



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 DRAFT 2018 305(b) report on the status of N.H. waters, and are based on data collected from 2008-2017. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organization/divisions/water/wmb/swqa/index.htm

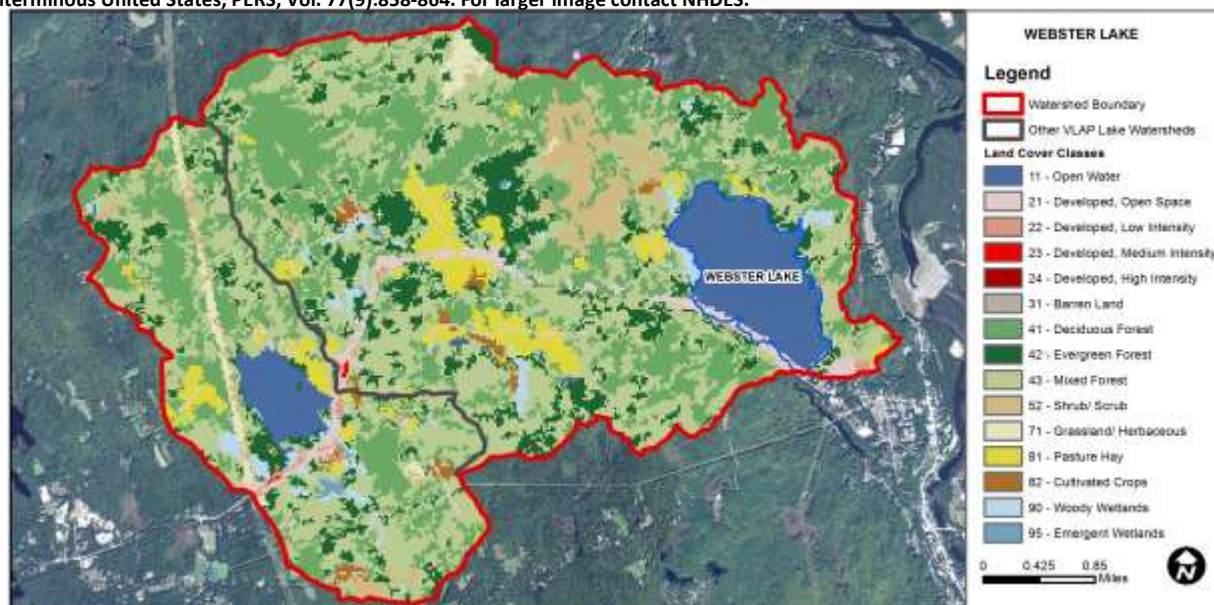
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
	pH	Slightly Bad	Data periodically exceed water quality standards or thresholds for this parameter by a small margin.
	Oxygen, Dissolved	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.
	Dissolved oxygen saturation	Slightly Bad	Data periodically exceed water quality standards or thresholds for this parameter by a small margin.
	Chlorophyll-a	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
Primary Contact Recreation	Escherichia coli	Encouraging	Limited data for this parameter predicts water quality standards or thresholds are being met; however more data are necessary to fully assess the parameter.
	Cyanobacteria hepatotoxin	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

WEBSTER LAKE - LAGACE TOWN BEACH	Escherichia coli	Bad	Data periodically exceed water quality standards or thresholds for this parameter by a large margin.
WEBSTER LAKE - GRIFFIN TOWN BEACH	Escherichia coli	Bad	Data periodically exceed water quality standards or thresholds for this parameter by a large margin.
WEBSTER LAKE - LAGACE TOWN BEACH	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
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

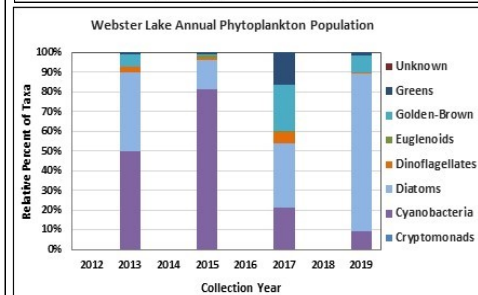
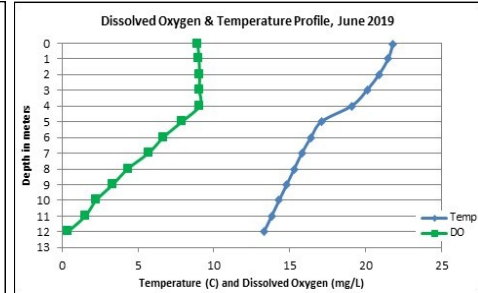
WEBSTER LAKE, FRANKLIN

2019 DATA SUMMARY

RECOMMENDED ACTIONS: Lake phosphorus and algal growth remained within a good range for mesotrophic lakes. Low tributary flows resulted in several samples having elevated turbidity, phosphorus and bacteria levels. Only collect a sample if there is enough flow in the tributary to get a sample free of organic material. This decaying organic matter and iron bacteria precipitate are rich in phosphorus and provide an ideal environment for bacterial growth. Data suggest a layer of algae/cyanobacteria that migrated from the hypolimnion to the metalimnion between July and August, and the lake experienced sporadic surface scums in late fall following lake turnover. Consider sampling just the deep spot later in the season (September/October) to evaluate water quality during/following fall turnover. Continue to maintain flow in the Outlet channel to flush the pond and reduce nutrient retention that could also help fuel algal and cyanobacteria blooms. Keep up the great work!

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

- **CHLOROPHYLL-A:** Chlorophyll levels were low in June and July and increased to a slightly elevated level in August. Average chlorophyll level decreased slightly from 2018 and was less than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates relatively stable chlorophyll levels since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Metalimnetic (middle water layer), Hypolimnetic (lower water layer), Gages Bk., and Lake Ave. Trib. Conductivity and/or chloride levels were approximately equal to the state medians and within an average range for NH lakes. Historical trend analysis indicates stable epilimnetic conductivity levels since monitoring began. Rte. 11 Inlet conductivity and chloride levels were low and less than the state medians. Sucker Brook conductivity and chloride levels were greater than the state medians, yet less than a level of concern.
- **COLOR:** Apparent color measured in the epilimnion indicates the water was lightly tea colored, or light brown.
- **E. COLI:** Rte. 11 Inlet, Gages Brook and Sucker Brook E. coli levels were within a low range and much less than the state standard for surface waters. Lake Ave Trib. and Trib. B (upstream) E. coli levels were very low in June during moderate flows, and then Lake Ave Trib. E. coli levels were slightly elevated in July during very low flows.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels fluctuated within a low range. Average epilimnetic phosphorus level remained stable with 2018 and was slightly less than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates stable, yet variable, epilimnetic phosphorus levels since monitoring began. Metalimnetic phosphorus levels were elevated in August and the turbidity of the sample was also elevated indicating a layer of algae/cyanobacteria at that depth. Hypolimnetic phosphorus level was elevated in July also potentially due to a layer of cyanobacteria. Rte. 11 Inlet and Sucker Brook phosphorus levels were within a low range. Gages Brook phosphorus levels were elevated in July and August when turbidity was extremely elevated and lab data noted colored water with organic material. Lake Ave. Trib. phosphorus levels were greatly elevated in July during low flows and the turbidity was also slightly elevated.
- **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was low (worse) in June, increased (improved) greatly in July, and then decreased slightly in August but remained within a good range. Average NVS transparency increased slightly from 2018 and was higher (better) than the state median. However, historical trend analysis indicates significantly decreasing (worsening) transparency since monitoring began.
- **TURBIDITY:** Epilimnetic, Rte. 11 Inlet and Sucker Brook turbidity levels were within a low range. Metalimnetic turbidity level was elevated in August likely due to a layer of algae/cyanobacteria. Hypolimnetic turbidity level was slightly elevated July also potentially due to algae/cyanobacteria. Gages Brook turbidity level was greatly elevated in August during very low flows. Lake Ave Trib. turbidity level was elevated in July during low flows.
- **PH:** Epilimnetic, Metalimnetic, Hypolimnetic, and Sucker Brook pH levels were within the desirable range 6.5-8.0 units, however epilimnetic pH levels have historically fluctuated below the desirable range. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began. Gages Brook, Lake Ave Trib. and Rte. 11 Inlet pH levels were slightly less than desirable.



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: between 6.5-8.0 (unless naturally occurring)

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

Alkalinity: 4.5 mg/L

Chlorophyll-a: 4.39 ug/L

Conductivity: 42.3 uS/cm

Chloride: 5 mg/L

Total Phosphorus: 11 ug/L

Transparency: 3.3 m

pH: 6.6

Station Name	Table 1. 2019 Average Water Quality Data for WEBSTER LAKE - FRANKLIN										
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Color pcu	Cond. us/cm	E. coli mpn/100ml	Total P mg/l	Trans. m		Turb. ntu	pH
								NVS	VS		
Epilimnion	7.0	3.37	8	30	52.9		10	4.23	4.75	0.65	6.86
Metalimnion					53.2		12			1.91	6.86
Hypolimnion					54.0		32			2.12	6.60
Gages Brook			3		49.6	49	39			13.6	6.34
Lake Ave Trib.			7		45.8	247	120			4.42	6.22
Lake Ave Trib. B						8					
Rte. 11 Inlet			3		24.8	54	7			0.66	6.44
Sucker Brook			15		94.2	36	10			0.5	7.15

HISTORICAL WATER QUALITY TREND ANALYSIS

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

