



Volunteer Lake Assessment Program Individual Lake Reports

WEBSTER LAKE, FRANKLIN, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	11,136	Max. Depth (m):	11.8	Flushing Rate (yr ⁻¹)	1.5
Surface Area (Ac.):	612	Mean Depth (m):	5.5	P Retention Coef:	0.58
Shore Length (m):	6,900	Volume (m ³):	13,586,500	Elevation (ft):	401

TROPHIC CLASSIFICATION

Year	Trophic class
1979	MESOTROPHIC
1993	OLIGOTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

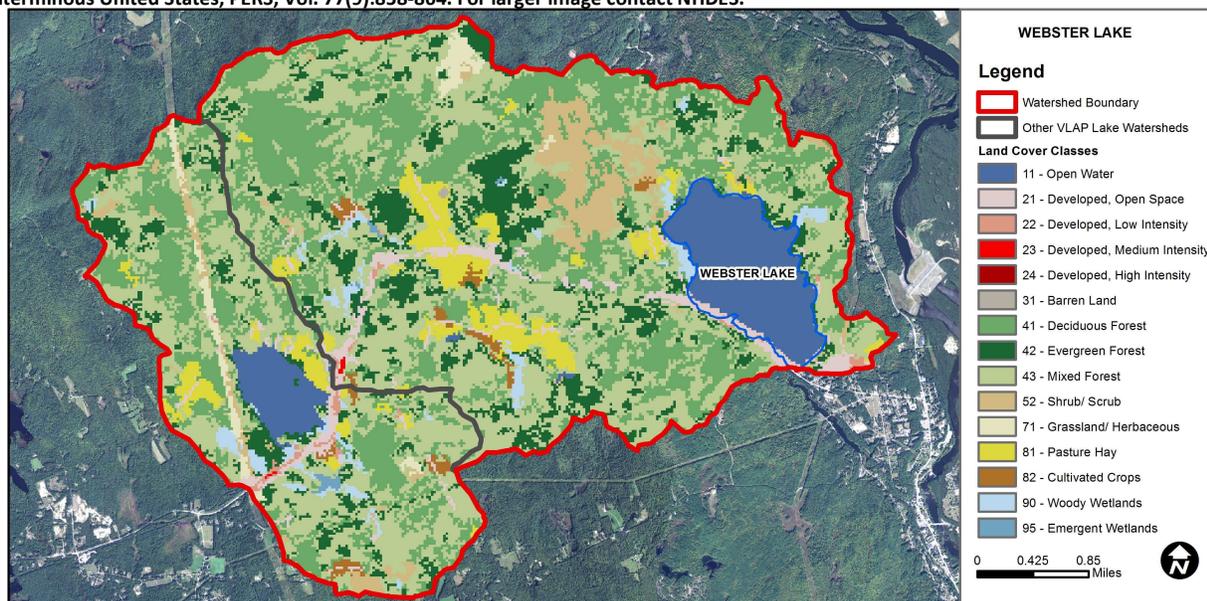
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Good	Geometric means < criteria; however at least 1 exceedance of the single sample criteria occurred.
	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Good	At least 10 samples with 1 sample but < 10% of samples exceeding criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

WEBSTER LAKE - LAGACE TOWN BEACH	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.
WEBSTER LAKE - LAGACE TOWN BEACH	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
WEBSTER LAKE - GRIFFIN TOWN BEACH	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.
WEBSTER LAKE - GRIFFIN TOWN BEACH	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	7.45	Barren Land	0.03	Grassland/Herbaceous	1.31
Developed-Open Space	3.01	Deciduous Forest	26.81	Pasture Hay	4.8
Developed-Low Intensity	0.42	Evergreen Forest	11.42	Cultivated Crops	0.86
Developed-Medium Intensity	0.04	Mixed Forest	37.07	Woody Wetlands	1.8
Developed-High Intensity	0	Shrub-Scrub	4.61	Emergent Wetlands	0.18



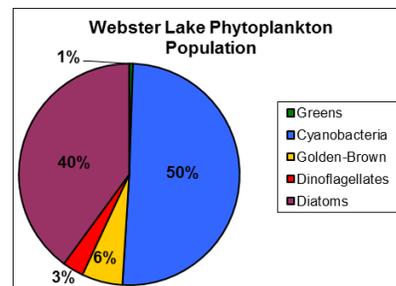
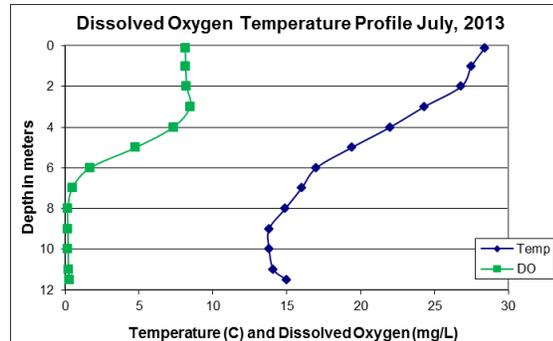
VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

WEBSTER LAKE, FRANKLIN, NH

2013 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphics)

- ♣ **CHLOROPHYLL-A:** Chlorophyll levels were low in June, increased slightly in July, and decreased in August. Average chlorophyll levels were less than the state median and historical trend analysis indicates stable chlorophyll with low variability between years.
- ♣ **CONDUCTIVITY/CHLORIDE:** Deep spot and tributary conductivity and chloride levels were less than or approximately equal to the state medians and were in the low to average range. Historical trend analysis indicates relatively stable epilimnetic conductivity with moderate variability between years.
- ♣ **E. COLI:** Tributary E. coli levels were generally low and less than the state standard for surface waters. August E. coli levels in Rte. 11 Inlet and Lake Ave Trib were slightly elevated likely due to low flow conditions.
- ♣ **TOTAL PHOSPHORUS:** Epilimnetic and metalimnetic phosphorus levels were slightly above average in July and decreased to low levels in August. Historical trend analysis indicates relatively stable epilimnetic phosphorus with moderate variability between years. Hypolimnetic phosphorus was elevated likely due to the release of phosphorus and organic compounds from bottom sediments when hypolimnetic dissolved oxygen levels decrease below 1.0 mg/L. Gagnes Brook phosphorus was elevated in August and October and the turbidities were also slightly elevated during low flow conditions.
- ♣ **TRANSPARENCY:** Transparency remained relatively stable from June through August and was slightly better than the state median. However, historical trend analysis indicates significantly decreasing (worsening) transparency since monitoring began.
- ♣ **TURBIDITY:** Epilimnetic and metalimnetic turbidity remained low while hypolimnetic turbidity was elevated likely due to the release of organic compounds from bottom sediments when dissolved oxygen levels decrease below 1.0 mg/L. Gagnes Brook and Lake Ave Trib. turbidities were elevated in August and October during low flow conditions. Outlet turbidity was elevated in June potentially due to stormwater runoff from significant storm events.
- ♣ **PH:** Metalimnetic and hypolimnetic pH were less than desirable range 6.5 – 8.0 units. Historical trend analysis indicates relatively stable epilimnetic pH with moderate variability between years.
- ♣ **RECOMMENDED ACTIONS:** Water quality looked good in 2013 despite above average rainfall. The increased frequency and intensity of storm events highlights the importance of managing stormwater runoff in the watershed. Educate lake and watershed residents on ways to reduce stormwater runoff from their properties utilizing DES' "Homeowner's Guide to Stormwater Management". Keep up the great work!



NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

- Chloride:** < 230 mg/L (chronic)
- E. coli:** > 88 cts/100 mL – public beach
- E. coli:** > 406 cts/100 mL – surface waters
- Turbidity:** > 10 NTU above natural level
- pH:** 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

- Alkalinity:** 4.9 mg/L
- Chlorophyll-a:** 4.58 mg/m³
- Conductivity:** 40.0 uS/cm
- Chloride:** 4 mg/L
- Total Phosphorus:** 12 ug/L
- Transparency:** 3.2 m
- pH:** 6.6

Table 1. 2013 Average Water Quality Data for WEBSTER LAKE										
Station	Alk.	Chlor-a	Chloride	Cond.	E. Coli	Total P	Trans.	Turb.	pH	
	mg/l	ug/l	mg/l	uS/cm	#/100ml	ug/l	m	ntu		
Beaver Brook			3	26.6	55	18	NVS	VS	0.80	6.30
Epilimnion	5.80	3.71	4	41.3		12	3.83	4.38	0.48	6.80
Metalimnion				43.0		12			0.95	6.48
Hypolimnion				55.3		39			9.20	6.29
Gagnes Brook			3	28.7	20	26			2.59	6.04
Lake Ave Trib			3	31.7	73	30			1.77	5.96
Outlet				48.5		28			1.77	6.88
Rte 11 Inlet			3	19.7	57	5			0.35	6.32
Sucker Brook			6	60.8	37	12			0.60	7.02

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	Stable	Trend not significant; data moderately variable.	Chlorophyll-a	Stable	Trend not significant; data show low variability.
Conductivity	Stable	Trend not significant; data moderately variable.	Transparency	Degrading	Data significantly decreasing.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.

