# CSLAP 2011 Lake Water Quality Summary: Eagle Lake

## **General Lake Information**

**Location** Town of Ticonderoga

**County** Essex

Basin Upper Hudson River

**Size** 170.9 hectares (422.1 acres)

**Lake Origins** augmented by dam

Watershed Area 996.5 hectares (2,461.4 acres)

Retention Time1.8 yearsMean Depth5.4 metersSounding Depth11.5 metersPublic Access?DEC launch

Major Tributaries Goosneck Pond Outlet

**Lake Tributary To...** unnamed outlet to Pagagon Brook to Paradox Lake to Schroon

River to Hudson River

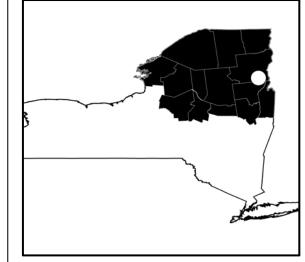
**WQ Classification** B (contact recreation = swimming)

Lake Outlet Latitude 43.872 Lake Outlet Longitude -73.617

Sampling Years 2000-2011

2011 Samplers Paul and Mary Lloyd Burroughs
Main Contact Paul and Mary Lloyd Burroughs

## Lake Map





### **Background**

Eagle Lake is a 422 acre, class B lake found in the Town of Ticonderoga in Essex County, within the Eastern Adirondack region of New York State. Eagle Lake was first sampled as part of CSLAP in 2000.

It is one of nine CSLAP lakes among the more than 270 lakes found in Essex County, and one of 24 CSLAP lakes among the more than 470 lakes and ponds in the Upper Hudson River drainage basin.

#### Lake Uses

Eagle 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 fishing, aquatic life, and aesthetics. The lake is used by lake residents and visitors (via a DEC launch site) for a variety of recreational purposes.

Eagle Lake is stocked annually with about 3,800 nine inch brown trout, and 1,500 seven inch brown trout. Fish species in the lake include black crappie, brown bullhead, brown trout, largemouth bass, northern pike, pickerel, rock bass, smallmouth bass, pumpkinseed sunfish, lake whitefish, and yellow perch.

General statewide fishing regulations are applicable in Eagle Lake. In addition, the open season on sunfish and yellow perch lasts all year, with no size or take limits. There is also a year-long open season on trout, with no size limits, but a daily take limit of five fish.

## **Historical Water Quality Data**

CSLAP sampling was conducted on Eagle Lake each year from 2000 to 2011. The CSLAP reports for each of the past several years can be found on the NYSFOLA website at <a href="http://nysfola.mylaketown.com">http://nysfola.mylaketown.com</a>. The 2009 and 2010 CSLAP reports for Eagle Lake can also be found on the NYSDEC web page at <a href="http://www.dec.ny.gov/lands/77872.html">http://www.dec.ny.gov/lands/77872.html</a>.

Eagle Lake was sampled by the NYSDEC in 1999 as part of the Lake Classification and Inventory (LCI) survey, the Division of Water ambient lake monitoring program. It was also sampled by the New York State Conservation Department (the predecessor to the NYSDEC) as part of the Biological Survey of the Upper Hudson River basin in 1932. The LCI results from 1999 indicate that water transparency was slightly higher than in the contemporary CSLAP study of the lake, although nutrient and algae levels were comparable. These indicators suggest that water quality conditions from 1999 were similar to those measured in recent years through CSLAP.

The Biological Survey was intended to evaluate water quality conditions as they relate to fisheries management, so much of the information collected cannot be easily compared to the CSLAP dataset. The lake was described as follows:

"Eagle Lake comprises an area of 409 acres with little shallow water and few weed beds. The rocky bottom slopes rapidly away from the shores. Eighty to ninety percent of the lake is over twenty feet deep and temperature and oxygen relationships are satisfactory for fish everywhere..... ...few weed beds...This is a rather narrow lake with rocky shores. The weed areas

are limited mostly to a long narrow bay which includes the part of the lake west of the highway crossing. This bay gradually merges with Paragon Creek. This whole area, for a distance of over one mile, supports a very luxuriant growth of plants".

## **Lake Association and Management History**

Eagle Lake is served by the Eagle Lake Property Owners, Inc. Some of the activities conducted by the lake association include:

- Septic system inspection and dye testing (late 1990s)
- On-going education of lake residents (at annual meeting) discouraging feeding of waterfowl
- remove beaver dam and control of own water level
- plant control- plant monitoring, benthic mats, hand harvesting, mapping, grant writing, advocating and applying for aquatic herbicide control, signage to prevent or minimize new infestations
- adopt a highway, neighborhood watch

The Eagle Lake Association maintains a website at <a href="http://www.eaglelake1.org/">http://www.eaglelake1.org/</a>.

## **Summary of 2011 CSLAP Sampling Results**

#### **Evaluation of 2011 Annual and Monthly Results Relative to 2006-2010**

The Lake Condition Summary Table below and Appendix B compare annual and monthly results from 2011 to those measured in previous CSLAP sampling seasons. The pertinent deviations from normal conditions are discussed below.

## **Evaluation of Eutrophication Indicators**

Chlorophyll *a* readings were slightly higher than normal in 2011, particularly in late summer and fall, although these readings were still very low. Both Secchi disk transparency and total phosphorus readings were close to normal in 2011, and none of these indicators has exhibited any clear long-term trends. Lake productivity does not exhibit any clear seasonal trends; this was also apparent in 2011. The lake continues to be characterized as *oligotrophic*, based on water clarity, chlorophyll *a* and total phosphorus readings. The trophic state indices (TSI) evaluation suggests that each of the trophic indicators are "internally consistent," with readings for each of the trophic indicators within the expected range. Overall trophic conditions are summarized on the Lake Scorecard and Lake Condition Summary Table.

#### **Evaluation of Potable Water Indicators**

Algae levels are not high enough to render the lake susceptible to taste and odor compounds or elevated DBP (disinfection by product) compounds that could affect the potability of the water, and the lake is not classified for this use. Deepwater phosphorus and ammonia readings are low and similar to those measured at the lake surface. This suggests no impacts for deepwater potable intakes. 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 normal in 2011, but each of the other limnological indicators was close to normal in 2011. None of these indicators has exhibited a long-term trend. It is likely that the small changes in each of these indicators from year to year represent normal

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

## **Evaluation of Biological Condition**

Phytoplankton, zooplankton and macroinvertebrate data have not been collected through CSLAP at Eagle Lake.

The Darrin Freshwater Institute (DFWI) and Allied Biological macrophyte surveys show very high diversity in the aquatic plant community, and identified 37 different aquatic plant species at the lake, including three protected plant species (*Megalodonta beckii*, water marigold, *Potamogeton alpinus*, northern pondweed, and *Isoetes lacustris*, lake quillwort) are found in the lake and one exotic plant species (*Myriophyllum spicatum*, Eurasian watermilfoil). The modified floristic quality index (FQI) indicates that the quality of the aquatic plant community is "excellent", although the management of Eurasian watermilfoil continues to be a focus of the lake association.

The fish community is comprised of at least eleven fish species, two of which are coldwater species and three of which are coolwater fish species.

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

## **Evaluation of Lake Perception**

Aquatic plant coverage was slightly lower than normal in 2011, but water quality and recreational assessments in 2011 were close to normal, and none of these indicators of lake perception has exhibited a long-term trend. None of these indictors typically exhibit significant seasonal changes, and no seasonal variability was apparent in 2011. Overall lake perception is summarized on the Lake Scorecard and Lake Condition Summary Table.

## **Evaluation of Local Climate Change**

Air and water temperature readings were close to normal in 2011, and no long-term changes have been apparent in either indirect indicator of local climate change.

# **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 have been below the levels indicating susceptibility for harmful algal blooms (HABs), and microcystis readings were below the levels indicating impacts to safe swimming in the open water. No shoreline algal blooms have been reported.

# **Lake Condition Summary**

Category	Indicator	Min	00-11 Avg	Max	2011 Avg	Classification	2011 Change?	Long-term Change?
Eutrophication	Water Clarity	4.50	6.31	8.20	5.92	Oligotrophic	Within Normal Range	No Change
Indicators	Chlorophyll a	0.10	1.04	8.20	1.64	Oligotrophic	Higher than Normal	No Change
	Total Phosphorus	0.002	0.006	0.013	0.006	Oligotrophic	Within Normal Range	No Change
Potable Water Indicators	Hypolimnetic NH4	0.00	0.04	0.38	0.03	Close to Surface NH4 Readings	Lower Than Normal	Not known
	Hypolimnetic As					Not measured through CSLAP		
	Hypolimnetic Iron					Not measured through CSLAP		
	Hypolimnetic Mn					Not measured through CSLAP		
Limnological Indicators	Hypolimnetic TP	0.002	0.006	0.013	0.008	Close to Surface TP Readings	Higher than Normal	Not known
	Nitrate + Nitrite	0.00	0.02	0.24	0.02	Low NOx	Within Normal Range	Increasing Slightly
	Ammonia	0.00	0.05	0.50	0.03	Low Ammonia	Within Normal Range	No Change
	Total Nitrogen	0.09	0.37	1.13	0.23	Low Total Nitrogen	Within Normal Range	No Change
	pH	6.29	7.67	8.85	7.90	Alkaline	Within Normal Range	No Change
	Specific Conductance	88	139	203	155	Intermediate Hardness	Higher than Normal	No Change
	True Color	1	9	46	10	Uncolored	Within Normal Range	No Change
	Calcium	9.9	12.2	13.9	12.4	May be Susceptible to Zebra Mussels	Within Normal Range	No Change
Lake	WQ Assessment	2	2.0	3	2.0	Not Quite Crystal Clear	Within Normal Range	No Change
Perception	Plant Coverage	1	2.8	4	2.6	Surface Plant Growth	Slightly Lower Than Normal	No Change
	Rec. Assessment	2	3.0	4	3.0	Slightly Impaired	Within Normal Range	No Change
Biological Condition	Phytoplankton					Not measured through CSLAP	Not known	Not known
	Macrophytes					Excellent quality of aquatic plant community	Not known	Not known
	Zooplankton					Not measured through CSLAP	Not known	Not known
	Macroinvertebrates		ļ			Not yet evaluated	Not known	Not known
	Fish		ļ	ļ		Warmwater fisheries	Not known	Not known
	Invasive Species					Eurasian watermilfoil	Not known	Not known
Local Climate	Air Temperature	11	22.9	32	22.7		Within Normal Range	No Change
Change	Water Temperature	14	21.8	28	20.8		Within Normal Range	No Change
Harmful Algal Blooms	Open Water Phycocyanin	4	10	44	4	All readings indicate low risk of BGA	Not known	Not known
	Open Water Microcystis	0.2	0.7	1.0	0.7	All readings indicate low lakewide toxins	Not known	Not known
	Shoreline Phycocyanin					No shoreline BGA blooms reported	Not known	Not known
	Shoreline Microcystis					No shoreline BGA blooms reported	Not known	Not known
	Other Toxins					Low anatoxin-a and cylindrospermposin	Not known	Not known

# **Evaluation of Lake Condition Impacts to Lake Uses**

Eagle Lake is presently among the lakes listed on the 2007 Upper Hudson River basin Priority Waterbody List (PWL), with recreation listed as *stressed* due to excessive weeds. The PWL listing for the lake is in Appendix C.

#### Potable Water (Drinking Water)

The CSLAP dataset at Eagle 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 classified for this use. The limited CSLAP data suggest no impacts for any "unofficial" use of the lake for this purpose.

#### **Contact Recreation (Swimming)**

The CSLAP dataset at Eagle Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggests that swimming and contact recreation should be fully supported as related to water quality conditions, but may be *threatened* by excessive weeds. Additional information about bacteria levels is needed to determine if pathogens impact swimming.

## Non-Contact Recreation (Boating and Fishing)

The CSLAP dataset on Eagle Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that non-contact recreation may be *stressed* by excessive weeds, particularly Eurasian watermilfoil.

#### **Aquatic Life**

The CSLAP dataset on Eagle Lake, including water chemistry data and physical measurements, suggest that aquatic life could be *threatened* by Eurasian watermilfoil. Additional data are needed to evaluate the food and habitat conditions for aquatic organisms in the lake.

#### **Aesthetics**

The CSLAP dataset on Eagle Lake, including volunteer samplers' perception data, suggest that aesthetics should be fully supported.

## **Fish Consumption**

Fish consumption advisories are not posted for Eagle Lake.

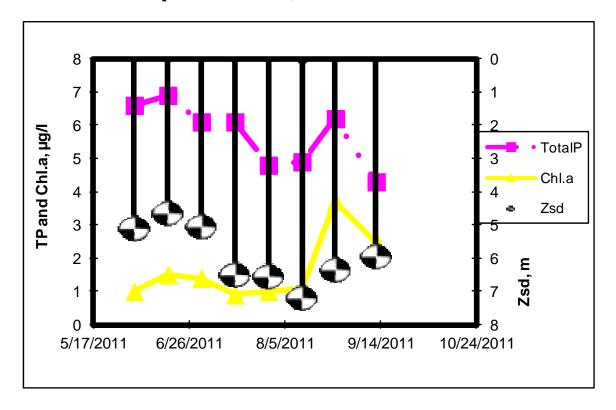
#### Additional Comments and Recommendations

Additional (more extensive) water quality evaluations may be conducted with the CSLAP dataset in the event of an herbicide treatment in the lake, to assure that no water quality impacts occur (or are attributable to the rapid milfoil dieoff anticipated as a result of a treatment).

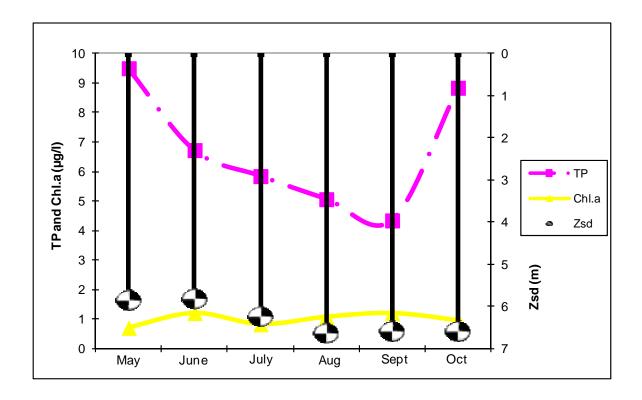
# **Aquatic Plant IDs-2011**

None submitted for identification

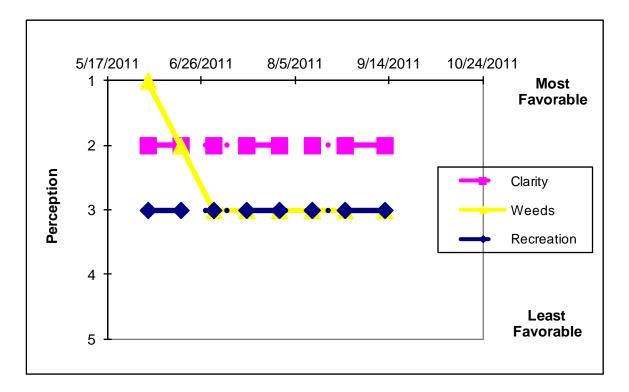
# **Time Series: Trophic Indicators, 2011**



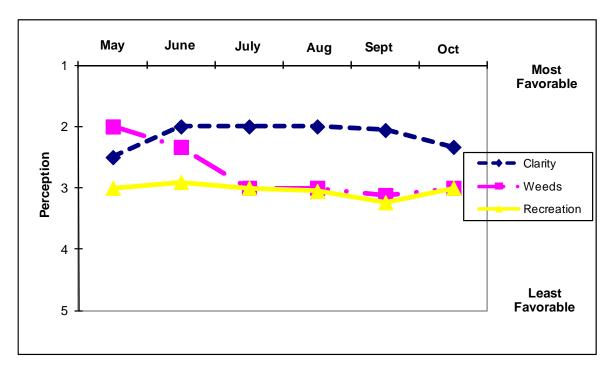
# Time Series: Trophic Indicators, Typical Year (2000-2011)



# **Time Series: Lake Perception Indicators, 2011**



# Time Series: Lake Perception Indicators, Typical Year (2000-2011)



# **Appendix A- CSLAP Water Quality Sampling Results for Eagle Lake**

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	рН	Cond25	Ca	Chl.a
169	Eagle L	5/30/2000	11.8	5.00	1.5	0.010	0.01				8	7.87	133		1.79
169	Eagle L	6/12/2000		5.55	1.5	0.006	0.01				7	7.57	129		8.20
169	Eagle L	6/26/2000	11.5	7.95	1.5	0.010	0.01				8	7.94	137		0.56
169	Eagle L	7/10/2000	11.6	5.95	1.5	0.004	0.01				3	7.49	139		1.08
169	Eagle L	7/24/2000	11.5	7.00	1.5	0.004	0.01				7	7.47	136		1.15
169	Eagle L	8/7/2000	11.5	7.40	1.5	0.005	0.01				4	6.82	137		2.08
169	Eagle L	8/22/2000	11.7	7.00	1.5	0.008	0.01				3	8.15	134		0.42
169	Eagle L	9/4/2000	11.5	6.25	1.5	0.006	0.01				6	6.75	138		1.41
169	Eagle L	7/8/2001	11.5	7.00	1.5	0.006	0.01				3	7.91	136		1.51
169	Eagle L	7/22/2001	11.5	7.25	1.5	0.005	0.01				4	7.94	138		0.77
169	Eagle L	8/5/2001	11.5	7.35	1.5	0.005	0.01				3	7.19	117		0.99
169	Eagle L	9/3/2001	11.5	6.95	1.5	0.006	0.01				4	7.64	139		
169	Eagle L	9/30/2001	11.5	7.60	1.5	0.004	0.01				6	6.80	142		
169	Eagle L	10/10/2001	11.5	7.35	1.5	0.012	0.01				5	7.57	145		
169	Eagle L	10/23/2001		7.20	1.5	0.007	0.01				8	7.31	153		0.78
169	Eagle L	06/10/02	11.5	5.50	1.5	0.009	0.01	0.02	0.56	64.65	9	7.04	142		1.04
169	Eagle L	06/23/02	11.5		1.5	0.009	0.00	0.03	0.40	46.00	2	7.70	140		
169	Eagle L	07/07/02		5.90	1.5	0.007	0.00	0.02	0.38	52.77	11	7.93	141		1.23
169	Eagle L	07/19/02		6.10	1.5	0.007	0.00	0.05	0.54	76.15	16	6.71	147		0.75
169	Eagle L	07/21/02	11.5		1.5	0.006	0.00	0.03	0.37	66.32	8	7.63	143		
169	Eagle L	08/04/02		6.30	1.5	0.006	0.00	0.04	0.74	128.35	6	7.95	144		0.99
169	Eagle L	09/01/02	11.5	7.05	1.5	0.007	0.00	0.04	0.55	83.09	2	7.74	141		1.11
169	Eagle L	09/21/02	11.5		1.5	0.002	0.00	0.01	0.33	172.97	5	7.94	142		1.04
169	Eagle L	6/9/2003	11.5	5.10	1.5	0.005	0.00	0.01	0.36	70.59	7	7.72	147	12.0	1.47
169	Eagle L	6/24/2003	11.5		1.5	0.008	0.01	0.00	0.32	39.70	5	7.70	148		0.71
169	Eagle L	6/29/2003		5.10	1.5	0.005	0.01	0.00	0.35	69.03	11	6.74	153		0.92
169	Eagle L	7/13/2003		6.50	1.5		0.01	0.02	0.23	9.98	9	6.33	157		1.22
169	Eagle L	7/27/2003		4.75	1.5	0.008	0.00	0.01	0.11	13.12				13.0	0.56
169	Eagle L	8/10/2003		8.20	1.5	0.005	0.02	0.00	0.41	75.85	9	7.62	149		0.81
169	Eagle L	8/24/2003	11.5	6.35	1.5	0.008	0.00	0.00	0.13	16.23	15	7.60	146		0.44
169	Eagle L	9/8/2003		7.10		0.002	0.00	0.00	0.32	133.67	2	7.43	147		0.87
169	Eagle L	6/12/2004	11.5	6.80	1.5	0.007	0.01	0.01			9	6.31	120		0.16
169	Eagle L	6/26/2004	11.5		1.5	0.005	0.03	0.01	0.15	29.44	19	6.69	161		
169	Eagle L	7/10/2004		6.80	1.5		0.03	0.01	0.32		4	6.94	140		0.20
169	Eagle L	7/24/2004	11.5	6.45	1.5	0.013	0.01	0.01	0.21	15.95	16	8.04	117		1.20
169	Eagle L	8/9/2004	11.5		1.5	0.004	0.01	0.02	0.19	52.62	15	7.78	157	11.8	1.30
169	Eagle L	8/24/2004	11.5	6.50	1.5	0.003	0.02	0.01	0.29	102.47	17	7.89	168		1.30
169	Eagle L	9/6/2004		5.60	1.5	0.004	0.01	0.01	0.26	68.24	8	7.88	121		2.50
169	Eagle L	9/18/2004		5.75	1.5	0.004	0.01	0.01	0.57	135.61	9	7.22	115		0.93
169	Eagle L	6/28/2005	11.5	4.70	1.5	0.008	0.01	0.01	0.15	17.33	11	8.80	147	12.3	0.82
169	Eagle L	7/11/2005	11.5	4.50	1.5	0.005	0.02	0.04	0.24	50.44	9	7.50	134		
169	Eagle L	7/25/2005		6.20	1.5	0.004	0.03	0.01	0.16	37.53	7	7.59	133		1.11
169	Eagle L	8/7/2005	11.5	7.10	1.5	0.004	0.01	0.01	0.26	64.05	9	8.28	144		0.70
169	Eagle L				1.5	0.005			0.11		46	7.78	138	11.8	0.87
169	Eagle L	9/4/2005	11.5		1.5	0.004		0.01	0.61	140.48	6	8.35	129		0.99
169	Eagle L	9/19/2005	11.5		1.5	0.004	0.01	0.01	0.10	23.88	10	7.63	147		1.08
169	Eagle L	10/1/2005	11.5		1.5	0.010	0.01	0.01	0.12	12.30	6	7.30	131		0.97
169	Eagle L	6/6/2006	11.5		1.5	0.006	0.03	0.01	0.44	170.30	13		115	11.0	1.17
169	Eagle L	6/18/2006	11.5		1.5	0.005	0.02	0.02		168.10	12	7.88	117		0.87
169	Eagle L	7/2/2006	11.5		1.5	0.007	0.01	0.01	0.59	188.65	10	8.33	145		0.54
169	Eagle L	7/16/2006	11.5	6.65	1.5	0.006	0.01	0.02	0.61	238.14	4	7.56	128		0.64
169	Eagle L	7/30/2006	11.5		1.5	0.009	0.02	0.02		115.55	10	8.02	143	12.3	0.35
169	Eagle L	8/13/2006	11.5		1.5	0.003	0.01	0.02	0.55	366.93	14	7.58	131		0.76
169	Eagle L	8/27/2006	11.5		1.5	0.006	0.03	0.04		240.05	2	7.35	131		1.94
169	Eagle L	9/11/2006	11.5		1.5	0.003	0.03	0.02		390.71	2	7.44	123		1.00
169	Eagle L	6/23/2007	11.5		1.5	0.006	0.02	0.04	0.49	171.7	9	7.3	111	9.9	0.79
169	Eagle L	7/6/2007	11.5		1.5	0.006	0.01	0.02	1.13	439.9	10	7.3	151		1.21
169	Eagle L	7/19/2007	11.5		1.5	0.006	0.01	0.01	0.44	158.7	12	8.2	112		0.51
169	Eagle L	7/29/2007	11.5		1.5	0.005	0.02	0.01	0.49	199.8	13	8.1	130		0.61
169	Eagle L	8/15/2007	11.5		1.5	0.006	0.01	0.06	0.48	187.9	7	7.6	102	12.4	0.85
169	Eagle L	8/28/2007	11.5		1.5	0.004	0.12	0.03	0.54	272.8	7	8.2	137		0.41
169	Eagle L	9/10/2007	11.5		1.5	0.005	0.00	0.12	0.76	309.9	10	8.5	135		1.91
169	Eagle L	9/23/2007	11.5		1.5	0.005	0.01	0.02	0.51	226.1	8	7.9	142		0.83
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I Mirro	DNome	Doto	Zhat	704	Zaamn	Tot D	NO2	NH4	TDN	TN/TD	TColor	nl l	Candos	C-0	Chla
	PName	Date 6/12/2008	11.5		Zsamp		NO3		_	TN/TP		_	Cond25	<u>Ca</u> 12.1	Chl.a
169	Eagle L				1.5	0.005	0.01	0.02	0.21	104.28	5	7.42	191	12.1	0.10
169	Eagle L	6/26/2008	11.5		1.5	0.007	0.04	0.03	0.29	97.78	6	8.10	140		0.10
169	Eagle L	7/11/2008		6.00	1.5	0.003	0.01	0.01	0.23	152.62	10	8.29	120		0.10
169	Eagle L	7/25/2008	11.5		1.5	0.004	0.01	0.03	0.21	127.22	10	8.11	129		0.10
169	Eagle L	8/7/2008		6.10	1.5	0.004	0.01	0.02	0.17	87.51	6	8.22	150	11.6	0.29
169	Eagle L	8/22/2008	11.5	7.10	1.5	0.004	0.00	0.01	0.16	95.34	9	8.19	126		
169	Eagle L	9/4/2008	11.5	6.25	1.5	0.003	0.00	0.01	0.18	152.49	5	6.76	144		0.81
169	Eagle L	9/18/2008	11.5	6.20	1.5	0.002	0.02	0.03	0.26	289.18	6	7.38	100		0.68
169	Eagle L	06/12/2009	11.5		1.5	0.006	0.03	0.27	0.46	161.87	9			12.6	2.03
169	Eagle L	06/26/2009	11.5		1.5	0.009	0.01	0.16	0.40	98.51	10	7.54	143		0.39
169				6.50	1.5	0.005	0.02	0.43	0.40	184.25	13	6.29	131		0.64
169	Eagle L	07/24/2009	11.5		1.5	0.006	0.02	0.50	0.89		22	7.69	88		0.70
	_													40.0	
169	Eagle L	07/30/2009	11.5		1.5	0.005	0.01	0.14	0.30	130.68	8	7.60	107	13.9	0.70
169		08/20/2009	11.5		1.5	0.006	0.02	0.29	0.52	188.62	14	8.23	112		1.00
169	Eagle L	09/04/2009	11.5		1.5	0.005		0.22		208.27	14	7.14	126		0.40
169	Eagle L	09/16/2009	11.5		1.5	0.005	0.01	0.29	0.52	215.43	12	7.38	117		1.10
169	Eagle L	5/26/2010	11.5	6.70	1.5	0.009	0.02	0.05			6	7.99	203	12.9	0.70
169	Eagle L	6/9/2010	11.5	6.65	1.5	0.007	0.09	0.07			3	8.56	161		0.10
169	Eagle L	6/23/2010	11.5	6.65	1.5	0.006	0.05	0.07	0.30	110.37	1	7.39	160		0.90
169	Eagle L	7/6/2010	11.5	7.05	1.5	0.005	0.01	0.01	0.20	87.12	7	8.08	163		1.00
169	Eagle L	7/19/2010	11.5		1.5	0.004	0.02	0.02	0.26	140.05	9	8.22	163	13.3	0.90
169	Eagle L	8/3/2010	11.5	7.30	1.5	0.007	0.01	0.03	0.47	146.25	6	8.30	151		0.70
169	Eagle L	8/17/2010		6.40	1.5	0.007	0.03	0.09	0.21	113.85	5	8.05	155		0.90
169	_	8/31/2010	11.5		1.5	0.004	0.03	0.09	0.21	142.73	5	7.88	162		0.90
	Eagle L												1	11.0	_
169	Eagle L	6/3/2011	11.5		1.5	0.007	0.04	0.04	0.22	72.00	10	7.63	151	11.9	1.00
169	Eagle L	6/17/2011	11.5		1.5	0.007	0.01	0.03	0.09	29.65	13	6.43	187		1.50
169	Eagle L	7/1/2011	11.5		1.5	0.006	0.01	0.02	0.25	91.25	8	8.85	156		1.40
169	Eagle L	7/15/2011		6.50	1.5	0.006	0.01	0.02	0.17	61.67	13	7.73	158		0.90
169	Eagle L	7/29/2011	11.5		1.5	0.005	0.01	0.03	0.19	85.71	10	8.31	136	12.9	1.00
169	Eagle L	8/12/2011	11.5	7.20	1.5	0.005	0.01	0.01	0.43	194.41	8	8.27	154		1.10
169	Eagle L	8/26/2011	11.5	6.35	1.5	0.006	0.03	0.03	0.26	91.90	6	8.35	161		3.70
169	Eagle L	9/12/2011	11.5	5.95	1.5	0.004	0.04	0.03	0.20	102.33	12	7.61	140		2.50
169	Eagle L	06/10/02	11.5			0.009	0.01	0.03	0.58	67.04					
169	Eagle L	06/23/02	11.5			0.009	0.00	0.01	0.31	34.03					
169	Eagle L	07/07/02	11.5			0.007	0.00	0.01	0.45	68.53					
169	Eagle L	07/19/02	11.5			0.004	0.00	0.03	0.51	121.37					
169	Eagle L	07/21/02	11.5			0.007	0.00	0.01	0.34	48.04					-
169		08/04/02	11.5			0.007	0.00	0.01	0.51	83.32					
	Eagle L														
169	Eagle L	09/01/02	11.5			0.013	0.00	0.02	0.44	34.96					
169	Eagle L	09/21/02	11.5			0.002	0.00	0.01	0.33						
169	Eagle L	6/9/2003				0.011	0.00	0.01	0.18	15.80					
169	Eagle L	6/24/2003				0.006	0.01	0.02	0.29	50.61					
169	Eagle L	6/29/2003				0.005	0.01	0.01	0.30	63.42					
169	Eagle L	7/13/2003				0.008	0.00	0.02	0.34	40.48					
169	Eagle L	7/27/2003				0.013	0.00	0.00	0.03	1.87					
169		8/10/2003				0.006		0.02							
169		8/24/2003				0.004	0.00	0.00	0.29	71.68					
169		9/8/2003			1.5	0.003	0.00	0.00	0.38						
169	)	6/12/2004	11.5			0.006	0.01	0.01							
169		6/26/2004				0.009	0.01	0.01	0.20	21.80					$\vdash \vdash$
169		7/10/2004				0.006	0.02	0.01	0.38						$\vdash$
169		7/24/2004				0.004	0.02	0.01	0.27	61.95					$\vdash$
															$\vdash$
169			11.5			0.007	0.01	0.01	0.21	31.95					$\vdash$
169	Eagle L					0.003	0.02	0.09	1.05	328.55					$\vdash$
169		9/6/2004	11.5			0.004	0.01	0.01	0.25	65.60					
169		9/18/2004				0.004	0.01	0.01	0.40	96.28					igsquare
169						0.007									
169			11.5			0.005									
169	Eagle L	7/25/2005	11.5			0.010				<u> </u>					
169	Eagle L		11.5			0.006									
169		9/4/2005	11.5			0.005									
169						0.006									
169	Eagle L	10/1/2005	11.5			0.008									
169	Eagle L		11.5			0.007									
169	Eagle L					0.007									$\vdash$
169	Eagle L	7/2/2006	11.5			0.006			<b>-</b>						$\vdash$
109	Layie L	1/2/2000	C.11	l		0.000							<u> </u>		

I Num	PName	Date	7hot	7sd	Zsamp	Tot P	NO3	NH4	TDN	TN/TP	TColor	nН	Cond25	Ca	Chl.a
169		7/16/2006			Loamp	0.007	1100		1511	,	100101	Pii	CONGEO	<u> </u>	- Orma
169			11.5			0.006									
169		8/13/2006				0.005									
169	Eagle L		11.5			0.005									
169	Eagle L		11.5			0.006									
169	Eagle L		11.5			0.005									
169		7/6/2007	11.5			0.005									
169		7/19/2007	11.5			0.004									
169	Eagle L	7/29/2007	11.5			0.006									
169	Eagle L	8/15/2007	11.5			0.005									
169	Eagle L	8/28/2007	11.5			0.004									
169	Eagle L	9/10/2007	11.5			0.005									
169	Eagle L	9/23/2007	11.5			0.005									
169	Eagle L	6/12/2008				0.006									
169	Eagle L	6/26/2008				0.004									
169	Eagle L	7/11/2008				0.005									
169	Eagle L	7/25/2008				0.004									
169	Eagle L	8/7/2008				0.004									
169	Eagle L	8/22/2008				0.007									
169	Eagle L	9/4/2008				0.003									
169	Eagle L	9/18/2008				0.005									
169	Eagle L	06/12/2009	11.5			0.007		0.32							
169	Eagle L	06/26/2009	11.5			0.008									
169	Eagle L	07/10/2009	11.5			0.006		0.38							
169	Eagle L	07/24/2009	11.5			0.007									
169	Eagle L	07/30/2009	11.5			0.006		0.08							
169		08/20/2009				0.004									
169		09/04/2009				0.005		0.08							
169		09/16/2009				0.006									
169		5/26/2010				0.007		0.03							
169	Eagle L	6/23/2010	11.5			0.005		0.02							
169		7/19/2010	11.5			0.006		0.01							
169	)	8/17/2010				0.004		0.01							
169		6/3/2011				0.007		0.03							
169	Eagle L					0.008		0.02							
169	)	7/29/2011				0.007		0.02							
169	Eagle L	8/26/2011				0.009		0.03							

LNum	PName	Date	Zsamp	TAir	TH20	QA	QB	QC	QD	QF	QG	AQ- PC	AQ- Chla	MC- LR	Anatoxin- a	Cyclin
169	Eagle L	5/30/2000	epi	20	15	2	1	3	עט	QI	QG	FC	Cilia	LIX	а	Cyciiii
169	Eagle L	6/12/2000	epi	17	16	2	2	3	25							
169	Eagle L	6/26/2000	ері	30	24	2	3	3	2							
169	Eagle L	7/10/2000	epi	22	22	2	3	3	56							
			-				3	3								
169	Eagle L	7/24/2000	epi	25	22	2	_	_	2							
169	Eagle L	8/7/2000	epi	21	23	2	3	3	125							
169	Eagle L	8/22/2000	epi	26	24	2	3	3	2							
169	Eagle L	9/4/2000	epi	11	21	2	3	3	25							
169	Eagle L	7/8/2001	epi	24	21	2	3	3	5							
169	Eagle L	7/22/2001	epi	24	24											
169	Eagle L	8/5/2001	epi	29	25											
169	Eagle L	9/3/2001	epi	27	24	2	3	3	2							
169	Eagle L	9/30/2001	epi	20	18											
169	Eagle L	10/10/2001	epi	11	15											
169	Eagle L	10/23/2001	epi	13	14	2	3	3	5							
169	Eagle L	06/10/02	ері	22	16	2	2	3	2							
169	Eagle L	06/23/02	ері	24	20	2	2	2	5							
169	Eagle L	07/07/02	ері	22	24	2	3	3	2							
169	Eagle L	07/19/02	epi	21	25	2	3	3	2							
169	Eagle L	07/21/02	epi	29	25	2	3	3	2							
169	Eagle L	08/04/02	epi	26	24	2	3	3	2							
169	Eagle L	09/01/02	epi	20	22	2	3	3	258							
169	Eagle L	09/21/02	epi	25	21	2	3	3	2							
169	Eagle L	6/9/2003	ері	20	16	2	2	3	25							

												AQ-	AQ-	MC	Anatoxin-	
LNum	PName	Date	Zsamp	TAir	TH20	QA	QB	QC	QD	QF	QG	PC	Chla	LR	anatoxin-	Cyclin
169	Eagle L	6/24/2003	ері	30	24	2	2	3	2							
169	Eagle L	6/29/2003	epi	25	24	2	3	3	25							
169	Eagle L	7/13/2003	epi	22	24	2	3	3	25							
169	Eagle L	7/27/2003	epi	24	24	2	3	3	25						1	
169	ŭ	8/10/2003	epi	22	25											
169	Eagle L	8/24/2003	epi	18	24	2	3	3	2						-	
169	Eagle L	9/8/2003	epi	19	21	2	3	3	28							
169 169	Eagle L Eagle L	6/12/2004	epi	20	20 21	2	3	3	256 25							
169	Ŭ	7/10/2004	epi epi	23	22	2	3	3	25							
169	Eagle L	7/10/2004	epi	22	23	2	3	3	25							
169	Eagle L	8/9/2004	ері	20	22	2	3	3	2							
169	Eagle L	8/24/2004	epi	21	22	2	3	3	2							
169	Eagle L	9/6/2004	epi	21	22	2	3	3	125							
169		9/18/2004	epi	19	20	2	3	3	125							
169	Eagle L	6/28/2005	epi	27	26	2	3	3	125							
169	Eagle L	7/11/2005	ері	29	26	2	3	3	2							
169	Eagle L	7/25/2005	epi	22	26	2	3	3	25							
169	Eagle L	8/7/2005	ері	27	28	2	3	3	2							
169	Eagle L	8/22/2005	epi	20	25	2	3	3	25							
169	Eagle L	9/4/2005	epi	21	21	2	3	3	2							
169	Eagle L	9/19/2005	epi	21	21	2	3	3	28						-	
169 169	Eagle L Eagle L	10/1/2005 6/6/2006	epi	19 23	18 20	2	3 1	2	28 25							
169	Eagle L	6/18/2006	epi epi	23	21	2	3	3	25							
169	Eagle L	7/2/2006	epi	23	22	2	3	3	25							
169	Eagle L	7/16/2006	ері	31	26	2	3	3	2							
169		7/30/2006	ері	28	26	2	3	3	2							
169	Ŭ	8/13/2006	epi	22	22	2	3	3	2							
169	Eagle L	8/27/2006	epi	16	20	2	3	4	24568							
169		9/11/2006	epi	16	19	2	3	3	2							
169	Eagle L	6/23/2007	epi	22	21	2	2	3	25							
169	ŭ	7/6/2007	ері	24	22	2	3	3	25							
169	Eagle L	7/19/2007	ері	24	22	2	3	3	2							
169	Eagle L	7/29/2007	epi	32	27	2	3	3	2							
169	Eagle L	8/15/2007	epi	26	25	2	3	3	2							
169	Eagle L	8/28/2007	epi	22	22	2	3	3	2							
169	Eagle L	9/10/2007	epi	22	22	2	3	3	2							
169 169	Eagle L	9/23/2007	epi	20 26	19 22	2	3	4	2							
169	Eagle L	6/12/2008 6/26/2008	epi	26	21	2	3	3	2						1	
169	Ŭ	7/11/2008	epi epi	21	23	2	3	3	2							
169	Eagle L	7/11/2008	ері	23	22	2	3	3	2							
169	Eagle L	8/7/2008	ері	22	24	2	3	3	2							
169	Eagle L	8/22/2008	epi	26	21	2	3	3	2							
169	Eagle L	9/4/2008	ері	27	23	2	3	4	2							
169		9/18/2008	epi	15	20	2	3	3	2							
169	U	06/12/2009	epi	23	20	2	2	3	256							
169	Eagle L	06/26/2009	ері	30	23	2	3	3	2							
169		07/10/2009	epi	27	21	2	3	3	2							
169		07/24/2009	ері	23	22	2	3	3	2							
169	U	07/30/2009	epi	24	22	2	3	3	2						-	
169		08/20/2009	epi	25	22	2	3	3	2			40.00				
169	ŭ	09/04/2009	epi	24	22	3	4	4	2			12.33			-	
169		09/16/2009	epi	20	20	2	3	4	2	0	0	44.26 15.14				
169 169	Eagle L	5/26/2010 6/9/2010	epi	29 20	18 21	2	2	3	2	0	0	15.14				
169	Eagle L	6/9/2010	epi epi	27	21	2	2	3	2	0	0					
169	Eagle L	7/6/2010	epi	31	22	2	3	3	2	0	0				-	
169	Eagle L	7/19/2010	ері	27	26	2	3	3	2	0	0					
169	Eagle L	8/3/2010	ері	27	24	2	3	3	2	0	0	1				
	_~g.v L	5,5,2010	יאי							<u> </u>		L	L	L	i	L

												AQ-	AQ-	MC-	Anatoxin-	
LNum	PName	Date	Zsamp	TAir	TH20	QΑ	QB	QC	QD	QF	QG	PC	Chla	LR	а	Cyclin
169	Eagle L	8/17/2010	epi	24	23	2	3	3	2	0	0					
169	Eagle L	8/31/2010	epi	27	22	2	3	3	2							
169	Eagle L	6/3/2011	epi	18	17	2	1	3	25	0	0					
169	Eagle L	6/17/2011	epi	22	20	2	2	3	2	0	0		1.40			
169	Eagle L	7/1/2011	epi	22	21	2	3	3	2	0	0	3.50	1.10			
169	Eagle L	7/15/2011	epi	25	22	2	3	3	2	0	0	3.50	1.60			
169	Eagle L	7/29/2011	epi	26	22	2	3	3	2	0	0	3.70	1.30	0.92	< 0.5	<0.1
169	Eagle L	8/12/2011	epi	26	22	2	3	3	2	0	0	5.40	5.10	0.97	< 0.5	<0.1
169	Eagle L	8/26/2011	epi	23	22	2	3	3	2	0	0	4.80	1.30	0.15	< 0.5	<0.1
169	Eagle L	9/12/2011	epi	20	20	2	3	3	2	0	0	5.10	0.80			

# **Legend Information**

Indicator	Description	Detection Limit	Standard (S) / Criteria (C)
General Inform	nation		
Lnum	lake number (unique to CSLAP)		
Lname	name of lake (as it appears in the Gazetteer of NYS Lakes)		
Date	sampling date		
Field Paramet	ers	I	
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 = surface, hypo = bottom)	0.1m	none
Tair	air temperature ( C)	-10C	none
TH20	water temperature ( C)	-10C	none
Laboratory Pa	rameters		
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
рН	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
Са	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)	0.3 ug/l	none
Cyl	Cylindrospermposin (ug/l)	0.1 ug/l	none
Lake Assessme	ent	I	
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		

Appendix B- Monthly Evaluation of Eagle Lake Data, 2006-2011

#### **June Data**

<del></del>						
	2006	2007	2008	2009	2010	2011
Zsd	NORMAL	LOW	NORMAL	NORMAL	NORMAL	LOW
TP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
Chl.a	NORMAL	NORMAL	LOW	NORMAL	NORMAL	NORMAL
NOx	NORMAL	NORMAL	NORMAL	NORMAL	HIGH	NORMAL
NH4	NORMAL	NORMAL	NORMAL	HIGH	NORMAL	NORMAL
TN	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	LOW
рН	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SpCond	NORMAL	LOW	HIGH	NORMAL	HIGH	HIGH
Color	NORMAL	NORMAL	NORMAL	NORMAL	LOW	NORMAL
Са	NORMAL	LOW	NORMAL	NORMAL		NORMAL
QA	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
QB	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	LOW
QC	LOW	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
TH20	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL

High = average monthly reading  $> 90^{th}$  percentile reading for lake, 2000-2010 Low = average monthly reading  $< 10^{th}$  percentile reading for lake, 2000-2010 Normal = average monthly reading between  $10^{th}$  and  $90^{th}$  percentile reading for lake, 2000-2010

## **July Data**

	2006	2007	2008	2009	2010	2011
Zsd	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
TP	NORMAL	NORMAL	LOW	NORMAL	NORMAL	NORMAL
Chl.a	NORMAL	NORMAL	LOW	NORMAL	NORMAL	NORMAL
NOx	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
NH4	NORMAL	NORMAL	NORMAL	HIGH	NORMAL	NORMAL
TN	NORMAL	HIGH	NORMAL	NORMAL	NORMAL	NORMAL
рН	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	HIGH
SpCond	NORMAL	NORMAL	NORMAL	LOW	HIGH	NORMAL
Color	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
Са	NORMAL			HIGH	HIGH	NORMAL
QA	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
QB	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
QC	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
TH20	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL

 $\begin{array}{l} \mbox{High = average monthly reading} > 90^{\mbox{\tiny th}} \mbox{ percentile reading for lake, } 2000\text{-}2010 \\ \mbox{Low = average monthly reading} < 10^{\mbox{\tiny th}} \mbox{ percentile reading for lake, } 2000\text{-}2010 \\ \mbox{Normal = average monthly reading between } 10^{\mbox{\tiny th}} \mbox{ and } 90^{\mbox{\tiny th}} \mbox{ percentile reading for lake, } 2000\text{-}2010 \\ \end{array}$ 

## Eagle Lake (1104-0235)

#### **Need Verific**

Revised: 02/09/2007

### **Waterbody Location Information**

Water Index No: H-391..39-P432..P438 Drain Basin: Upper Hudson River

Hydro Unit Code: 02020001/090 Str Class: B Upper Hudson

Waterbody Type: Lake Reg/County: 5/Essex Co. (16)
Waterbody Size: 422.3 Acres Quad Map: GRAPHITE (F-26-3)

**Seg Description:** entire lake

## Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted Severity Problem Documentation

Recreation Stressed Possible

#### Type of Pollutant(s)

Known: ---

Suspected: ALGAL/WEED GROWTH, PROBLEM SPECIES (Eurasian milfoil)

Possible: ---

#### Source(s) of Pollutant(s)

Known: ---

Suspected: HABITAT MODIFICATION

Possible: ---

## Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))Verification Status: 1 (Waterbody Nominated, Problem Not Verified)

Lead Agency/Office: DOW/BWAM Resolution Potential: Medium

TMDL/303d Status: n/a ())

#### **Further Details**

Recreational uses in Eagle Lake may be threatened by non-native invasive aquatic plant growth. Other water chemistry indicators suggest good water quality.

Eagle Lake has been sampled as part of the NYSDEC Citizen Statewide Lake Assessment Program (CSLAP) beginning in 2000 and continuing through 2005. An Interpretive Summary report of the findings of this sampling was published in 2006. These data indicate that the lake continues to be best characterized as oligotropic, or highly unproductive. Phosphorus levels in the lake are well below criteria that would indicate impacted recreational uses and transparency measurements easily satisfy what is recommended for swimming beaches. (DEC/DOW, BWAM/CSLAP, May 2006)

Public perception of the lake and its uses is also evaluated as part of the CSLAP program. These assessment indicate recreational suitability of the lake to be somewhat impacted, primarily due to aquatic weed growth. Recreational conditions in the lake have been most often described as "slightly impacted" for most uses. The lake is regularly described as "not quite crystal clear." Such an assessment is atypical of lakes with similar water chemistry, but indicative of lakes with plant densities that grow to the lake surface. No aquatic plant surveys have been conducted through the CSLAP program, but Eurasian milfoil has been identified by other sources. (DEC/DOW, BWAM/CSLAP, May 2006)