

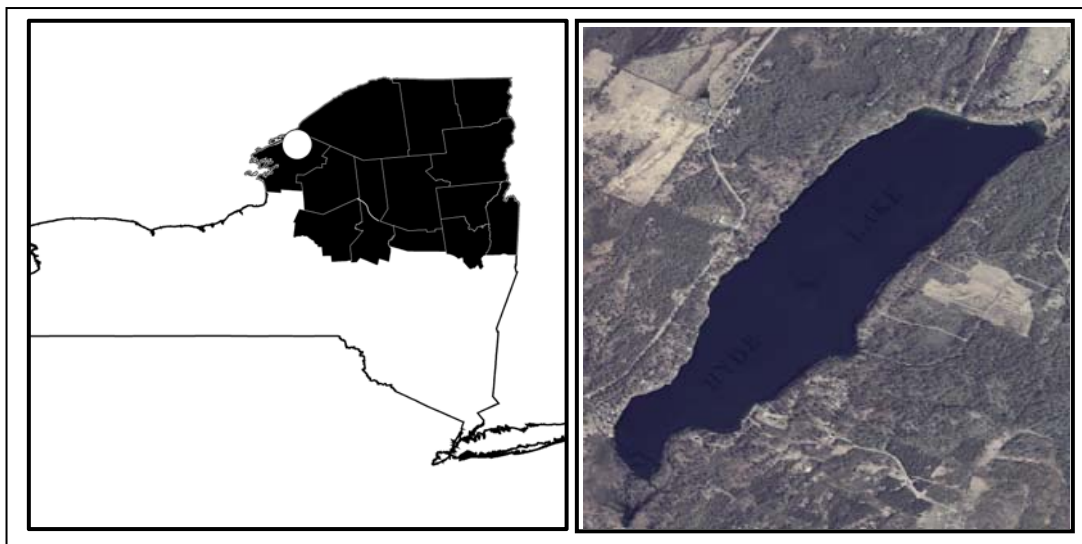
**Appendix A:
CSLAP 2009 Lake Water Quality Summary: Hyde Lake**

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 (1210 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, 2008-2009
2009 Samplers	Tim Aiken
Main Contact	Tim Aiken

Lake Map

(sampling location marked with a circle)



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 7 CSLAP lakes among the >30 lakes found in Jefferson County, and one of 10 CSLAP lakes among the >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 (<10 hp) 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 2" 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 3 and a size limit of 18". 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 1999-2001, 2003-2004, and 2008-2009. The CSLAP reports for Hyde Lake for the last few years can be found on the NYSFOLA website at www.nysfola.org, under NYS Lake Association Lake List.

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
- septic cost share program
- education

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

Summary of 2009 CSLAP Sampling Results

Evaluation of Eutrophication Indicators

Total phosphorus and chlorophyll *a* readings were higher than normal in 2009, but this did not translate to a change in Secchi disk transparency readings in Hyde Lake in 2009. None of these trophic indicators has exhibited any significant long-term trends, suggesting that the small changes in algae and nutrient levels in 2009 represented normal variability. The lake continues to be characterized as *mesoeutrophic*, based on water clarity (typical of *mesotrophic* lakes), chlorophyll *a* and total phosphorus readings (both typical of *eutrophic* lakes). The TSI evaluation suggests that each of the trophic indicators were “internally consistent”—that is, each trophic indicator was in the expected range given the readings for the other trophic indicators. Lake productivity continues to increase during the summer—clarity drops due to increasing algae and nutrient levels. Overall trophic conditions are summarized on the Lake Scorecard.

Evaluation of Potable Water Indicators

Algae levels may be 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, although the lake is not classified for use for potable water. Hypolimnetic phosphorus readings in Hyde Lake are similar to those at the lake surface, and hypolimnetic ammonia readings are low and similar to those measured in surface samples. This suggests that deepwater potable intakes should not be compromised, although the lake is not strongly stratified. Deepwater iron, manganese and arsenic results from 2009 have not been received at the time of the writing of this report.

Evaluation of Limnological Indicators

Some of the CSLAP water quality indicators varied from normal readings in 2009. Ammonia, total nitrogen and conductivity readings were lower than normal, but neither of these changes appeared to be part of a long-term trend. It is likely that the small changes in each of these indicators from year to year represent normal variability. The higher than normal true color readings in 2009 were common to many other Adirondack region lakes, probably due to wetter weather. However, no long-term trends in water color readings have been apparent. pH readings have increased slightly in recent years, although the lake has consistently been alkaline and this rise in pH was not apparent in 2009. None of these indicators has exhibited any long-term trends. Overall limnological conditions are summarized in the Lake Scorecard.

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. An FQI cannot be established for Hyde Lake given the lack of aquatic plant survey information. It is likely that there are other native plant species in the lake.

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.

Phytoplankton, zooplankton and macroinvertebrate surveys have not been conducted through CSLAP at Hyde Lake.

Evaluation of Lake Perception

Water quality, aquatic plant, and recreational assessments were close to normal in 2009, suggesting that the small decrease in chlorophyll *a* and phosphorus readings did not translate into changes in perceived lake conditions. None of these measures of lake perception has exhibited any long-term changes in Hyde Lake. Overall lake perception is summarized on the Lake Scorecard.

Evaluation of Local Climate Change

Water and air temperature readings in the summer index period were close to normal in 2009, and no long-term trends have been apparent. It is not likely that any of the small changes in air or water temperature readings are indicative of local climate change in the lake.

Lake Scorecard

Category	Indicator	Classification	2009 Change?	Long Term Change?		
Eutrophication Indicators	Water Clarity	Mesotrophic	No	No		
	Chlorophyll <i>a</i>	Eutrophic	Lower than normal	No		
	Total Phosphorus	Eutrophic	Lower than normal	No		
Potable Water Indicators	Hypolimnetic Ammonia	Similar to Surface NH4				
	Hypolimnetic Arsenic					
	Hypolimnetic Iron					
	Hypolimnetic Manganese					
Limnological Indicators	Hypolimnetic Phosphorus	Similar to Surface TP				
	Nitrate + Nitrite	Low NOx				
	Ammonia	Low Ammonia				
	Total Nitrogen	Low Total Nitrogen				
	pH	Alkaline			No	Increasing?
	Specific Conductance	Softwater			Lower than normal	No
	True Color	Uncolored			Higher than normal	No
	Calcium	May Be Susceptible to Zebra Mussels			No	No
Lake Perception	WQ Assessment	Definite Algal Greenness	No	No		
	Aquatic Plant Coverage	Surface Plant Growth	No	No		
	Recreational Assessment	Slightly Impaired	No	No		
Biological Condition	Phytoplankton	Not measured through CSLAP	Not known	Not known		
	Macrophytes	Limited survey indicates low diversity	Not known	Not known		
	Zooplankton	Not measured through CSLAP	Not known	Not known		
	Macroinvertebrates	Not measured through CSLAP	Not known	Not known		
	Fish	Coolwater fishery?	Not known	Not known		
	Invasive Species	Eurasian watermilfoil	Not known	Not known		
Local Climate Change	Air Temperature		No	No		
	Water Temperature		No	No		

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 is found in Appendix C.

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 may be 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 threatened by excessive algae and poor water clarity, and stressed by excessive weeds, although 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.

Aquatic Life

The CSLAP dataset on Hyde Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aquatic life should be fully supported, 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 and weeds.

Fish Consumption

There are no fish consumption advisories posted for Hyde Lake.

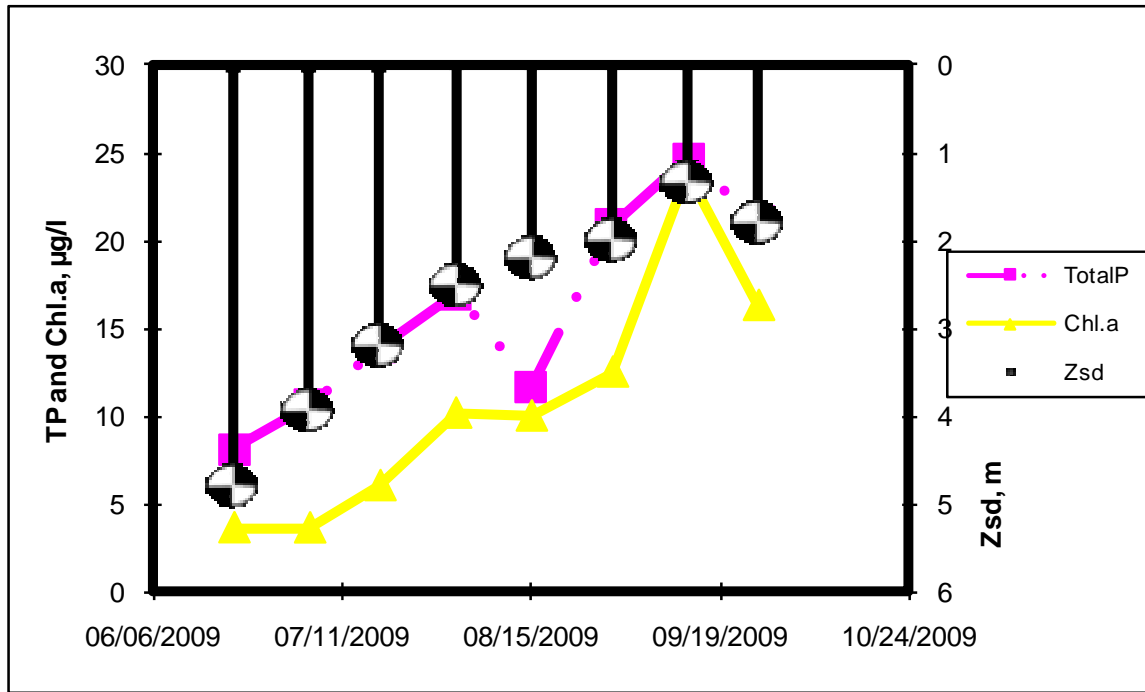
Additional Comments and Recommendations

Additional plant survey data should be collected to determine the extent to which invasive exotic species have impacted recreational uses of the lake.

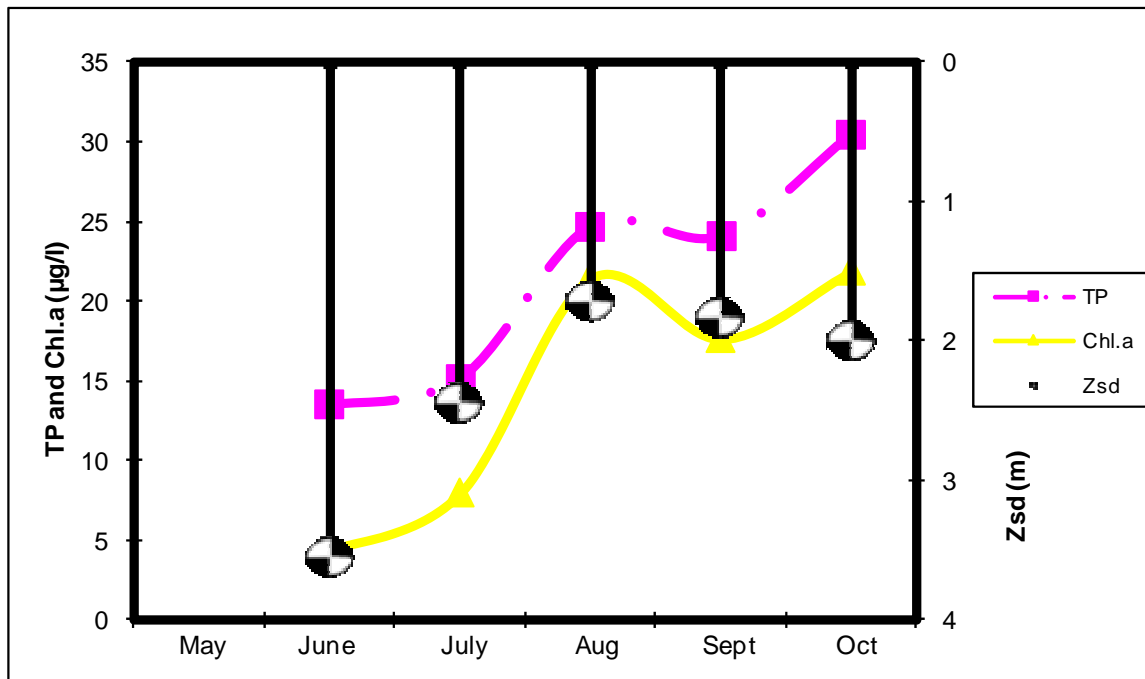
Aquatic Plant IDs-2009

None submitted for identification

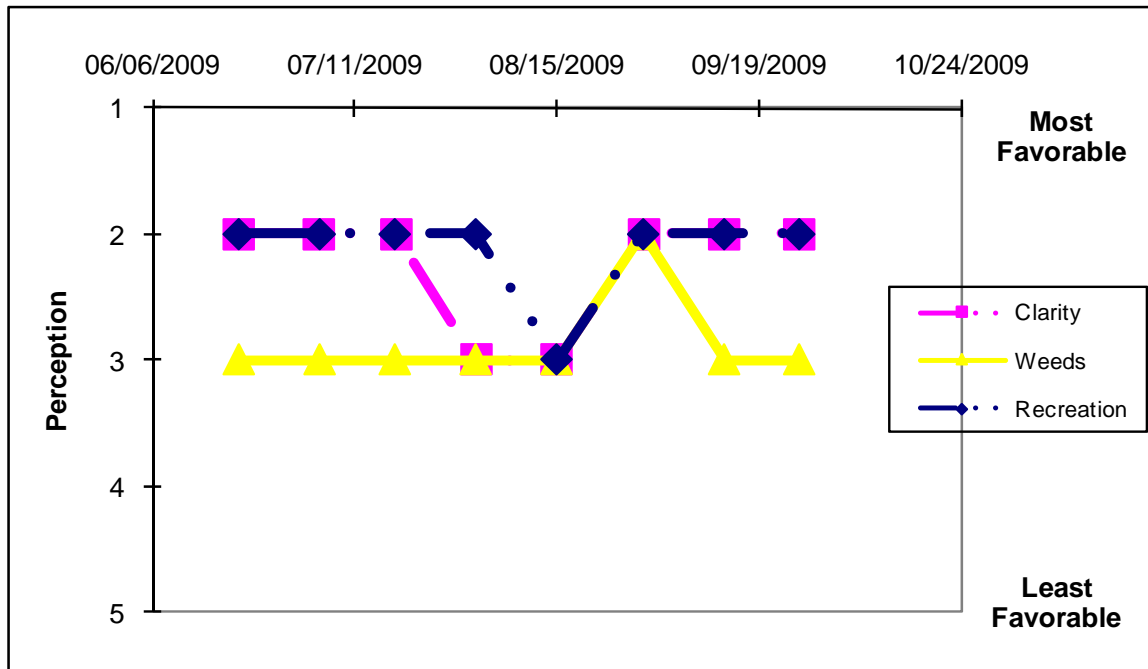
Time Series: Trophic Indicators, 2009



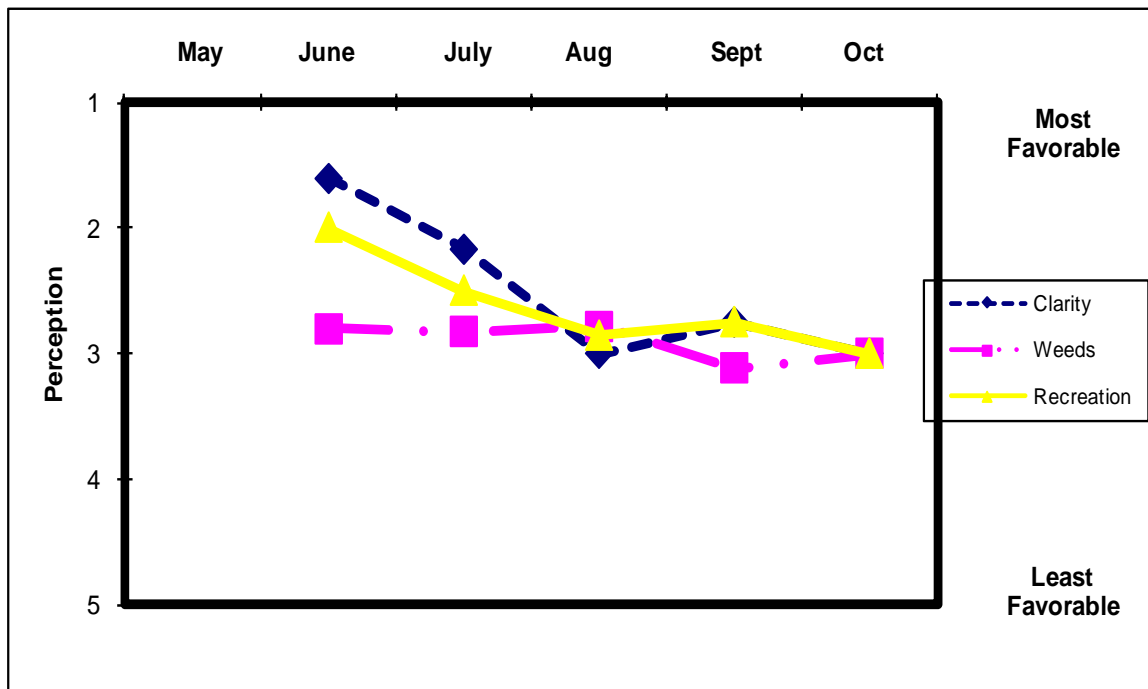
Time Series: Trophic Indicators, Typical Year (1999-2009)



Time Series: Lake Perception Indicators, 2009



Time Series: Lake Perception Indicators, Typical Year (1999-2009)



LNum	LName	Date	Zbot	Zsd	Zsamp	TAir	TH2O	QA	QB	QC	QD
156	Hyde L	6/22/1999	5.5	3.35	1.5	31	26	1	3	2	
156	Hyde L	7/6/1999	7.0	1.68	1.5	31	27	2	2	2	
156	Hyde L	7/26/1999	6.2	1.15	3.5	29	27	3	2	3	
156	Hyde L	8/9/1999	7.0	1.53	3.5	20	24	3	3	3	
156	Hyde L	8/23/1999	7.2	1.65		27	25	3	3	2	
156	Hyde L	9/6/1999	5.5	2.28		30	25	3	4	3	2
156	Hyde L	6/24/2000	6.6	2.45	1.5	26	24	2	3	2	2
156	Hyde L	7/7/2000	6.7	2.05	1.5	25	24	2	3	3	2
156	Hyde L	7/23/2000	6.7	2.00	1.5	25	24	2	3	3	2
156	Hyde L	8/6/2000	6.7	1.75	1.5	24	24	2	3	2	5
156	Hyde L	8/22/2000	5.5	0.95	1.5	23	23	4	3	4	134
156	Hyde L	6/25/2001	4.8	3.60	2.5	32	25				
156	Hyde L	7/8/2001	5.7	3.35	2.9	24	22	1	3	2	
156	Hyde L	7/23/2001	5.5	3.10	2.7	28	24	2	3	3	2
156	Hyde L	8/20/2001		1.25	1.5	26	25	3	3	3	13
156	Hyde L	6/22/2003	6.6	2.45	3.3			1	2	2	5
156	Hyde L	7/14/2003	6.6	1.40	3.3	26	24	3	3	4	134
156	Hyde L	8/3/2003	6.6	1.25	3.3	29	27	3	2	3	4
156	Hyde L	8/25/2003	6.6	1.65	3.3	26	24	3	2	3	4
156	Hyde L	9/6/2003	6.6	1.70	3.3	19	21	3	2	3	1
156	Hyde L	9/14/2003	6.6	2.30	1.5	28	22	3	2	3	4
156	Hyde L	7/11/2004	6.0	2.75	1.5	28	24	2	3	2	0
156	Hyde L	8/1/2004	6.0	2.00	1.5	29	24	3	1	2	35
156	Hyde L	8/15/2004	6.5	1.65	1.5	28	24	3	3	4	4
156	Hyde L	9/6/2004	6.0	1.95	1.5	24	24	3	4	3	124
156	Hyde L	6/29/2008	6.0	4.70	1.5	27	23	2	3	2	2
156	Hyde L	7/12/2008	6.0	3.25	1.5	31	25	2	3	2	2
156	Hyde L	7/26/2008	6.0	1.55	1.5	23	24	3	3	2	2
156	Hyde L	8/9/2008	6.0	1.95	1.5	24	25	4	4	3	23
156	Hyde L	8/23/2008	6.0	1.85	1.5	30	24	3	4	4	123
156	Hyde L	9/7/2008	6.0	1.55	1.5	14	23	3	4	3	23
156	Hyde L	9/21/2008	6.0	1.75	1.5	11	19	3	3	3	23
156	Hyde L	10/4/2008	6.0	2.00	1.5	9	17	3	3	3	23
156	Hyde L	06/21/2009	6.2	4.80	1.5	23	21	2	3	2	2
156	Hyde L	07/05/2009	6.2	3.93	1.5	23	22	2	3	2	2
156	Hyde L	07/18/2009		3.20	1.5	23	23	2	3	2	2
156	Hyde L	08/01/2009	6.2	2.50	1.5	29	24	3	3	2	2
156	Hyde L	08/15/2009	6.2	2.20	1.5	31	27	3	3	3	2
156	Hyde L	08/30/2009	6.2	2.00	1.5	20	22	2	2	2	0
156	Hyde L	09/13/2009	6.1	1.33	1.5	22	22	2	3	2	2
156	Hyde L	09/26/2009	6.0	1.80	1.5	21	19	2	3	2	2
156	Hyde L	06/21/2009	6.2		4.7		19				
156	Hyde L	07/05/2009	6.2		4.7		22				
156	Hyde L	07/18/2009			4.7		22				
156	Hyde L	08/01/2009	6.2		4.7		24				
156	Hyde L	08/15/2009	6.2		4.5		24				
156	Hyde L	08/30/2009	6.2		4.7		22				
156	Hyde L	09/13/2009	6.1		4.6		21				
156	Hyde L	09/26/2009	6.0		4.5		18				

Legend Information

<i>Indicator</i>	<i>Description</i>	<i>Detection Limit</i>	<i>Standard (S) / Criteria (C)</i>
General Information			
Lnum	lake number (unique to CSLAP)		
Lname	name of lake (as it appears in the Gazetteer of NYS Lakes)		
Date	sampling date		
Field Parameters			
Zbot	lake depth at sampling point, meters (m)		
Zsd	Secchi disk transparency or clarity	0.1m	1.2m (C)
Zsamp	water sample depth (m)	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/l	0.3 mg/l (S)
Mn	manganese (mg/l)	0.01 mg/l	0.3 mg/l (S)
As	arsenic (mg/l)	1 ug/l	10 ug/l (S)
Lake Assessment			
QA	water quality assessment, 5 point scale; 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, 5 point scale; 1 = no plants visible, 2 = plants below surface, 3 = plants at surface, 4 = plants dense at surface, 5 = surface plant coverage		
QC	recreational assessment, 5 point scale; 1 = could not be nicer, 2 = excellent, 3 = slightly impaired, 4 = substantially impaired, 5 = lake not usable		
QD	reasons for recreational assessment, 8 choices; 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		

Appendix C- PWL Listing for Hyde Lake

Hyde Lake (0303-0043)

Minor Impacts

Waterbody Location Information

Revised: 05/09/2007

Water Index No:	Ont 18-P390- 1-P391	Drain Basin:	Lake Ontario
Hydro Unit Code:	04150102/020	Str Class:	B
Waterbody Type:	Lake	Reg/County:	6/Jefferson Co. (23)
Waterbody Size:	185.6 Acres	Quad Map:	THERESA (E-1 7-2)
Seg Description:	entire lake		

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	Resolution Potential: Medium
TMDL/303d Status:	n/a	

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.