



Volunteer Lake Assessment Program Individual Lake Reports

CHESTNUT POND, EPSOM, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	154	Max. Depth (m):	7	Flushing Rate (yr ¹):	0.8
Surface Area (Ac.):	30	Mean Depth (m):	3.4	P Retention Coef:	0.76
Shore Length (m):	1,600	Volume (m ³):	420,000	Elevation (ft):	737

TROPHIC CLASSIFICATION

Year	Trophic class
1988	OLIGOTROPHIC
2006	MESOTROPHIC

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)	Cautionary	Limited data for this parameter predicts exceedance of water quality standards or thresholds; however more data are necessary to fully assess the parameter.
	pH	Slightly Bad	Data periodically exceed water quality standards or thresholds for this 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	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	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
Primary Contact Recreation	Escherichia coli	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
	Chlorophyll-a	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

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	12.8	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	4.14	Deciduous Forest	16.92	Pasture Hay	2.88
Developed-Low Intensity	0	Evergreen Forest	20.72	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	40.28	Woody Wetlands	0.69
Developed-High Intensity	0	Shrub-Scrub	1.96	Emergent Wetlands	0



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

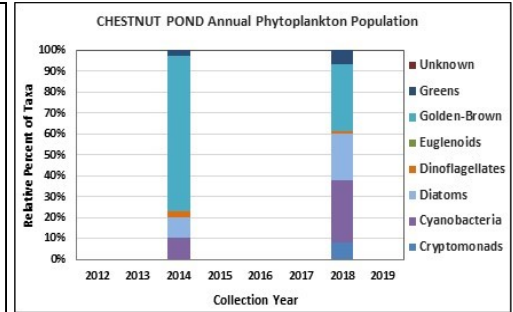
CHESTNUT POND, EPSOM

2019 DATA SUMMARY

RECOMMENDED ACTIONS: Pond quality is generally representative of oligotrophic, or high quality, conditions. Phosphorus levels occasionally spike above the threshold for oligotrophic lakes, however this does not appear to affect algal growth (chlorophyll-a) as levels are decreasing over time and have resulted in better water clarity (transparency). We hope to see this continue! Pond pH levels have also improved as a result of the recovery of New Hampshire's surface waters from the historical impacts of acid rain. To learn more about the recovery see the NHDES "Acid Rain Status and Trends Report". Consider development of a watershed management plan to protect high quality waters. To learn more about watershed management plan development contact the NHDES Watershed Assistance Section. Keep up the great work!

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

- ◆ **CHLOROPHYLL-A:** Chlorophyll levels fluctuated within a low range and were highest in June. Average chlorophyll level increased slightly from 2018 and was less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began.
- ◆ **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer) and Outlet conductivity and/or chloride levels were approximately equal to the state medians and within a low range. Historical trend analysis indicates stable, yet variable, epilimnetic conductivity levels since monitoring began.
- ◆ **COLOR:** Apparent color measured in the epilimnion indicates the water was lightly tea colored, or light brown.
- ◆ **E. COLI:** Barbs Dock and Outlet E. coli levels were very low and much less than the state standards for public beaches and surface waters.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus level was slightly elevated in June, decreased to a low level in July, and remained stable in August. Average epilimnetic phosphorus level decreased slightly from 2018, was less than the state median, and was slightly greater than the threshold for oligotrophic lakes. Historical trend analysis indicates stable epilimnetic phosphorus levels since monitoring began. Hypolimnetic phosphorus levels were moderate in June and July and decreased to a low level in August. Outlet phosphorus levels were stable and low.
- ◆ **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was within an average range in June when algal growth was higher, and then increased (improved) in July and August. Average NVS transparency decreased slightly from 2018 and was higher (better) than the state median. Historical trend analysis indicates stable transparency since monitoring began.
- ◆ **TURBIDITY:** Epilimnetic and Hypolimnetic turbidity levels fluctuated within a low range. Outlet turbidity level was higher June and then decreased to a low range in July and August.
- ◆ **pH:** Epilimnetic and Outlet pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates significantly increasing (improving) epilimnetic pH levels since monitoring began. Hypolimnetic pH levels were slightly less than desirable.



Station Name	Table 1. 2019 Average Water Quality Data for CHESTNUT POND - EPSOM										
	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	6.1	2.58	6	33	41.6		9	4.30	4.57	0.49	6.73
Hypolimnion					41.1		11			0.64	6.42
Barbs Dock						1					
Outlet					41.7	7	7			0.70	6.81

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

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)

HISTORICAL WATER QUALITY TREND ANALYSIS

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

