Volunteer Lake Assessment Program Individual Lake Reports

COBBETTS POND, WINDHAM, NH

MORPHOMETRIC DATA | **TROPHIC CLASSIFICATION** | **KNOWN EXOTIC SPECIES**

Watershed Area (Ac.):	2,048	**Max. Depth (m):**	19.2	**Flushing Rate (yr^{1})**	0.4	**Year**	**Trophic class**	Variable Milfoil
Surface Area (Ac.):	345	**Mean Depth (m):**	5.2	**P Retention Coef:**	0.8	1986	MESOTROPHIC	
Shore Length (m):	7,400	**Volume (m^3):**	7,208,000	**Elevation (ft):**	177	2003	EUTROPHIC	

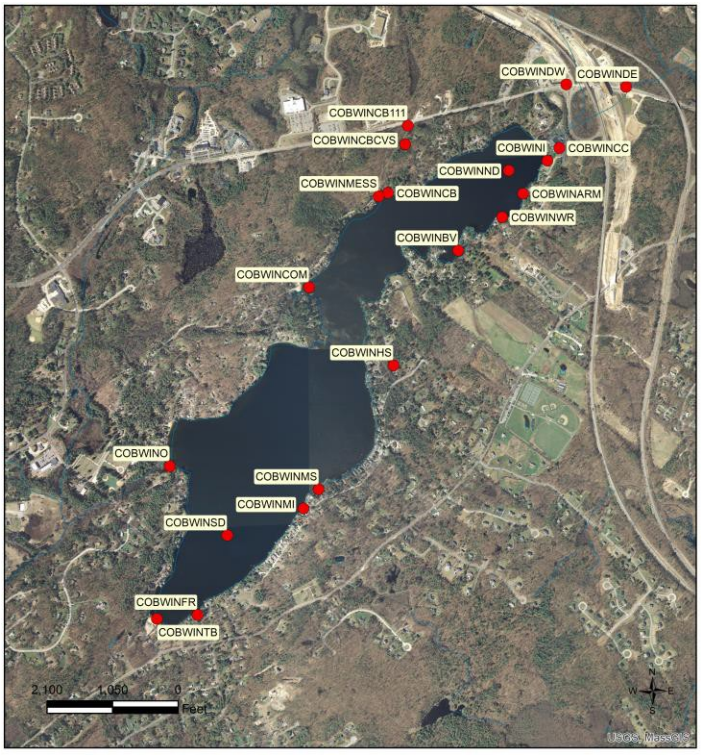
The Waterbody Report Card tables are generated from the DRAFT 2020 305(b) report on the status of N.H. waters, and are based on data collected from 2010-2019. Detailed waterbody assessment and report card information can be found at NHDES' Water Quality Assessment Website.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	Data exceed water quality standards or thresholds for a given parameter by a small margin.
	pH	Slightly Bad	Data periodically exceed water quality standards or thresholds for a given parameter by a small margin.
	Oxygen, Dissolved	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.
	Dissolved oxygen satura	Cautionary	Limited data for this parameter predicts exceedance of water quality standards or thresholds; however more data are necessary to fully assess the parameter.
	Chlorophyll-a	Slightly Bad	Data exceed water quality standards or thresholds for a given parameter by a small margin.
Primary Contact Recreation	Escherichia coli	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.
	Cyanobacteria hepatoto	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

COBBETTS POND - DUNKAN BEACH	Escherichia coli	No Data	No data for this parameter.
COBBETTS POND - TOWN BEACH	Escherichia coli	Bad	Data periodically exceed water quality standards or thresholds for this parameter by a large margin.
COBBETTS POND - TOWN BEACH	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).

VLAP SAMPLE STATION MAP: This map depicts the location of routine sampling stations discussed on page two of the report.



COBBETTS POND
WINDHAM
VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
COBWINCB	CONNIES BROOK
COBWINFR	FOSSA RD INLET
COBWINI	MAIN INLET CASTLETON BROOK
COBWINND	STATION 2
COBWINO	OUTLET
COBWINSD	STATION 1 DEEP SPOT
COBWINARM	ARMSTRONG
COBWINCOM	COMMUNITY BEACH
COBWINCB111	CONNIES BROOK AT 111
COBWINBV	BELLA VISTA
COBWINMS	MUELLER STREAM
COBWINTB	TOWN BEACH
COBWINMI	MONSON INLET
COBWINMESS	MESS
COBWINCC	CASTLETON CULVERT
COBWINDW	DINSMORE WEST
COBWINWR	WALKEY RD
COBWINHS	HORSESHOE RD
COBWINDE	DINSMORE EAST
COBWINCBCVS	CONNIES BROOK AT CVS

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

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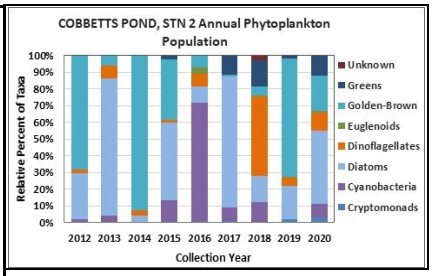
Cobbetts Pond, Stn. 2, Windham
2020 Data Summary

Recommended Actions: Great job sampling in 2020! Algal (chlorophyll) growth was within a low range and representative of oligotrophic conditions, however phosphorus levels remain elevated and have significantly increased. Phytoplankton population data reveals a potential shift from dominance of Golden-Brown and Diatom algae to Cyanobacteria and Dinoflagellates. This may be influenced by the presence of Asian Clams which are filter feeders and may not filter larger sized Cyanobacteria cells as well as increases in salt concentrations that tend to favor Dinoflagellates, a common marine species. Watch for any surface scums or blooms of and report to NHDES Harmful Algal Bloom Program. Continue efforts to manage stormwater runoff, nutrient and chloride loading to the pond. Continue enhanced monitoring for conductivity and chloride to assess effectiveness of the low salt zone as well as to help pinpoint other problematic sites. Consider development of a management plan addressing chloride as a significant pollutant in the watershed as this could help identify and quantify different sources contributing to the load such as septic systems and water softeners. Keep up the great work!

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

- **Chlorophyll-a:** Chlorophyll level was low in June and remained stable in August. Average chlorophyll level decreased slightly from 2019 and was less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable chlorophyll levels since monitoring began.
- **Conductivity/Chloride:** Deep spot and tributary conductivity and chloride levels remained elevated and much greater than the state medians. Connie's Bk. at CVS, Castleton Culvert and Main Inlet chloride levels exceeded the state chronic chloride standard on at least one sampling event. Tributary chloride levels generally increased over 2019 while deep spot chloride levels generally decreased. Historical trend analysis indicates significantly increasing (worsening) epilimnetic (upper water layer) conductivity levels since monitoring began, particularly since 2015.
- **Color:** Apparent color measured in the epilimnion indicates the water was lightly tea colored, or light brown, in June and was clear with very little tea coloring in August.
- **Total Phosphorus:** Epilimnetic phosphorus level was greatly elevated in June and decreased to a moderate level in August. Average epilimnetic phosphorus increased greatly from 2019, was much greater than the state median and threshold for oligotrophic lakes, and was the highest measured since monitoring began. Historical trend analysis indicates significantly increasing (worsening) epilimnetic phosphorus levels since monitoring began. Metalimnetic (middle water layer) phosphorus level was stable and within a moderate level. Hypolimnetic (lower water level) phosphorus level was slightly elevated in June and greatly elevated in August likely due to release of phosphorus from bottom sediments under anoxic (no dissolved oxygen) conditions. Armstrong, Castleton Culvert, Community Beach, Connie's Bk., Connie's Bk. at 111, Connie's Bk. at CVS, and Main Inlet phosphorus levels fluctuated within low to moderate range. Dinsmore West and Mess phosphorus levels were greatly elevated and phosphorus levels at Mess have generally been elevated since 2015.
- **Transparency:** Transparency measured with (VS) and without (NVS) the viewscope was below average (worse) in June and then increased (improved) in August by approx. 1.5 meters. Average NVS transparency decreased slightly from 2019 and was slightly less than the state median. Historical trend analysis indicates significantly decreasing (worsening) transparency since monitoring began.
- **Turbidity:** Deep spot turbidity levels fluctuated within a low to moderate range and decreased from 2019. Armstrong, Community Beach and Connie's Bk. turbidity levels were low. Connie's Bk. at 111, Connie's Bk. at CVS and Main Inlet turbidity levels were slightly elevated and lab data noted low levels of sediment and/or organic matter in the samples. Castleton Culvert turbidity level was greatly elevated in August and iron bacteria precipitate was noted in the sample. Dinsmore West turbidity level was elevated in August and sediment was noted in the sample.
- **pH:** Deep spot, Castleton Culvert, Community Beach, Connie's Bk. at all stations, Dinsmore West, and Main Inlet pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began. Armstrong and Mess pH levels were slightly acidic and 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)

Table 1. 2020 Average Water Quality Data for COBBETTS POND, STN. 2

Station Name	Alk. (mg/L)	Chlor-a (ug/L)	Chloride (mg/L)	Color (pcu)	Cond. (us/cm)	Total P (ug/L)	Trans. (m)		Turb. (ntu)	pH
							NVS	VS		
Epilimnion	35	2.7	101	30	399.0	19	3.10	3.62	0.82	7.36
Metalimnion			98		374.5	14			0.95	7.10
Hypolimnion			102		420.5	52			1.44	7.38
Armstrong			147		538.0	15			0.75	5.96
Castleton Culvert			216		1026.0	16			17.52	6.45
Community Beach					391.0	17			0.74	7.68
Connie's Brook			194		789.0	8			0.39	7.39
Connie's Brook at 111			144		598.0	10			3.65	6.83
Connie's Brook at CVS			387		1623.0	11			5.02	7.69
Dinsmore West			176		901.5	95			3.76	7.55
Main Inlet Castleton Bk.			232		1080.0	11			3.26	6.87
Mess					44.2	67			1.35	5.85

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	Worsening	Data significantly increasing.	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)	Worsening	Data significantly increasing.