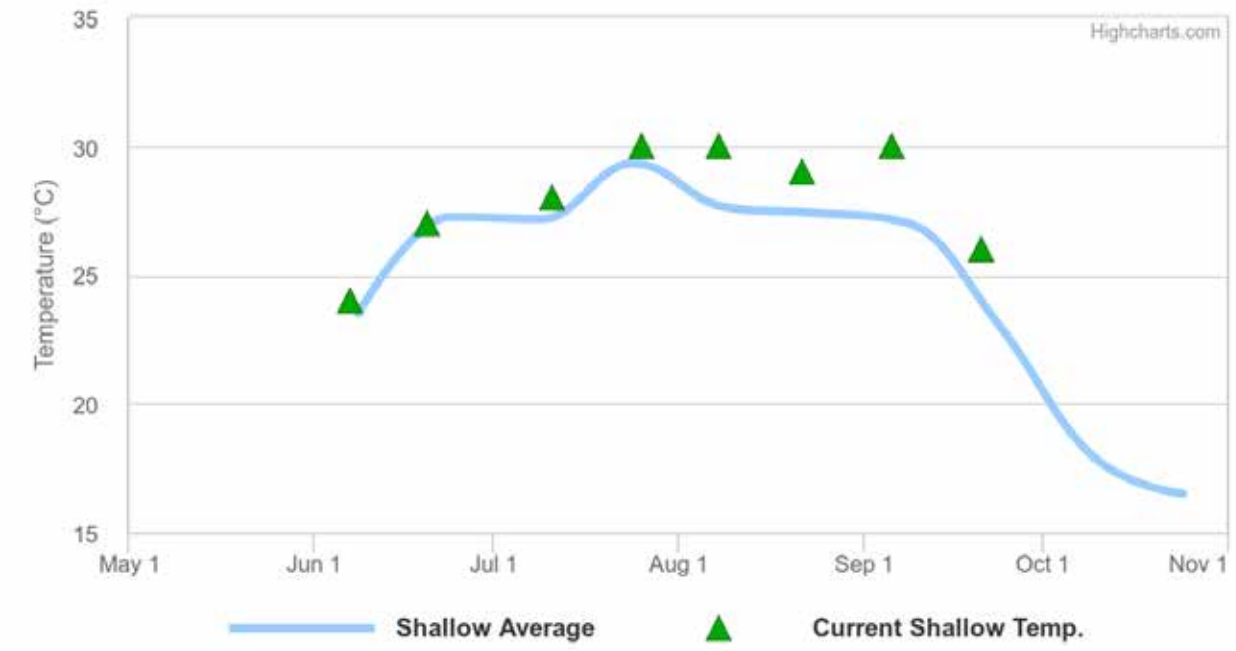
Aquatic Invasive Species - Orange County			
Waterbody	**Kingdom**	**Common name**	**Scientific name**
Beaver Dam Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Beaver Dam Lake	Plant	Curly leafed pondweed	*Potamogeton crispus*
Beaver Dam Lake	Plant	Water chestnut	*Trapa natans*
Big Pond	**Plant**	**Waterwheel plant**	***Aldrovanda vesiculosa***
Brooks Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Brooks Lake	Plant	Brittle naiad	*Najas minor*
Brooks Lake	Plant	Curly leafed pondweed	*Potamogeton crispus*
Browns Pond	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Browns Pond	Plant	Curly leafed pondweed	*Potamogeton crispus*
Chadwick Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Chadwick Lake	Plant	Curly leafed pondweed	*Potamogeton crispus*
Chadwick Lake	Plant	Water chestnut	*Trapa natans*
Creamery Pond	Plant	Hydrilla	*Hydrilla verticillata*
Creamery Pond	Plant	Curly leafed pondweed	*Potamogeton crispus*
Glenmere Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Greenwood Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Guymard Lake	Plant	Brazilian elodea	*Egeria densa*
Hudson River	Animal	Zebra mussel	*Dreissena polymorpha*
Hudson River	Plant	Water chestnut	*Trapa natans*
Lake Kanawauke	Plant	Fanwort	*Cabomba caroliniana*
Lake Kanawauke	Plant	Variable watermilfoil	*Myriophyllum heterophyllum*
Lake Kanawauke	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Lake Nawahunta	Plant	Variable watermilfoil	*Myriophyllum heterophyllum*
Lake Sapphire	Plant	Brazilian elodea	*Egeria densa*
Lake Sapphire	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*

Waterbody	Kingdom	Common name	Scientific name
Lake Sapphire	Plant	Curly leafed pondweed	*Potamogeton crispus*
Lake Skannatati	Plant	Fanwort	*Cabomba caroliniana*
Lake Skannatati	Plant	Variable watermilfoil	*Myriophyllum heterophyllum*
Lake Stahahe	Plant	Brazilian elodea	*Egeria densa*
Lake Stahahe	Plant	Variable watermilfoil	*Myriophyllum heterophyllum*
Lake Stahahe	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Lake Stahahe	Plant	Curly leafed pondweed	*Potamogeton crispus*
Lake Tiorati	Plant	Fanwort	*Cabomba caroliniana*
Lake Tiorati	Plant	Variable watermilfoil	*Myriophyllum heterophyllum*
Lake Tiorati	Animal	Red-eared slider turtle	*Trachemys scripta elegans*
Lake Washington	Plant	Curly leafed pondweed	*Potamogeton crispus*
Little Long Pond	Plant	Fanwort	*Cabomba caroliniana*
Little We Wah Lake	**Plant**	**Eurasian watermilfoil**	***Myriophyllum spicatum***
Lower Twin Lake	Plant	Variable watermilfoil	*Myriophyllum heterophyllum*
Martin Lake	Plant	Fanwort	*Cabomba caroliniana*
Merriewold Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Merriewold Lake	Plant	Curly leafed pondweed	*Potamogeton crispus*
Merriewold Lake	Plant	Water chestnut	*Trapa natans*
Mombasha Lake	Plant	Curly leafed pondweed	*Potamogeton crispus*
Monroe Ponds	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Monroe Ponds	Plant	Brittle naiad	*Najas minor*
Monroe Ponds	Plant	Curly leafed pondweed	*Potamogeton crispus*
Monroe Ponds	Plant	Water chestnut	*Trapa natans*
Muchattoes Lake	Plant	Water chestnut	*Trapa natans*
North Laurel Pond	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Orange Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Orange-Rockland Lake	Plant	Curly leafed pondweed	*Potamogeton crispus*
Orange-Rockland Lake	Plant	Water chestnut	*Trapa natans*
Queensboro Lake	Plant	Water chestnut	*Trapa natans*
Ramapo River - Harriman SP	Animal	Asian Clam	Corbicula fluminea
Ridgebury Lake	Animal	Northern snakehead	*Channa argus*
Round Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Round Lake	Animal	Rusty crayfish	*Orconectes rusticus*
Round Lake	Plant	Curly leafed pondweed	*Potamogeton crispus*
Round Lake	Plant	Water chestnut	*Trapa natans*
Silver Mine Lake	Plant	Variable watermilfoil	*Myriophyllum heterophyllum*
Silver Mine Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Silver Mine Lake	Animal	Virile crayfish	*Orconectes virilis*
Silver Mine Lake	Plant	Water chestnut	*Trapa natans*
Summit Lake	Plant	Variable watermilfoil	*Myriophyllum heterophyllum*
Summit Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Tamms Pond	Plant	Curly leafed pondweed	*Potamogeton crispus*

Waterbody	Kingdom	Common name	Scientific name
Tomahawk Lake	Plant	Water chestnut	*Trapa natans*
Tuxedo Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Upper Lake Cohasset	Plant	Variable watermilfoil	*Myriophyllum heterophyllum*
Upper Pound Swamp	Plant	Fanwort	*Cabomba caroliniana*
Upper Pound Swamp	Plant	Variable watermilfoil	*Myriophyllum heterophyllum*
Wallkill River	Plant	Curly leafed pondweed	*Potamogeton crispus*

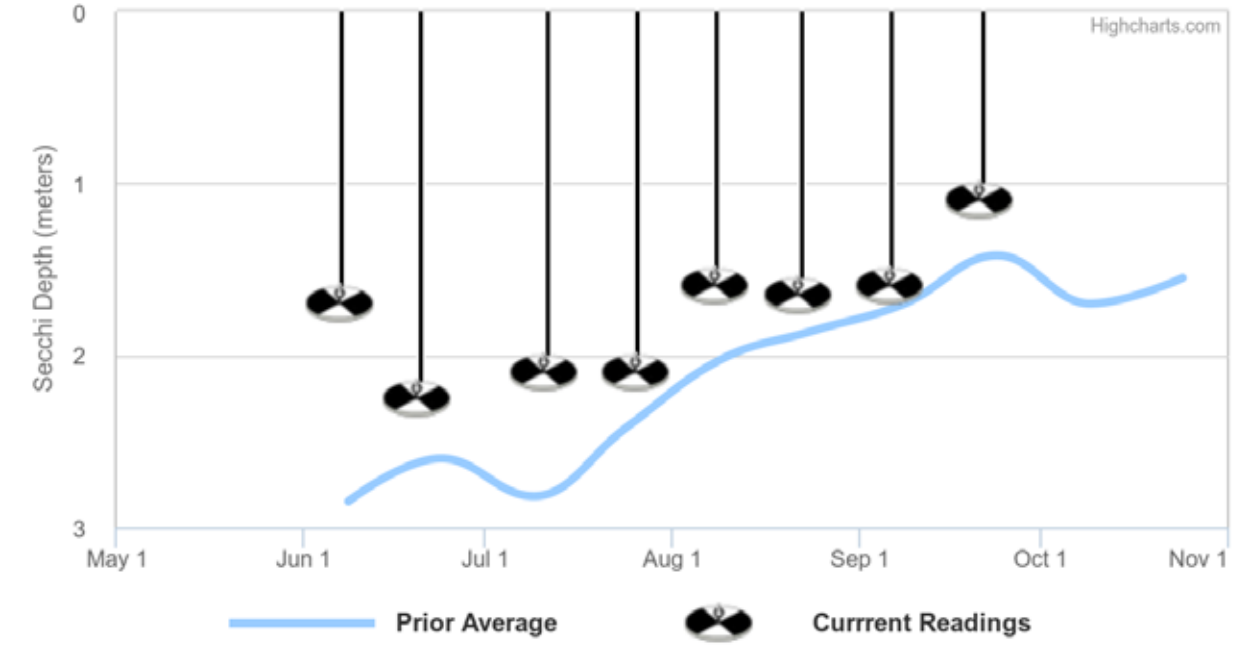
Appendix F: Current Year vs. Prior Averages for Wee Wah Lake

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 2008 to 2014.

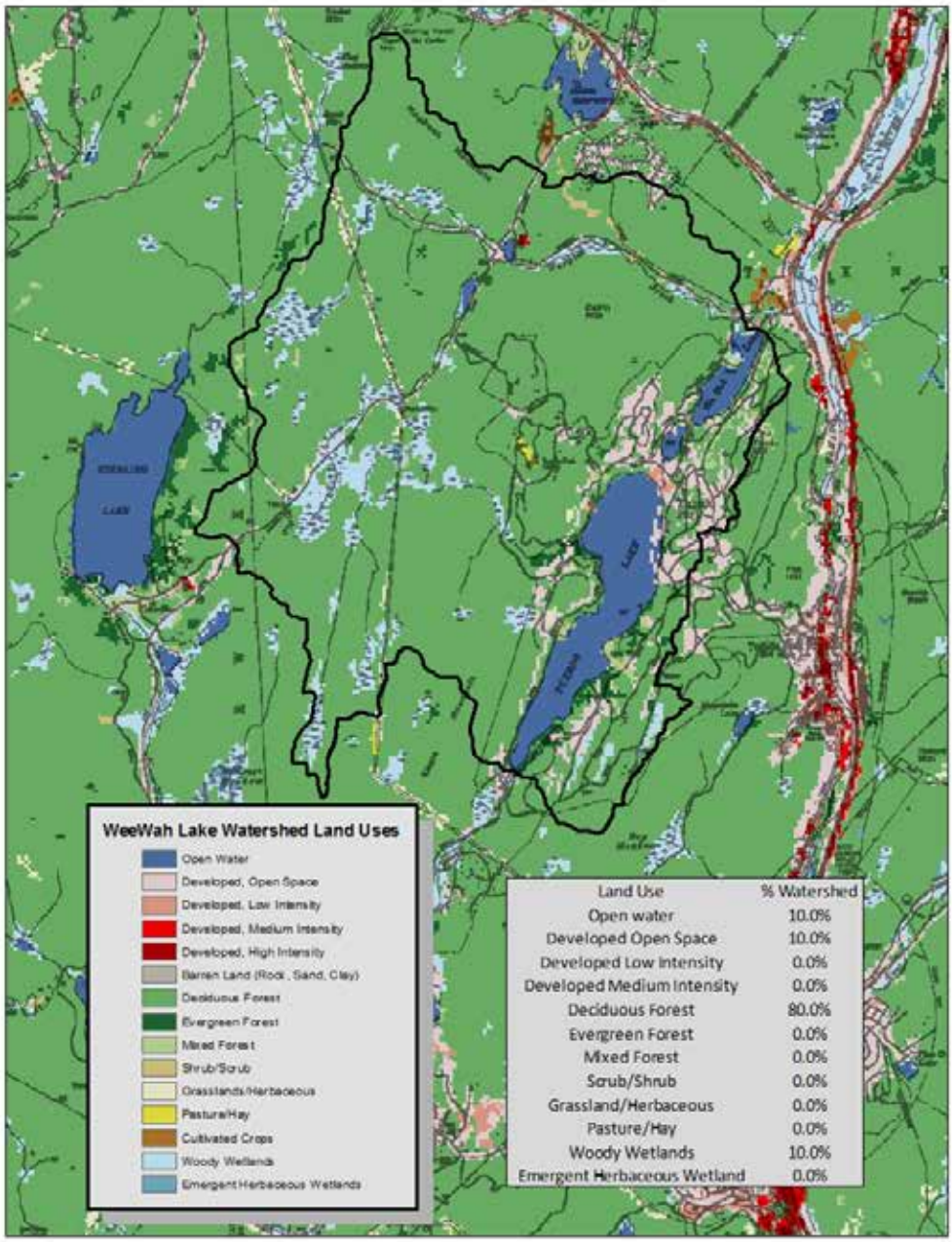
Current Year Secchi Readings vs. Prior Average



This year's session Secchi readings are tending to be lower than normal when compared to the average of readings collected from 2008 to 2014

Appendix G: Watershed and Land Use Map for We Wah 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.



Land Use	% Watershed
Open water	10.0%
Developed Open Space	10.0%
Developed Low Intensity	0.0%
Developed Medium Intensity	0.0%
Deciduous Forest	80.0%
Evergreen Forest	0.0%
Mixed Forest	0.0%
Scrub/Shrub	0.0%
Grassland/Herbaceous	0.0%
Pasture/Hay	0.0%
Woody Wetlands	10.0%
Emergent Herbaceous Wetland	0.0%