

CSLAP 2010 Lake Water Quality Summary: Teatown Lake

General Lake Information

Location	Town of Yorktown
County	Westchester
Basin	Lower Hudson River
Size	15.5 hectares (38.3 acres)
Lake Origins	Augmented by Dam
Watershed Area	288.7 hectares (713.1 acres)
Retention Time	0.1 years
Mean Depth	1.3 meters
Sounding Depth	3.3 meters
Public Access?	Preserve
Major Tributaries	no named tribs
Lake Tributary To...	Blinn Brook to Croton River to Hudson River
WQ Classification	B (contact recreation = swimming)
Lake Outlet Latitude	41.214
Lake Outlet Longitude	-73.833
Sampling Years	1997-2001, 2003-2010
2010 Samplers	Mike Rubbo, Laura Hellmich, and Eric Smithies
Main Contact	Mike Rubbo

Lake Map



Background

Teatown Lake (also known as Teatown Reservoir) is a 38 acre, class B lake found in the Town of Yorktown in Westchester County, in Lower Hudson Valley area of New York State. It was first sampled as part of CSLAP in 1997.

It is one of 15 CSLAP lakes among the more than 90 lakes found in Westchester County, and one of 41 CSLAP lakes among the more than 360 lakes and ponds in the Lower Hudson River drainage basin.

Lake Uses

Teatown 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 for aesthetic enjoyment by Preserve visitors.

It is not known by the report authors if private stocking occurs in Teatown Lake. Fish species in the lake include bluegill, brown bullhead, chain pickerel, golden shiner, largemouth bass, white crappie, and yellow perch.

General statewide fishing regulations are applicable in Teatown Lake.

Historical Water Quality Data

CSLAP sampling was conducted on Teatown Lake from 1997 to 2001, and 2003 to 2010. Some of the CSLAP reports for Teatown Lake are found on the NYSFOLA website at www.nysfola.org, under NYS Lake Association Lake List.

Teatown Lake was sampled as part of the Adirondack Lake Survey Corporation (ALSC) survey of lakes and ponds in the Adirondacks and Catskills (and surrounding areas) in 1987. These data indicate that pH was slightly higher, and conductivity was slightly lower, than in the present CSLAP studies, although overall water quality conditions appear to be comparable. It is not known if local monitoring has been conducted in support of environmental education at the Preserve, or as a fisheries management tool.

Shadow Lake was sampled through CSLAP for the first time in 2008.

There are no RIBS monitoring sites on or near Teatown Lake, and the primary outlet (Blinn Brook) has not been sampled through any statewide monitoring programs.

Lake Association and Management History

Teatown Lake is represented through CSLAP by the Teatown Lake Reservation. The Preserve (managing the Reservation) is involved in a number of activities related to the protection of the lake, including:

- Environmental education programs
 - Vernal pool ecology (amphibians)
 - Fish populations in Teatown Lake
 - Habitat management- Invasive plants, recreational uses, and lakeside trail restoration
- Teatown conservation
- Regional conservation

More information can be found at <http://www.teatown.org/>.

Summary of 2010 CSLAP Sampling Results

Evaluation of Eutrophication Indicators

Water clarity readings in Teatown Lake were higher than normal in 2010, but neither chlorophyll *a* nor total phosphorus varied from normal in 2010. Chlorophyll *a* readings have decreased since 1997 during the summer, but fall readings continue to be highly elevated. The lake continues to be characterized as *eutrophic*, based on water clarity, total phosphorus and chlorophyll *a* readings (all typical of *eutrophic* lakes). The trophic state indices (TSI) evaluation suggests that each of the trophic indicators is “internally consistent.” In other words, water clarity, chlorophyll *a* and total phosphorus readings were each in the expected range given the readings for the other trophic indicators. Phycocyanin readings were below the levels indicating susceptibility for harmful algal blooms (HABs) in 2009; phycocyanin levels were not measured in 2010. An analysis of algae samples in 2009 indicated microcystin levels well 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 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 used for this purpose. Potable water conditions, at least as measurable through CSLAP, are summarized in the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Limnological Indicators

NO_x and total nitrogen readings were higher than normal in 2010, but all of the other limnological indicators were close to normal in 2010, and none of these indicators has exhibited clear long-term changes. It is likely that the small changes in most of these indicators from year to year represent normal (or weather-induced) variability. Overall limnological conditions are summarized in the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Biological Condition

Macrophyte surveys conducted through the ALSC study of the lake in 1987 have identified at least 17 aquatic plant species, all of which may be native plants (although the ALSC study did not identify plants to species level). The modified floristic quality index (FQI) for the lake indicates that the quality of the aquatic plant community is “excellent.”

The fish community is comprised of at least seven warmwater fish species and at least one coolwater fish species, so it is likely that Teatown Lake supports a warmwater fishery. The ALSC fish community would be characterized as “favorable” using the Minnesota fish index for

biotic integrity. The macroinvertebrate community, as measured through the ALSC, appears to be dominated by tolerant organisms, indicating a susceptibility to pollutants.

Phytoplankton and zooplankton surveys have not been conducted through CSLAP at Teatown Lake.

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

Evaluation of Lake Perception

Water quality assessments of Teatown Lake were more favorable than normal in 2010. However, aquatic plant coverage and recreational assessments were close to normal in 2010, and none of these indicators has exhibited a long term trend. These recreational assessments have been more strongly influenced by “excessive weeds” than by “excessive algae” in recent years. Overall lake perception is summarized on the Lake Scorecard and Lake Condition Summary Table.

Evaluation of Local Climate Change

Water temperature readings were higher than normal in 2010, but air temperature readings were close to normal, and neither air nor water temperatures have exhibited any clear long-term trends during the June-September index period. It is not known if this is an indication of the lack of local climate change or if these changes cannot be well evaluated through CSLAP.

Lake Condition Summary

Category	Indicator	Min	97-10 Avg	Max	2010 Avg	Classification	2010 Change?	Long-term Change?
Eutrophication Indicators	Water Clarity	0.70	1.59	3.50	2.26	Eutrophic	Higher Than Normal	No Change
	Chlorophyll <i>a</i>	0.69	28.86	165.90	39.03	Eutrophic	Within Normal Range	Decreasing Slightly
	Total Phosphorus	0.012	0.051	0.177	0.042	Eutrophic	Within Normal Range	No Change
Potable Water Indicators	Hypolimnetic NH ₄							
	Hypolimnetic As							
	Hypolimnetic Iron							
	Hypolimnetic Mn							
Limnological Indicators	Hypolimnetic TP							
	Nitrate + Nitrite	0.00	0.02	0.15	0.04	Low NO _x	Higher than Normal	No Change
	Ammonia	0.01	0.04	0.31	0.04	Low Ammonia	Within Normal Range	No Change
	Total Nitrogen	0.16	0.51	1.02	0.74	Intermediate Total Nitrogen	Higher than Normal	No Change
	pH	6.10	7.18	8.58	6.97	Circumneutral	Within Normal Range	No Change
	Specific Conductance	78	198	314	165	Intermediate Hardness	Within Normal Range	No Change
	True Color	12	35	138	40	Intermediate Color	Within Normal Range	No Change
	Calcium	2.3	13.1	19.9	11.0	May be Susceptible to Zebra Mussels	Within Normal Range	No Change
Lake Perception	WQ Assessment	1	3.0	5	2.0	Definite Algal Greenness	More Favorable Than Normal	No Change
	Plant Coverage	3	4.1	5	4.0	Dense Plant Growth	Within Normal Range	No Change
	Rec. Assessment	2	4.0	5	4.0	Substantially Impaired	Within Normal Range	No Change
Biological Condition	Phytoplankton					Not measured through CSLAP	Not known	Not known
	Macrophytes					Excellent quality of the aquatic plant community	Not known	Not known
	Zooplankton					Not measured through CSLAP	Not known	Not known
	Macroinvertebrates					Not measured through CSLAP	Not known	Not known
	Fish					Warmwater fishery	Not known	Not known
	Invasive Species					None observed	Not known	Not known
Local Climate Change	Air Temperature	13	25.3	34	24.2		Within Normal Range	No Change
	Water Temperature	14	23.8	30	27.7		Higher Than Normal	No Change

Evaluation of Lake Condition Impacts to Lake Uses

Teatown Lake is presently among the lakes listed on the 2008 Lower Hudson River basin Priority Waterbody List (PWL) listed as *impaired* for recreation, and aquatic life and aesthetics are listed as *stressed*. The 2008 PWL listing for the lake is shown in Appendix B.

Potable Water (Drinking Water)

The CSLAP dataset at Teatown 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. These data suggest that any use of the lake for potable water may be compromised by excessive algae levels in the lake.

Contact Recreation (Swimming)

The CSLAP dataset at Teatown Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggests that swimming and contact recreation may be *impaired* by excessive algae and poor water clarity, although higher water clarity readings in 2010 were more typical of *stressed* lakes. Bacterial data are needed to evaluate the safety of the lake for swimming.

Non-Contact Recreation (Boating and Fishing)

The CSLAP dataset on Teatown Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that non-contact recreation may be *stressed* by excessive weed growth, despite the lack of invasive exotic plants.

Aquatic Life

The CSLAP dataset on Teatown Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aquatic life may be fully supported, although this use may occasionally be *threatened* by depressed pH. Additional data are needed to evaluate the food and habitat conditions for aquatic organisms in the lake.

Aesthetics

The CSLAP dataset on Teatown 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 is no fish consumption advisories posted for Teatown Lake.

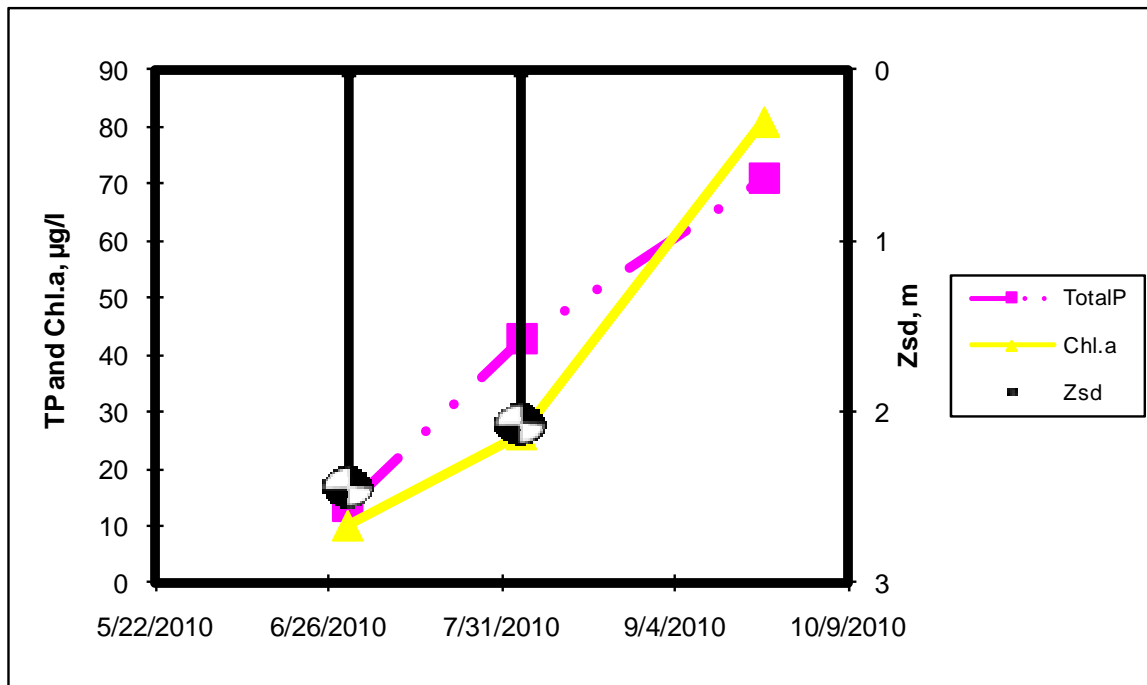
Additional Comments and Recommendations

A full aquatic plant survey of the lake may help to improve the evaluation of biological conditions in the lake, and to determine if any exotic plants contribute to the frequent occurrence of "excessive weeds."

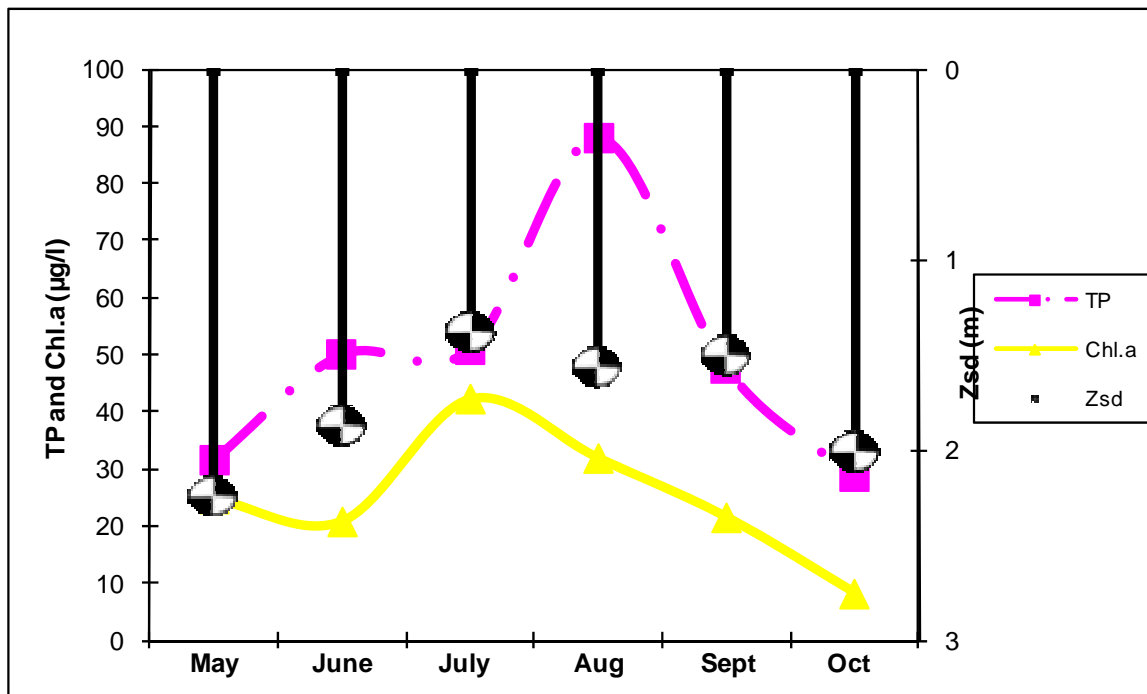
Aquatic Plant IDs-2010

None submitted for identification

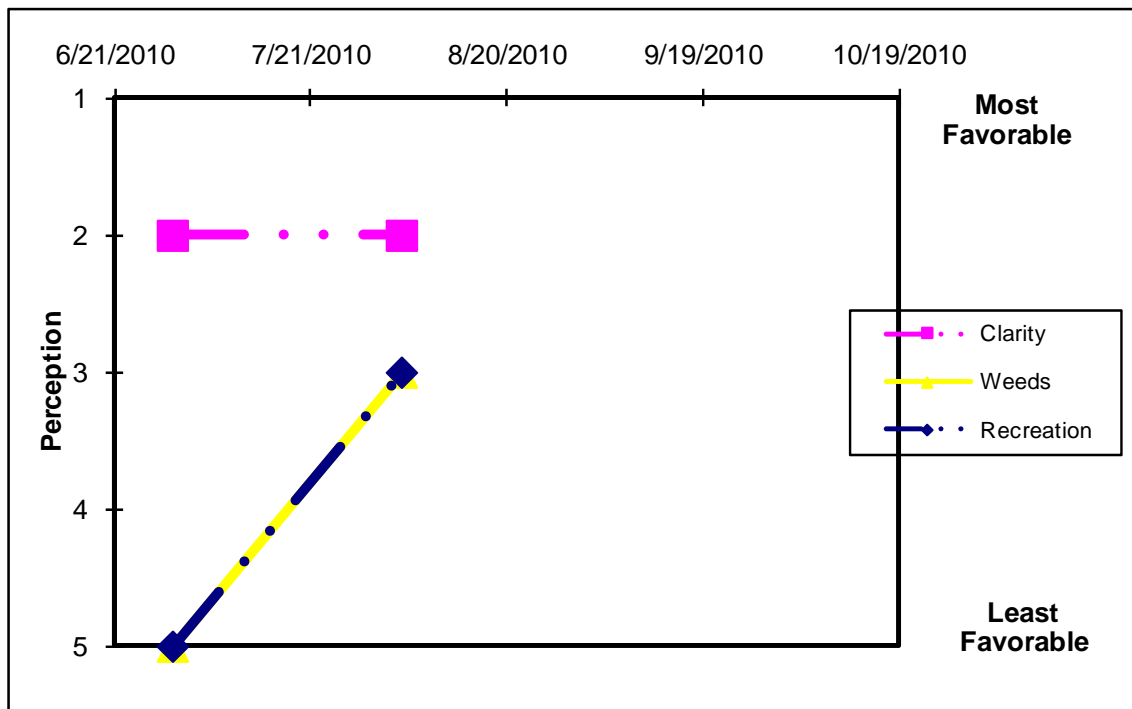
Time Series: Trophic Indicators, 2010



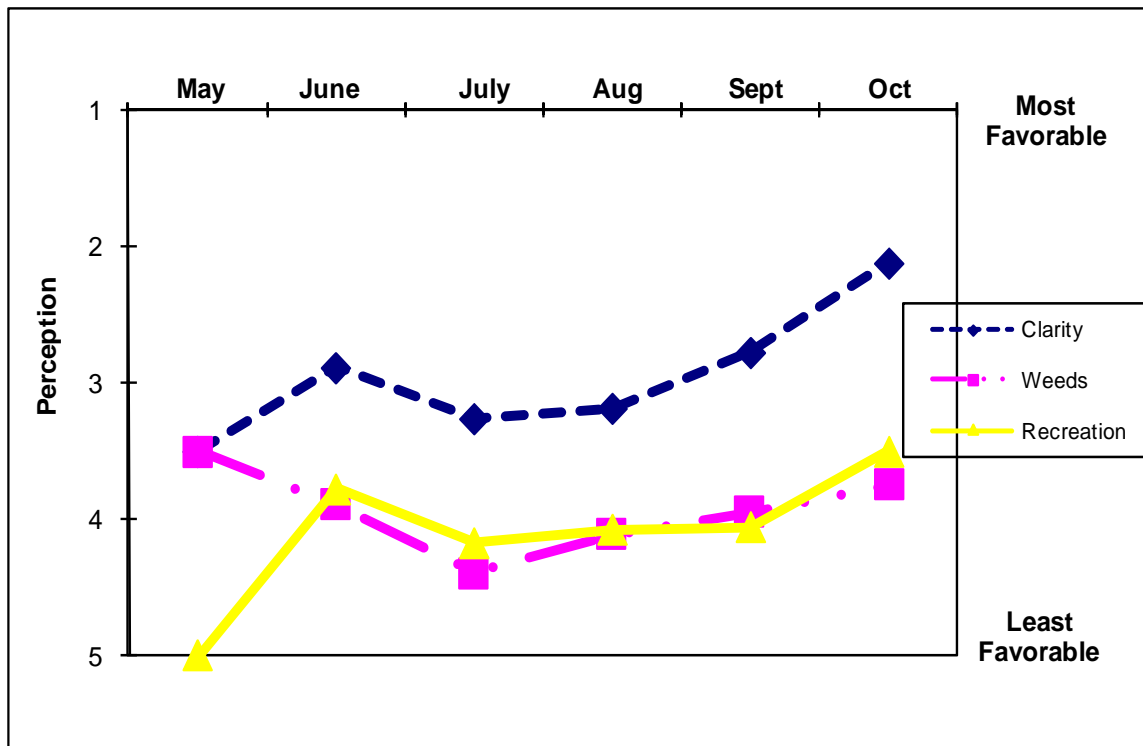
Time Series: Trophic Indicators, Typical Year (1997-2010)



Time Series: Lake Perception Indicators, 2010



Time Series: Lake Perception Indicators, Typical Year (1997-2010)



Appendix A- CSLAP Water Quality Sampling Results for Teatown Lake

LNum	LName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
143	Teatown L	5/16/1997	2.5	2.25	1.5	0.024	0.03				20	7.64	160		7.05
143	Teatown L	5/30/1997	2.5	2.25	2.0	0.039	0.02				20	6.69	166		42.30
143	Teatown L	6/16/1997	2.5	2.00		0.067	0.01				25	8.00	165		67.20
143	Teatown L	6/27/1997	2.5	1.85		0.033	0.01				30	7.75	166		29.10
143	Teatown L	7/11/1997	2.7	2.50	1.0	0.052	0.01				20	6.46	164		22.30
143	Teatown L	7/25/1997	2.6	1.30		0.050	0.01				35	7.37	162		66.30
143	Teatown L	8/7/1997	2.4	1.10	1.0	0.046	0.01				16	7.66	160		59.00
143	Teatown L	8/22/1997		1.40	1.0	0.130	0.01				15	6.79	162		32.90
143	Teatown L	7/17/1998	2.3	1.75	1.5		0.01				14	7.62	166		8.21
143	Teatown L	7/31/1998	2.4	1.70	1.5		0.01				18	7.57	171		56.10
143	Teatown L	8/14/1998	2.3	1.30			0.01				18	6.95	171		20.30
143	Teatown L	8/31/1998	2.2	2.05			0.01				22	7.63	167		17.30
143	Teatown L	9/11/1998	2.2	1.65		0.026					20	7.28	170		7.43
143	Teatown L	9/25/1998	2.2	2.10		0.015					18	7.33	171		7.19
143	Teatown L	10/9/1998	2.4	2.15		0.026					17	7.49	168		4.90
143	Teatown L	7/2/1999	2.4	1.50	1.5	0.046	0.01				19	6.67	195		40.60
143	Teatown L	7/16/1999	2.2	1.30		0.033	0.01				18	7.64	201		72.50
143	Teatown L	7/29/1999	2.3	1.28	1.5	0.091	0.02				20	6.62	210		131.00
143	Teatown L	8/13/1999	2.4	1.25	1.5	0.091	0.01				53	7.17	212		58.50
143	Teatown L	8/31/1999	2.0	1.35	1.5	0.074	0.01				100	6.34	211		39.60
143	Teatown L	9/11/1999	2.2	1.34	1.5	0.065	0.01				95	6.75	202		19.60
143	Teatown L	9/24/1999	2.5	1.28	1.5	0.039	0.15				35	6.79	121		53.00
143	Teatown L	10/8/1999	2.5	2.35	1.5	0.031	0.01					6.88	142		10.80
143	Teatown L	6/10/2000	2.2	2.23	1.5	0.032	0.01				23	7.60	184		6.70
143	Teatown L	6/27/2000		2.58	1.5	0.039	0.01				18	6.81	190		16.30
143	Teatown L	7/10/2000	2.1	0.70	1.5	0.070	0.01				17	7.63	190		89.00
143	Teatown L	8/1/2000		1.35	1.5	0.065	0.01				19	7.55	187		70.50
143	Teatown L	9/1/2000				0.071	0.01				40	7.65	194		66.00
143	Teatown L	9/12/2000	2.3	1.28	1.5	0.068	0.01				40	7.35	196		44.40
143	Teatown L	9/24/2000	2.3	1.80	1.5	0.038	0.01				34	7.84	191		1.67
143	Teatown L	6/20/2001	2.3	0.95	1.5	0.048	0.01				34	7.04	204		28.40
143	Teatown L	7/2/2001	2.4	0.70	1.5	0.067	0.01				26	6.88	204		54.00
143	Teatown L	8/1/2001	7.0	3.50	1.5	0.031	0.01				17	6.96	212		0.81
143	Teatown L	8/15/2001	2.1	2.40	1.5	0.107	0.01				24	7.27	214		122.43
143	Teatown L	8/28/2001	6.4	2.44		0.030	0.03				25	7.71	216		14.44
143	Teatown L	9/17/2001	6.4	1.52	1.5	0.016	0.01				20	6.74	214		1.67
143	Teatown L	10/3/2001				0.046	0.01				21	6.81	213		
143	Teatown L	10/22/2001	2.0	1.60	1.5	0.019	0.01				18	7.19	217		18.94
143	Teatown L	6/17/2003	2.0	1.90	2.4	0.025	0.00	0.01	0.16	14.01	28	8.25	210	13.0	1.09
143	Teatown L	7/2/2003	2.4	1.60	2.4	0.113	0.02	0.16	0.43	8.33	84	6.64	239		165.90
143	Teatown L	7/15/2003	2.4	1.50	2.4	0.053	0.00	0.16	0.62	25.83	73	6.72	242		33.87
143	Teatown L	7/29/2003	2.4	1.50	2.4	0.042	0.01	0.07	0.31	15.95	34	6.89	239		
143	Teatown L	8/12/2003	2.4	1.50	2.4	0.097	0.01	0.12	0.67	15.07	138	6.49	237	16.0	134.10
143	Teatown L	8/26/2003	2.4	1.20	2.4	0.058	0.00	0.12	0.65	24.60	57	6.58	242		41.53
143	Teatown L	9/9/2003	2.4	1.20	2.4	0.055	0.05	0.03			66	6.43	248		17.32
143	Teatown L	9/30/2003	2.4	1.45	1.5	0.039					34	7.09	228		
143	Teatown L	7/2/2004		1.06	2.4		0.01	0.03	0.35		40	6.78	233	19.9	23.10
143	Teatown L	7/14/2004	2.4	1.03	2.4	0.046	0.01	0.01	0.60	28.41	26	6.10	278		10.10
143	Teatown L	7/29/2004	2.4	0.95	2.4	0.051	0.03	0.02	0.25	10.74	24	6.75	214		30.80
143	Teatown L	8/9/2004	2.4	1.08	2.4	0.036	0.01	0.01	0.36	21.58	12	7.16	232		29.40
143	Teatown L	8/17/2004	2.4	1.00	2.4	0.041	0.02	0.01	0.39	21.03	12	7.33	187	15.9	13.70
143	Teatown L	8/24/2004	2.4	1.98	2.4	0.024	0.01	0.01	0.37	34.13	22	7.54	218		12.30
143	Teatown L	9/7/2004	2.4	1.50	2.4	0.029	0.04	0.01	0.36	27.59	38	6.81	226		18.00
143	Teatown L	7/6/2005	2.4	1.38	1.5	0.050	0.11	0.02	0.25	11.12	23	7.50	273	14.4	6.64
143	Teatown L	7/20/2005	2.4	1.28	1.5	0.099	0.07	0.01	0.45	10.08	49	6.43	286		3.60
143	Teatown L	8/2/2005	2.4	1.30	1.5	0.056	0.01	0.01	0.35	13.92	50	7.00	314		5.68
143	Teatown L	8/16/2005	2.4	0.75	1.5	0.059	0.04	0.02	0.29	10.95	32	7.00	250		4.49
143	Teatown L	8/24/2005	2.4	0.78	1.5	0.060	0.06	0.01	0.26	9.33	25	7.18	270	15.4	16.57
143	Teatown L	9/1/2005	2.4	0.85	1.5	0.177	0.01	0.01	0.40	4.95	40	8.58	250		11.54
143	Teatown L	9/27/2005	2.4	0.85	1.5	0.035	0.01	0.01	0.26	15.89	22	7.83	254		2.02
143	Teatown L	10/19/05	2.0	2.01		0.021	0.02	0.31	0.38	39.81	36	7.03	163		0.69
143	Teatown L	6/29/2006				0.030	0.05	0.01	0.56	41.33	37	7.90	161	11.8	4.13

LNum	LName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
143	Teatown L	8/7/2006		2.20		0.054	0.01	0.02	0.60	24.62	46	7.11	237		
143	Teatown L	8/21/2006		2.15		0.020	0.02	0.06	0.80	88.08	19	7.58	196		2.80
143	Teatown L	9/5/2006		2.12		0.023	0.01	0.01	0.48	46.42	25	7.48	177	12.6	17.86
143	Teatown L	9/19/2006		2.18		0.022			0.62	61.66	33	8.46	134		3.10
143	Teatown L	10/2/2006		2.08		0.021	0.02	0.03	0.61	64.11	14	6.85	156		6.86
143	Teatown L	6/29/2007	2.4	1.60	2.4										
143	Teatown L	7/13/2007	~3	2.15	1.5	0.031	0.02	0.06	0.62	44.14	16	7.24	159	2.3	0.91
143	Teatown L	7/17/2007	~3	1.30	1.5	0.037	0.01	0.04	0.69	40.81	18	7.31	146		5.42
143	Teatown L	8/1/2007	~3	1.08	1.5	0.021	0.02	0.02	0.98	104.14	56	8.26	154		18.43
143	Teatown L	8/15/2007	~3	2.20	1.5	0.061	0.01	0.02	0.68	24.36	65	6.84	185		6.95
143	Teatown L	8/27/2007	~3	1.15	1.5	0.012	0.00	0.01	0.67	126.03	55	7.02	156	12.9	7.06
143	Teatown L	9/13/2007	~3	1.40	1.5	0.032	0.08	0.05	0.55	37.68	27	7.12	196		10.30
143	Teatown L	9/25/2007	~3	1.90	1.5	0.055	0.03	0.03	0.68	27.25	24	7.49	172		21.86
143	Teatown L	6/24/2008		1.28	1.0	0.055	0.01	0.01	0.75	29.73	51	7.03	210	13.6	23.32
143	Teatown L	7/7/2008	3.4	1.25	1.0	0.156	0.02	0.05	0.35	4.99	58	7.05	204		21.16
143	Teatown L	7/25/2008	2.6	1.15	1.0	0.107	0.02	0.18	0.58	11.90	43	7.03	142		59.60
143	Teatown L	8/7/2008	2.3	1.35	1.0	0.053	0.01	0.01	0.69	28.77	80	6.78	213		34.68
143	Teatown L	8/19/2008	2.3	1.08	1.0	0.047	0.00	0.02	0.49	23.02	30	6.99	195	13.6	23.06
143	Teatown L	9/17/2008	2.4	1.00	1.0	0.047	0.03	0.02	0.55	25.72	26	7.05	180		17.19
143	Teatown L	10/2/2008	2.2	1.50		0.038	0.02	0.01	0.44	25.70	37	7.26	170		7.65
143	Teatown L	07/01/2009	2.4	1.65	3.0	0.051	0.00	0.02	0.41	17.57	48	7.32	184	10.7	11.75
143	Teatown L	07/30/2009	2.4	1.30		0.056	0.01	0.05	0.59	23.06	63	7.84	164		14.75
143	Teatown L	08/25/2009	2.4	1.30	1.5	0.074	0.01	0.02	0.40	11.92	24	6.49	258		13.90
143	Teatown L	09/08/2009	2.3	1.65	1.5	0.026	0.03	0.02	0.52	43.33	36	7.19	235		5.80
143	Teatown L	10/06/2009	2.4	2.40	1.5	0.026	0.01	0.02	0.30	25.46		6.93	199	13.6	6.80
143	Teatown L	6/30/2010	2.7	2.45	1.5	0.014	0.03	0.04	0.55	89.62	28	6.60	78	11.0	10.10
143	Teatown L	8/4/2010	2.2	2.08	1.5	0.043	0.02	0.02	0.64	32.74	55	7.01	194		26.10
143	Teatown L	9/22/2010	2.2			0.071	0.07	0.05	1.02	31.74	36	7.30	225		80.90

LNum	PName	Date	Zbot	Zsd	Zsamp	Site	TAir	TH20	QA	QB	QC	QD
143	Teatown L	5/16/1997	2.5	2.25	1.5	epi	17	18	3	3	5	25
143	Teatown L	5/30/1997	2.5	2.25	2.0	epi	22	21	4	4	5	
143	Teatown L	6/16/1997	2.5	2.00		epi	21	26	3	4	4	23
143	Teatown L	6/27/1997	2.5	1.85		epi	31	28	2	4	4	2
143	Teatown L	7/11/1997	2.7	2.50	1.0	epi	29	27	3	4	5	
143	Teatown L	7/25/1997	2.6	1.30		epi	24	24	3	4	3	2
143	Teatown L	8/7/1997	2.4	1.10	1.0	epi	29	28	2	4	3	2
143	Teatown L	8/22/1997		1.40	1.0	epi	22	21	4	4	5	1234
143	Teatown L	7/17/1998	2.3	1.75	1.5	epi	27	27	2	4	4	2
143	Teatown L	7/31/1998	2.4	1.70	1.5	epi	27	29	2	5	4	234
143	Teatown L	8/14/1998	2.3	1.30		epi	27	25	2	4	3	2
143	Teatown L	8/31/1998	2.2	2.05		epi	24	26	2	3	3	2
143	Teatown L	9/11/1998	2.2	1.65		epi	34	24	2	4	3	2
143	Teatown L	9/25/1998	2.2	2.10		epi	26	20	2	3	3	6
143	Teatown L	10/9/1998	2.4	2.15		epi	16	17	2	3	3	2
143	Teatown L	7/2/1999	2.4	1.50	1.5	epi	27	26	3	4	4	125
143	Teatown L	7/16/1999	2.2	1.30		epi	30	30	3	4	4	12
143	Teatown L	7/29/1999	2.3	1.28	1.5	epi	25	28	4	4	4	2
143	Teatown L	8/13/1999	2.4	1.25	1.5	epi	30	26	3	4	3	234
143	Teatown L	8/31/1999	2.0	1.35	1.5	epi	25	23	3	4	4	2
143	Teatown L	9/11/1999	2.2	1.34	1.5	epi	26	27	4	4	4	123
143	Teatown L	9/24/1999	2.5	1.28	1.5	epi	22	18	2	3	4	2
143	Teatown L	10/8/1999	2.5	2.35	1.5	epi	16	14	3	3	4	2
143	Teatown L	6/10/2000	2.2	2.23	1.5	epi	34	26	2	3	3	5
143	Teatown L	6/27/2000		2.58	1.5	epi	29	30	3	4	4	1
143	Teatown L	7/10/2000	2.1	0.70	1.5	epi	30	28	4	4	4	12
143	Teatown L	8/1/2000		1.35	1.5	epi	19	21	3	4	4	1235
143	Teatown L	9/12/2000	2.3	1.28	1.5	epi	24	21	3	3	4	123
143	Teatown L	9/24/2000	2.3	1.80	1.5	epi	17	20	3	3	4	125
143	Teatown L	6/20/2001	2.3	0.95	1.5	epi	28	28	4	3	4	12
143	Teatown L	7/2/2001	2.4	0.70	1.5	epi	22	27	3	3	4	1
143	Teatown L	8/1/2001	7.0	3.50	1.5	epi	32	26	2	4	4	234

LNum	PName	Date	Zbot	Zsd	Zsamp	QaQc	TAir	TH20	QA	QB	QC	QD
143	Teatown L	8/15/2001	2.1	2.40	1.5	epi	30	25	5	4	4	1234
143	Teatown L	8/28/2001	6.4	2.44		epi	30	25	3	4	4	2
143	Teatown L	9/17/2001	6.4	1.52	1.5	epi	17	20	2	4	4	2
143	Teatown L	10/3/2001				epi			2	4	3	2
143	Teatown L	10/22/2001	2.0	1.60	1.5	epi	20	15	1	3	2	2
143	Teatown L	6/17/2003	2.0	1.90	2.4	epi	24	20	2	3	2	0
143	Teatown L	7/2/2003	2.4	1.60	2.4	epi	25	22	3	4	4	234
143	Teatown L	7/15/2003	2.4	1.50	2.4	epi	23	22	4	4	5	1234
143	Teatown L	7/29/2003	2.4	1.50	2.4	epi	25	28	4	5	5	1234
143	Teatown L	8/12/2003	2.4	1.50	2.4	epi	30	27	4	4	5	1245
143	Teatown L	8/26/2003	2.4	1.20	2.4	epi	21	22	4	4	5	1234
143	Teatown L	9/9/2003	2.4	1.20	2.4	epi	23	20	4	4	5	1234
143	Teatown L	9/30/2003	2.4	1.45	1.5	epi	16	20	3	3	4	1235
143	Teatown L	7/2/2004		1.06	2.4	epi	31	24	4	4	4	123
143	Teatown L	7/14/2004	2.4	1.03	2.4	epi	22	20	4	4	4	235
143	Teatown L	7/29/2004	2.4	0.95	2.4	epi	29	24	4	5	4	123
143	Teatown L	8/9/2004	2.4	1.08	2.4	epi	25	20	4	5	4	123
143	Teatown L	8/17/2004	2.4	1.00	2.4	epi	26	23	4	4	4	235
143	Teatown L	8/24/2004	2.4	1.98	2.4	epi	24	26	3	4	4	23
143	Teatown L	9/7/2004	2.4	1.50	2.4	epi	27	23	3	4	4	12
143	Teatown L	7/6/2005	2.4	1.38	1.5	epi	30	25	4	5	4	123
143	Teatown L	7/20/2005	2.4	1.28	1.5	epi	32	25	5	5	4	12346
143	Teatown L	8/2/2005	2.4	1.30	1.5	epi	33	26	4	5	4	1234
143	Teatown L	8/16/2005	2.4	0.75	1.5	epi	25	26	3	5	4	125
143	Teatown L	8/24/2005	2.4	0.78	1.5	epi	28	23	4	4	4	123
143	Teatown L	9/1/2005	2.4	0.85	1.5	epi	28	23	4	4	4	123
143	Teatown L	9/27/2005	2.4	0.85	1.5	epi	22	21	2	4	3	2
143	Teatown L	10/19/05	2.0	2.01		epi	21	15	2	3	3	2
143	Teatown L	8/7/2006		2.20		epi	30	26	4	4	4	123
143	Teatown L	8/21/2006		2.15		epi	29	27	4	4	4	2
143	Teatown L	9/5/2006		2.12		epi	20	19	3	4	4	25
143	Teatown L	9/19/2006		2.18		epi	21	23	1	5	4	23
143	Teatown L	10/2/2006		2.08		epi	19	21	2	4	4	2
143	Teatown L	6/29/2007	2.4	1.60	2.4	epi	25	24	4	5	4	1235
143	Teatown L	7/13/2007	~3	2.15	1.5	epi	23	22	2	5	5	2
143	Teatown L	7/17/2007	~3	1.30	1.5	epi	28	26	1	5	4	23
143	Teatown L	8/1/2007	~3	1.08	1.5	epi	29	27	2	5	5	2
143	Teatown L	8/15/2007	~3	2.20	1.5	epi	29	24	2	4	5	2
143	Teatown L	8/27/2007	~3	1.15	1.5	epi	29	26	2	4	5	2
143	Teatown L	9/13/2007	~3	1.40	1.5	epi	27	22	3	4	5	2
143	Teatown L	9/25/2007	~3	1.90	1.5	epi	29	21	2	5	5	2
143	Teatown L	6/24/2008		1.28	1.0	epi	26	28	4	4	4	123
143	Teatown L	7/7/2008	3.4	1.25	1.0	epi	28	28	5	4	4	123
143	Teatown L	7/25/2008	2.6	1.15	1.0	epi	26	25	4	5	4	123
143	Teatown L	8/7/2008	2.3	1.35	1.0	epi	29	27	4	4	4	123
143	Teatown L	8/19/2008	2.3	1.08	1.0	epi	28	27	4	4	4	123
143	Teatown L	9/17/2008	2.4	1.00	1.0	epi	22	22	3	5	4	2
143	Teatown L	10/2/2008	2.2	1.50		epi	13	19	3	5	4	25
143	Teatown L	07/01/2009	2.4	1.65	3.0	epi	22	24	2	5	5	2
143	Teatown L	07/30/2009	2.4	1.30		epi	28	28	2	5	4	23
143	Teatown L	08/25/2009	2.4	1.30	1.5	epi	28	27	3	5	5	123
143	Teatown L	09/08/2009	2.3	1.65	1.5	epi	24	23	4	5	5	123
143	Teatown L	10/06/2009	2.4	2.40	1.5	epi	15	17	2	5	5	2
143	Teatown L	6/30/2010	2.7	2.45	1.5	epi	18	27	2	5	5	2
143	Teatown L	8/4/2010	2.2	2.08	1.5	epi	31	29	2	3	3	2

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 NO ₃ (S), 2 mg/l NO ₂ (S)
NH₄	total ammonia (mg/l)	0.01 mg/l	2 mg/l NH ₄ (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		

Appendix B- Priority Waterbody Listing for Teatown Lake

Teatown Lake (1302-0150)

Impaired Seg

Waterbody Location Information

Revised: 04/30/2008

Water Index No:	H- 31-P44-54-P128a	Drain Basin:	Lower Hudson River
Hydro Unit Code:		Str Class:	B
Waterbody Type:	Lake	Reg/County:	3/Westchester Co. (60)
Waterbody Size:	40.2 Acres	Quad Map:	OSSINING (Q-25-2)
Seg Description:	entire lake		

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

Use(s) Impacted	Severity	Problem Documentation
Aquatic Life	Stressed	Possible
RECREATION	Impaired	Known
Aesthetics	Stressed	Known

Type of Pollutant(s)

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

Source(s) of Pollutant(s)

Known: HABITAT MODIFICATION
Suspected: URBAN/STORM RUNOFF
Possible: Agriculture

Resolution/Management Information

Issue Resolvability:	1 (Needs Verification/Study (see STATUS))	
Verification Status:	4 (Source Identified, Strategy Needed)	
Lead Agency/Office:	ext/NYCW	Resolution Potential: Medium
TMDL/303d Status:	n/a->1*,4c*	

Further Details

Overview

Recreational uses in Teatown Lake are considered to be impaired due to aquatic weed, algal growth and low water transparency. Elevated nutrient (phosphorus) loads attributed to nonpoint sources are the primary contributor to these impairments.

Water Quality Sampling

Teatown Lake has been sampled as part of the NYSDEC Citizen Statewide Lake Assessment Program (CSLAP) beginning in 1997 and continuing through 2006. An Interpretive Summary report of the findings of this sampling was published in 2007. These data indicate that the lake continues to be best characterized as eutrophic, or highly productive, based on low water transparency, and high nutrient (primarily phosphorus) and algae levels. Phosphorus levels in the lake consistently exceed (and often significantly exceed) the state phosphorus guidance value indicating impacted/stressed recreational uses. Corresponding transparency measurements often 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 moderately, and lake color may influence transparency. (DEC/DOW, BWAM/CSLAP, October 2007)

Recreational Assessment

Public perception of the lake and its uses is also evaluated as part of the CSLAP program. This most recent assessment (2005) indicates recreational suitability of the lake to be unfavorable. The recreational suitability of the lake is described most frequently as "substantially" impacted for most recreational uses. The lake itself is most often described as having "definite algae greenness," an assessment that is somewhat higher than expected based on measured water quality characteristics. Assessments have noted that aquatic plants regularly grow to the lake surface and are frequently dense, affecting recreational use. (DEC/DOW, BWAM/CSLAP, October 2007)

Lake Uses

This lake waterbody is designated class B, suitable for use as a public bathing beach, for general recreation and aquatic life support, but not as 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.

New York City Watershed

Teatown Lake is tributary to the Croton System of New York City water supply reservoirs (see New Croton Reservoir, Segment 1302-0010). A Watershed Agreement is in place between NYCDEP and the Croton Watershed communities which sets forth programs and funding for watershed protection. In addition, NYCDEP has developed a phosphorus TMDL for the entire Croton System Watershed to aid in the management of nutrients. An Implementation Plan for this TMDL is being developed. (NYCDEP, July 2006)

Section 303(d) Listing

Teatown Lake not is currently included on the NYS 2008 Section 303(d) List of Impaired Waters. However this updated assessment suggests it is appropriate to include this waterbody on the 2010 List. It is recommended that a listing for phosphorus be added to Part 1 of the List, indicating a waterbody with an impairment requiring TMDL development. (DEC/DOW, BWAM/WQAS, May 2008)