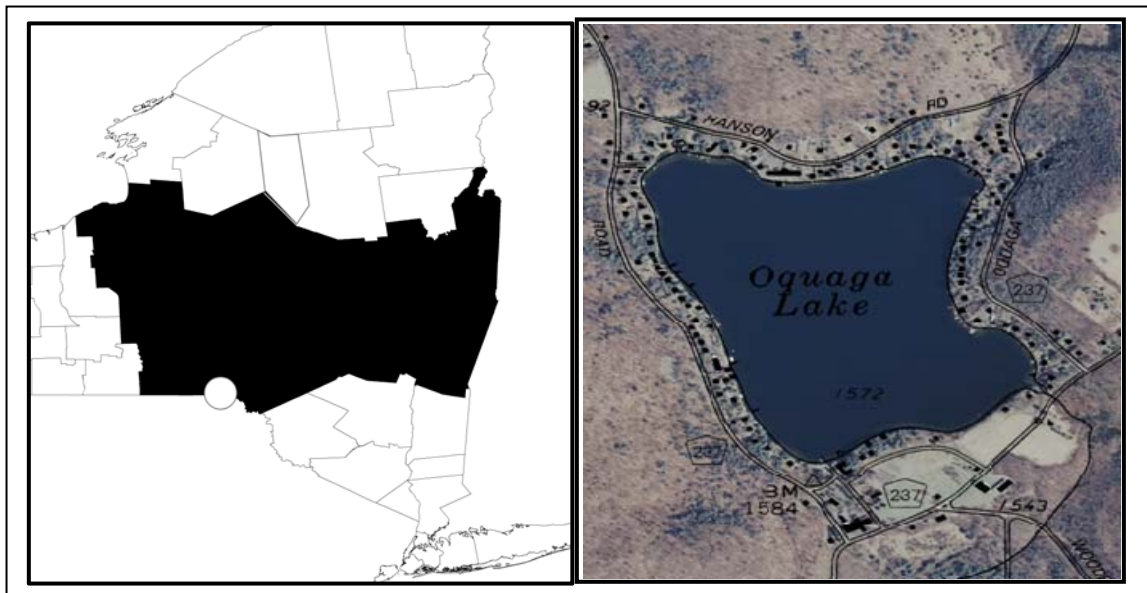


CSLAP 2010 Lake Water Quality Summary: Oquaga Lake

General Lake Information

Location	Town of Deposit
County	Broome
Basin	Delaware River
Size	54.4 hectares (134.4 acres)
Lake Origins	Natural
Watershed Area	630 hectares (1,556 acres)
Retention Time	3.3 years
Mean Depth	13.9 meters
Sounding Depth	35 meters
Public Access?	no
Major Tributaries	no named tribs
Lake Tributary To...	Starboard Creek to West Branch Delaware River
WQ Classification	AA (potable water)
Lake Outlet Latitude	42.020
Lake Outlet Longitude	-75.454
Sampling Years	1987-1992, 2002-2010
2010 Samplers	Mark and Emma Millspaugh
Main Contact	Mark Millspaugh

Lake Map



Background

Oquaga Lake is a 134 acre, class AA lake found in the Town of Deposit in Broome County in the Southern Tier region of New York State. It was first sampled as part of CSLAP in 1987.

It is one of four CSLAP lakes among the more than 25 lakes found in Broome County, and one of 12 CSLAP lakes among the more than 240 lakes and ponds in the Delaware River drainage basin.

Lake Uses

Oquaga Lake is a Class AA lake; this means that the best intended use for the lake is for potable water—drinking, contact recreation—swimming and bathing, non-contact recreation—boating and angling, aquatic life, and aesthetics. The lake is used by lake residents and invited guests for non-power boating and swimming, through residential shoreline access to the lake. There is no public access to the lake.

It is not known by the report authors if private stocking occurs in Oquaga Lake.

General statewide fishing regulations are applicable in Oquaga Lake. In addition, the open season on trout lasts from April 1st through October 15th, with no size limits and a daily take limit of five trout, with no more than two trout to be greater than 12 inches and no more than five brook trout under eight inches.

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

Historical Water Quality Data

CSLAP sampling was conducted on Oquaga Lake from 1987 to 1992, and 2002 to 2010. The CSLAP reports for Oquaga Lake for several years are posted on the NYSFOLA website at www.nysfola.org, under NYS Lake Association Lake List.

Oquaga Lake was sampled by the Conservation Department (the predecessor to the NYSDEC) on August 8th, 1935 as part of the Biological Survey of the Delaware River basin. The temperature and oxygen surveys from this study show dissolved oxygen reductions only near the lake bottom (close to 111 feet), and exceeding critical levels for all fish at all depths. Most of the parameters sampled in CSLAP were not analyzed as part of this survey. The results from this survey suggest water quality conditions in 1935 were similar to those measured in 2004.

The field notes from this survey indicate the following:

“Oquaga Lake is a deep body of water (max. 111ft) with excellent chemical conditions on the bottom. Lake trout are present but those caught average small in size. Lake herring are recommended for stocking. The latter should supply a much needed deep-water forage fish for the lake trout. This species taken by the survey party had been feeding on small perch which are not plentiful judging from the gill-net collection. Rock bass dominate the shallow water. Sunfish are scarce along the shores. Only moderate numbers of large small-mouthed bass are recommended for planting since there is too little shallow water which produces bass food. Furthermore, rooted aquatic plants are scarce and recreational uses have caused the removal of other shelter.

Vegetation is scant.”

Neither the ephemeral inlets to nor the outlet (Starboard Creek) has been monitored through the NYSDEC Rotating Intensive Basins (RIBS) or stream biomonitoring programs.

Lake Association and Management History

Oquaga Lake is served by the Oquaga Lake Association, developed “*to preserve, improve and protect Oquaga Lake and the lands adjoining the same and bordering thereon, all located in the Town of Sanford, Broome County, New York; to develop and promote the said territory as a summer resort; to prevent the contamination of the waters thereof; to further and advance the social and general welfare of the said territory and the owners and occupants thereof and the members of this Association; to do any and all acts necessary to carry into effect the foregoing objectives, including acquiring and holding title and property rights in and to the said Oquaga Lake, adjoining lands and springs and water courses in the vicinity.*”

The lake association is involved in a variety of activities, including:

- the first lake in the State of New York to prohibit the use of jet skis and other specialty watercraft
- annual well water testing by Benchmark Analytics of Sayre PA
- social activities, including a fishing tournament, opening cocktail party, ring of fire, family day (field games/water sports), annual Meeting

The lake association maintains a web site at <http://www.oquaga.com/> .

Summary of 2010 CSLAP Sampling Results

Evaluation of Eutrophication Indicators

Water clarity readings were higher than normal in 2010, and these readings have increased significantly since CSLAP sampling first began in 1987. Total phosphorus and chlorophyll *a* readings were close to normal in 2010, but these readings have decreased slightly over the last 25 years. The lake can be characterized as *mesoligotrophic*, or moderately unproductive, based on chlorophyll *a* (typical of *mesotrophic* lakes), Secchi disk transparency, and total phosphorus (typical of *oligotrophic* lakes). The trophic state indices (TSI) evaluation suggests that each of these trophic indicators is “internally consistent”—each of these indicators is in the expected range given the readings of the other indicators. Phycocyanin readings were well below the levels indicating susceptibility for harmful algal blooms (HABs) in 2009; no readings were taken in 2010. An analysis of algae samples in 2009 indicated microcystin levels below the levels needed to support safe swimming. 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, suggesting no impacts to potable water use from algae. Deepwater phosphorus and ammonia readings are similar to those measured at the lake surface, and deepwater iron, manganese and arsenic levels are low, suggesting that deepwater intakes may also support potable water use. An analysis of algae samples in 2009 indicated microcystin levels below the levels needed to support potable water use.

Evaluation of Limnological Indicators

Most of the limnological indicators measured in CSLAP in 2009 were close to normal. NO_x and conductivity readings were higher than normal in 2010, but none of these limnological indicators has exhibited any clear long-term trends. It is likely that the small changes in each of these indicators have been within the normal range of variability in the lake. Overall limnological conditions are summarized in the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Biological Condition

The 1992 phytoplankton survey indicated relatively low algal biomass dominated by golden-brown algae and dinoflagellates. It is not known if this is representative of the normal distribution of algal communities in the lake.

The fish community is comprised of at least one warmwater fish species, and at least three coldwater fish species, based on incomplete inventory information. This suggests that the lake can most likely be characterized as a coldwater fishery.

Macrophyte, zooplankton, and macroinvertebrates have not been evaluated through CSLAP in Oquaga Lake.

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

Evaluation of Lake Perception

Aquatic plant coverage was more extensive than normal in 2010 and has increased in recent years, particularly since 2004. It is not known if this is due to an increase in native or exotic plants; no exotic plants have been verified in the lake. Water quality and recreational assessments were close to normal in 2010, and neither of these measures of lake perception has exhibited any clear long-term trends. Overall lake perception is summarized on the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Local Climate Change

Air and water temperature readings in the summer index period were close to normal in 2010, but both air and water temperature readings have decreased in the last twenty years. It is not known if this is an indication of the local climate change or if it represents normal variability.

Lake Condition Summary

Category	Indicator	Min	87-10 Avg	Max	2010 Avg	Classification	2010 Change?	Long-term Change?
Eutrophication Indicators	Water Clarity	1.75	7.07	12.30	10.49	Oligotrophic	Higher Than Normal	Increasing Significantly
	Chlorophyll <i>a</i>	0.05	2.23	23.80	0.86	Mesotrophic	Within Normal Range	Decreasing Slightly
	Total Phosphorus	0.002	0.006	0.014	0.004	Oligotrophic	Within Normal Range	Decreasing Significantly
Potable Water Indicators	Hypolimnetic NH4	0.00	0.02	0.17	0.06	Close to Surface NH4 Readings	Higher than Normal	Not known
	Hypolimnetic As	0.34	0.95	1.30	1.30	Low Deepwater Arsenic Levels	Higher than Normal	Not known
	Hypolimnetic Iron	0.03	0.08	0.17	0.06	Low Iron Levels	Within Normal Range	Not known
	Hypolimnetic Mn	0.10	0.10	0.10	0.00	Low Manganese Levels	Lower Than Normal	Not known
Limnological Indicators	Hypolimnetic TP	0.001	0.008	0.018	0.008	Close to Surface TP Readings	Within Normal Range	Not known
	Nitrate + Nitrite	0.00	0.02	0.18	0.03	Low NOx	Higher than Normal	No Change
	Ammonia	0.00	0.02	0.11	0.03	Low Ammonia	Within Normal Range	No Change
	Total Nitrogen	0.01	0.28	0.71	0.21	Low Total Nitrogen	Within Normal Range	No Change
	pH	5.78	7.38	8.89	7.53	Circumneutral	Within Normal Range	No Change
	Specific Conductance	22	64	127	79	Softwater	Higher than Normal	No Change
	True Color	1	6	45	6	Uncolored	Within Normal Range	No Change
	Calcium	4.4	5.7	7.0	5.3	Not Susceptible to Zebra Mussels	Within Normal Range	No Change
Lake Perception	WQ Assessment	1	1.2	2	1.3	Crystal Clear	Within Normal Range	No Change
	Plant Coverage	1	1.9	3	2.5	Subsurface Plant Growth	More Extensive than Normal	Highly Degrading
	Rec. Assessment	1	1.2	3	1.1	Could Not Be Nicer	Within Normal Range	No Change
Biological Condition	Phytoplankton					Not evaluated through CSLAP	Not known	Not known
	Macrophytes					Excellent quality of the aquatic plant community	Not known	Not known
	Zooplankton					Not evaluated through CSLAP	Not known	Not known
	Macroinvertebrates					High diversity and typical of good water quality conditions	Not known	Not known
	Fish					Coolwater fishery?	Not known	Not known
	Invasive Species					None observed	Not known	Not known
Local Climate Change	Air Temperature	3	19.4	31	17.8		Within Normal Range	Decreasing Slightly
	Water Temperature	5	18.5	26	17.1		Within Normal Range	Decreasing Significantly

Evaluation of Lake Condition Impacts to Lake Uses

Oquaga Lake is among the lakes listed on the 2002 Delaware River drainage basin Priority Waterbody List (PWL) as “unassessed”.

Potable Water (Drinking Water)

The CSLAP dataset at Oquaga Lake, including water chemistry data, physical measurements, and volunteer samplers’ perception data, is inadequate to evaluate the use of the lake for potable water. The low algae levels and lack of deepwater anoxia suggest that potable water use should be supported.

Contact Recreation (Swimming)

The CSLAP dataset at Oquaga Lake, including water chemistry data, physical measurements, and volunteer samplers’ perception data, suggests that swimming and contact

recreation should be fully supported, 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 Oquaga Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that non-contact recreation should be fully supported.

Aquatic Life

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

Fish Consumption

There are no fish consumption advisories posted for Oquaga Lake.

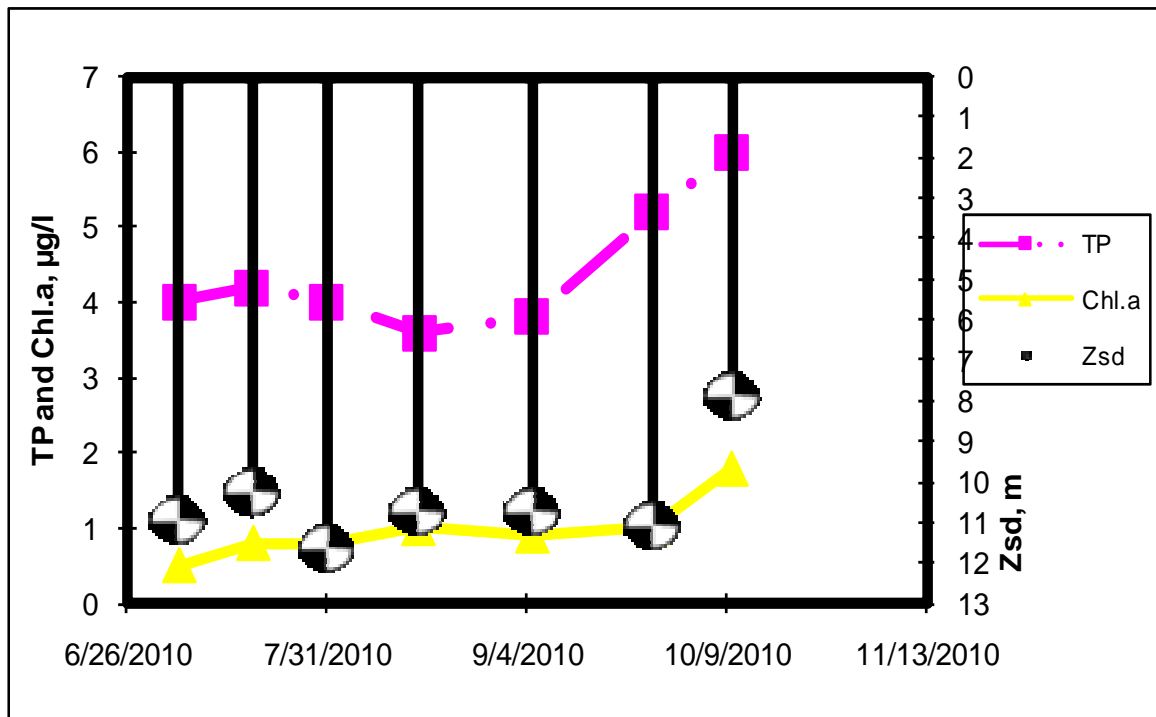
Additional Comments and Recommendations

Aquatic plant survey data may help to determine if the increase in aquatic plant coverage is associated with nuisance or exotic plants.

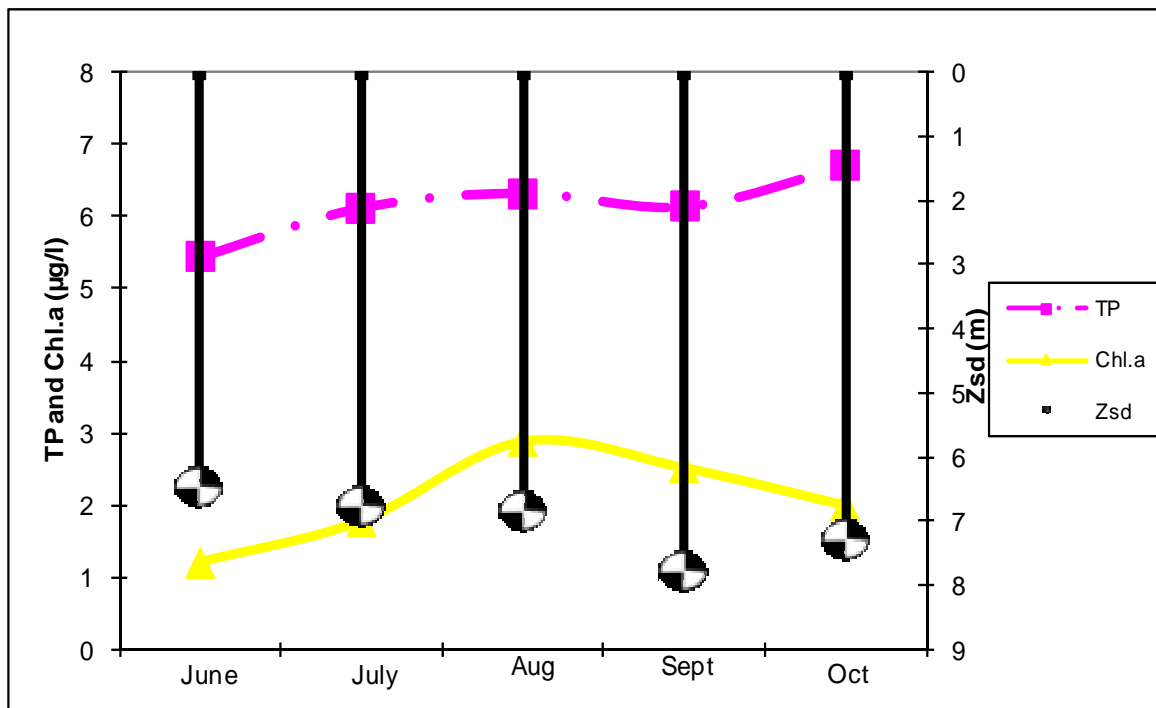
Aquatic Plant IDs-2010

None submitted in 2010.

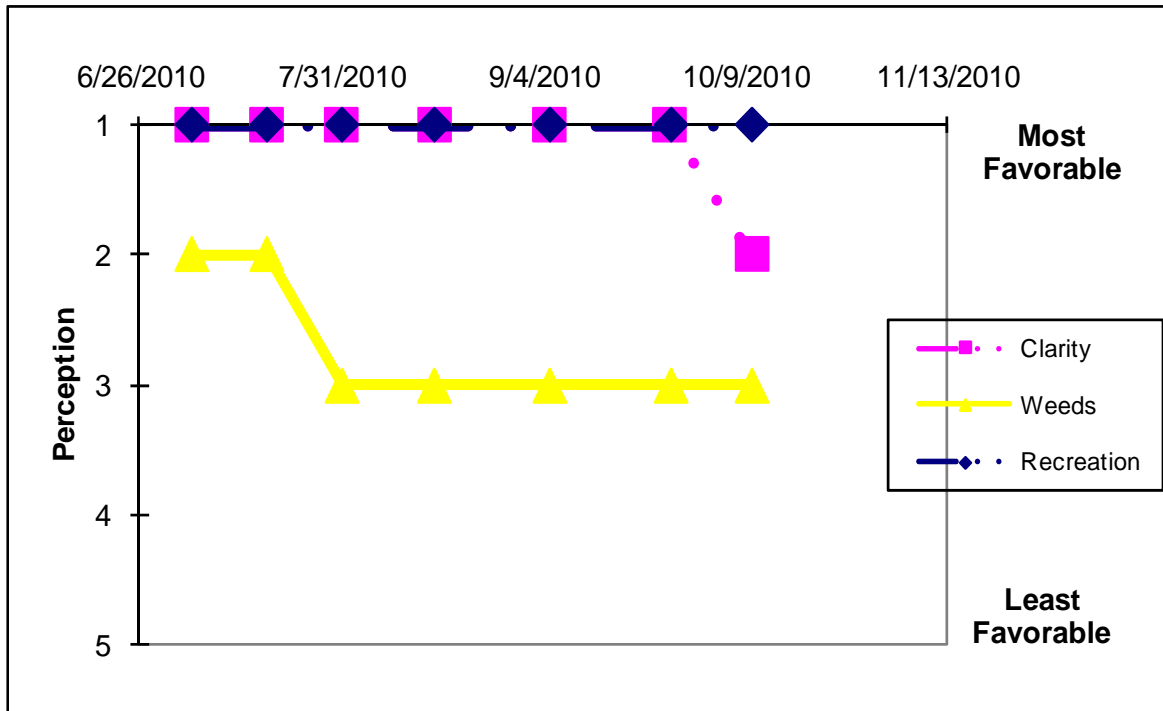
Time Series: Trophic Indicators, 2010



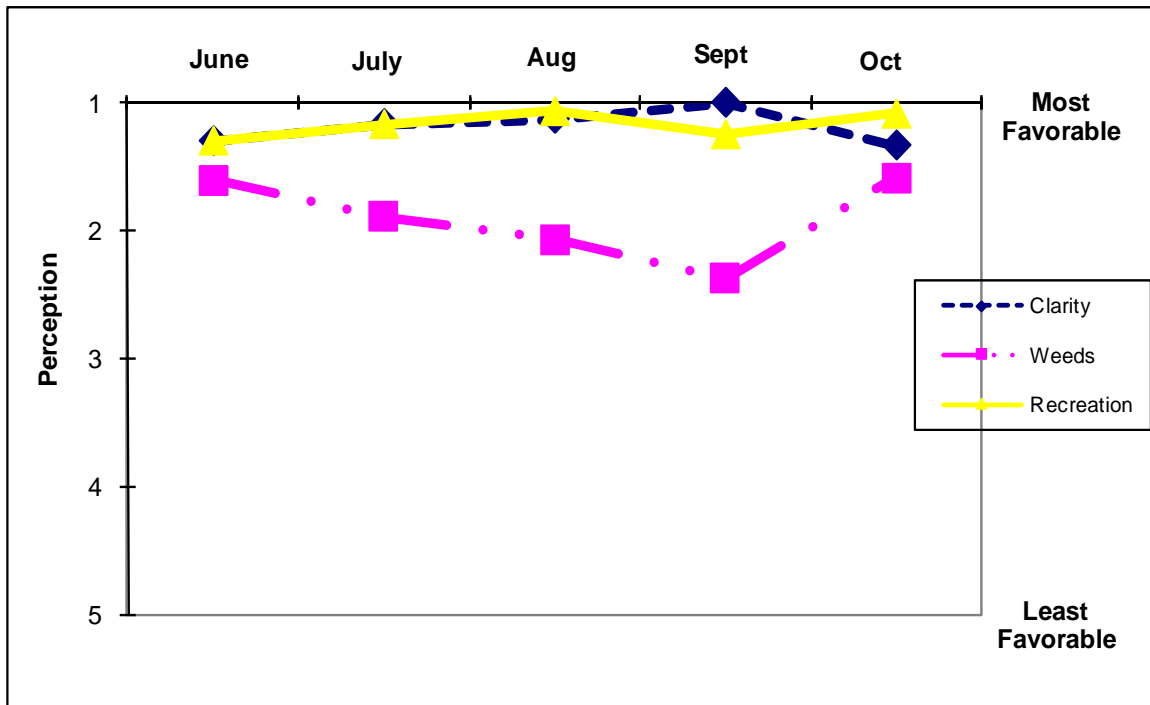
Time Series: Trophic Indicators, Typical Year (1987-2010)



Time Series: Lake Perception Indicators, 2010



Time Series: Lake Perception Indicators, Typical Year (1987-2010)



Appendix A- CSLAP Water Quality Sampling Results for Oquaga Lake

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	TKN	TN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
30	Oquaga L	6/13/1987	30.0	3.63	1.5	0.005	0.02				8	7.15	55		
30	Oquaga L	6/21/1987	30.0	5.75	1.5	0.007	0.02				9	7.16	54		1.20
30	Oquaga L	7/5/1987	30.0	5.25	1.5	0.009	0.01				5	7.08	54		2.70
30	Oquaga L	7/11/1987	30.0	5.75	1.5	0.006	0.01				2	7.04	54		
30	Oquaga L	7/19/1987	27.0	5.50	1.5	0.003	0.01				6	7.07	54		2.70
30	Oquaga L	7/26/1987	30.0	3.88	1.5	0.006	0.01				5	6.95	54		6.40
30	Oquaga L	8/3/1987	30.0	2.75	1.5	0.009	0.01				5	6.88	55		19.20
30	Oquaga L	8/10/1987	30.0	3.38	1.5	0.008	0.01				5	6.85	55		14.40
30	Oquaga L	8/17/1987	30.0	5.25	1.5	0.005	0.01				6	7.13	56		1.70
30	Oquaga L	8/23/1987	30.0	5.25	1.5	0.005	0.01				4	7.07	53		3.90
30	Oquaga L	8/30/1987	30.0	4.50	1.5	0.005	0.01				6	7.49	53		
30	Oquaga L	9/7/1987	30.0	5.25	1.5	0.012	0.18				3	7.16	56		9.90
30	Oquaga L	9/16/1987	30.0	6.00	1.5	0.005	0.02				2	7.39	63		5.00
30	Oquaga L	10/10/1987	30.0	4.25	1.5	0.007	0.01				6	7.11	54		10.60
30	Oquaga L	10/23/1987	30.0	4.63	1.5										
30	Oquaga L	7/1/1988	30.0	5.75	1.5	0.007	0.01				5	6.33	61		3.25
30	Oquaga L	7/13/1988	30.0	6.50	1.5	0.009					4	8.06	66		4.66
30	Oquaga L	7/21/1988	30.0	5.00	1.5	0.011	0.01				5	7.39	57		2.74
30	Oquaga L	7/28/1988	30.0	6.25	1.5	0.006					5	7.55	57		1.06
30	Oquaga L	8/4/1988	30.0	6.00	1.5	0.005	0.01				3	7.98	60		1.37
30	Oquaga L	8/11/1988	30.0	5.50	1.5	0.006					8				1.63
30	Oquaga L	8/18/1988	30.0	5.50	1.5	0.006	0.01				7	7.14	56		2.07
30	Oquaga L	8/25/1988	30.0	4.75	1.5	0.006					7				2.15
30	Oquaga L	9/2/1988	30.0	5.50	1.5	0.008	0.01				3	7.78	57		2.00
30	Oquaga L	9/15/1988	30.0	5.75	1.5	0.005	0.01				3	7.62	60		3.18
30	Oquaga L	7/10/1989	30.0	4.88	1.5	0.005	0.01				3	7.85	57		2.33
30	Oquaga L	8/2/1989	30.0	4.25	1.5	0.007					2	7.40	58		1.20
30	Oquaga L	8/9/1989	30.0	4.25	1.5	0.009					2	7.89	55		
30	Oquaga L	8/19/1989	30.0	5.25	1.5	0.010	0.01				4	7.83	56		0.43
30	Oquaga L	8/26/1989	30.0	5.13	1.5	0.013					2	7.44			2.22
30	Oquaga L	9/4/1989	30.0	4.75	1.5	0.008					2	7.36	56		4.11
30	Oquaga L	9/13/1989	30.0	5.63	1.5	0.007	0.01				2	7.54	58		3.05
30	Oquaga L	7/14/1990	30.0	4.25	1.5	0.011	0.01				5	7.23	64		3.01
30	Oquaga L	7/20/1990	30.0	5.25	1.5	0.007					3	7.54	57		0.63
30	Oquaga L	8/3/1990	30.0	5.25	1.5	0.008	0.01				1	7.89	56		2.08
30	Oquaga L	8/20/1990	30.0	5.75	1.5	0.006					3	7.29	79		2.43
30	Oquaga L	9/1/1990	30.0	6.25	1.5	0.004	0.01				2	6.60	57		1.34
30	Oquaga L	9/11/1990	30.0	6.50	1.5	0.012					1	6.75	57		2.21
30	Oquaga L	9/27/1990	30.0	6.25	1.5	0.008	0.01				3	7.74	57		2.75
30	Oquaga L	7/1/1991	30.0	6.50	1.5	0.008	0.01				2	7.61	59		1.26
30	Oquaga L	7/15/1991	30.0	6.25	1.5	0.007					3	7.52	59		2.41
30	Oquaga L	7/28/1991	30.0	5.75	1.5	0.007	0.01				2	7.63	57		2.90
30	Oquaga L	8/13/1991	30.0	4.50	1.5	0.010					2	7.29	58		6.88
30	Oquaga L	8/26/1991	30.0	2.75	1.5	0.011	0.01				4	6.95	58		13.40
30	Oquaga L	9/9/1991	30.0	1.75	1.5	0.012					45	7.60	59		23.80
30	Oquaga L	6/25/1992	30.0	5.75	1.5	0.008					2	7.69	60		1.98
30	Oquaga L	7/24/1992	30.0	4.45	1.5	0.011					4	7.75	59		4.48
30	Oquaga L	10/4/1992	30.0	3.50	1.5	0.014	0.01				5	7.68	60		6.97
30	Oquaga L	06/23/02	16.0	5.45	1.5	0.007	0.00	0.02	0.40	129.58	8	7.52	72		1.17
30	Oquaga L	07/07/02	30.0	6.45	1.5	0.003	0.00	0.05	0.26	165.55	9				0.95
30	Oquaga L	07/21/02	30.0	8.15	1.5	0.007	0.01	0.05	0.29	93.72	6	7.47	73		0.56
30	Oquaga L	08/05/02	30.0	9.85	1.5	0.005	0.00	0.06	0.40	168.44	3	7.37	73		0.64
30	Oquaga L	08/18/02	30.0	10.20	1.5	0.005	0.01	0.03	0.40	163.73	3	6.90	74		0.97
30	Oquaga L	09/02/02	30.0	12.30	1.5	0.003	0.00	0.01	0.37	238.35	2	7.21	74		1.25
30	Oquaga L	09/25/02	26.0	9.58		0.006	0.00	0.02	0.53	206.89					
30	Oquaga L	10/06/02		6.85			0.01	0.03	0.26		7	7.46	73		0.48
30	Oquaga L	10/20/02	30.0	7.55		0.006	0.01	0.05	0.37	128.89	5	7.26	72		0.41
30	Oquaga L	6/30/2003	30.0	5.50	1.0	0.007	0.01	0.01	0.19	61.36	7	7.16	73	6.1	
30	Oquaga L	7/13/2003	30.0	5.05		0.006	0.00	0.00	0.16	60.51	10	7.20	72		1.72
30	Oquaga L	7/27/2003	30.0	5.90		0.011	0.00	0.00	0.03	5.15		7.08	70		1.19
30	Oquaga L	8/12/2003	30.0	9.70	1.5	0.004	0.01	0.00	0.18	100.44	11	6.41	78		1.58
30	Oquaga L	8/25/2003	30.0	9.50		0.003	0.03	0.01	0.23	151.53		7.14	72	6.2	0.23
30	Oquaga L	9/2/2003	30.0	6.90		0.005	0.00	0.00	0.18	83.53	8	7.15	72		0.13

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	TKN	TN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
30	Oquaga L	9/28/2003	30.0	9.45		0.006	0.00	0.01	0.23	85.30	7	6.68	69		0.50
30	Oquaga L	10/13/2003	30.0	9.35		0.007	0.00	0.00	0.22	72.49	6	7.18	74		1.12
30	Oquaga L	6/13/2004	30+	6.10	1.0	0.004	0.01	0.02			16	6.54	74		3.22
30	Oquaga L	6/29/2004	30+	10.20	1.0	0.003	0.01	0.01	0.27	214.45	9	5.78	80		0.10
30	Oquaga L	7/2/2004	30+	8.90	1.0										
30	Oquaga L	7/11/2004	30+	8.40	1.0	0.002	0.01	0.01	0.32		7	6.75	81		1.40
30	Oquaga L	7/25/2004				0.006	0.01	0.01	0.34	130.81	2	6.55	75		0.05
30	Oquaga L	8/10/2004	30+	9.40	1.0	0.007	0.02	0.02	0.36	122.79	2	6.80	76	5.0	1.80
30	Oquaga L	8/22/2004	30+	11.30	1.0	0.004	0.02	0.01	0.32	183.57	27	7.49	84		1.00
30	Oquaga L	9/6/2004		9.10		0.004	0.02	0.02	0.39	206.50	1	7.95	57		0.30
30	Oquaga L	9/26/2004	30+	7.40	1.5	0.003	0.02	0.01	0.48	299.97	2	7.08	50		0.70
30	Oquaga L	6/19/2005	30+	6.60	1.5	0.007	0.01	0.01	0.14	46.55	1	6.80	49	5.7	1.4
30	Oquaga L	7/9/2005	30+	5.50	1.5	0.004	0.07	0.01	0.10	54.86	1	7.40	68		0.7
30	Oquaga L	7/24/2005	30+	6.80	1.5	0.004	0.01	0.01	0.01	2.53	6	7.54	60		0.1
30	Oquaga L	8/9/2005	30+	6.10	1.5	0.005	0.01	0.01	0.11	48.53	1	7.42	70		0.8
30	Oquaga L	9/5/2005				0.006	0.01	0.01	0.19	65.71	9	7.86	56	7.0	0.3
30	Oquaga L	9/17/2005	30+	6.35		0.007	0.09	0.01	0.12	36.94	7	7.59	78		0.2
30	Oquaga L	10/9/2005	30+	6.75		0.005	0.01	0.01	0.10	45.14	4	7.82	35		0.2
30	Oquaga L	10/22/05	30+	4.73		0.009	0.01	0.01	0.06	16.31	6	7.37	22		1.2
30	Oquaga L	6/25/2006				0.004	0.03	0.02	0.42	209.99	27	8.07	127	5.8	0.67
30	Oquaga L	7/9/2006	30+	5.60	1.5	0.006	0.01	0.01	0.26	100.28	19	7.10	54		0.24
30	Oquaga L	7/23/2006	30+	5.70	1.5	0.007	0.03	0.02	0.47	157.57	18	7.52	66		1.62
30	Oquaga L	8/6/2006	30+	7.30	1.5	0.006	0.02	0.02	0.43	153.96		7.38	76		0.53
30	Oquaga L	8/20/2006	30+	9.25		0.004	0.02	0.03	0.64	352.26	5	8.28	55	5.8	0.69
30	Oquaga L	9/4/2006	30+	8.95		0.006			0.40	137.65	6	7.56	62		0.90
30	Oquaga L	9/17/2006	30+	10.80		0.005	0.02	0.05	0.47	229.64	10	6.68	66		0.44
30	Oquaga L	10/8/2006	30+	11.65	1.5	0.006	0.03	0.02	0.41	140.40	12	7.33	72		0.66
30	Oquaga L	7/8/2007	30+	10.80	1.0	0.005	0.06	0.02	0.51	218.19	1	7.17	75	5.1	1.06
30	Oquaga L	7/21/2007	30+	10.10	1.0	0.006	0.01	0.01	0.23	81.73	5	8.10	57		0.96
30	Oquaga L	8/8/2007	30+	8.85	1.0	0.005	0.00	0.01	0.44	215.91	2	7.67	60		0.68
30	Oquaga L	8/19/2007	30+	8.40	1.0	0.009	0.01	0.01	0.39	91.64	1	7.65	37		1.23
30	Oquaga L	9/3/2007	30+	8.25	12.0	0.006	0.00	0.02	0.45	156.93	6	8.20	68	6.5	0.44
30	Oquaga L	9/16/2007	30+	7.95		0.004	0.01	0.01	0.41	206.88	6	8.26	55		0.66
30	Oquaga L	10/7/2007	30+	9.05	1.5	0.009	0.06	0.11	0.71	174.26	3	7.50	62		0.77
30	Oquaga L	10/20/2007	30+	7.45	1.5		0.09	0.03	0.57		4	7.78	56		1.27
30	Oquaga L	6/15/2008	30+	6.55	1.0	0.007	0.03	0.02	0.33	108.82	2	7.60	86	5.8	
30	Oquaga L	6/30/2008	~20	6.75		0.004	0.01	0.04	0.21	111.81	4	7.34	75		1.26
30	Oquaga L	7/13/2008	30+	6.55	1.0	0.004	0.01	0.10	0.20	121.02	8	7.46	70		1.24
30	Oquaga L	8/3/2008	30+	10.20	1.0	0.002	0.01	0.03	0.17	195.29	3	7.51	64		1.03
30	Oquaga L	8/16/2008	30+	8.90	1.0	0.006	0.01	0.01	0.20	74.93		7.43	69	5.4	0.95
30	Oquaga L	9/1/2008		9.65	1.0	0.004	0.01	0.01	0.29	174.83	5	7.43	69		0.41
30	Oquaga L	9/20/2008	20.0	9.25	1.0	0.007	0.01	0.09	0.31	105.71	5	7.39	69		0.74
30	Oquaga L	10/11/2008	30+	8.35		0.008	0.01	0.05	0.37	107.99	6	8.43	59		0.62
30	Oquaga L	06/29/2009	18.5	5.25	1.5	0.004	0.01	0.01	0.08	44.18	8	7.25	59	5.4	0.95
30	Oquaga L	07/12/2009	30.0	9.15	1.5	0.002	0.01	0.00	0.12	170.50	14	6.29	67		0.74
30	Oquaga L	08/02/2009	30.0	8.20	1.5	0.006	0.05	0.03	0.16	56.22	8	8.89	33		0.53
30	Oquaga L	08/16/2009	30.0	8.25	1.5	0.005	0.02	0.02	0.18	83.42	7	6.81	51		0.60
30	Oquaga L	09/07/2009	33.0	10.25		0.005	0.02	0.01	0.16	79.20	8	7.16	55	4.4	0.70
30	Oquaga L	09/20/2009	30.0	8.85	1.0	0.005	0.01	0.03	0.11	49.15	4	7.74	56		0.90
30	Oquaga L	10/04/2009	33.0	10.40	1.0	0.004	0.01	0.01	0.10	52.00	6	7.21	63		0.79
30	Oquaga L	10/17/2009	33.0	7.28	1.5	0.006	0.01	0.01	0.13	45.75	2	7.79	67		1.00
30	Oquaga L	6/13/2010		10.40		0.004	0.02	0.02			1	8.17	64	5.8	0.10
30	Oquaga L	7/5/2010	30+	11.00		0.004	0.02	0.02	0.20	111.65	4	7.02	67		0.50
30	Oquaga L	7/18/2010	30+	10.25	1.0	0.004	0.02	0.02	0.18	94.29	6	7.31	90		0.80
30	Oquaga L	7/31/2010	30+	11.65	1.0	0.004	0.02	0.03	0.23	126.50	4	8.45	94		0.80
30	Oquaga L	8/16/2010	30+	10.80	1.5	0.004	0.01	0.01	0.23	141.17	7	7.36	66	4.8	1.00
30	Oquaga L	9/5/2010	30.0	10.75		0.004	0.02	0.02	0.05	31.26	6	7.52	70		0.90
30	Oquaga L	9/26/2010	30+	11.15		0.005	0.11	0.09	0.27	115.92	7	7.43	90		1.00
30	Oquaga L	10/10/2010	30+	7.90	1.0	0.006	0.03	0.03	0.29	104.87	10	6.99	90		1.80
30	Oquaga L	06/23/02	16.0			0.008	0.01	0.02	0.39	46.14					
30	Oquaga L	07/07/02	30.0			0.006	0.00	0.04	0.29	48.10					
30	Oquaga L	07/21/02	30.0			0.017	0.01	0.08	0.48	28.53					
30	Oquaga L	08/05/02	30.0			0.008	0.00	0.04	0.39	48.65					2.58
30	Oquaga L	08/18/02	30.0			0.007	0.02	0.04	0.46	65.00					
30	Oquaga L	09/02/02	30.0	8.15			0.00	0.01	0.37						
30	Oquaga L	09/25/02	26.0	9.58	24.0	0.008	0.00	0.04	0.37	46.20					

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	TKN	TN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
30	Oquaga L	10/06/02		6.85	20.0		0.01	0.05	0.34						
30	Oquaga L	10/20/02	30.0	7.55	15.0		0.01	0.05	0.33						
30	Oquaga L	6/30/2003				0.006	0.01	0.02	0.16	24.91					
30	Oquaga L	7/13/2003				0.005	0.00	0.00	0.14	28.54					
30	Oquaga L	7/27/2003			13.0	0.016	0.00	0.00	0.03	1.53					
30	Oquaga L	8/12/2003				0.010	0.00	0.00	0.19	19.31					
30	Oquaga L	8/25/2003			12.5	0.006	0.01	0.00	0.09	14.86					
30	Oquaga L	9/2/2003				0.005	0.01	0.04	0.16	30.09					
30	Oquaga L	9/28/2003				0.006	0.00	0.01	0.19	33.44					
30	Oquaga L	10/13/2003				0.006	0.00	0.00	0.11	16.95					
30	Oquaga L	6/13/2004				0.013	0.01	0.02							
30	Oquaga L	6/29/2004				0.007	0.01	0.01	0.27	41.04					
30	Oquaga L	7/11/2004				0.003	0.01	0.01	0.25	97.70					
30	Oquaga L	7/25/2004				0.012	0.01	0.03	0.17	14.87					
30	Oquaga L	8/10/2004				0.005	0.01	0.02	0.13	26.07					
30	Oquaga L	8/22/2004				0.008	0.02	0.02	0.01	0.61					
30	Oquaga L	9/6/2004				0.007	0.02	0.03							
30	Oquaga L	6/19/2005				0.009									
30	Oquaga L	7/9/2005				0.007									
30	Oquaga L	7/24/2005				0.005									
30	Oquaga L	8/9/2005				0.005									
30	Oquaga L	9/5/2005				0.012									
30	Oquaga L	9/17/2005			13.0	0.011									
30	Oquaga L	10/9/2005			10.0	0.009									
30	Oquaga L	10/22/05				0.008									
30	Oquaga L	6/25/2006				0.007									
30	Oquaga L	7/9/2006	30+			0.009									
30	Oquaga L	7/23/2006	30+			0.010									
30	Oquaga L	8/6/2006	30+			0.014									
30	Oquaga L	8/20/2006	30+		15.0	0.008									
30	Oquaga L	9/4/2006	30+		20.0	0.006									
30	Oquaga L	9/17/2006	30+		12.0	0.006									
30	Oquaga L	10/8/2006	30+			0.008									
30	Oquaga L	7/8/2007				0.009									
30	Oquaga L	7/21/2007				0.008									
30	Oquaga L	8/8/2007				0.008									
30	Oquaga L	8/19/2007				0.010									
30	Oquaga L	9/3/2007				0.010									
30	Oquaga L	9/16/2007				0.006									
30	Oquaga L	10/7/2007				0.018									
30	Oquaga L	10/20/2007				0.007									
30	Oquaga L	6/15/2008	30+			0.011									
30	Oquaga L	6/30/2008	~20		15.0	0.008									
30	Oquaga L	7/13/2008	30+			0.009									
30	Oquaga L	8/3/2008	30+			0.014									
30	Oquaga L	9/1/2008			10.0	0.007									
30	Oquaga L	9/20/2008	20.0		20.0	0.008									
30	Oquaga L	10/11/2008	30+		25.0	0.006									
LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	TKN	TN	TN/TP			Fe	Mn	As
30	Oquaga L	06/29/2009			12.0	0.008		0.00							
30	Oquaga L	07/12/2009			12.0	0.001									
30	Oquaga L	08/02/2009				0.007		0.01							
30	Oquaga L	08/16/2009			10.0	0.006									
30	Oquaga L	09/07/2009				0.005		0.01					0.10	0.10	1.20
30	Oquaga L	09/20/2009			10.0	0.005									
30	Oquaga L	10/04/2009			12.0	0.009		0.01					0.10	0.10	0.34
30	Oquaga L	10/17/2009			18.0	0.005									
30	Oquaga L	6/13/2010			30.0	0.011		0.01					0.03		
30	Oquaga L	7/18/2010	30+		12.0	0.006		0.17					0.03		
30	Oquaga L	8/16/2010	30+		12.0	0.008		0.02					0.03		1.30
30	Oquaga L	9/26/2010	30+		10.0	0.007		0.02					0.17		

LNum	PName	Date	Zbot	Zsd	Zsamp	Site	TAir	TH20	QA	QB	QC	QD
30	Oquaga L	6/13/1987	30.0	3.63	1.5	epi	23	19				
30	Oquaga L	6/21/1987	30.0	5.75	1.5	epi	21	23				
30	Oquaga L	7/5/1987	30.0	5.25	1.5	epi	24	23				
30	Oquaga L	7/11/1987	30.0	5.75	1.5	epi	85	78				
30	Oquaga L	7/19/1987	27.0	5.50	1.5	epi	29	25				
30	Oquaga L	7/26/1987	30.0	3.88	1.5	epi	30	26				
30	Oquaga L	8/3/1987	30.0	2.75	1.5	epi	25	24				
30	Oquaga L	8/10/1987	30.0	3.38	1.5	epi	25	24				
30	Oquaga L	8/17/1987	30.0	5.25	1.5	epi	29	26				
30	Oquaga L	8/23/1987	30.0	5.25	1.5	epi	16	23				
30	Oquaga L	8/30/1987	30.0	4.50	1.5	epi	26	19				
30	Oquaga L	9/7/1987	30.0	5.25	1.5	epi	22	18				
30	Oquaga L	9/16/1987	30.0	6.00	1.5	epi	22	19				
30	Oquaga L	10/10/1987	30.0	4.25	1.5	epi	13	14				
30	Oquaga L	10/23/1987	30.0	4.63	1.5	epi	17	12				
30	Oquaga L	7/1/1988	30.0	5.75	1.5	epi	19	17				
30	Oquaga L	7/13/1988	30.0	6.50	1.5	epi	28	24				
30	Oquaga L	7/21/1988	30.0	5.00	1.5	epi	18	23				
30	Oquaga L	7/28/1988	30.0	6.25	1.5	epi	26	24				
30	Oquaga L	8/4/1988	30.0	6.00	1.5	epi	25	26				
30	Oquaga L	8/11/1988	30.0	5.50	1.5	epi	27	25				
30	Oquaga L	8/18/1988	30.0	5.50	1.5	epi	21	23				
30	Oquaga L	8/25/1988	30.0	4.75	1.5	epi	20	21				
30	Oquaga L	9/2/1988	30.0	5.50	1.5	epi	23	21				
30	Oquaga L	9/15/1988	30.0	5.75	1.5	epi	14	16				
30	Oquaga L	7/10/1989	30.0	4.88	1.5	epi	20	22				
30	Oquaga L	8/2/1989	30.0	4.25	1.5	epi	22	24				
30	Oquaga L	8/9/1989	30.0	4.25	1.5	epi	20	20				
30	Oquaga L	8/19/1989	30.0	5.25	1.5	epi	21	24				
30	Oquaga L	8/26/1989	30.0	5.13	1.5	epi	21	21				
30	Oquaga L	9/4/1989	30.0	4.75	1.5	epi	18	20				
30	Oquaga L	9/13/1989	30.0	5.63	1.5	epi	21	21				
30	Oquaga L	7/20/1990	30.0	5.25	1.5	epi	30	25				
30	Oquaga L	8/3/1990	30.0	5.25	1.5	epi	27	24				
30	Oquaga L	8/20/1990	30.0	5.75	1.5	epi	15	21				
30	Oquaga L	9/1/1990	30.0	6.25	1.5	epi	25	23				
30	Oquaga L	9/11/1990	30.0	6.50	1.5	epi	20	21				
30	Oquaga L	9/27/1990	30.0	6.25	1.5	epi	21	13				
30	Oquaga L	7/1/1991	30.0	6.50	1.5	epi	18	26				
30	Oquaga L	7/15/1991	30.0	6.25	1.5	epi	25	22				
30	Oquaga L	7/28/1991	30.0	5.75	1.5	epi	23	24				
30	Oquaga L	8/13/1991	30.0	4.50	1.5	epi	24	23				
30	Oquaga L	8/26/1991	30.0	2.75	1.5	epi	18	23				
30	Oquaga L	9/9/1991	30.0	1.75	1.5	epi	20	22				
30	Oquaga L	6/25/1992	30.0	5.75	1.5	epi	23	19	1	1	1	
30	Oquaga L	7/24/1992	30.0	4.45	1.5	epi	17	20	1	1	1	5
30	Oquaga L	10/4/1992	30.0	3.50	1.5	epi	19	16				
30	Oquaga L	06/23/02	16.0	5.45	1.5	epi	20	17	1	1	1	
30	Oquaga L	07/07/02	30.0	6.45	1.5	epi	25	19	1	1	1	
30	Oquaga L	07/21/02	30.0	8.15	1.5	epi	25	22	1	2	1	
30	Oquaga L	08/05/02	30.0	9.85	1.5	epi	22	24	1	2	1	
30	Oquaga L	08/18/02	30.0	10.20	1.5	epi	24		1	2	1	
30	Oquaga L	09/02/02	30.0	12.30	1.5	epi	23	22	1	2	1	
30	Oquaga L	09/25/02	26.0	9.58		epi	13					
30	Oquaga L	10/06/02		6.85		epi	16		2	1	1	5
30	Oquaga L	10/20/02	30.0	7.55		epi	10		1	1	2	5
30	Oquaga L	6/30/2003	30.0	5.50	1.0	epi	21	22	1	1	1	
30	Oquaga L	7/13/2003	30.0	5.05		epi	17	21	1	1	1	5
30	Oquaga L	7/27/2003	30.0	5.90		epi	24		2	1	2	
30	Oquaga L	8/12/2003	30.0	9.70	1.5	epi			1	1	1	
30	Oquaga L	8/25/2003	30.0	9.50		epi	16	19	1	2	1	

LNum	PName	Date	Zbot	Zsd	Zsamp	Site	TAir	TH20	QA	QB	QC	QD
30	Oquaga L	9/2/2003	30.0	6.90		epi	16	17	1	1	3	5
30	Oquaga L	9/28/2003	30.0	9.45		epi		16	1	1	2	5
30	Oquaga L	10/13/2003	30.0	9.35		epi	16	12	1	1	1	
30	Oquaga L	6/13/2004	30+	6.10	1.0	epi	21	19	2	2	1	5
30	Oquaga L	6/29/2004	30+	10.20	1.0	epi	18	19	1	2	1	0
30	Oquaga L	7/2/2004	30+	8.90	1.0	epi	19	20	1	2	1	0
30	Oquaga L	7/11/2004	30+	8.40	1.0	epi	21	20	1	2	1	0
30	Oquaga L	8/10/2004	30+	9.40	1.0	epi	23	18	1	2	1	0
30	Oquaga L	8/22/2004	30+	11.30	1.0	epi			1	2	1	0
30	Oquaga L	9/6/2004		9.10		epi	18	17	1	3	1	5
30	Oquaga L	9/26/2004	30+	7.40	1.5	epi	17	15	1	2	1	0
30	Oquaga L	6/19/2005	30+	6.60	1.5	epi	16	15	1	2	2	5
30	Oquaga L	7/9/2005	30+	5.50	1.5	epi	15	17	1	2	2	5
30	Oquaga L	7/24/2005	30+	6.80	1.5	epi	20		1	2	1	0
30	Oquaga L	8/9/2005	30+	6.10	1.5	epi	22	20	1	2	1	0
30	Oquaga L	9/17/2005	30+	6.35		epi	15	17	1	2	1	5
30	Oquaga L	10/9/2005	30+	6.75		epi		11	1	1	1	5
30	Oquaga L	10/22/05	30+	4.73		epi	7	8	2	1	1	158
30	Oquaga L	7/9/2006	30+	5.60	1.5	epi	18		2	2	1	0
30	Oquaga L	7/23/2006	30+	5.70	1.5	epi	17	19	2	2	1	5
30	Oquaga L	8/6/2006	30+	7.30	1.5	epi	17	20	2	2	1	0
30	Oquaga L	8/20/2006	30+	9.25		epi	18	17	2	2	2	8
30	Oquaga L	9/4/2006	30+	8.95		epi	16	14	1	2	1	5
30	Oquaga L	9/17/2006	30+	10.80		epi	18	15	1	2	1	0
30	Oquaga L	10/8/2006	30+	11.65	1.5	epi	12	10	1	2	1	0
30	Oquaga L	7/8/2007	30+	10.80	1.0	epi	21	15	1	2	1	0
30	Oquaga L	7/21/2007	30+	10.10	1.0	epi	19	16	1	2	1	0
30	Oquaga L	8/8/2007	30+	8.85	1.0	epi	16	18	1	2	1	0
30	Oquaga L	8/19/2007	30+	8.40	1.0	epi	11	16	1	2	1	5
30	Oquaga L	9/3/2007	30+	8.25	12.0	epi	18	15	1	3	1	0
30	Oquaga L	9/16/2007	30+	7.95		epi	10	14	1	2	1	5
30	Oquaga L	10/7/2007	30+	9.05	1.5	epi	14	13	2	2	1	5
30	Oquaga L	10/20/2007	30+	7.45	1.5	epi	13	10	1	1	1	5
30	Oquaga L	6/15/2008	30+	6.55	1.0	epi	18	10	1	2	1	0
30	Oquaga L	6/30/2008	~20	6.75		epi	18	15	1	2	1	8
30	Oquaga L	7/13/2008	30+	6.55	1.0	epi	16	18	1	2	2	5
30	Oquaga L	8/3/2008	30+	10.20	1.0	epi	17	18	1	2	1	0
30	Oquaga L	8/16/2008	30+	8.90	1.0	epi	13	15	1	2	1	0
30	Oquaga L	9/1/2008		9.65	1.0	epi	26	15	1	3	1	7
30	Oquaga L	9/20/2008	20.0	9.25	1.0	epi	17	14	1	3	1	8
30	Oquaga L	10/11/2008	30+	8.35		epi	21	10	1	2	1	0
30	Oquaga L	06/29/2009	18.5	5.25	1.5	epi	21	15	2	2	2	1
30	Oquaga L	07/12/2009	30.0	9.15	1.5	epi	17	13	1	3	1	8
30	Oquaga L	08/02/2009	30.0	8.20	1.5	epi	15	16	1	2	1	5
30	Oquaga L	08/16/2009	30.0	8.25	1.5	epi	27	24	1	3	1	2
30	Oquaga L	09/07/2009	33.0	10.25		epi	18	14	1	3	2	8
30	Oquaga L	09/20/2009	30.0	8.85	1.0	epi	17	13	1	3	1	0
30	Oquaga L	10/04/2009	33.0	10.40	1.0	epi	10	9	1	2	1	8
30	Oquaga L	10/17/2009	33.0	7.28	1.5	epi	3	5	1	2	1	5
30	Oquaga L	6/13/2010		10.40		epi	21	20	2	1	2	0
30	Oquaga L	7/5/2010	30+	11.00		epi	31	22	1	2	1	7
30	Oquaga L	7/18/2010	30+	10.25	1.0	epi	25	23	1	2	1	0
30	Oquaga L	7/31/2010	30+	11.65	1.0	epi	20	21	1	3	1	0
30	Oquaga L	8/16/2010	30+	10.80	1.5	epi	23	18	1	3	1	0
30	Oquaga L	9/5/2010	30.0	10.75		epi	9	14	1	3	1	0
30	Oquaga L	9/26/2010	30+	11.15		epi	6	11	1	3	1	0
30	Oquaga L	10/10/2010	30+	7.90	1.0	epi	7	9	2	3	1	1
30	Oquaga L	09/02/02	30.0	8.15		hypo	23	10				
30	Oquaga L	09/25/02	26.0	9.58	24.0	hypo	13	14				
30	Oquaga L	10/06/02		6.85	20.0	hypo	16	9				
30	Oquaga L	10/20/02	30.0	7.55	15.0	hypo	10	12				

LNum	PName	Date	Zbot	Zsd	Zsamp	Site	TAir	TH20	QA	QB	QC	QD
30	Oquaga L	9/17/2005	30+		13.0	hypo		6				
30	Oquaga L	10/9/2005	30+		10.0	hypo		4				
30	Oquaga L	10/22/05	30+			hypo		5				
30	Oquaga L	8/20/2006	30+		15.0	hypo		4				
30	Oquaga L	9/4/2006	30+		20.0	hypo		4				
30	Oquaga L	9/17/2006	30+		12.0	hypo		6				
30	Oquaga L	6/30/2008	~20		15.0	hypo		4				
30	Oquaga L	9/20/2008	20.0		20.0	hypo		5				
30	Oquaga L	10/11/2008	30+		25.0	hypo		6				
30	Oquaga L	08/16/2009			10.0	hypo		5				
30	Oquaga L	09/07/2009				hypo		5				
30	Oquaga L	10/04/2009			12.0	hypo		4				
30	Oquaga L	10/17/2009			18.0	hypo		4				
30	Oquaga L	6/13/2010			30.0	hypo		15				
30	Oquaga L	7/18/2010	30+		12.0	hypo		14				
30	Oquaga L	8/16/2010	30+		12.0	hypo		10				
30	Oquaga L	9/26/2010	30+		10.0	hypo		6				

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	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)
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		