



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

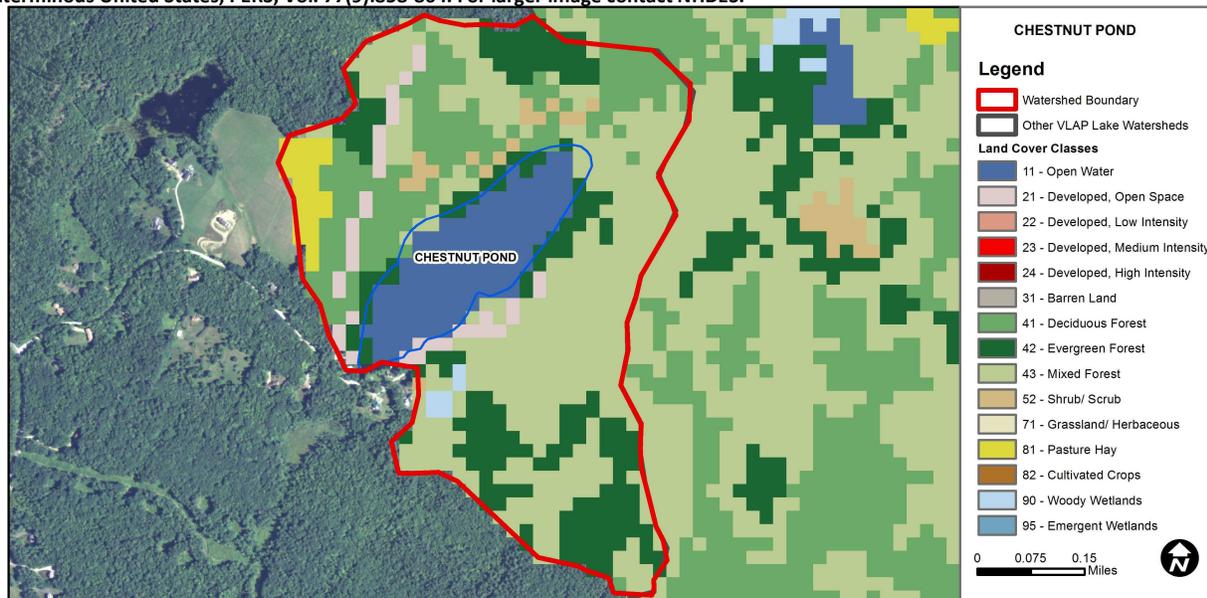
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	The calculated median is from 5 or more samples and is > indicator and the chlorophyll a indicator is exceeded.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Oxygen, Dissolved	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Dissolved oxygen saturation	Cautionary	There are < 10 samples with 1 exceedance of criteria. More data needed.
	Chlorophyll-a	Slightly Bad	The calculated median is from 5 or more samples and is > indicator.
Primary Contact Recreation	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

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

2015 DATA SUMMARY

RECOMMENDATIONS: The 2015 pond water quality was good with low phosphorus and chlorophyll levels and high transparency. The dry weather conditions and lack of stormwater runoff likely contributed to the improved conditions. Historical sampling has indicated that stormwater runoff impacts phosphorus and turbidity levels in the pond. DES' "N.H. Homeowner's Guide to Stormwater Management" is a great resource to help implement projects designed to capture and infiltrate stormwater. Boating activities may also impact phosphorus and turbidity levels in the pond. The new DES fact sheet WMB-WD-25 "Impacts of Motorized Craft on New Hampshire's Waterbodies" is a great resource for pond users. The improving chlorophyll and stable water quality trends are a positive sign and we hope to see this continue. Keep up the great work!

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

- **CHLOROPHYLL-A:** Chlorophyll levels decreased slightly from June to July and then increased slightly from July to September and remained at low levels throughout the summer. Average chlorophyll levels were the lowest measured since monitoring began and were much less than the state median. Historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began. We hope to see this continue!
- **CONDUCTIVITY/CHLORIDE:** Deep spot, East Side Inlet and Outlet conductivity levels were above average this summer. The dry weather and lack of pond flushing likely concentrated the salt and mineral content leading to higher conductivity. This also increased Epilimnetic and East Side Inlet chloride levels, however they remain much less than state standard. Historical trend analysis indicates stable Epilimnetic conductivity with moderate variability since monitoring began.
- **TOTAL PHOSPHORUS:** Epilimnetic (upper water layer) phosphorus levels decreased slightly from June to July and average phosphorus levels were the lowest measured since monitoring began. Historical trend analysis indicates stable Epilimnetic phosphorus levels since monitoring began. Hypolimnetic (lower water layer) phosphorus levels were slightly elevated in June, decreased in July and then increased slightly in September and remained within the historical range for that station. East Side Inlet and Outlet phosphorus levels remained low.
- **TRANSPARENCY:** Transparency was low in June potentially due to a significant storm even prior to sampling and then improved in July and September. Transparency improved slightly in 2015 and was the best measured since 2007. Historical trend analysis indicates stable transparency since monitoring began.
- **TURBIDITY:** Epilimnetic and Outlet turbidities were relatively low and within historical ranges for those stations. Hypolimnetic turbidity was slightly elevated in July potentially due to a layer of algae at that depth. East Side Inlet turbidity was slightly elevated for that station in June potentially due to a significant storm event washing unstable sediments and/or debris into the tributary as volunteers noted high stream flow conditions.

Station Name	Table 1. 2015 Average Water Quality Data for CHESTNUT POND								
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	Total P ug/l	Trans. m		Turb. ntu	pH
						NVS	VS		
Epilimnion	7.8	2.22	6	47.8	7	5.23	5.12	0.93	6.57
Hypolimnion				46.8	10			1.77	6.44
East Side Inlet			6	50.7	7			0.93	6.80
Outlet				46.6	6			0.92	6.70

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

- Alkalinity:** 4.9 mg/L
- Chlorophyll-a:** 4.58 mg/m³
- Conductivity:** 40.0 uS/cm
- Chloride:** 4 mg/L
- Total Phosphorus:** 12 ug/L
- Transparency:** 3.2 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 moderately variable.	Chlorophyll-a	Improving	Data significantly decreasing.
pH (epilimnion)	Stable	Trend not significant; data moderately variable.	Transparency	Stable	Trend not significant; data show low variability.
			Phosphorus (epilimnion)	Stable	Trend not significant; data show low variability.

