



Volunteer Lake Assessment Program Individual Lake Reports

CHALK POND, NEWBURY, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	339	Max. Depth (m):	3.7	Flushing Rate (yr ⁻¹):	4.6
Surface Area (Ac.):	21	Mean Depth (m):	2	P Retention Coef:	0.56
Shore Length (m):	1,600	Volume (m ³):	166,500	Elevation (ft):	1252

TROPIC CLASSIFICATION

Year	Trophic class
1986	OLIGOTROPHIC
2006	MESOTROPHIC

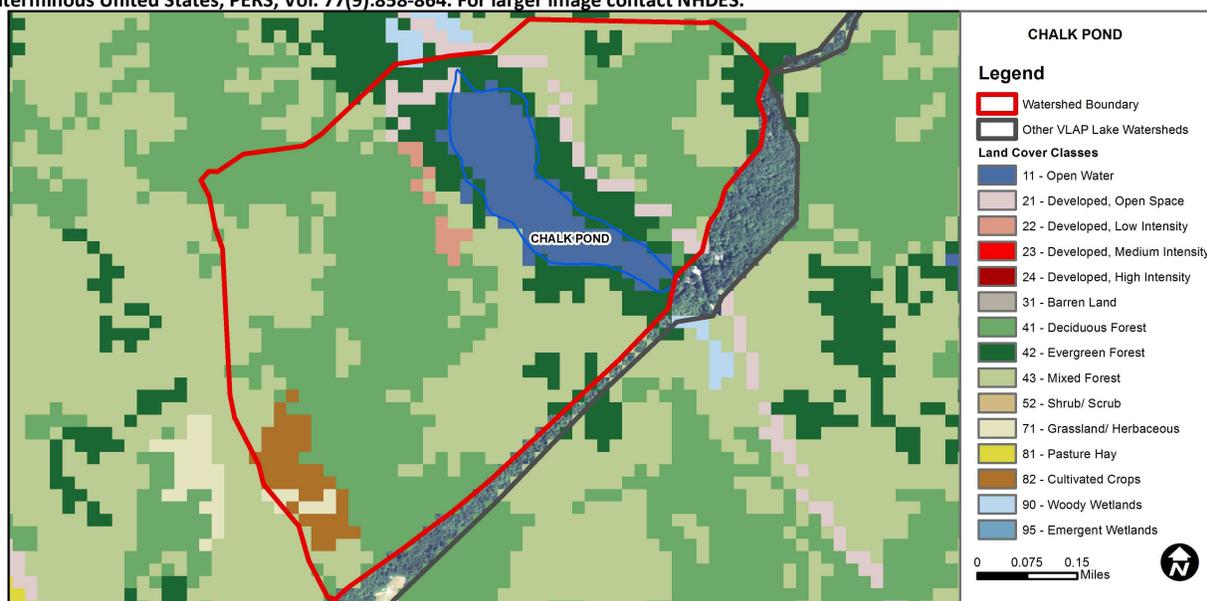
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	>/=5 samples and median is >threshold.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	Chlorophyll-a	Slightly Bad	>5 samples and median is > threshold.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

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	8.56	Barren Land	0	Grassland/Herbaceous	0.47
Developed-Open Space	2.67	Deciduous Forest	40.51	Pasture Hay	0
Developed-Low Intensity	1.02	Evergreen Forest	12.09	Cultivated Crops	3.3
Developed-Medium Intensity	0	Mixed Forest	31.79	Woody Wetlands	0
Developed-High Intensity	0	Shrub-Scrub	0	Emergent Wetlands	0



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2013 DATA SUMMARY

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

- 🔥 **CHLOROPHYLL-A:** Average chlorophyll levels decreased again in 2013 and were much less than the state median. Historical trend analysis indicates relatively stable chlorophyll with high variability between years.
- 🔥 **CONDUCTIVITY/CHLORIDE:** Deep spot and Outlet conductivity were average for NH lakes. Inlet conductivity was low. However, historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity since monitoring began.
- 🔥 **E. COLI:** Beach E. coli levels were well below the state standard for public beaches.
- 🔥 **TOTAL PHOSPHORUS:** 2013 average deep spot and tributary phosphorus levels were relatively low. Historical trend analysis indicates relatively stable epilimnetic phosphorus with low variability between years.
- 🔥 **TRANSPARENCY:** Transparency was good in 2013 and the Secchi disk was visible on the pond bottom in July and September. However, historical trend analysis indicates a significantly decreasing (worsening) transparency since monitoring began.
- 🔥 **TURBIDITY:** 2013 average deep spot and tributary turbidity levels were low.
- 🔥 **pH:** Deep spot and tributary pH levels were lower than desirable range 6.5 – 8.0 units. Historical trend analysis indicates relatively stable epilimnetic pH with moderate variability between years.
- 🔥 **RECOMMENDED ACTIONS:** Continue investigating turbidity and stormwater impacts as it relates to decreasing lake transparency. Conduct chloride monitoring to identify impacts of road salting on the increasing conductivity levels. Work with local road agents and winter maintenance companies to potentially implement low salt zones, and/or encourage them to obtain a NH Voluntary Salt Applicator License through the UNH Technology Transfer Center's (T2) Green SnowPro certification program.

Table 1. 2013 Average Water Quality Data for CHALK POND									
Station Name	Alk.	Chlor-a	Cond.	E. Coli	Total P	Trans.		Turb.	pH
	mg/l	ug/l	uS/cm	#/100ml	ug/l	NVS	VS	ntu	
Epilimnion	3.70	1.90	41.6		8	3.35	3.35	0.73	6.37
Hypolimnion			41.7		10			0.80	6.19
Inlet			19.4		8			0.81	6.22
Main Beach				12					
Outlet			41.5		8			0.71	6.35
South Beach				0					

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:** 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

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

