Hyde Lake Questions and Answers, 2014 CSLAP

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

A1. Water quality conditions in Hyde Lake continue to improve slightly-in 2014, water clarity was slightly higher than usual, due to lower algae levels. No shoreline blooms were reported, although weed growth may have been slightly more extensive than normal.

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

A2. The HABs testing includes information about the types of algae found in the water samples. These results showed moderate open water algae levels that are usually comprised of blue green algae, although no shoreline blooms were reported in recent years.

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

A3. Hyde Lake had similar water quality conditions to the "typical" lake in the area, although conditions vary significantly from lake to lake. The lake has slightly lower water clarity, and nutrient levels and algae levels, than the typical western Adirondack lake, although as in these lakes, no shoreline blooms were reported in 2014.

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

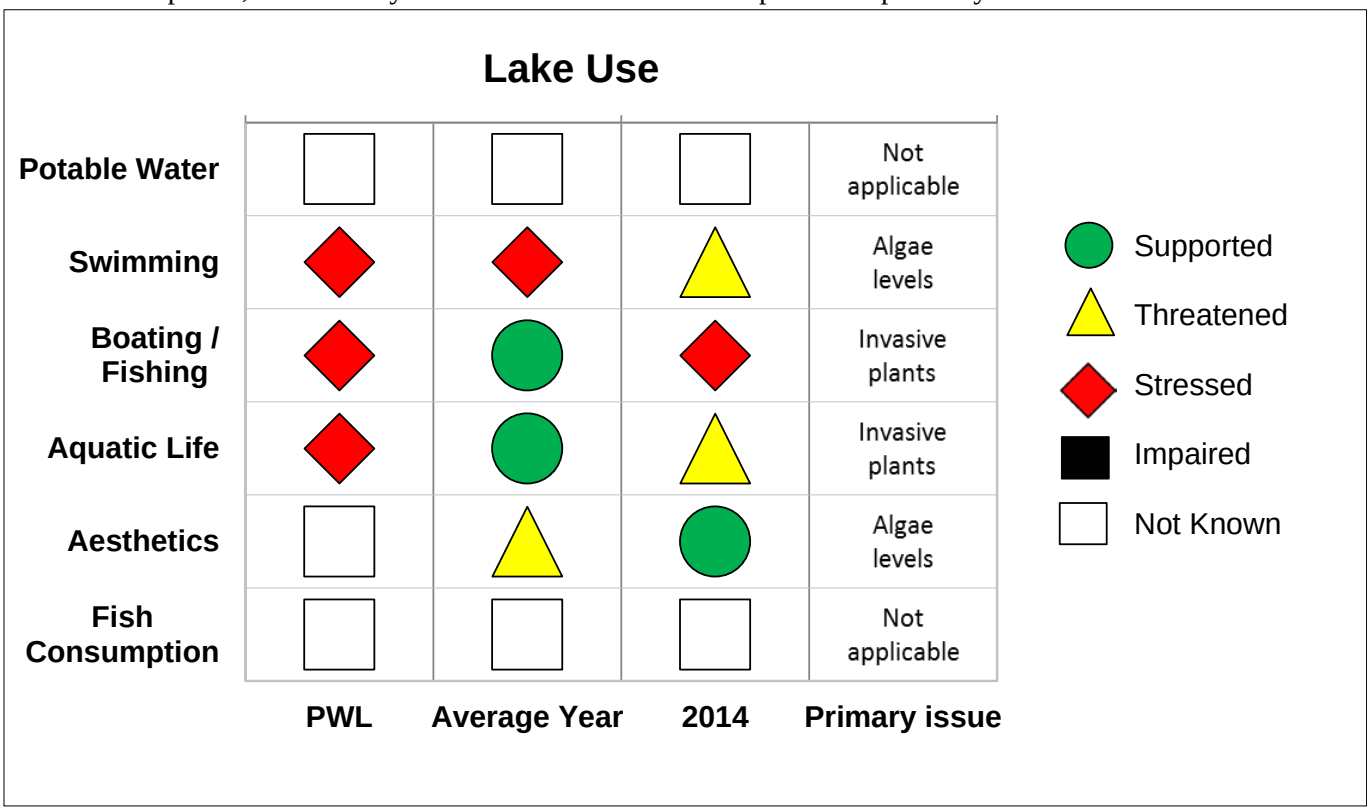
A4. Water clarity has increased over the last decade, consistent with a slight decrease in algae levels and slightly improved recreational assessments. Aquatic plant coverage may have increased slightly, although this varies from year to year. pH has increased slightly, while water temperatures have dropped slightly, but both changes are small.

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

A5. As water quality conditions continue to be improve (slightly), the susceptibility to shoreline algae blooms may also be decreasing. Any lakefront or nutrient control measures taken by lake residents to reduce algae levels should continue.

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 maintain 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.

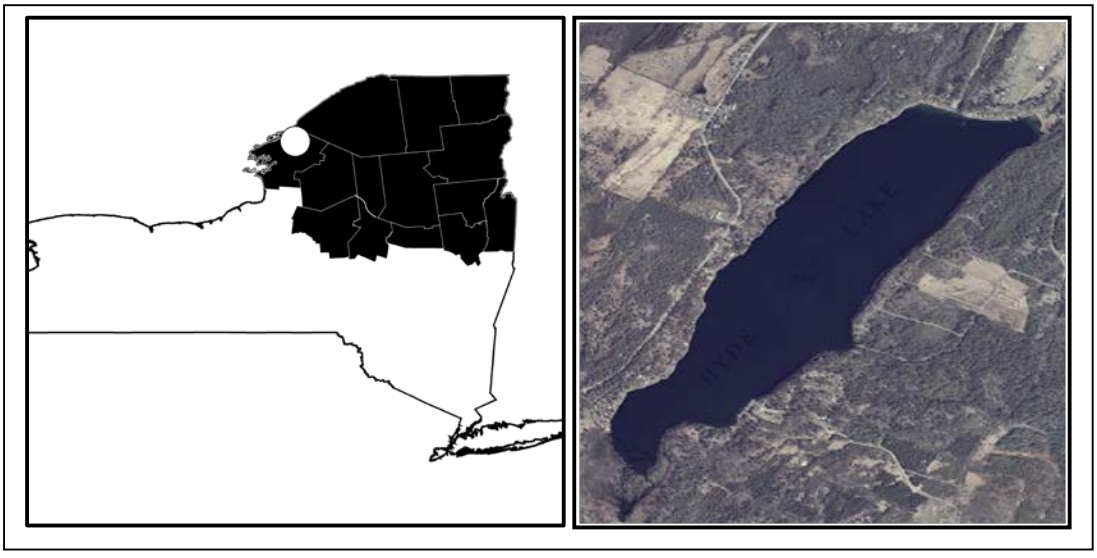


CSLAP 2014 Lake Water Quality Summary:
Hyde Lake

General Lake Information

Location	Town of Theresa
County	Jefferson
Basin	Lake Ontario
Size	75.1 hectares (185.5 acres)
Lake Origins	Natural
Watershed Area	490 hectares (1,210 acres)
Retention Time	1.2 years
Mean Depth	3.5 meters
Sounding Depth	6 meters
Public Access?	DEC launch
Major Tributaries	no named tribs
Lake Tributary To…	Hyde Creek to Perch River to Black River Bay to Lake Ontario
WQ Classification	B (contact recreation = swimming)
Lake Outlet Latitude	44.235
Lake Outlet Longitude	-75.840
Sampling Years	1999-2001, 2003-2004, 2008-2012, 2014
2014 Samplers	Andy Groves, Joyce Brunet
Main Contact	Andy Groves

Lake Map



Background

Hyde Lake is a 185 acre, class B lake found in the Town of Theresa in Jefferson County, in the St. Lawrence River region of New York State. Hyde Lake was first sampled as part of CSLAP in 1999.

It is one of eight CSLAP lakes among the more than 30 lakes found in Jefferson County, and one of 10 CSLAP lakes among the more than 65 lakes and ponds in the Lake Ontario drainage basin.

Lake Uses

Hyde Lake is a Class C lake; this means that the best intended use for the lake is non-contact recreation—boating and aesthetics—and support of aquatic life. However, it is likely that the lake also supports contact recreation—swimming and bathing. The lake is used by lake residents and the public for low (less than 10 horsepower) boating and other recreation via shoreline properties and a beach launch. It is assumed that some lake residents also use the lake for swimming and bathing.

About 2800 two inch walleye are stocked each year in Hyde Lake by the state of New York. It is not known by the report authors if private stocking occurs. Fish species in the lake include black crappie, bluegill, brown bullhead, largemouth bass, northern pike, tiger muskellunge, and yellow perch.

General statewide fishing regulations are applicable in Hyde Lake. In addition, the open season on walleye is from the 1st Saturday in May through March 15th, with a daily take limit of three fish and a size limit of 18 inches. Ice fishing is allowed. The open season for yellow perch and sunfish lasts all year, with no take or size limits.

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

Historical Water Quality Data

CSLAP sampling was conducted on Hyde Lake from 1999 to 2001, 2003 to 2004, 2008 to 2012, and 2014. The CSLAP reports for each of the past several years can be found on the NYSFOLA website at http://nysfola.mylaketown.com. The most recent CSLAP report and scorecard for Hyde Lake can also be found on the NYSDEC web page at http://www.dec.ny.gov/lands/77865.html.

Hyde Lake was sampled as part of several previous New York State monitoring programs prior to CSLAP. The lake was sampled in 1979 as part of the NYSDEC ambient lake monitoring program. This very limited study found very high phosphorus and algae levels. Hyde Lake was also sampled in 1986 as part of the Lake Classification and Inventory (LCI) survey conducted by the NYSDEC Division of Water. This survey involved three sampling sessions and showed higher variable water quality conditions, ranging from oligotrophic (highly unproductive- very low nutrient levels and high clarity) to eutrophic (high nutrient levels and low clarity), although algae levels were fairly low in each of these samples. Finally, the lake was sampled by the US Environmental Protection Agency (EPA) as part of the Environmental Monitoring and Assessment Program (EMAP), a one-time random sampling program. EMAP data showed

relatively high nutrient and algae levels and low water clarity. In summary, these data showed highly variable water quality conditions mostly within the range found later through CSLAP.

There are no RIBS monitoring sites on or near Hyde Lake, and Hyde Creek has not been sampled through any statewide monitoring programs.

Lake Association and Management History

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

- stream restoration project
- septics cost share program
- education

The Save Hyde Association maintains a website at http://savehydelake.com

Summary of 2014 CSLAP Sampling Results

Evaluation of 2014 Annual and Monthly Results Relative to 1999-2012

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 – Hyde Lake" section in Appendix C.

Evaluation of Eutrophication Indicators

Water clarity was higher than usual in 2014, as part of a longer-term trend toward increasing water clarity over the last decade. This was in response to lower algae (chlorophyll *a*) over the same period- in 2014 and over the last decade. However, phosphorus readings did not exhibit similar change this year or over the long term.

Lake productivity usually increases substantially from June through September, as manifested in increasing nutrient and algae levels and decreasing water clarity. This seasonal trend was also apparent in 2014, although these conditions stabilized in the fall.

The lake continues to be characterized as *mesoeutrophic*, based on water clarity and total phosphorus readings (typical of *mesotrophic* lakes), and chlorophyll *a* readings (typical of *eutrophic* lakes. The trophic state indices (TSI) evaluation suggests that algae levels are slightly higher than expected given the phosphorus readings in the lake. This suggests that Hyde Lake may be susceptible to small inputs of phosphorus to the lake. Overall trophic conditions are summarized on the Lake Scorecard.

Evaluation of Potable Water Indicators

Algae levels are high enough to render the lake susceptible to taste and odor compounds, algal toxins, or elevated DBP (disinfection by product) compounds that could affect the potability of the water, although the lake is not classified for use for potable water. Hypolimnetic phosphorus and ammonia readings in Hyde Lake are similar to those at the lake surface, at least based on

historical data. This suggests that deepwater potable intakes should not be compromised. Potable water conditions, at least as measurable through CSLAP, are summarized in the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Limnological Indicators

NOx readings were lower than normal in 2012 and 2014, although nearly all NOx readings in Hyde Lake have been low. These readings have decreased over the last decade. pH readings have increased slightly since the late 1990s, although they were slightly lower than normal in 2014. It is not known if this has resulted in any ecological impacts. Conductivity readings were slightly higher than normal and water color was slightly lower than normal in 2014, but neither indicator has exhibited any clear long-term trends. Overall limnological conditions are summarized in the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Biological Condition

Only limited macrophyte data have been collected through CSLAP at Hyde Lake—these surveys identified the presence of *Myriophyllum spicatum* (Eurasian watermilfoil), an exotic plants species. The lake biomonitoring study conducted by the NYSDEC in 2010 identified at least 16 different aquatic plant species, including Eurasian watermilfoil and *Potamogeton crispus* (curly-leafed pondweed), another exotic plant species. The modified floristic quality index (FQI) for Hyde Lake would identify the quality of the aquatic plant community as "fair".

The fish community in the lake is comprised of a mix of coolwater (at least four species) and warmwater (at least four species) fish, suggesting the lake supports a coolwater fishery. The DEC fisheries evaluation of the fish community indicated that the weight of yellow perch species was significantly lower than expected given the fish length, and the weight of smallmouth bass species was slightly lower the expected.

The macroinvertebrate samples collected as part of the biomonitoring study have not yet been analyzed. Phytoplankton and zooplankton surveys have not been conducted through CSLAP at Hyde Lake. The fluoroprobe screening samples analyzed by SUNY ESF found a high percentage of blue green algae in most open water samples, particularly when overall algae levels are high. However, this has not resulted in any (reported) shoreline blue green algae blooms, and the high percentage of blue green algae in the open water samples are still below "bloom" quantities.

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

Evaluation of Lake Perception

Each of the lake perception indicators (water quality assessments, aquatic plant coverage, and recreational assessments) was close to normal in 2014. Recreational assessments have improved slightly since the early 2000s, consistent with slightly higher water clarity readings and lower algae levels over the same period. Water quality and recreational assessments typically degrade slightly over the course of the summer, also consistent 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

Water temperature readings in the summer index period were slightly lower than normal in 2014, and these readings have decreased slightly over the last 15 years. It is not known if any of the small changes in water temperature readings are indicative of local climate change in the lake.

Evaluation of Algal Toxins

Algal toxin levels can vary significantly within blooms and from shoreline to lake, and the absence of toxins in a sample does not indicate safe swimming conditions. Phycocyanin readings at times exceed the levels indicating susceptibility for harmful algal blooms (HABs). This is consistent with fluoroprobe screening samples indicating high levels of blue green algae in some samples, although blue green algae levels are consistently below "bloom" quantities in the open water. Moreover, no shoreline blooms have been reported. An analysis of algae samples indicates microcystin and anatoxin-a levels below the levels needed to support safe swimming in limited open water and bloom sampling.

Lake Condition Summary

Category	Indicator	Min	99-14 Avg	Max	2014 Avg	Classification	2014 Change?	Long-term Change?
Eutrophication Indicators	Water Clarity	0.95	2.41	5.05	3.02	Mesotrophic	Higher than Normal	Increasing Significantly
	Chlorophyll *a*	0.20	12.56	57.40	8.64	Eutrophic	Within Normal Range	No Change
	Total Phosphorus	0.004	0.020	0.059	0.019	Mesotrophic	Within Normal Range	No Change
Potable Water Indicators	Hypolimnetic Ammonia	0.00	0.03	0.09		Close to Surface NH4 Readings	Higher than Normal	Not known
	Hypolimnetic Arsenic							
	Hypolimnetic Iron							
	Hypolimnetic Manganese							
Limnological Indicators	Hypolimnetic Phosphorus	0.018	0.056	0.270		Close to Surface TP Readings	Higher than Normal	Not known
	Nitrate + Nitrite	0.00	0.02	0.66	0.01	Low NOx	Lower Than Normal	No Change
	Ammonia	0.00	0.02	0.06	0.02	Low Ammonia	Within Normal Range	No Change
	Total Nitrogen	0.20	0.42	1.13	0.40	Low Total Nitrogen	Within Normal Range	No Change
	pH	6.51	7.84	9.32	7.43	Alkaline	Within Normal Range	No Change
	Specific Conductance	63	120	151	143	Softwater	Higher than Normal	No Change
	True Color	1	10	26	7	Uncolored	Lower Than Normal	No Change
	Calcium	11.3	15.5	19.0	15.0	May be Susceptible to Zebra Mussels	Within Normal Range	No Change
Lake Perception	WQ Assessment	1	2.5	4	2.3	Not Quite Crystal Clear	Within Normal Range	No Change
	Aquatic Plant Coverage	1	2.9	4	2.9	Surface Plant Growth	Within Normal Range	No Change
	Recreational Assessment	1	2.4	4	2.3	Excellent	Within Normal Range	No Change
Biological Condition	Phytoplankton					Open water-moderate blue algae biomass	Not known	Not known
	Macrophytes					Excellent quality of aquatic plant community	Not known	Not known
	Zooplankton					Dominated cladophera, rotifers	Not known	Not known
	Macroinvertebrates					Not evaluated through CSLAP	Not known	Not known
	Fish					Warmwater fishery; 100+ multiple fish kill in 2008	Not known	Not known
	Invasive Species					Eurasian watermilfoil	Not known	Not known
Local Climate Change	Air Temperature	9	24.9	33	24.4		Within Normal Range	No Change
	Water Temperature	16	23.4	27	22.1		Lower Than Normal	No Change
Harmful Algal Blooms	Open Water Phycocyanin	2	66	342	39	Some readings indicate high risk of BGA	Not known	Not known
	Open Water FP Chl.a	1	8	27	8	Few readings indicate high algae levels	Not known	Not known
	Open Water FP BG Chl.a	0	6	24	6	Few readings indicate high BGA levels	Not known	Not known
	Open Water Microcystis	0.0	0.4	3.3	<0.30	Mostly undetectable open water MC-LR	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	310.0	310.0	310.0		All readings indicate high risk of BGA	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	0.1	0.3	0.6		Mostly undetectable shoreline bloom MC-LR	Not known	Not known
	Shoreline Anatoxin a	<DL	<DL	<DL		Shoreline bloom Anatoxin-a not detectable	Not known	Not known

Evaluation of Lake Condition Impacts to Lake Uses

The 2007 NYSDEC Priority Waterbody Listings (PWL) for the Lake Ontario drainage basin indicate that *bathing*, *recreation* and *aquatic life* are *stressed* by excessive algae and weeds. The PWL listing for the lake can be found in Appendix B.

Potable Water (Drinking Water)

The CSLAP dataset at Hyde 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 limited data suggest that algae levels are high enough to impact potable water use of the lake.

Contact Recreation (Swimming)

The CSLAP dataset at Hyde Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggests that swimming and contact recreation may be *stressed* by excessive algae and excessive weeds, and the potential for shoreline blooms, although these impacts were not as apparent in 2014. Additional information about bacterial levels is needed to evaluate the safety of the water for swimming.

Non-Contact Recreation (Boating and Fishing)

The CSLAP dataset on Hyde Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that non-contact recreation may be *stressed* by excessive weeds (particularly invasive weeds), although plant coverage and associated impacts may vary from year to year.

Aquatic Life

The CSLAP dataset on Hyde Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aquatic life may be *threatened* by invasive weeds and elevated pH, although additional data are needed to evaluate the food and habitat conditions for aquatic organisms in the lake.

Aesthetics

The CSLAP dataset on Hyde Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aesthetics may be *threatened* by excessive algae (shoreline blooms) and weeds.

Fish Consumption

There are no fish consumption advisories posted for Hyde Lake.

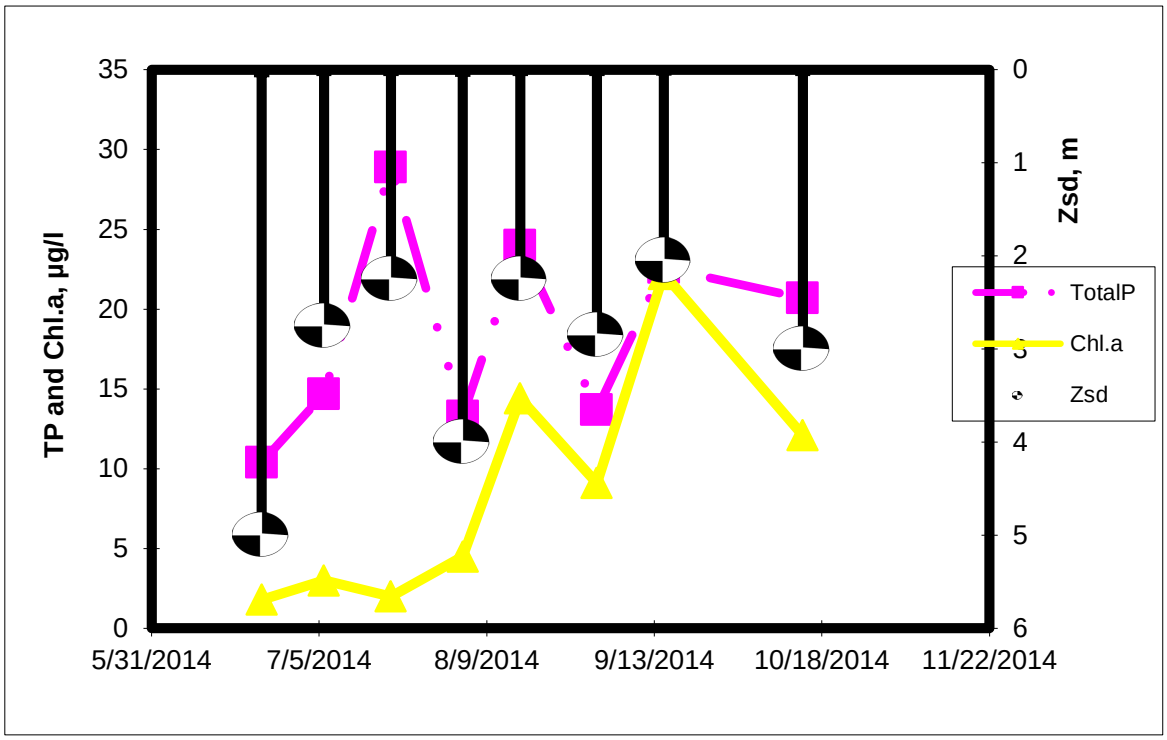
Additional Comments and Recommendations

Additional plant survey data should be collected to determine the extent to which invasive exotic species have impacted recreational uses of the lake. The lake association is also advised to keep on the lookout for, report, and avoid exposure to shoreline algae blooms.

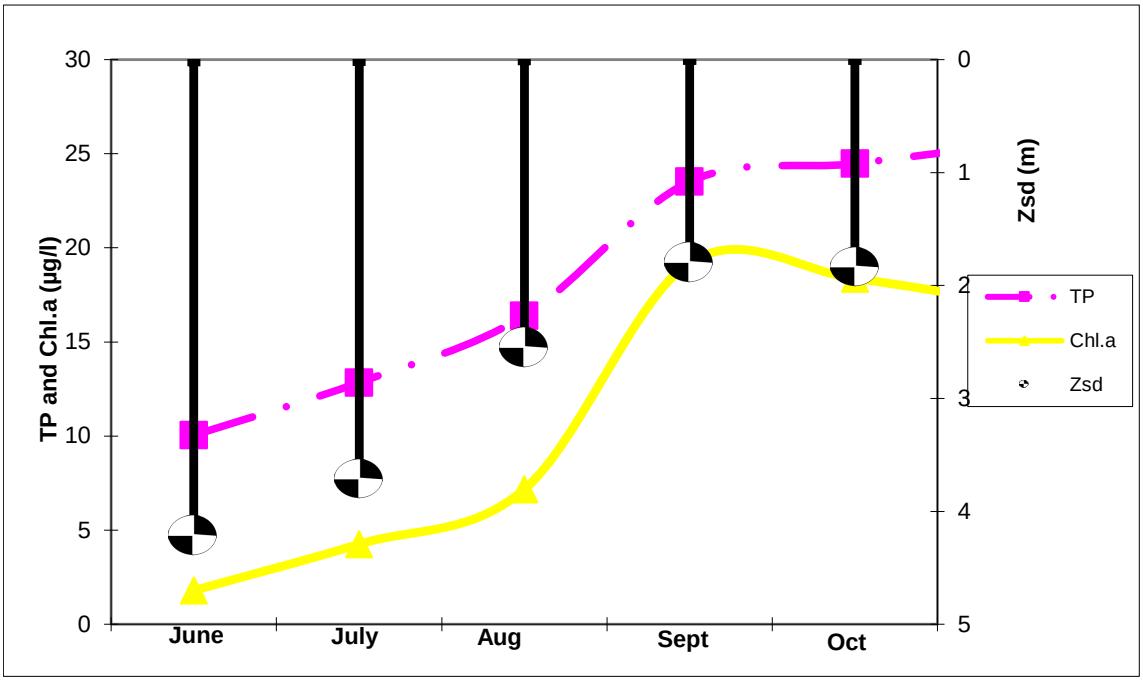
Aquatic Plant IDs-2014

None submitted for identification.

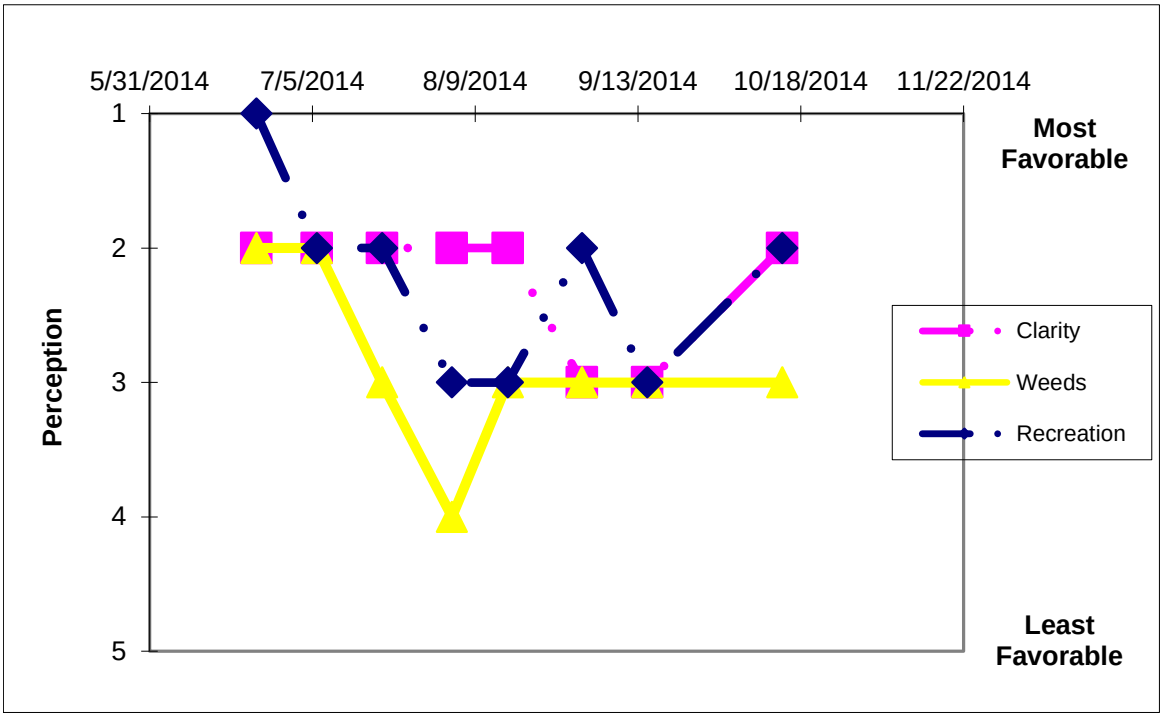
Time Series: Trophic Indicators, 2014



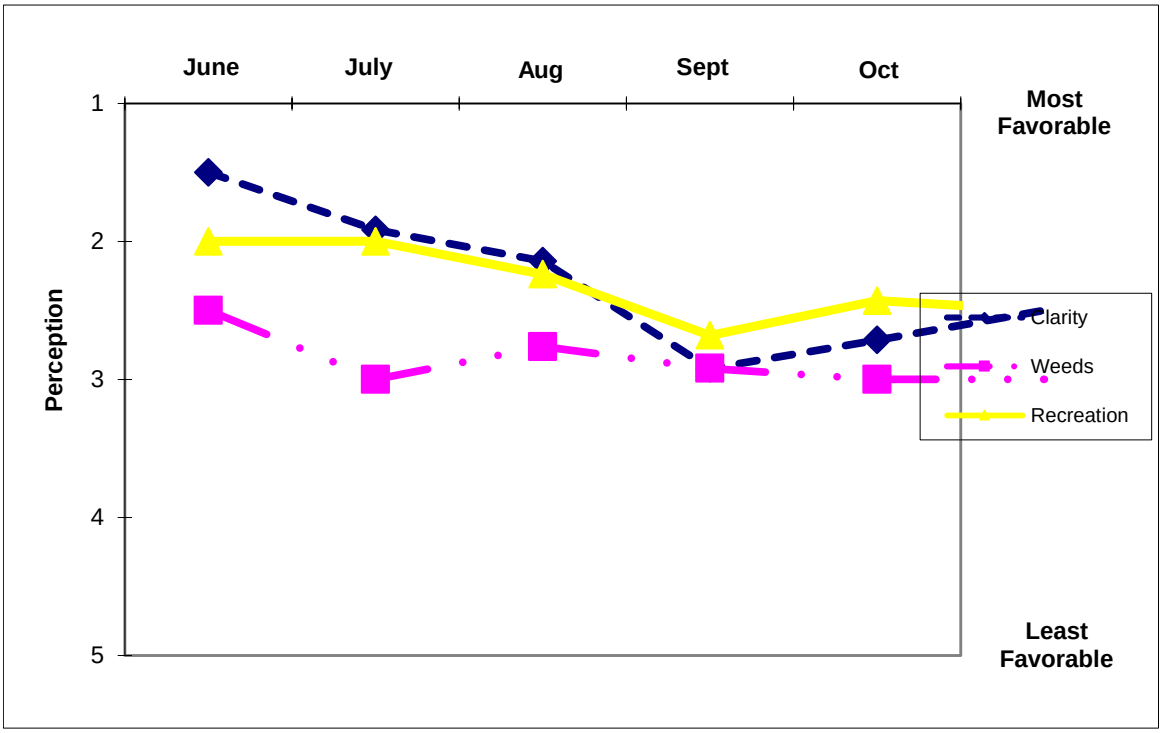
Time Series: Trophic Indicators, Typical Year (1999-2014)



Time Series: Lake Perception Indicators, 2014



Time Series: Lake Perception Indicators, Typical Year (1999-2014)



Appendix A- CSLAP Water Quality Sampling Results for Hyde Lake

LNum	LName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
156	Hyde L	6/22/1999	5.5	3.35	1.5	0.016	0.01				4	7.39	125		2.90
156	Hyde L	7/6/1999	7.0	1.68	1.5	0.012	0.01				15	7.57	124		0.39
156	Hyde L	7/26/1999	6.2	1.15	3.5	0.021	0.01				7	8.38	123		0.51
156	Hyde L	8/9/1999	7.0	1.53	3.5	0.031	0.01				6	7.75	126		21.70
156	Hyde L	8/23/1999	7.2	1.65		0.018	0.01				8	8.03	128		10.20
156	Hyde L	9/6/1999	5.5	2.28		0.014	0.01				5	7.20	127		7.25
156	Hyde L	6/24/2000	6.6	2.45	1.5	0.017	0.01				12	7.56	125		9.70
156	Hyde L	7/7/2000	6.7	2.05	1.5	0.016	0.01				7	7.81	125		10.00
156	Hyde L	7/23/2000	6.7	2.00	1.5	0.020	0.01				7	6.90	125		13.50
156	Hyde L	8/6/2000	6.7	1.75	1.5	0.019	0.01				7	6.51	128		14.80
156	Hyde L	8/22/2000	5.5	0.95	1.5	0.026	0.01				8	8.12	125		37.20
156	Hyde L	6/25/2001	4.8	3.60	2.5	0.011	0.01				5	7.25	126		3.40
156	Hyde L	7/8/2001	5.7	3.35	2.9	0.014	0.01				4	7.81	126		4.43
156	Hyde L	7/23/2001	5.5	3.10	2.7	0.010	0.01				3	6.86	124		4.16
156	Hyde L	8/20/2001		1.25	1.5	0.034	0.01				15	8.45	127		33.09
156	Hyde L	6/22/2003	6.6	2.45	3.3	0.019	0.01	0.06	0.40	46.63	16	7.48	125	16.0	4.46
156	Hyde L	7/14/2003	6.6	1.40	3.3	0.031	0.00	0.00	0.32	22.36	16	8.30	120		34.80
156	Hyde L	8/3/2003	6.6	1.25	3.3	0.033	0.00	0.02	0.46	30.53	17	7.76	129		29.25
156	Hyde L	8/25/2003	6.6	1.65	3.3	0.059	0.04	0.03	0.50	18.71	5	8.01	127		57.40
156	Hyde L	9/6/2003	6.6	1.70	3.3	0.030	0.02	0.04			9	8.00	131	17.0	25.15
156	Hyde L	9/14/2003	6.6	2.30	1.5	0.026	0.00	0.01	0.42	35.30	5	7.91	125		9.33
156	Hyde L	7/11/2004	6.0	2.75	1.5	0.004	0.10	0.01	1.13	618.86	16	6.9	132		2.4
156	Hyde L	8/1/2004	6.0	2.00	1.5	0.020	0.03	0.02	0.36	39.94	18	7.1	111		10.5
156	Hyde L	8/15/2004	6.5	1.65	1.5	0.018	0.01	0.01	0.32	40.44	9	7.3	108		16.5
156	Hyde L	9/6/2004	6.0	1.95	1.5	0.023	0.01	0.02	0.27	26.46	10	8.6	105		16.6
156	Hyde L	6/29/2008	6.0	4.70	1.5	0.010	0.00	0.06	0.20	46.31	6	7.54	115	11.3	2.07
156	Hyde L	7/12/2008	6.0	3.25	1.5	0.010	0.08	0.03	0.23	51.17		8.14	98		3.13
156	Hyde L	7/26/2008	6.0	1.55	1.5	0.020	0.00	0.06	0.64	72.26	7	7.93	75		12.31
156	Hyde L	8/9/2008	6.0	1.95	1.5	0.014	0.01	0.02	0.39	62.00	4	8.52	90		16.07
156	Hyde L	8/23/2008	6.0	1.85	1.5	0.026	0.00	0.03	0.48	41.16	7	8.65	87	15.2	20.68
156	Hyde L	9/7/2008	6.0	1.55	1.5	0.021	0.00	0.03	0.47	49.93	7	7.57	116		18.25
156	Hyde L	9/21/2008	6.0	1.75	1.5	0.033	0.01	0.03	1.03	68.47	8	7.69	102		24.26
156	Hyde L	10/4/2008	6.0	2.00	1.5	0.031	0.03	0.03	0.41	29.69	11	7.57	105		21.86
156	Hyde L	06/21/2009	6.2	4.80	1.5	0.008	0.01	0.00	0.20	53.36	12	6.58	109	16.2	3.63
156	Hyde L	07/05/2009	6.2	3.93	1.5	0.011	0.02	0.01	0.21	44.42	11	7.78	82		3.62
156	Hyde L	07/18/2009		3.20	1.5	0.014	0.02	0.02	0.21	33.87	11	7.79	70		6.03
156	Hyde L	08/01/2009	6.2	2.50	1.5	0.017	0.01	0.01	0.27	34.81	13	7.89	84		10.16
156	Hyde L	08/15/2009	6.2	2.20	1.5	0.012	0.01	0.01	0.34	64.12	9	8.34	90	13.0	10.00
156	Hyde L	08/15/2009	grab		bloom										
156	Hyde L	08/30/2009	6.2	2.00	1.5	0.021	0.03	0.05	0.22	23.26	22	8.10	63		12.50
156	Hyde L	09/13/2009	6.1	1.33	1.5	0.025			0.53	47.21	26	8.37	79		23.90
156	Hyde L	09/26/2009	6.0	1.80	1.5	0.021	0.01	0.02	0.58	60.79	10	8.04	70		16.30
156	Hyde L	5/23/2010	6.3	5.05	1.5	0.008	0.66	0.05			7	7.98	136	16.6	1.60
156	Hyde L	6/8/2010	6.2	4.80	1.5	0.011	0.01	0.03			1	7.65	88		0.20
156	Hyde L	6/20/2010	6.3	3.20	1.5	0.011	0.01	0.02	0.23	44.77	5	8.71	82		5.30
156	Hyde L	7/6/2010	6.3	2.95	1.5	0.013	0.02	0.01	0.33	57.38	6	8.15	142		5.80
156	Hyde L	7/18/2010	6.2	2.30	1.5	0.015	0.03	0.03	0.34	51.68	9	8.25	145	18.1	9.70
156	Hyde L	8/1/2010		1.95	1.5	0.019	0.02	0.03	0.32	36.32	6	8.30	151		14.10
156	Hyde L	8/16/2010	6.3	1.65	1.5	0.018	0.01	0.02	0.30	35.66	12	9.32			19.70
156	Hyde L	8/29/2010	6.1	1.35	1.5	0.026	0.01	0.02	0.56	47.14	10	8.56	145		24.40
156	Hyde L	9/12/2010													
156	Hyde L	5/31/2011	6.2	3.38	1.5	0.012	0.02	0.02	0.23	43.07	26	8.06	144	19.0	2.00
156	Hyde L	6/13/2011	6.2	3.38	1.5	0.012	0.01	0.02	0.22	39.67	12	7.96	117		5.10
156	Hyde L	6/27/2011	6.2	3.10	1.5	0.018	0.04	0.02	0.33	40.25	12	8.40	148		5.70
156	Hyde L	7/11/2011	6.1	2.60	1.5	0.015	0.02	0.02	0.43	63.90	7	8.48	139		10.80
156	Hyde L	7/26/2011	6.1	2.85	1.5	0.025	0.03	0.04	0.47	42.02	12	7.92	143	15.8	7.90
156	Hyde L	8/8/2011	6.1	1.70	1.5	0.019	0.03	0.03	0.63	71.33	18	8.33	129		22.10
156	Hyde L	8/22/2011	6.2	1.80	1.5	0.022	0.01	0.03	0.60	60.13	9	7.32	144		15.10
156	Hyde L	9/7/2011	6.1	2.15	1.5	0.021	0.01	0.04	0.59	62.90	26	7.88	99		13.00
156	Hyde L	6/3/2012	6.2	3.25	1.5	0.013	0.01	0.01	0.35	58.44	10	7.67	143	14.1	8.70
156	Hyde L	6/18/2012	6.2	4.15	1.5	0.010	0.02	0.03	0.44	100.70	4	8.24	126		2.40
156	Hyde L	7/8/2012	6.1	4.20	1.5	0.013	0.01	0.02	0.24	42.43	8	8.08	96		2.30
156	Hyde L	7/22/2012	6.0	2.35	1.5	0.023	0.02	0.02	0.39	36.20	6	8.07	114		6.60

LNum	LName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
156	Hyde L	8/4/2012	6.0	2.05	1.5	0.023	0.01	0.02	0.52	49.98	10	8.66	89	15.3	10.90
156	Hyde L	8/19/2012	6.0	1.30	1.5	0.030	0.01	0.02	0.72	52.48	8	7.88	144		16.50
156	Hyde L	9/3/2012	5.9	0.98	1.5	0.033	0.01	0.04	0.62	41.60	9	8.40	123		34.20
156	Hyde L	9/19/2012		1.35	1.5	0.036	0.01	0.04	0.60	37.26	7	7.34	141		19.20
156	Hyde L	6/23/2014	6.3	5.00	1.5	0.010	0.00	0.01	0.29	61.56	7	6.95	124	14	1.80
156	Hyde L	7/6/2014	5.8	2.75	1.5	0.015			0.38	56.12	7	7.27	150		3.00
156	Hyde L	7/20/2014	5.3	2.25	1.5	0.029	0.02	0.03	0.44	33.65	8	7.46	147		2.00
156	Hyde L	8/4/2014	5.2	4.00	1.5	0.013			0.41	67.16	7	8.35	141		4.50
156	Hyde L	8/16/2014	6.3	2.25	1.5	0.024	0.01	0.02	0.40	36.30	5	7.21	149	16	14.40
156	Hyde L	9/1/2014	6.3	2.85	1.5	0.014			0.39	62.31	8	7.66	145		9.10
156	Hyde L	9/15/2014	6.1	2.05	1.5	0.023	0.01	0.02	0.45	43.90	7	7.38	142		22.20
156	Hyde L	10/14/2014	6.2	3.00	1.5	0.021			0.42	44.53	7	7.16	149		12.10
156	Hyde L	06/21/2009	6.2		4.7	0.049		0.01							
156	Hyde L	07/05/2009	6.2		4.7	0.044									
156	Hyde L	07/18/2009			4.7	0.019		0.00							
156	Hyde L	08/01/2009	6.2		4.7		0.01	0.01							
156	Hyde L	08/15/2009	6.2		4.5	0.018		0.01							
156	Hyde L	08/30/2009	6.2		4.7	0.020									
156	Hyde L	09/13/2009	6.1		4.6	0.043		0.02							
156	Hyde L	09/26/2009	6.0		4.5	0.035									
156	Hyde L	5/23/2010	6.3		5.3	0.035		0.07							
156	Hyde L	6/20/2010	6.3		4.8	0.270		0.02							
156	Hyde L	7/18/2010	6.2		5.0	0.018		0.01							
156	Hyde L	8/16/2010	6.3		5.1	0.018		0.03							
156	Hyde L	5/31/2011	6.2		5.2	0.019		0.03							
156	Hyde L	6/27/2011	6.2		5.0	0.089		0.02							
156	Hyde L	7/26/2011	6.1		5.0	0.134		0.07							
156	Hyde L	8/22/2011	6.2		5.0	0.028		0.09							
156	Hyde L	5/31/2011	6.2		5.2	0.019		0.03							
156	Hyde L	6/27/2011	6.2		5.0	0.089		0.02							
156	Hyde L	7/26/2011	6.1		5.0	0.134		0.07							
156	Hyde L	8/22/2011	6.2		5.0	0.028		0.09							

LNum	LName	Date	Site	TAir	TH2O	QA	QB	QC	QD	QF	QG	AQ-PC	AQ-Chla	MC-LR	Ana-a	Cylin	FP-Chl	FP-BG	HAB form	Shore HAB
156	Hyde L	6/22/1999	epi	31	26	1	3	2												
156	Hyde L	7/6/1999	epi	31	27	2	2	2												
156	Hyde L	7/26/1999	epi	29	27	3	2	3												
156	Hyde L	8/9/1999	epi	20	24	3	3	3												
156	Hyde L	8/23/1999	epi	27	25	3	3	2												
156	Hyde L	9/6/1999	epi	30	25	3	4	3	2											
156	Hyde L	6/24/2000	epi	26	24	2	3	2	2											
156	Hyde L	7/7/2000	epi	25	24	2	3	3	2											
156	Hyde L	7/23/2000	epi	25	24	2	3	3	2											
156	Hyde L	8/6/2000	epi	24	24	2	3	2	5											
156	Hyde L	8/22/2000	epi	23	23	4	3	4	134											
156	Hyde L	6/25/2001	epi	32	25															
156	Hyde L	7/8/2001	epi	24	22	1	3	2												
156	Hyde L	7/23/2001	epi	28	24	2	3	3	2											
156	Hyde L	8/20/2001	epi	26	25	3	3	3	13											
156	Hyde L	6/22/2003	epi			1	2	2	5											
156	Hyde L	7/14/2003	epi	26	24	3	3	4	134											
156	Hyde L	8/3/2003	epi	29	27	3	2	3	4											
156	Hyde L	8/25/2003	epi	26	24	3	2	3	4											
156	Hyde L	9/6/2003	epi	19	21	3	2	3	1											
156	Hyde L	9/14/2003	epi	28	22	3	2	3	4											
156	Hyde L	7/11/2004	epi	28	24	2	3	2	0											
156	Hyde L	8/1/2004	epi	29	24	3	1	2	35											
156	Hyde L	8/15/2004	epi	28	24	3	3	4	4											
156	Hyde L	9/6/2004	epi	24	24	3	4	3	124											
156	Hyde L	6/29/2008	epi	27	23	2	3	2	2											
156	Hyde L	7/12/2008	epi	31	25	2	3	2	2											
156	Hyde L	7/26/2008	epi	23	24	3	3	2	2											
156	Hyde L	8/9/2008	epi	24	25	4	4	3	23											

LNum	LName	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
156	Hyde L	8/23/2008	epi	30	24	3	4	4	123											
156	Hyde L	9/7/2008	epi	14	23	3	4	3	23											
156	Hyde L	9/21/2008	epi	11	19	3	3	3	23											
156	Hyde L	10/4/2008	epi	9	17	3	3	3	23											
156	Hyde L	06/21/2009	epi	23	21	2	3	2	2											
156	Hyde L	07/05/2009	epi	23	22	2	3	2	2											
156	Hyde L	07/18/2009	epi	23	23	2	3	2	2											
156	Hyde L	08/01/2009	epi	29	24	3	3	2	2											
156	Hyde L	08/15/2009	epi	31	27	3	3	3	2					0.33						
156	Hyde L	08/15/2009	bloom											0.57						
156	Hyde L	08/30/2009	epi	20	22	2	2	2	0											
156	Hyde L	09/13/2009	epi	22	22	2	3	2	2			341.90		0.28						
156	Hyde L	09/26/2009	epi	21	19	2	3	2	2			254.90								
156	Hyde L	5/23/2010	epi	25	19	2	2	2	0											
156	Hyde L	6/8/2010	epi	28	23	2	3	2	2											
156	Hyde L	6/20/2010	epi	26	22	2	3	2	2											
156	Hyde L	7/6/2010	epi	33	25	2	2	2	2											
156	Hyde L	7/18/2010	epi	26	26	2	2	2	0											
156	Hyde L	8/1/2010	epi	26	25	3	3	3	0			190.00		0.00						
156	Hyde L	8/16/2010	epi	26	25	3	3	2	2											
156	Hyde L	8/29/2010	epi	28	24	3	3	2	2	0	0									
156	Hyde L	9/12/2010	epi									310.00		0.50						
156	Hyde L	5/31/2011	epi	31	22	1	3	2	0	4										
156	Hyde L	6/13/2011	epi	17	21	2	3	2	0	0	0	11.70	2.80							
156	Hyde L	6/27/2011	epi	27	24	3	3	2	0	0	0	20.00	28.10							
156	Hyde L	7/11/2011	epi	30	26	2	3	2	0	0	0	5.00	1.70							
156	Hyde L	7/26/2011	epi	22	25	2	3	2	0	7	0	43.00	2.34							
156	Hyde L	8/8/2011	epi	27	27	3	3	2	1	0	4	44.00	0.70							
156	Hyde L	8/8/2011	bloom											0.10						
156	Hyde L	8/8/2011	bloom											0.09						
156	Hyde L	8/8/2011	bloom											0.11						
156	Hyde L	8/22/2011	epi	18	24	2	3	2	0	0	0	58.50	15.90							
156	Hyde L	9/7/2011	epi	16	21	2	2	2	0	0	0	120.10	3.30							
156	Hyde L	6/3/2012	epi	19	19	2	4	2	0	0	0	3.10	0.20	<0.30	<0.417		0.89	0.75	F	
156	Hyde L	6/18/2012	epi	24	23	2	4	3	2	0	0	1.80	0.50	<0.30	<0.413				I	
156	Hyde L	7/8/2012	epi	23	24	2	3	2	2	0	0	5.80	0.30	<0.30	<0.392		0.68	0.67	I	
156	Hyde L	7/22/2012	epi	31	25	3	4	2	2	0	0	16.20	0.60	<0.30	<0.585		4.44	1.99	I	
156	Hyde L	8/4/2012	epi	27	26	3	3	3	12	0	0	66.40	0.40	<0.30	<0.659		9.02	8.24	F	
156	Hyde L	8/19/2012	epi	23	24	3	3	2	2	0	0	2.70	1.10	<0.30	<0.223		6.01	3.94	F	
156	Hyde L	9/3/2012	epi	28	26	3	4	2	2	0	0	205.40	1.70	0.43	<0.725		27.22	24.08	F	
156	Hyde L	9/19/2012	epi	16	19	3	3	2	0	0	0	70.00	0.90	0.53	<3.299		8.53	5.92	F	
156	Hyde L	6/23/2014	epi	29	23	2	2	1	8	0	0	1.80	0.30	<0.58	<0.44	<0.002	1.20	0.00	i	i
156	Hyde L	7/6/2014	epi	27	24	2	2	2	5	0	0			<0.62	<0.03	<0.002			i	i
156	Hyde L	7/20/2014	epi	24	24	2	3	2	2	0	0	89.10	0.70	<0.39	<0.21	<0.003	15.70	13.00	i	i
156	Hyde L	8/4/2014	epi	27	24	2	4	3	2	0	7	7.40	0.30	<0.35	<0.10	<0.002	0.60	0.00	i	i
156	Hyde L	8/16/2014	epi	24	21	2	3	3	2	0	0	52.20	0.60	<0.39	<0.03	<0.001	10.60	8.20	i	i
156	Hyde L	9/1/2014	epi	27	24	3	3	2	2	0	0	37.30	0.40	<0.25	<0.14	<0.002	7.40	5.30	i	i
156	Hyde L	9/15/2014	epi	18	20	3	3	3	2	4	4	61.70	0.60	<0.70	<0.03	<0.001	11.50	8.40	f	df
156	Hyde L	10/14/2014	epi	19	16	2	3	2	2	0	0	20.40	0.50	<0.73	<0.06	<0.001	5.90	3.90	i	i
156	Hyde L	06/21/2009	hypo		19															
156	Hyde L	07/05/2009	hypo		22															
156	Hyde L	07/18/2009	hypo		22															
156	Hyde L	08/01/2009	hypo		24															
156	Hyde L	08/15/2009	hypo		24															
156	Hyde L	08/30/2009	hypo		22															
156	Hyde L	09/13/2009	hypo		21															
156	Hyde L	09/26/2009	hypo		18															
156	Hyde L	5/23/2010	hypo		17															
156	Hyde L	6/20/2010	hypo		21															
156	Hyde L	7/18/2010	hypo		25															
156	Hyde L	8/16/2010	hypo		25															

LNum	LName	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
156	Hyde L	5/31/2011	hypo		16															
156	Hyde L	6/27/2011	hypo		21															
156	Hyde L	7/26/2011	hypo		25															
156	Hyde L	8/22/2011	hypo		23															

Legend Information

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

Appendix B- Priority Waterbody Listing for Hyde Lake

Hyde Lake (0303-0043) — MinorImpacts

Waterbody Location Information

Revised: 05/09/2007

Water Index No: Ont 18-P390- 1-P391
Hydro Unit Code: 04150102/020 **Str Class:** B
Waterbody Type: Lake
Waterbody Size: 185.6 Acres
Seg Description: entire lake

Drain Basin: Lake Ontario
Reg/County: 6/Jefferson Co. (23)
Quad Map: THERESA (E-17-2)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Public Bathing	Stressed	Suspected
Aquatic Life	Stressed	Possible
Recreation	Stressed	Known

Type of Pollutant(s)
Known: ALGAL/WEED GROWTH, NUTRIENTS (phosphorus)
Suspected: D.O./Oxygen Demand
Possible: - - -

Source(s) of Pollutant(s)
Known: - - -
Suspected: AGRICULTURE
Possible: On-Site/Septic Syst

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 3 (Cause Identified, Source Unknown)
Lead Agency/Office: ext/WQCC
TMDL/303d Status: n/a
Resolution Potential: Medium

Further Details

Recreational uses in Hyde Lake are known to experience minor impacts due to nutrient loads and some aquatic weed growth. Public bathing and aquatic life support may also be affected. Agricultural and various other nonpoint sources are the likely source of these impacts to the lake.

Hyde Lake has been sampled as part of the NYSDEC Citizen Statewide Lake Assessment Program (CSLAP) beginning in 1999 and continuing through 2004. An Interpretive Summary report of the findings of this sampling was published in 2005. These data indicate that the lake is best characterized as mesoeutrophic, or moderately to highly productive. In some previous years that lake was assessed as eutrophic, indicating the lake was less productive in 2004. Phosphorus levels in the lake frequently exceed the state guidance values indicating impacted/stressed recreational uses. Corresponding transparency measurements only rarely fail to meet what is recommended for swimming beaches. Measurements of pH typically fall within the state water quality range of 6.5 to 8.5. The lake water is slightly colored, which is also typical of northwestern Adirondack Lakes. (DEC/DOW, BWAM/CSLAP, October 2005)

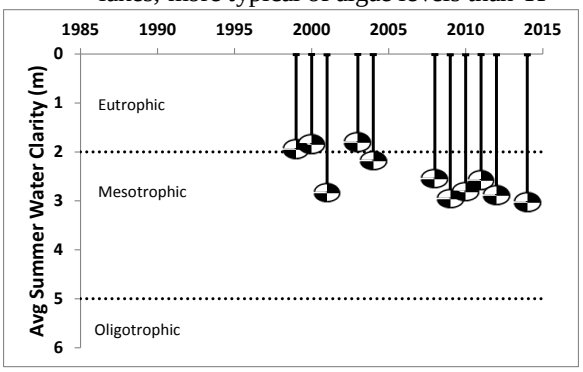
Public perception of the lake and its uses is also evaluated as part of the CSLAP program. This assessment indicates recreational suitability of the lake to be stable but occasionally unfavorable in recent years. The recreational suitability of the lake is described most frequently as "slightly" impacted for most uses The lake itself is most often described as ranging from "not quite crystal clear" to (having) "definite algae greenness," an assessment that is consistent with the perceived water quality conditions in the lake and its measured water quality characteristics. Assessments have noted that aquatic plants occasionally grow to the lake surface and can significantly impact recreational uses, although this has not been the case in most recent years. Aquatic plants are generally native species. (DEC/DOW, BWAM/CSLAP, October 2005)

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

Appendix C- Long Term Trends: Hyde Lake

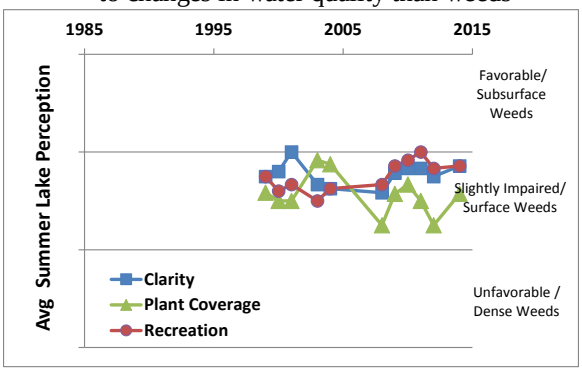
Long Term Trends: Water Clarity

- Increasing since early 2000s?
- Most readings now typical of *mesotrophic* lakes, more typical of algae levels than TP



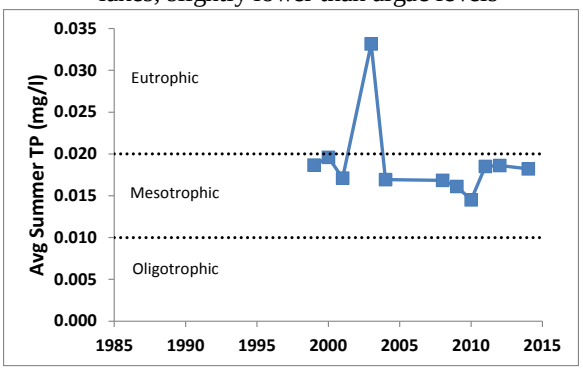
Long Term Trends: Lake Perception

- Plant coverage ↑, recreational perception ↑
- Recreational perception more closely linked to changes in water quality than weeds



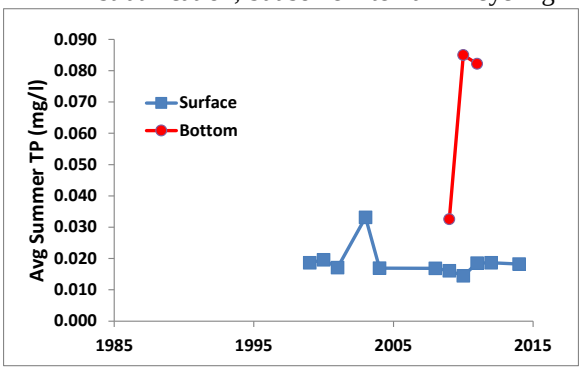
Long Term Trends: Phosphorus

- No long term trend
- Most readings typical of *mesoeutrophic* lakes, slightly lower than algae levels



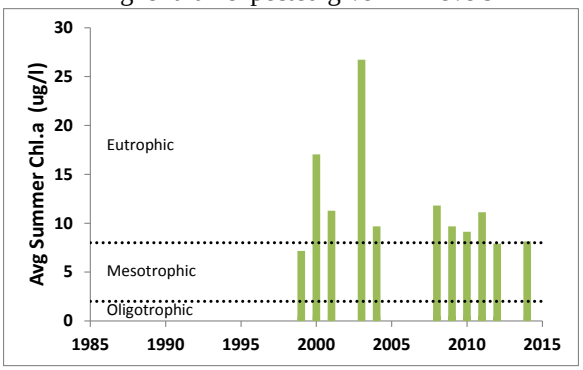
Long Term Trends: Bottom Phosphorus

- Bottom TP at times ↑ than surface TP
- Temperature data indicates weak thermal stratification, but some internal TP cycling



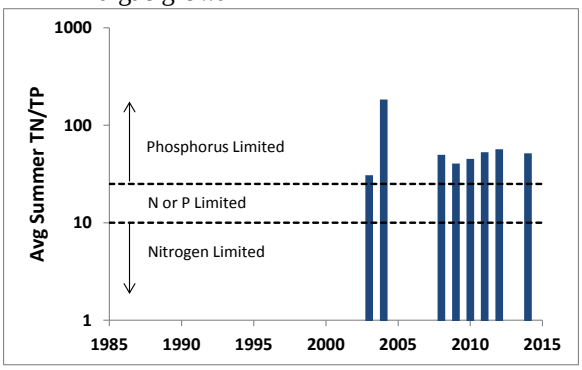
Long Term Trends: Chlorophyll a

- No trends apparent; slight ↓ since early 00s
- Most readings typical of *eutrophic* lakes, higher than expected given TP levels



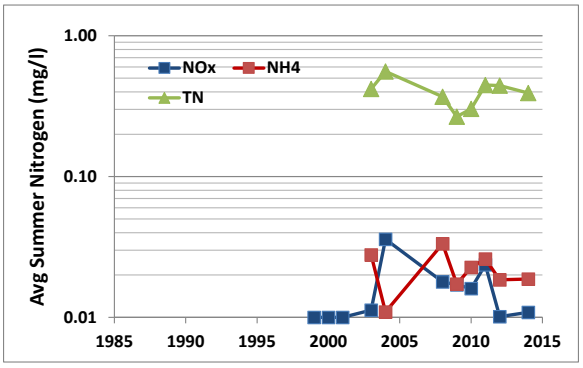
Long Term Trends: N:P Ratio

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



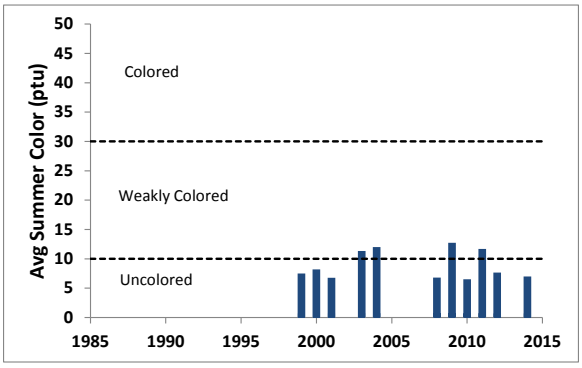
Long Term Trends: Nitrogen

- No trends apparent
- Low nitrate, ammonia and total nitrogen



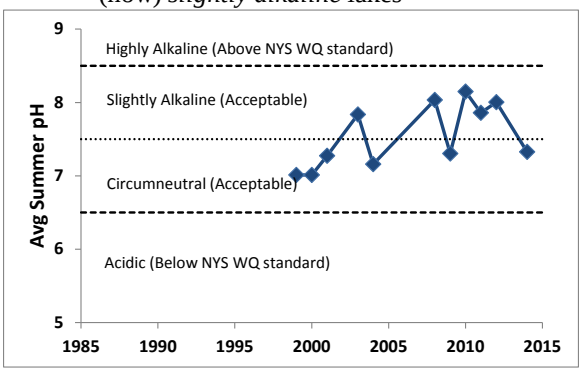
Long Term Trends: Color

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



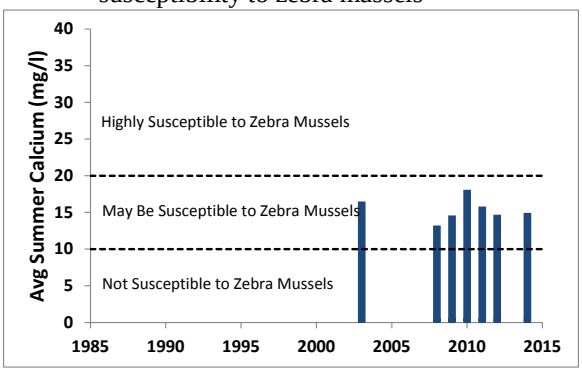
Long Term Trends: pH

- pH increasing but variable since late 1990s
- Most readings typical of *circumneutral* to (now) *slightly alkaline* lakes



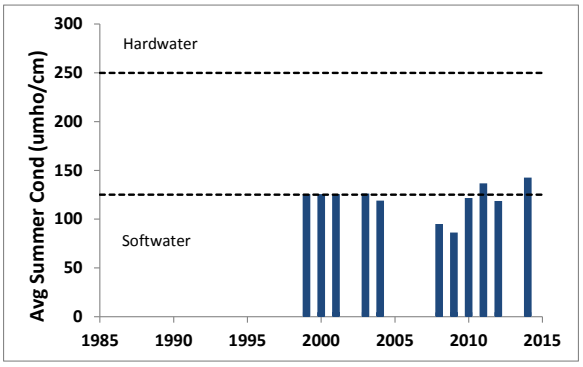
Long Term Trends: Calcium

- No trends apparent
- Most readings indicate low to moderate susceptibility to zebra mussels



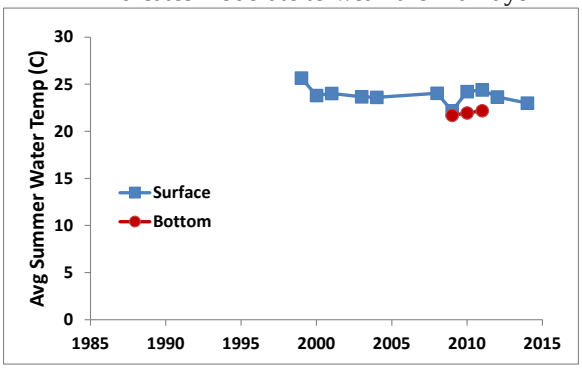
Long Term Trends: Conductivity

- No trends apparent, but ↑ last few years
- Most readings typical of *softwater* lakes to lakes with intermediate hardness



Long Term Trends: Water Temperature

- No trends apparent
- Similar surface and deepwater temperature indicates moderate 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 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.

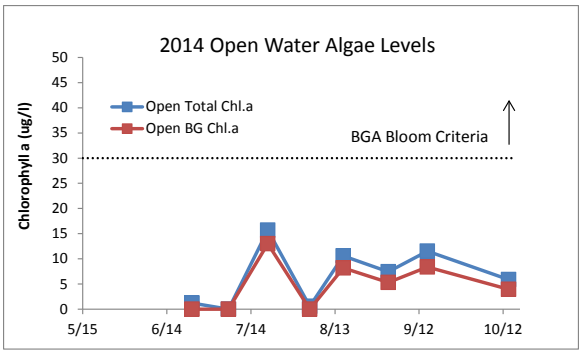


Figure D1:
2014 Open Water Total and BGA Chl.a

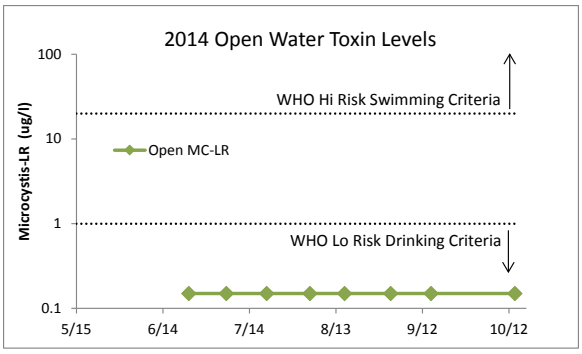


Figure D2:
2014 Open Water Microcystin-LR

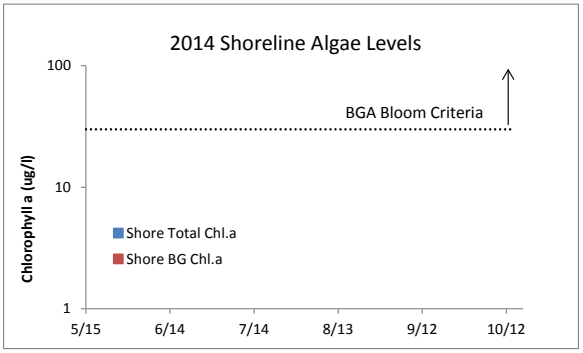


Figure D3:
2014 Shoreline Total and BGA Chl.a

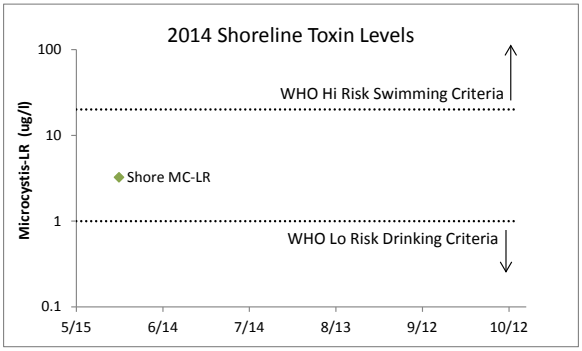


Figure D4:
2014 Shoreline Microcystin-LR

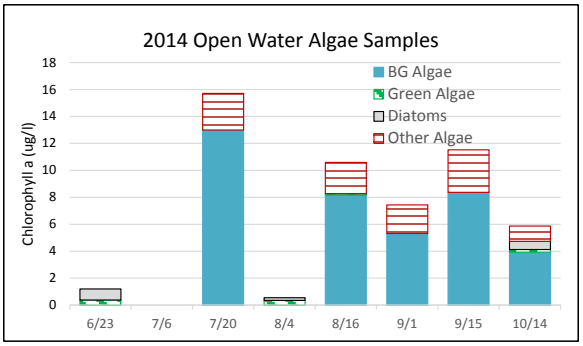


Figure D5:
2014 Open Water Algae Types

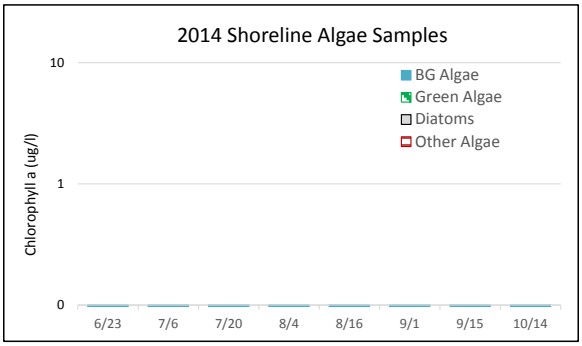


Figure D6:
2014 Shoreline Algae Types

Appendix E:
AIS Species in Jefferson County

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

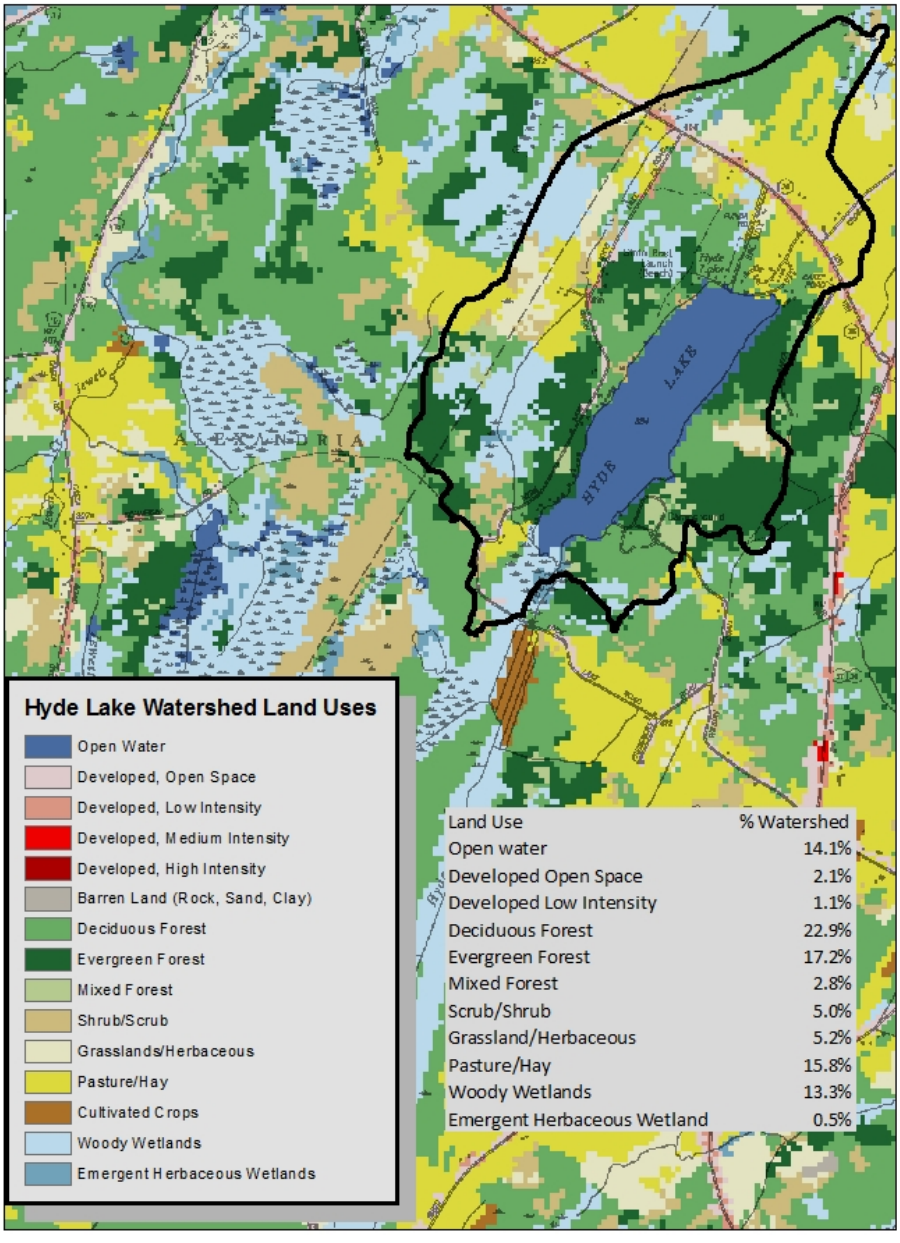
This list is not complete, but instead represents only those species that have been reported and verified within the county. If any additional aquatic invasive species (AIS) are known or suspected in these or other waterbodies in the county, this information should be reported through iMap invasives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

Aquatic Invasive Species - Jefferson County			
Waterbody	**Kingdom**	**Common name**	**Scientific name**
Black Pond	Animal	Common carp	*Cyprinus carpio*
Black Pond	Plant	European frogbit	*Hydrocharis morsus-ranae*
Black Pond	Plant	Curly leafed pondweed	*Potamogeton crispus*
Butterfield Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Cranberry Pond	Plant	European frogbit	*Hydrocharis morsus-ranae*
Crooked Creek	Plant	European frogbit	*Hydrocharis morsus-ranae*
Floodwood Pond	Plant	Common carp	*Cyprinus carpio*
Floodwood Pond	Plant	European frogbit	*Hydrocharis morsus-ranae*
Floodwood Pond	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Floodwood Pond	Plant	Brittle naiad	*Najas minor*
Floodwood Pond	Plant	Curly leafed pondweed	*Potamogeton crispus*
Floodwood Pond	Plant	Water chestnut	*Trapa natans*
Goose Pond	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Hyde Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Lake of the Isles	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Lake of the Woods	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Lake Ontario	Plant	Flowering-rush, Flowering rush	*Butomus umbellatus*
Lake Ontario	Animal	Common carp	*Cyprinus carpio*
Lake Ontario	Animal	Quagga mussel	*Dreissena bugensis*
Lake Ontario	Animal	Zebra mussel	*Dreissena polymorpha*
Lake Ontario	Plant	European frogbit	*Hydrocharis morsus-ranae*
Lake Ontario	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Lake Ontario	Plant	Brittle naiad	*Najas minor*
Lake Ontario	Animal	Round goby	*Neogobius melanostomus*

Waterbody	Kingdom	Common name	Scientific name
Lake Ontario	Plant	Starry stonewort	*Nitellopsis obtusa*
Lake Ontario	Animal	Allegheny crayfish	*Orconectes obscurus*
Lake Ontario	Plant	Curly leafed pondweed	*Potamogeton crispus*
Lake Ontario	Plant	Water chestnut	*Trapa natans*
Lakeview Pond	Animal	Common carp	*Cyprinus carpio*
Lakeview Pond	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Lakeview Pond	Plant	Curly leafed pondweed	*Potamogeton crispus*
Millsite Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Millsite Lake	Plant	Banded mystery snail	*Viviparus georgianus*
Moon Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Moon Lake	Plant	Curly leafed pondweed	*Potamogeton crispus*
Mud Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Muskellunge Lake	Animal	Rudd	*Scardinius erythrophthalmus*
North Colwell Pond	Plant	Brittle naiad	*Najas minor*
North Colwell Pond	Plant	Water chestnut	*Trapa natans*
Payne Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Payne Lake	Plant	Curly leafed pondweed	*Potamogeton crispus*
Pleasant Lake	Plant	European frogbit	*Hydrocharis morsus-ranae*
Pleasant Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Red Lake	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
Saint James Lake	Animal	Common carp	*Cyprinus carpio*
Saint James Lake	Plant	European frogbit	*Hydrocharis morsus-ranae*
Saint James Lake	Animal	Round goby	*Neogobius melanostomus*
Saint James Lake	Plant	Water chestnut	*Trapa natans*
South Colwell Pond	Plant	European frogbit	*Hydrocharis morsus-ranae*
South Colwell Pond	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
South Colwell Pond	Plant	Curly leafed pondweed	*Potamogeton crispus*
South Colwell Pond	Plant	Water chestnut	*Trapa natans*
St. Lawrence River	Animal	Zebra mussel	*Dreissena polymorpha*
St. Lawrence River	Plant	European frogbit	*Hydrocharis morsus-ranae*
St. Lawrence River	Plant	Eurasian watermilfoil	*Myriophyllum spicatum*
St. Lawrence River	Plant	Starry stonewort	*Nitellopsis obtusa*
St. Lawrence River	Plant	Curly leafed pondweed	*Potamogeton crispus*

Appendix F: Watershed and Land Use Map for Hyde 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	14.1%
Developed Open Space	2.1%
Developed Low Intensity	1.1%
Deciduous Forest	22.9%
Evergreen Forest	17.2%
Mixed Forest	2.8%
Scrub/Shrub	5.0%
Grassland/Herbaceous	5.2%
Pasture/Hay	15.8%
Woody Wetlands	13.3%
Emergent Herbaceous Wetland	0.5%