

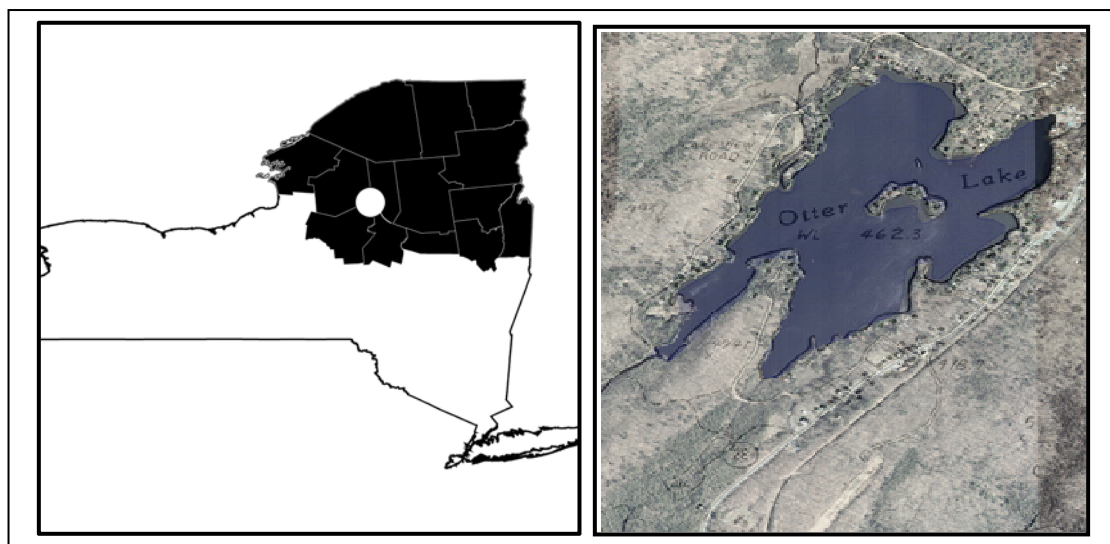
Appendix A: CSLAP 2009 Lake Water Quality Summary: Otter Lake

General Lake Information

Location	town of Forestport
County	Oneida
Basin	Black River
Size	114 hectares (281.6 acres)
Lake Origins	Natural
Watershed Area	598 hectares (1477 acres)
Retention Time	0.35 years
Mean Depth	1.4 meters
Sounding Depth	3 meters
Public Access?	no
Major Tributaries	Otter Lake inlet
Lake Tributary To...	Otter Lake outlet to Long Lake outlet to Cummings Creek to Black River to Lake Ontario
WQ Classification	A (potable water)
Lake Outlet Latitude	43.556
Lake Outlet Longitude	-74.742
Sampling Years	1992-1996, 2002-2009
2009 Samplers	Scott Lincoln
Main Contact	Scott Lincoln

Lake Map

(sampling location marked with a circle)



Background

Otter Lake is a 282 acre, class A lake found in the Town of Forestport in Oneida County, in the southwestern Adirondack region of New York State. It was first sampled as part of CSLAP in 1992.

It is one of 3 CSLAP lakes among the >30 lakes found in Oneida County, and one of 16 CSLAP lakes among the >460 lakes and ponds in the Oswegatchie and Black Rivers drainage basin.

Lake Uses

Otter Lake is a Class A 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, aquatic life and aesthetics.. The lake is used by lake residents and invited guests for a variety of recreational purposes—the lake has no public access.

Otter Lake is not stocked by the state of New York. It is not known by the report authors if private stocking occurs in Otter Lake.

General statewide fishing regulations are applicable in Otter Lake.

Historical Water Quality Data

CSLAP sampling was conducted on Otter Lake from 1992-1996, 2002-2009. The CSLAP reports for Otter Lake for 2001 will eventually be found on the NYSFOLA website at www.nysfola.org, under NYS Lake Association Lake List.

Otter Lake was sampled on August 28th, 1931 by New York State Conservation Department (the predecessor of the NYSDEC) as part of the Biological Survey of the Black River basin. The majority of the water quality parameters measured through CSLAP were not measured in this biological survey, although pH readings were similar. The field notes from this survey included the following:

"Otter Lake is a small, shallow body of water with an irregular shoreline. Originally a speckled trout lake it is now the home of bass and perch, and an attempt has been made to establish the pike-perch. In spite of the haphazard stocking an abundance of fish is still present, due to the excellent weed beds and the high oxygen content of all parts of the water. The shallowness of the lake and the variety of habitats which it affords favor the production of large numbers of fish. It would seem wise to confine the efforts of all interested parties to the production of small mouth bass..."

The lake was also sampled in 1984 as part of the Eastern Lakes Survey (conducted by the US EPA), as part of the Adirondack Lake Survey Corporation (ALSC) study of 1500 Adirondack lakes in 1986, and as part of the NYSDEC Lake Classification and Inventory (LCI) survey in 1987. The results from these studies are listed in Table 1, and indicated water quality conditions that appeared to be comparable to those measured through CSLAP starting in 1992.

The Otter Lake inlet/outlet has not been monitored through the NYSDEC Rotating Intensive Basins (RIBS). The outlet was sampled 2 km downstream, near the confluence with Purgatory Creek, as part of the DEC biological screening program. No biological impacts were reported. The lake has also not been sampled through any of the state fisheries monitoring programs

Lake Association and Management History

Otter Lake is represented by the Otter Lake Association. In addition to CSLAP, the lake association is involved in other watershed management projects, including:

- Black Fly Project
- Maintaining a web site
- Education about ongoing local and state projects

The lake association was also engaged in a proposal to stock grass carp in Otter Lake to control problems with excessive weeds, primarily bladderwort. More information about the Otter Lake Association can be found on their website <http://www.boxinghelp.com/otterlake/>

Summary of 2009 CSLAP Sampling Results

Evaluation of Eutrophication Indicators

Water clarity and chlorophyll *a* readings in Otter Lake were lower than normal in 2009. While these two findings may appear to be inconsistent with each other, both are consistent with higher than normal water color readings in 2009. Phosphorus readings in 2009 were close to the long-term average for Otter Lake, and neither phosphorus nor chlorophyll *a* has exhibited any clear long-term trends. Water clarity readings have decreased over the last eighteen years, coincident with an increase in water color over the same period. The lake continues to be characterized as *mesotrophic*, based on water clarity, chlorophyll *a* and total phosphorus readings. The TSI evaluation suggests that the phosphorus, Secchi disk transparency and chlorophyll *a* readings are “internally” consistent; all are in the expected range given the readings for the other indicators. Overall trophic conditions are summarized on the Lake Scorecard.

Evaluation of Potable Water Indicators

Algae levels may be sufficiently high 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 it is not known if excessive treatment of the lake water is needed. Otter Lake is not thermally stratified, at least on a consistent basis, so deepwater samples have not been collected in the lake (and deepwater intakes to avoid surface algae-enriched waters are not possible).

Evaluation of Limnological Indicators

Several of the CSLAP water quality indicators were lower than normal in 2009. True color levels were higher than normal; this may have been in response to wetter than normal weather. Water color has increased over the last eighteen years, perhaps contributing to a long-term decrease in water transparency. NO_x and total nitrogen readings were lower than normal, but neither of these readings has exhibited a long-term trend. It is likely that the small changes in these other indicators from year to year represent normal variability, or may have been due to wetter weather exhibited in much of the region in 2009. Overall limnological conditions are summarized in the Lake Scorecard.

Evaluation of Biological Condition

A limited phytoplankton survey was conducted in 1992 and showed algae levels similar to those measured in a typical CSLAP sampling session. However, nearly the entire “algae” sample was comprised of bacteria, suggesting active decomposition of organic matter (decayed weeds or algae). The macrophyte data collected through CSLAP show high plant diversity, and no exotic plants were found in the lake (although some native plants may continue to grow to nuisance levels). The modified FQI indicates that the quality of the aquatic plant community is “excellent.”

The fish community in the lake is comprised of a mix of coolwater (at least three species) and warmwater (at least three species) fish. It is not known if the diversity of fish species in the lake is greater than apparent through the ALSC study.

Zooplankton and macroinvertebrates have not been monitored through CSLAP in Otter Lake. Zebra mussels are not found in the lake.

Evaluation of Lake Perception

Recreational assessments were more favorable than normal in 2009, but aquatic plant coverage and water quality assessments were close to normal. The latter suggests that the higher water color and lower water clarity in 2009 did not translate into a use impairment. None of these indicators of lake perception has exhibited any clear long-term trends. Overall lake perception is summarized on the Lake Scorecard.

Evaluation of Local Climate Change

Neither air temperature nor water temperature were significantly different in 2009, and neither measure of local climate change has exhibited significant long-term change.

Lake Scorecard

Category	Indicator	Classification	2009 Change?	Long Term Change?
Eutrophication Indicators	Water Clarity	Mesotrophic	Lower than normal	Decreasing
	Chlorophyll <i>a</i>	Mesotrophic	Lower than normal	No
	Total Phosphorus	Mesotrophic	No	No
Potable Water Indicators	Hypolimnetic Ammonia	Not applicable		
	Hypolimnetic Arsenic	Not applicable		
	Hypolimnetic Iron	Not applicable		
	Hypolimnetic Manganese	Not applicable		
Limnological Indicators	Hypolimnetic Phosphorus	Not applicable		
	Nitrate + Nitrite	Low NOx	Lower than normal	No
	Ammonia	Low Ammonia	No	No
	Total Nitrogen	Low Total Nitrogen	Lower than normal	No
	pH	Circumneutral	No	No
	Specific Conductance	Softwater	No	No
	True Color	Intermediate Color	Higher than normal	Increasing
	Calcium	Not Susceptible to Zebra Mussels	No	No
Lake Perception	WQ Assessment	Definite Algal Greenness	No	No
	Aquatic Plant Coverage	Surface Plant Growth	No	No
	Recreational Assessment	Slightly Impaired	More favorable	No
Biological Condition	Phytoplankton	Not clear- 1992 sample dominated by bacteria	Not known	Not known
	Macrophytes	"Excellent" quality of the aquatic plant community	Not known	Not known
	Zooplankton	Not sampled through CSLAP	Not known	Not known
	Macroinvertebrates	Not sampled through CSLAP	Not known	Not known
	Fish	Coolwater fishery?	Not known	Not known
	Invasive Species	None apparent	Not known	Not known
Local Climate Change	Air Temperature		No	No
	Water Temperature		No	No

Evaluation of Lake Condition Impacts to Lake Uses

Otter Lake is presently among the lakes cited on the Black River Basin PWL, with recreation cited as *stressed* due to excessive weeds. The 2007 PWL listing for the lake is shown in Appendix C.

Potable Water (Drinking Water)

The CSLAP dataset at Otter Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, is inadequate to evaluate the use of the lake for potable water. Potable water use in the lake may be stressed by the amount of algae in the lake.

Contact Recreation (Swimming)

The CSLAP dataset at Otter Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggests that swimming and contact recreation should be fully supported, although bacterial data are needed to evaluate the safety of the lake for swimming.

Non-Contact Recreation (Boating and Fishing)

The CSLAP dataset on Otter Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that non-contact recreation may be *stressed* by excessive weeds (bladderwort).

Aquatic Life

The CSLAP dataset on Otter 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 Otter Lake, including water chemistry data, physical measurements, and volunteer samplers' perception data, suggest that aesthetics may be *stressed*, probably by excessive weeds.

Fish Consumption

There is no fish consumption advisories posted for Otter Lake.

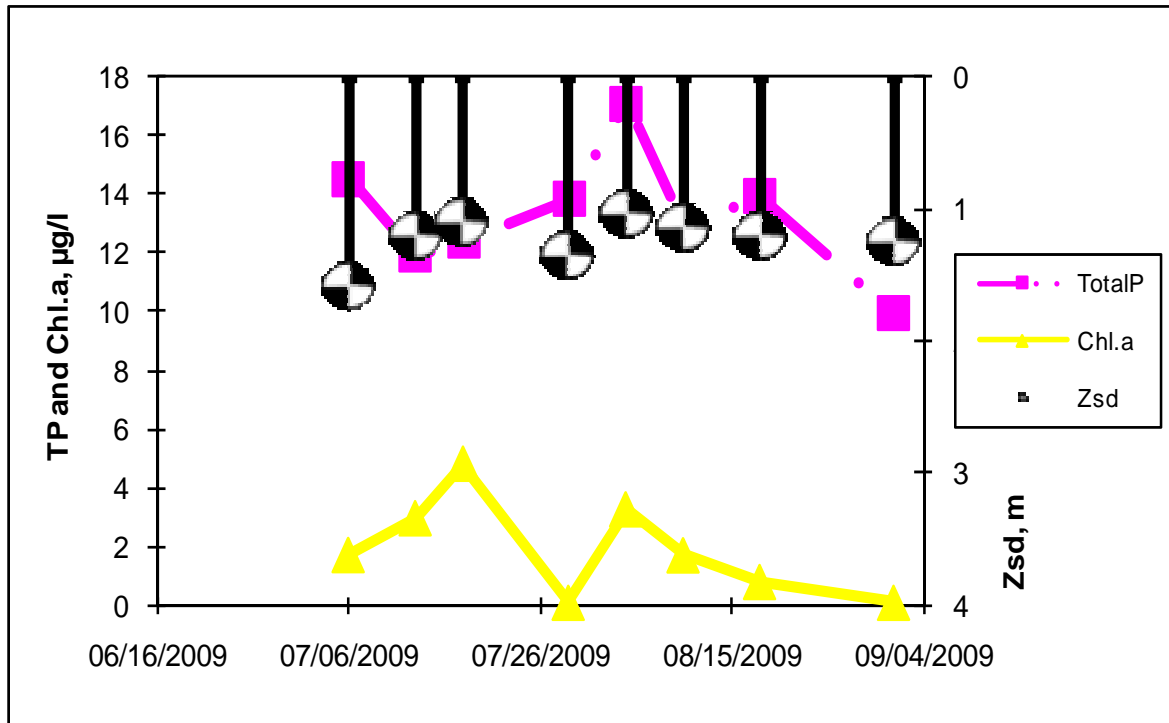
Additional Comments and Recommendations

It is not known if nuisance weeds (bladderwort or an exotic plant) is creating recreational use impacts and is undergoing active management.

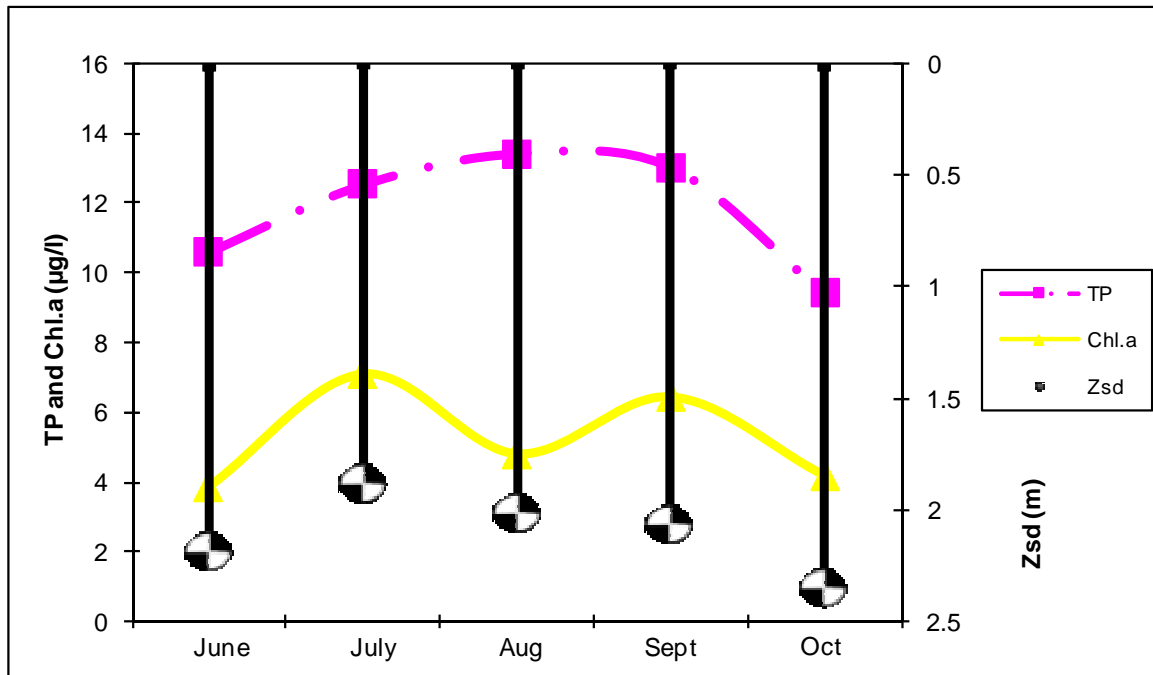
Aquatic Plant IDs-2009

None submitted for identification

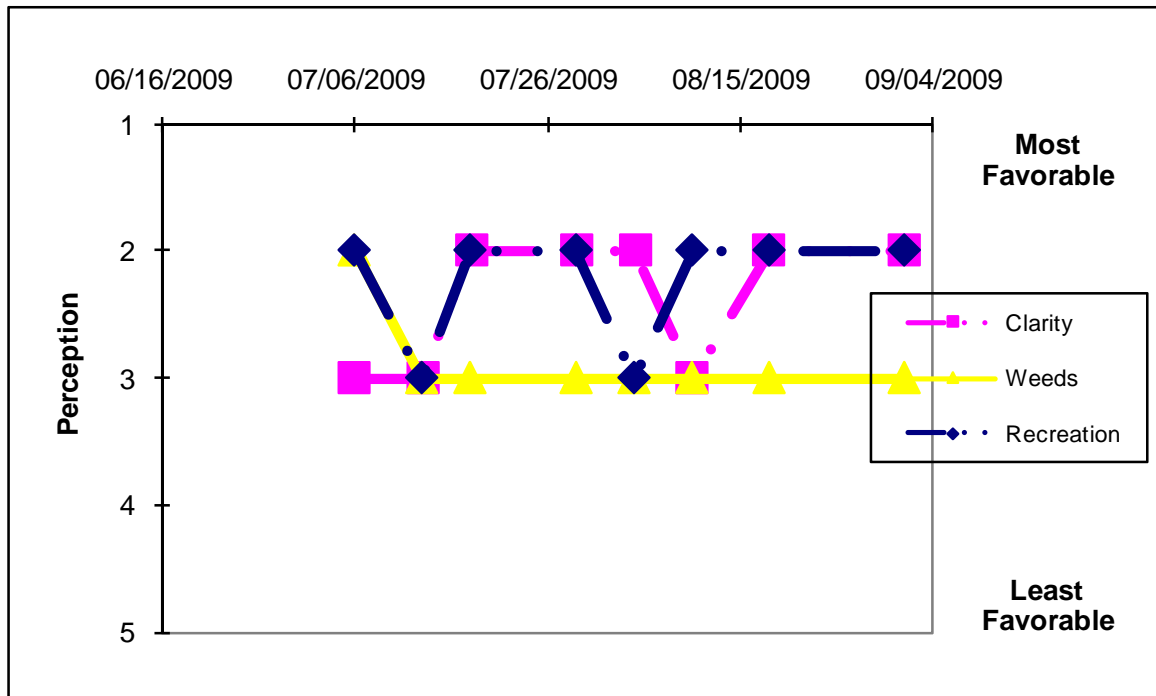
Time Series: Trophic Indicators, 2009



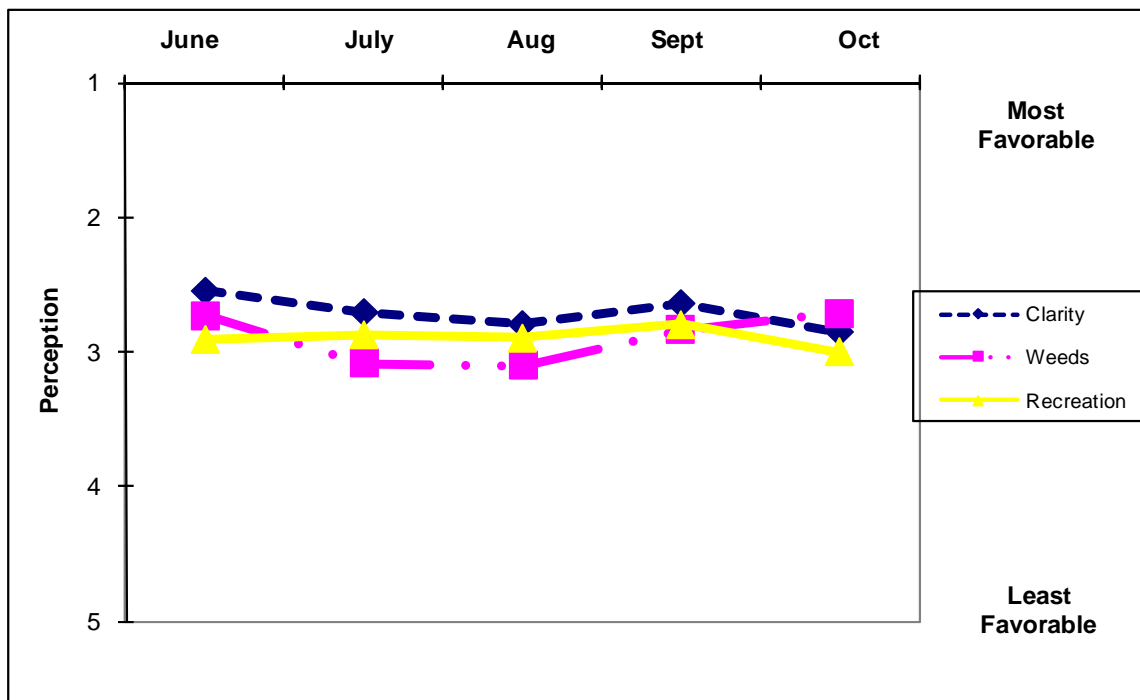
Time Series: Trophic Indicators, Typical Year (1992-2009)



Time Series: Lake Perception Indicators, 2009



Time Series: Lake Perception Indicators, Typical Year (1992-2009)



Appendix B- CSLAP Water Quality Sampling Results for Otter Lake

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
99	Otter L	6/14/1992	2.8	2.38	1.5	0.011	0.01				29	7.23	93		2.74
99	Otter L	7/1/1992		2.42	1.5	0.012	0.01				26	7.43	99		
99	Otter L	7/12/1992	3.0	2.60	1.5	0.012	0.01				25	7.70	98		4.94
99	Otter L	8/1/1992	3.0	2.13	1.5	0.012	0.06				32	7.61	95		5.70
99	Otter L	8/9/1992	2.9	2.13	1.5	0.012	0.01				30	7.04	93		4.07
99	Otter L	8/23/1992	2.5	1.83	1.5	0.008	0.01				30	6.83	96		4.73
99	Otter L	9/6/1992	2.8	2.38	1.5	0.009	0.01				30	7.42	94		8.24
99	Otter L	9/20/1992	2.0	2.25	1.5	0.009	0.01				35	7.41	96		3.55
99	Otter L	7/5/1993	3.1	2.28	1.5	0.013	0.01				27	7.64	92		3.10
99	Otter L	7/18/1993	2.7	2.35	1.5	0.011					27	6.79	94		5.82
99	Otter L	8/1/1993	3.1	2.73	1.5	0.012	0.01				18	7.16	96		2.23
99	Otter L	8/15/1993	3.3	3.00	1.5	0.008					22	7.62	95		1.88
99	Otter L	8/29/1993	3.3	3.05	1.5	0.010	0.01				22	7.59	98		2.05
99	Otter L	9/12/1993	3.2	2.40	1.5	0.014					31	7.22	94		4.01
99	Otter L	9/26/1993	2.8	2.60	1.5	0.008	0.01				24	7.74	95		1.92
99	Otter L	10/11/1993	3.2	3.20	1.5	0.008					29	7.31	96		1.31
99	Otter L	6/12/1994	3.3	2.65	1.5	0.013	0.01				32	7.20	90		3.62
99	Otter L	6/19/1994	3.3	2.20	1.5	0.008					27	7.17	92		6.77
99	Otter L	7/10/1994	3.3	1.40	1.5	0.015	0.01				53	7.35	82		11.60
99	Otter L	7/24/1994	3.0	1.40	1.5	0.013	0.01				53	7.03	86		16.60
99	Otter L	8/13/1994	3.0	1.60	1.5	0.012	0.01				55	7.35	90		6.35
99	Otter L	8/28/1994	3.0	2.25	1.5	0.010					55	7.25	88		5.47
99	Otter L	9/5/1994	3.0	2.50	1.5	0.009	0.01				45	7.25	89		4.85
99	Otter L	10/2/1994	3.3	2.20	1.5	0.010					55	7.36	85		2.52
99	Otter L	7/8/1995	3.3	2.30	1.5	0.014	0.01				30	7.20	96		8.27
99	Otter L	7/22/1995	3.4	2.40	1.5	0.008	0.01				25	7.01	96		3.73
99	Otter L	8/1/1995	3.2	2.40		0.010	0.01				30				4.25
99	Otter L	8/14/1995	3.1	3.10	1.5	0.010	0.01				35	7.51	98		3.89
99	Otter L	8/27/1995	3.1	2.10	1.5	0.006	0.01				30	7.28	102		7.19
99	Otter L	9/12/1995	3.3	3.00	1.5	0.008	0.01				30	7.29	98		2.55
99	Otter L	9/24/1995	3.3	3.30	1.5	0.007	0.01				25	7.19	99		2.13
99	Otter L	10/8/1995	3.3	3.30	1.5	0.004	0.01				25	7.22	99		1.97
99	Otter L	6/9/1996	3.0	3.00	1.5	0.009	0.01				30	7.06	99		2.90
99	Otter L	7/7/1996	3.0	1.50	1.5	0.010	0.02				50	7.07	92		8.50
99	Otter L	7/24/1996	3.0	2.00	1.5	0.009	0.01				60	7.27	94		24.00
99	Otter L	8/7/1996			1.5	0.011	0.01				60	7.31	97		9.30
99	Otter L	8/21/1996	3.0	2.00	1.5	0.009	0.01				55	7.44	98		11.20
99	Otter L	9/2/1996	3.0	3.00	1.5	0.008	0.01				45	7.25	99		3.70
99	Otter L	9/23/1996	3.0	3.00	1.5	0.015	0.01				30	7.28	106		3.72
99	Otter L	7/22/2002	2.3	2.25	1.5	0.006	0.00	0.10	0.63	225.21	42	7.04	136		
99	Otter L	8/6/2002	2.0	2.10	1.5	0.007	0.00	0.04	0.60	176.56	43	7.33	139		15.50
99	Otter L	8/20/2002	1.8	1.90	1.5	0.011	0.00	0.05	0.54	107.57	23	7.29	142		
99	Otter L	9/3/2002	2.1	2.10	1.5	0.012	0.00	0.03	0.49	91.20	37				14.00
99	Otter L	9/15/2002	2.1	2.00	1.5		0.06	0.04	0.57						
99	Otter L	10/1/2002	2.1	2.10	1.5	0.010	0.00	0.01	0.57	125.19	28	7.40	141		11.32
99	Otter L	10/29/2002	1.9	2.00			0.04	0.05	0.52						
99	Otter L	6/10/2003		2.00	1.5	0.007	0.01	0.03	0.37	117.73	42	6.87	139	6.4	
99	Otter L	6/24/2003		1.90	1.5	0.010	0.00	0.03	0.32	70.02	51	6.88	139		14.27
99	Otter L	7/8/2003		1.85	1.5	0.013	0.03	0.05	0.45	74.73	40	7.23	148		25.45
99	Otter L	7/23/2003		2.00	1.5	0.011	0.01	0.03	0.40	80.39	44	7.04	144		4.13
99	Otter L	8/5/2003		2.00	1.5	0.010	0.00	0.01	0.54	118.89	39	7.04	148	7.8	14.20
99	Otter L	8/19/2003		2.00	1.5	0.008	0.00	0.02	0.38	104.62	48	6.99	143		9.26
99	Otter L	9/2/2003		1.85	1.5	0.005	0.02	0.01	0.42	174.01	38	6.93	142		10.79
99	Otter L	9/15/2003		1.85	1.5	0.011	0.00	0.01	0.31	63.02	39	7.16	149		25.65
99	Otter L	6/23/2004		2.00	1.5	0.015	0.02	0.01	0.72	108.80	51	6.19	133		1.94
99	Otter L	9/7/2004		2.15	1.5	0.011	0.02	0.03	0.34	68.22	52	7.32	117		10.90
99	Otter L	9/15/2004		2.00	1.5		0.02	0.01	0.53		49	6.90	88		
99	Otter L	9/22/2004		1.95	1.5	0.009	0.01	0.01			53	7.46	117		6.10
99	Otter L	9/29/2004		1.90	1.5	0.009	0.44	0.07	0.99	255.79	75	6.67	118		
99	Otter L	10/6/2004		2.05	1.5	0.009	0.01	0.02	0.20	48.27	47	7.28	117		
99	Otter L	6/2/2005		1.90	1.5	0.009	0.01	0.01	0.22	55.38	80	3.74	228		1.26
99	Otter L	6/28/2005		1.95		0.013	0.04	0.01	0.19	32.46	43	6.37	131	5.5	2.19
99	Otter L	7/12/2005		1.80	1.5	0.015	0.05	0.03	0.20	27.98	43	7.60	130		
99	Otter L	7/19/2005		1.95	1.5	0.009	0.01	0.02	0.47	120.25	37	8.58	114		1.13

LNum	PName	Date	Zbot	Zsd	Zsamp	Tot.P	NO3	NH4	TDN	TN/TP	TColor	pH	Cond25	Ca	Chl.a
99	Otter L	8/8/2005		1.80	1.5	0.014	0.07	0.01	0.21	32.96	42	7.14	127	7.8	1.00
99	Otter L	8/16/2005		1.95	1.5	0.016	0.08	0.01	0.28	37.76	64	7.38	118		1.32
99	Otter L	8/23/2005		2.05	1.5	0.012	0.01	0.01	0.10	18.58	52	7.25	69		1.23
99	Otter L	8/29/2005		1.85	1.5	0.008	0.01	0.01	0.25	67.97	36	7.12	70		2.45
99	Otter L	6/5/2006		2.05	1.5	0.012	0.03	0.05	0.52	93.85			46	5.0	1.05
99	Otter L	6/18/2006	5.6	2.05	1.5	0.010	0.02	0.02	0.47	102.26	64	7.02	126		1.82
99	Otter L	7/11/2006	4.1	1.75	1.5	0.013	0.04	0.08	0.68	117.92	54	7.16	171		1.37
99	Otter L	7/18/2006	5.9	1.95	1.5	0.012			0.76	134.76	66	6.61	76		2.80
99	Otter L	7/25/2006	5.5	1.80	1.5	0.016	0.03	0.10	0.85	120.44	109	7.22	92	3.2	2.96
99	Otter L	7/31/2006	5.7	1.85	1.5	0.019	0.01	0.14	0.69	79.22	62	6.72	117		8.92
99	Otter L	8/7/2006	5.9	1.85	1.5	0.014	0.02	0.13	0.59	90.94	93	7.20	121		7.45
99	Otter L	8/14/2006	5.3	1.70	1.5	0.015	0.02	0.06	0.79	114.99	72	7.60	66		6.06
99	Otter L	8/13/2007		2.20	1.5	0.022	0.01	0.03	0.70	71.07	67	7.58	140	7.8	0.24
99	Otter L	8/21/2007		2.25	1.5	0.022	0.04	0.04	0.78	79.66	81	7.50	133		0.64
99	Otter L	8/27/2007		1.85	1.5	0.031		0.04			93	8.33	74		0.29
99	Otter L	9/3/2007		1.75	1.5	0.027	0.01	0.02	0.70	58.45	104	7.88	120		8.79
99	Otter L	9/10/2007		1.85	1.5	0.022	0.03	0.05	0.68	66.98	145	7.47	111	8.6	7.16
99	Otter L	9/16/2007		1.85	1.5	0.021	0.04	0.05	0.78	82.81	67	7.68	128		3.77
99	Otter L	9/24/2007		1.78	1.5	0.018	0.01	0.01	0.62	74.00	53	7.37	138		0.29
99	Otter L	10/1/2007		1.78	1.5	0.017	0.02	0.11	0.46	59.60	1	7.64	163		3.76
99	Otter L	7/21/2008		2.30	1.5	0.012	0.04	0.06	0.42	73.95	48	7.79	115	8.8	3.58
99	Otter L	7/28/2008		1.65	1.5	0.017	0.04	0.05	0.32	41.19	65	7.78	85		10.02
99	Otter L	8/19/2008		1.55	1.5	0.031	0.01	0.05	0.34	24.51	59	7.26	143		5.52
99	Otter L	8/25/2008		1.65	1.5	0.021	0.02	0.06	0.36	38.99	75	6.91	119		4.80
99	Otter L	9/2/2008	1.5	1.23	1.5	0.024	0.00	0.01	0.44	40.13	80	7.90	115	7.0	8.18
99	Otter L	9/8/2008		1.43	1.5	0.017	0.01	0.03	0.58	74.03	62	7.41	108		6.65
99	Otter L	9/15/2008		1.20	1.5	0.017	0.01	0.06	0.53	68.47	63	7.27	104		8.52
99	Otter L	9/22/2008		1.28	1.5	0.013	0.03	0.05	0.42	72.22	52	7.48	124		2.81
99	Otter L	07/06/2009		1.60	2	0.015	0.00	0.03			79	7.03	102	5.1	1.71
99	Otter L	07/13/2009		1.20	2	0.012	0.03	0.08			44	6.69	45		2.95
99	Otter L	07/18/2009		1.10	2	0.012	0.01	0.02			54	7.46	141		4.79
99	Otter L	07/29/2009		1.35		0.014	0.01	0.04			80	6.34	93		0.10
99	Otter L	08/04/2009		1.05	2	0.017	0.01	0.07			78	7.65	88	6.7	3.25
99	Otter L	08/10/2009		1.15	2	0.013	0.02	0.04			68	7.25	88		1.70
99	Otter L	08/18/2009		1.20	2	0.014	0.02	0.03			79	7.17	59		0.80
99	Otter L	09/01/2009		1.25	2	0.010	0.02	0.03			75	7.14	116		0.10

LNum	PName	Date	Zbot	Zsd	Zsamp	TAir	TH2O	QA	QB	QC	QD
99	Otter L	6/14/1992	2.8	2.38	1.5	24	21	2	3	3	23
99	Otter L	7/1/1992		2.42	1.5	18	21				
99	Otter L	7/12/1992	3.0	2.60	1.5	25	21	2	4	3	25
99	Otter L	8/1/1992	3.0	2.13	1.5	16	19	2	3	2	1
99	Otter L	8/9/1992	2.9	2.13	1.5	26	21	2	4	3	2
99	Otter L	8/23/1992	2.5	1.83	1.5	24	21	3	4	1	23
99	Otter L	9/6/1992	2.8	2.38	1.5	19	19	3	3	4	2
99	Otter L	9/20/1992	2.0	2.25	1.5	17	18	2	4	2	2
99	Otter L	7/5/1993	3.1	2.28	1.5	30	23	2	3	2	21
99	Otter L	7/18/1993	2.7	2.35	1.5	24	23	2	3	2	12
99	Otter L	8/1/1993	3.1	2.73	1.5	27	25	3	3	3	23
99	Otter L	8/15/1993	3.3	3.00	1.5	33	24	2	4	3	126
99	Otter L	8/29/1993	3.3	3.05	1.5	34	23	3	3	3	12
99	Otter L	9/12/1993	3.2	2.40	1.5	24	20	2	1	1	
99	Otter L	9/26/1993	2.8	2.60	1.5	18	16	3	3	2	25
99	Otter L	10/11/1993	3.2	3.20	1.5	14	11	3	3	3	2
99	Otter L	6/12/1994	3.3	2.65	1.5	26	19	3	4	3	123
99	Otter L	6/19/1994	3.3	2.20	1.5	30	26	3	3	2	12
99	Otter L	7/10/1994	3.3	1.40	1.5	22	23	3	3	2	1
99	Otter L	7/24/1994	3.0	1.40	1.5	24	24	3	3	2	
99	Otter L	8/13/1994	3.0	1.60	1.5	23	22	2	3	2	
99	Otter L	8/28/1994	3.0	2.25	1.5	21	20	2	3	2	5
99	Otter L	9/5/1994	3.0	2.50	1.5	25	17	1	3	2	
99	Otter L	10/2/1994	3.3	2.20	1.5	10	14				
99	Otter L	7/8/1995	3.3	2.30	1.5	18	23	2	3	2	
99	Otter L	7/22/1995	3.4	2.40	1.5	24	27	2	3	2	
99	Otter L	8/1/1995	3.2	2.40				2	3	2	
99	Otter L	8/14/1995	3.1	3.10	1.5	23	26	2	3	2	
99	Otter L	8/27/1995	3.1	2.10	1.5	16	22	2	3	2	
99	Otter L	9/12/1995	3.3	3.00	1.5	21	19	1	3	1	
99	Otter L	9/24/1995	3.3	3.30	1.5			1	3	1	
99	Otter L	10/8/1995	3.3	3.30	1.5	10	10	1	3	1	
99	Otter L	6/9/1996	3.0	3.00	1.5	23	21	1	2	1	
99	Otter L	7/7/1996	3.0	1.50	1.5	24	24	3	4	3	23
99	Otter L	7/24/1996	3.0	2.00	1.5	22	24	3	3	3	123
99	Otter L	8/7/1996			1.5			2	3	3	
99	Otter L	8/21/1996	3.0	2.00	1.5	20	25	3	3	2	
99	Otter L	9/2/1996	3.0	3.00	1.5	22	25	2	3	2	
99	Otter L	9/23/1996	3.0	3.00	1.5	17	18	1	3	2	
99	Otter L	7/22/2002	2.3	2.25	1.5	23		3	3	3	23
99	Otter L	8/6/2002	2.0	2.10	1.5	20		3	3	3	237
99	Otter L	8/20/2002	1.8	1.90	1.5	22					
99	Otter L	9/3/2002	2.1	2.10	1.5	24		3	3	3	235
99	Otter L	9/15/2002	2.1	2.00	1.5	20					
99	Otter L	10/1/2002	2.1	2.10	1.5	20		3	3	3	23
99	Otter L	10/29/2002	1.9	2.00		2		3	3	3	123
99	Otter L	6/10/2003		2.00	1.5	20		2	2	3	12
99	Otter L	6/24/2003		1.90	1.5	28		2	2	3	23
99	Otter L	7/8/2003		1.85	1.5	23		2	3	3	1234
99	Otter L	7/23/2003		2.00	1.5	23		3	3	3	1237
99	Otter L	8/5/2003		2.00	1.5	23		4	3	3	235
99	Otter L	8/19/2003		2.00	1.5	23		3	3	4	237
99	Otter L	9/2/2003		1.85	1.5	19		4	4	4	12347
99	Otter L	9/15/2003		1.85	1.5	18		4	3	4	12345
99	Otter L	6/23/2004		2.00	1.5	21		3	3	4	1234
99	Otter L	9/7/2004		2.15	1.5	23		4	3	4	1234
99	Otter L	9/15/2004		2.00	1.5	22		3	3	4	1234
99	Otter L	9/22/2004		1.95	1.5	21		3	3	4	12346
99	Otter L	9/29/2004		1.90	1.5	20		3	3	4	234
99	Otter L	10/6/2004		2.05	1.5	14		4	3	4	1234
99	Otter L	10/12/2004		2.20	1.5	12		3	3	4	1234
99	Otter L	6/2/2005		1.90	1.5	24		3	3	4	1234

LNum	PName	Date	Zbot	Zsd	Zsamp	TAir	TH20	QA	QB	QC	QD
99	Otter L	6/28/2005		1.95		27		3	3	3	1234
99	Otter L	7/12/2005		1.80	1.5	29		3	3	4	1234
99	Otter L	7/19/2005		1.95	1.5	28		3	3	4	1234
99	Otter L	8/8/2005		1.80	1.5	27		4	3	4	1234
99	Otter L	8/16/2005		1.95	1.5	21		3	3	4	1234
99	Otter L	8/23/2005		2.05	1.5	21		4	3	4	1234
99	Otter L	8/29/2005		1.85	1.5	23		3	3	4	1234
99	Otter L	6/5/2006		2.05	1.5	22	22	3	2	3	1234
99	Otter L	6/18/2006	5.6	2.05	1.5	30		3	3	3	1234
99	Otter L	7/11/2006	4.1	1.75	1.5	22		3	3	4	12346
99	Otter L	7/18/2006	5.9	1.95	1.5	23		3	3	4	12346
99	Otter L	7/25/2006	5.5	1.80	1.5	26		4	4	4	12346
99	Otter L	7/31/2006	5.7	1.85	1.5	26		4	3	4	123467
99	Otter L	8/7/2006	5.9	1.85	1.5	25		4	4	4	12346
99	Otter L	8/14/2006	5.3	1.70	1.5	20		4	4	4	123467
99	Otter L	8/13/2007		2.20	1.5	21		3	3	4	12346
99	Otter L	8/21/2007		2.25	1.5	19		3	2	3	1234
99	Otter L	8/27/2007		1.85	1.5	21		3	2	3	148
99	Otter L	9/3/2007		1.75	1.5	23		3	2	3	1347
99	Otter L	9/10/2007		1.85	1.5	18		3	2	3	134
99	Otter L	9/16/2007		1.85	1.5	18		3	2	3	123
99	Otter L	9/24/2007		1.78	1.5	22		3	2	3	134
99	Otter L	10/1/2007		1.78	1.5	18		3	1	3	14
99	Otter L	7/21/2008		2.30	1.5	25	21	2	3	3	136
99	Otter L	7/28/2008		1.65	1.5	20	24	3	3	3	136
99	Otter L	8/19/2008		1.55	1.5	16	22	3	3	3	135
99	Otter L	8/25/2008		1.65	1.5	17	23	3	3	3	13456
99	Otter L	9/2/2008	1.5	1.23	1.5	25	23	3	3	3	1
99	Otter L	9/8/2008		1.43	1.5	19	22	3	3	3	4
99	Otter L	9/15/2008		1.20	1.5	13	19	3	3	3	135
99	Otter L	9/22/2008		1.28	1.5	16	19	3	3	3	13
99	Otter L	07/06/2009		1.60	2	17	21	3	2	2	15
99	Otter L	07/13/2009		1.20	2	21	23	3	3	3	1
99	Otter L	07/18/2009		1.10	2	23	23	2	3	2	1
99	Otter L	07/29/2009		1.35		25	24	2	3	2	123
99	Otter L	08/04/2009		1.05	2	26	23	2	3	3	125
99	Otter L	08/10/2009		1.15	2	23	23	3	3	2	135
99	Otter L	08/18/2009		1.20	2	27	25	2	3	2	1
99	Otter L	09/01/2009		1.25	2	18	22	2	3	2	1

Legend Information

<i>Indicator</i>	<i>Description</i>	<i>Detection Limit</i>	<i>Standard (S) / Criteria (C)</i>
General Information			
Lnum	lake number (unique to CSLAP)		
Lname	name of lake (as it appears in the Gazetteer of NYS Lakes)		
Date	sampling date		
Field Parameters			
Zbot	lake depth at sampling point, meters (m)		
Zsd	Secchi disk transparency or clarity	0.1m	1.2m (C)
Zsamp	water sample depth (m)	0.1m	none
Tair	air temperature (C)	-10C	none
TH20	water temperature (C)	-10C	none
Laboratory Parameters			
Tot.P	total phosphorus (mg/l)	0.003 mg/l	0.020 mg/l (C)
NOx	nitrate + nitrite (mg/l)	0.01 mg/l	10 mg/l NO3 (S), 2 mg/l NO2 (S)
NH4	total ammonia (mg/l)	0.01 mg/l	2 mg/l NH4 (S)
TN	total nitrogen (mg/l)	0.01 mg/l	none
TN/TP	nitrogen to phosphorus (molar) ratio, = (TKN + NOx)*2.2/TP		none
TCOLOR	true (filtered) color (ptu, platinum color units)	1 ptu	none
pH	powers of hydrogen (S.U., standard pH units)	0.1 S.U.	6.5, 8.5 S.U. (S)
Cond25	specific conductance, corrected to 25C (umho/cm)	1 umho/cm	none
Ca	calcium (mg/l)	1 mg/l	none
Chl.a	chlorophyll a (ug/l)	0.01 ug/l	none
Fe	iron (mg/l)	0.1 mg/l	0.3 mg/l (S)
Mn	manganese (mg/l)	0.01 mg/l	0.3 mg/l (S)
As	arsenic (mg/l)	1 ug/l	10 ug/l (S)
Lake Assessment			
QA	water quality assessment, 5 point scale; 1 = crystal clear, 2 = not quite crystal clear, 3 = definite algae greenness, 4 = high algae levels, 5 = severely high algae levels		
QB	aquatic plant assessment, 5 point scale; 1 = no plants visible, 2 = plants below surface, 3 = plants at surface, 4 = plants dense at surface, 5 = surface plant coverage		
QC	recreational assessment, 5 point scale; 1 = could not be nicer, 2 = excellent, 3 = slightly impaired, 4 = substantially impaired, 5 = lake not usable		
QD	reasons for recreational assessment, 8 choices; 1 = poor water clarity, 2 = excessive weeds, 3 = too much algae, 4 = lake looks bad, 5 = poor weather, 6 = litter/surface debris, 7 = too many lake users, 8 = other		

Appendix C- PWL Listing for Otter Lake

Otter Lake (0801-0205)

MinorImpacts

Waterbody Location Information

Revised: 03/12/2007

Water Index No:	Ont 19- 94- 1-P922- 4-P926	Drain Basin:	Black River
Hydro Unit Code:	04150101/030	Str Class:	A
Waterbody Type:	Lake (Mesotrophic)	Reg/County:	6/Oneida Co. (33)
Waterbody Size:	134.4 Acres	Quad Map:	MCKEEVER (G-20-0)
Seg Description:	entire lake		

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

Use(s) Impacted	Severity	Problem Documentation
Recreation	Stressed	Known

Type of Pollutant(s)

Known: ALGAL/WEED GROWTH (aquatic weeds)
Suspected: ---
Possible: ---

Source(s) of Pollutant(s)

Known: HYDRO MODIFICATION
Suspected: ---
Possible: ---

Resolution/Management Information

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

Further Details

Recreational uses in Otter Lake are known to experience minor impacts due to excessive weed growth. High weed densities and associated impacts have been reported through the CSLAP program and verified by DEC staff.

Otter Lake has been sampled as part of the NYSDEC Citizen Statewide Lake Assessment Program (CSLAP) beginning in 1992 thru 1996 and in 2002 and continuing through the present. 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 mesotrophic, or moderately productive. Phosphorus levels in the lake fall well below the state guidance values indicating impacted/stressed recreational uses. Corresponding transparency measurements also 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 to highly colored, which is also typical of northwestern Adirondack Lakes, and likely reflects natural conditions. Oxygen levels do not appear to be significantly reduced at lower lake depths and internal nutrient cycling is not significant. (DEC/DOW, BWAM/CSLAP, June 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 unfavorable. The recreational suitability of the lake is described most frequently

as "slightly" to "substantially" impacted. The lake itself is most often described as having "definite algal greenness." Assessments have noted that aquatic plants regularly grow to the lake surface. Recreational impacts stem from excessive weed growth, and poor water clarity, as a result of occasionally elevated algae levels and naturally high water color, and despite nutrient levels that remain low. It is likely that these impacts are associated with excessive growth of bladderwort (a weakly rooted plant) in the lake. (DEC/DOW, BWAM/CSLAP, June 2006)

This lake waterbody is designated class A, suitable for use as a water supply, public bathing beach, general recreation and aquatic life support. 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.