



## Volunteer Lake Assessment Program Individual Lake Reports

### CONTOOCCOOK LAKE, JAFFREY, NH

#### MORPHOMETRIC DATA

Watershed Area (Ac.):	5,888	Max. Depth (m):	6.4	Flushing Rate (yr <sup>-1</sup> ):	6.8
Surface Area (Ac.):	380	Mean Depth (m):	2.2	P Retention Coef:	0.5
Shore Length (m):	11,700	Volume (m <sup>3</sup> ):	1,944,000	Elevation (ft):	1009

#### TROPHIC CLASSIFICATION

Year	Trophic class
1988	MESOTROPHIC
2006	MESOTROPHIC

#### KNOWN EXOTIC SPECIES

Variable Milfoil

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)

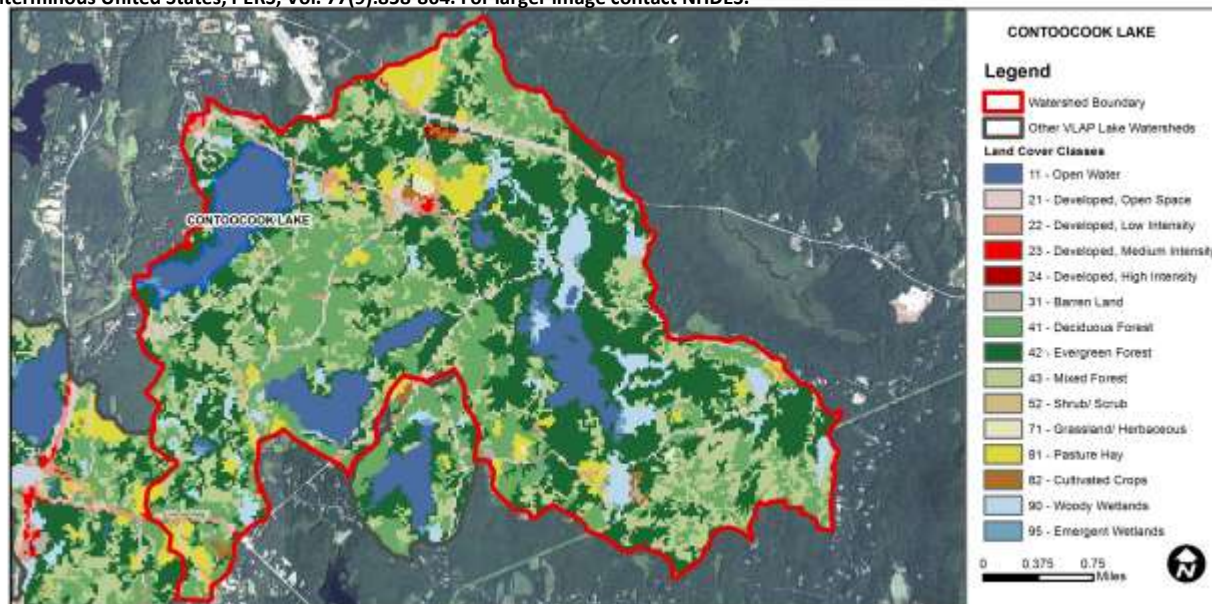
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
	pH	Slightly Bad	Data periodically exceed water quality standards or thresholds for a given parameter by a small margin.
	Oxygen, Dissolved	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.
	Dissolved oxygen satura	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.
Primary Contact Recreation	Chlorophyll-a	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
	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.
	Chlorophyll-a	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

#### BEACH PRIMARY CONTACT ASSESSMENT STATUS

CONTOOCCOOK LAKE - TOWN BEACH	Escherichia coli	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.
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#### 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	9.12	Barren Land	0.18	Grassland/Herbaceous	0.34
Developed-Open Space	4.21	Deciduous Forest	21.28	Pasture Hay	4.42
Developed-Low Intensity	1.33	Evergreen Forest	32.86	Cultivated Crops	0.41
Developed-Medium Intensity	0.16	Mixed Forest	19.15	Woody Wetlands	5.37
Developed-High Intensity	0.08	Shrub-Scrub	0.65	Emergent Wetlands	0.48



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

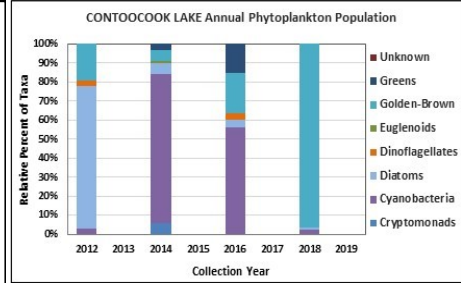
## CONTOOCCOOK LAKE, JAFFREY

### 2019 DATA SUMMARY

**RECOMMENDED ACTIONS:** Pond quality is representative of mesotrophic, or average, conditions and the improving chlorophyll levels are encouraging. However, conductivity levels have remained higher since 2015 and efforts should be focused towards practicing best management practices when applying road salt to roads, parking lots and driveways, particularly in the Taft and Woodbound Inlet sub-watersheds. Encourage local road agents and private winter maintenance companies to obtain Voluntary Salt Applicator license through UNH T2's Green SnowPro Certification program. A significant storm event prior to sampling resulted in elevated turbidity levels in Woodbound Inlet which has a history of elevated turbidity following storm events. Identify potential areas of erosion and work to reduce the impacts of stormwater runoff here. Keep up the great work!

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

- ◆ **CHLOROPHYLL-A:** Chlorophyll levels were within a low range and remained stable from June to August. Average chlorophyll level decreased from 2018, was much less than the state median and the threshold for mesotrophic lakes, and was the lowest measured since monitoring began. Historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began.
- ◆ **CONDUCTIVITY/CHLORIDE:** Deep spot, Cochrane Inlet W, Outlet, Jowder Cove, and Townline Inlet conductivity and chloride levels were slightly greater than the state medians. Historical trend analysis indicates significantly increasing (worsening) epilimnetic (upper water layer) conductivity levels since monitoring began. Cochrane Inlet E and Squantum Inlet conductivity and chloride levels were slightly elevated. Taft and Woodbound Inlet conductivity and chloride levels were elevated yet chloride levels did not exceed the state chronic chloride standard.
- ◆ **COLOR:** Apparent color measured in the epilimnion indicates the water was moderately tea colored, or brown.
- ◆ **E. COLI:** Jowder Cove Inlet and Public Beach E. coli levels were low and much less than the state standards for public beaches and surface waters.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic and Hypolimnetic (lower water layer) phosphorus levels were slightly elevated in June and decreased to a moderate range in August. Average epilimnetic phosphorus increased slightly from 2018, and was slightly greater than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began. Jowder Cove, Cochrane Inlet E, Townline Inlet, Walsh Inlet, Woodbound Inlet, and Outlet phosphorus levels fluctuated within low to moderate ranges. Cochrane Inlet W phosphorus levels were elevated in August and the turbidity of the sample was also elevated due to low flows. Squantum Inlet phosphorus levels were elevated but within a normal range for this wetland influenced station. Taft Inlet phosphorus levels were elevated in June likely due to beaver influence upstream.
- ◆ **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was within an average range for the lake in June and then decreased slightly in August. Average NVS transparency increased (improved) from 2018 and was slightly less than the state median. Historical trend analysis indicates relatively stable transparency since monitoring began.
- ◆ **TURBIDITY:** Epilimnetic, Jowder Cove, Cochrane Inlet E, Squantum Inlet, Townline Inlet, Walsh Inlet, Woodbound Inlet, and Outlet turbidity levels were within a low to average range for those stations. Hypolimnetic turbidity levels were slightly elevated on each sampling event. Cochrane Inlet W turbidity levels were elevated in August likely due to low flows. Taft Inlet turbidity levels were slightly elevated in June and samplers noted silty conditions. Woodbound Inlet turbidity levels were also elevated in June and a significant storm event prior to sampling may have caused turbid conditions.
- ◆ **pH:** Deep spot and tributary pH levels, with the exception of Woodbound Inlet, were less than the desirable range 6.5-8.0 units and were slightly acidic. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began.



**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)

Station Name	Table 1. 2019 Average Water Quality Data for CONTOOCCOOK LAKE - JAFFREY										
	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	3.4	2.16	20	60	82.6		13	2.62	2.88	1.28	6.44
Hypolimnion					83.8		17			2.64	6.20
Cochrane Inlet E			36		146.6		8			0.92	5.94
Cochrane Inlet W			26		104.8		25			4.04	5.12
Dam Outlet					96.6		12			0.61	5.92
Jowder Cove Inlet			26		96.8	16	13			0.53	6.34
Public Beach						1					
Squantum Inlet			39		145.3		64			0.53	6.16
Taft Inlet			86		280.0		45			2.00	6.24
Townline Inlet			20		78.8		15			1.28	6.16
Walsh Inlet			2		28.9		17			0.82	6.38
Woodbound Inlet			49		192.9		19			3.92	6.82

**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	Improving	Data significantly decreasing.
pH (epilimnion)	Stable	Trend not significant; data show low variability.	Transparency	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.

