



# 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 <sup>-1</sup> )	1.5
Surface Area (Ac.):	612	Mean Depth (m):	5.5	P Retention Coef:	0.58
Shore Length (m):	6,900	Volume (m <sup>3</sup> ):	13,586,500	Elevation (ft):	401

### TROPHIC CLASSIFICATION

Year	Trophic class
1979	MESOTROPHIC
1993	OLIGOTROPHIC

### KNOWN EXOTIC SPECIES

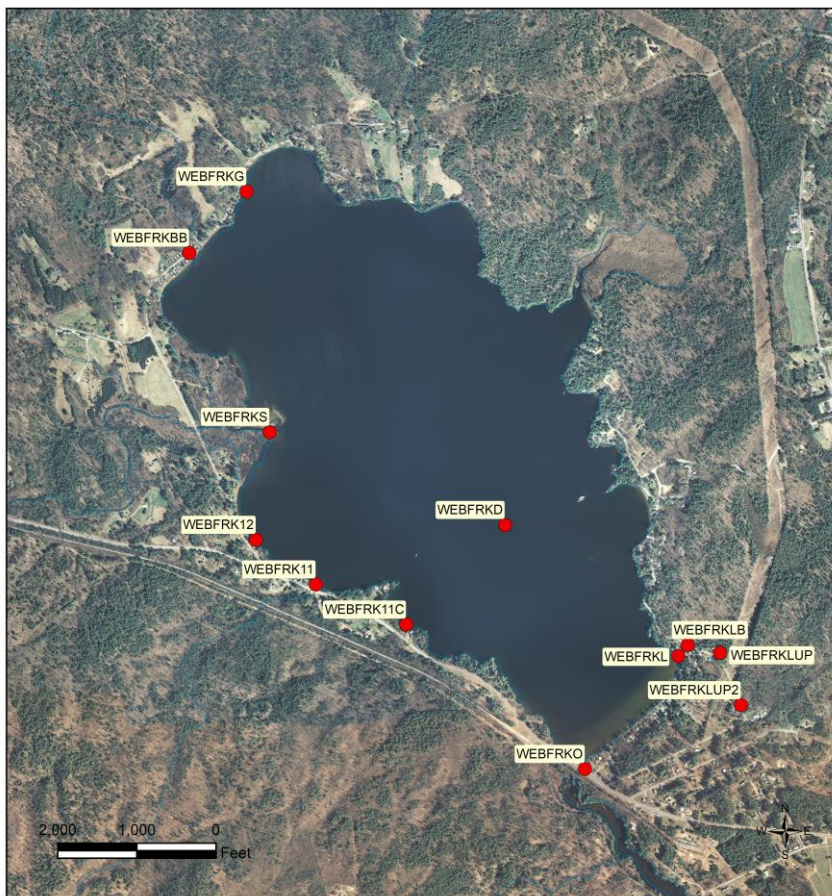

The Waterbody Report Card tables are generated from the DRAFT 2018 305(b) report on the status of N.H. waters, and are based on data collected from 2008-2017. Detailed waterbody assessment and report card information can be found at [www.des.nh.gov/organization/divisions/water/wmb/swqa/index.htm](http://www.des.nh.gov/organization/divisions/water/wmb/swqa/index.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	Cautionary	Limited data for this parameter predicts exceedance of water quality standards or thresholds; however more data are necessary to fully assess the parameter.
	Dissolved oxygen satura	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	No Data	No data for this parameter.
	Cyanobacteria hepatoto	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).

### VLAP SAMPLE SITE MAP



### WEBSTER LAKE FRANKLIN

#### VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
WEBFRK11	RTE 11 INLET
WEBFRK11C	RTE 11 CONSTRUCTION SITE
WEBFRKD	DEEP SPOT
WEBFRKG	GAGNES BROOK
WEBFRKL	LAKE AVE TRIB
WEBFRKO	OUTLET
WEBFRKBB	BEAVER BROOK
WEBFRKS	SUCKER BROOK
WEBFRK12	RTE 11 RUNOFF
WEBFRKLUP2	LAKE AVE TRIB FAR UPSTREAM
WEBFRKLUP	LAKE AVE TRIB UPSTREAM
WEBFRKLB	LAKE AVE TRIB B

Source: The data layers are derived from NHDES data and are under constant revision. NHDES is not responsible for the use or interpretation of this information. Not intended for legal use. NHDES Watershed Management Bureau Date: 2/17/2021





# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

## WEBSTER LAKE, FRANKLIN

### 2020 DATA SUMMARY

**RECOMMENDED ACTIONS:** Great job sampling in 2020! Lake nutrient (phosphorus) levels remain slightly elevated and greater than the threshold for oligotrophic lakes, however algal growth (chlorophyll) has generally remained equal to the threshold for oligotrophic lakes since 2010 which is encouraging. However, the lake experiences cyanobacteria surface scums and the cyanobacteria growth is likely fueled by excess nutrients in hypolimnetic waters. Conduct a deep spot sampling event in early fall (late September/early October) to evaluate water quality during/following fall turnover events. Continue to maintain flow in the Outlet channel to help flush nutrients out of the pond that could fuel cyanobacteria growth. Educate shoreline property owner's on ways to stabilize shorelines to reduce erosion and encourage property owners to be certified LakeSmart through NHLAKES lake-friendly living program [www.nhakes.org/lakesmart/](http://www.nhakes.org/lakesmart/). Keep up the great work!

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

- ◆ **CHLOROPHYLL-A:** Chlorophyll level was within a low range in July and remained stable in September. Average chlorophyll level decreased slightly from 2019, was less than the state median, and was approximately equal to the threshold for oligotrophic 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), Lake Ave Trib., and Rte. 11 Inlet conductivity and/or chloride levels were lower than or 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. Sucker Brook conductivity and chloride levels were slightly greater than the state medians yet much less than a level of concern.
- ◆ **COLOR:** Apparent color measured in the epilimnion indicates the water was clear, with little to no tea coloring in July, and then darkened slightly to a light brown color in September.
- ◆ **E. COLI:** Rte. 11 Inlet E. coli levels were very low in June and increased in July following a significant storm event during drought and low flow conditions. Lake Ave Trib. E. coli levels were higher in June during low flows and decreased slightly in July following the storm event. Sucker Brook E. coli levels were low. E. coli levels at all stations were much less than the state standard of 406 cts/100 mL for surface waters.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic and Metalimnetic phosphorus levels were moderate in July and increased to a slightly elevated range in September. Average epilimnetic phosphorus level increased from 2019 and was slightly greater than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates stable, yet variable, epilimnetic phosphorus levels since monitoring began. Hypolimnetic phosphorus level was elevated in July and September likely due to the release of phosphorus from bottom sediments under anoxic (low dissolved oxygen) conditions. Lake Ave Trib. phosphorus level was elevated in July following a significant storm event during drought and low flow conditions and lab data noted moderately colored water. Rte. 11 Inlet phosphorus level was low. Sucker Brook phosphorus level was slightly elevated on each sampling event likely due to low flows and drought conditions.
- ◆ **TRANSPARENCY:** Transparency measured without the viewscope (NVS) was within an average (good) range in June, remained stable in July, and then decreased (worsened) in September. Average NVS transparency decreased slightly from 2019 and was slightly higher (better) than the state median. Historical trend analysis indicates significantly decreasing (worsening) NVS transparency since monitoring began. Viewscope (VS) transparency was much higher (better) than NVS transparency and likely a better measure of actual conditions.
- ◆ **TURBIDITY:** Epilimnetic, Metalimnetic, Rte. 11 Inlet, and Lake Ave Trib. turbidity levels fluctuated within a low range for these stations. Hypolimnetic turbidity level was slightly in July and increased in September likely due to the formation and accumulation of organic compounds under anoxic conditions. Sucker Brook turbidity level was slightly elevated in September during low flow conditions.
- ◆ **PH:** Epilimnetic and Sucker Brook pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began. Metalimnetic pH levels were slightly less than desirable. Hypolimnetic, Lake Ave Trib. and Rte. 11 Inlet pH levels were slightly acidic and potentially critical to aquatic life.

Station Name	Table 1. 2020 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 (ug/L)	Trans. (m)		Turb. (ntu)	pH
								NVS	VS		
Epilimnion	8.6	3.04	8	20	43.8		12	4.00	4.92	0.59	6.91
Metalimnion					43.8		14			0.49	6.42
Hypolimnion					47.7		28			2.21	5.86
Lake Ave Trib.			6		32.7	183	45			1.20	5.23
Rte. 11 Inlet			3		18.8	87	10			0.08	5.71
Sucker Brook			12		74.8	21	22			1.30	6.92

**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

#### 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.

