Volunteer Lake Assessment Program Individual Lake Reports

COBBETTS POND, WINDHAM, NH

MORPHOMETRIC DATA

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

TROPHIC CLASSIFICATION

Year	Trophic class
1986	MESOTROPHIC
2003	EUTROPHIC

KNOWN EXOTIC SPECIES

Variable Milfoil

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.

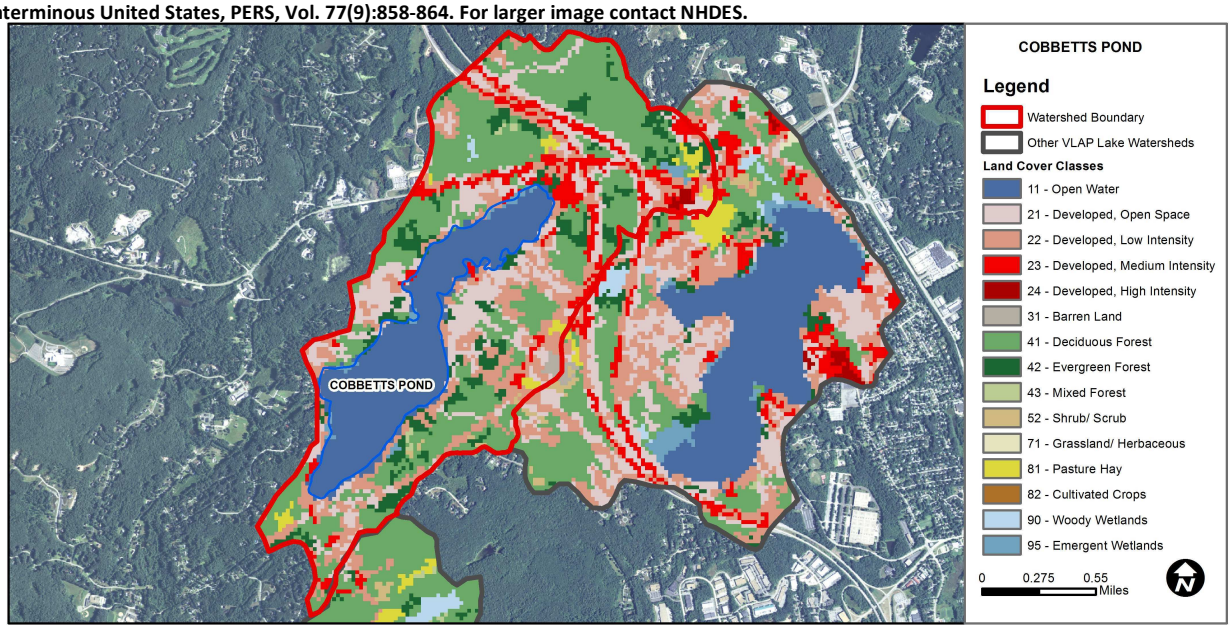
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	>/=5 samples and median is >threshold.
	pH	Good	At least 10 samples with 1 sample but < 10% of samples exceeding criteria.
	D.O. (mg/L)	Very Good	At least 10 samples with 0 exceedances of criteria.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Slightly Bad	>5 samples and median is > threshold.
Primary Contact Recreation	E. coli	Cautionary	One exceedance of single sample criteria but not enough data to calcuate geometric mean. More data needed.
	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

COBBETTS POND - DUNKAN BEACH	E. coli	No Data	No Data for this parameter.
COBBETTS POND - TOWN BEACH	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.
COBBETTS POND - TOWN BEACH	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).

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.

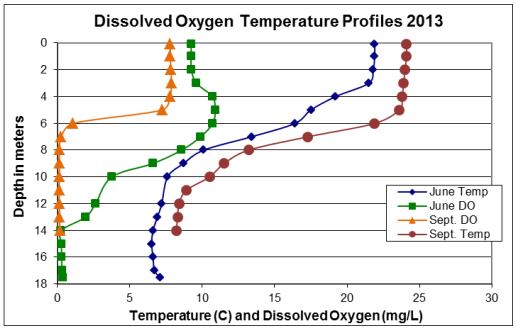


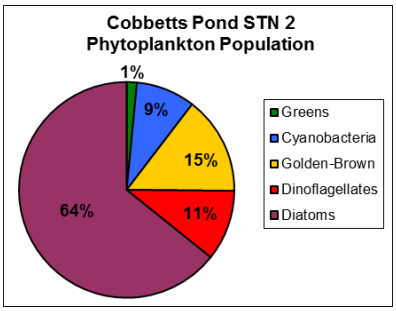
Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	19.5	Barren Land	0.34	Grassland/Herbaceous	0
Developed-Open Space	14.9	Deciduous Forest	31.57	Pasture Hay	1.44
Developed-Low Intensity	15	Evergreen Forest	7.92	Cultivated Crops	0
Developed-Medium Intensity	7.25	Mixed Forest	0.22	Woody Wetlands	0.14
Developed-High Intensity	0.27	Shrub-Scrub	0.22	Emergent Wetlands	0.9

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
COBBETTS POND, STN. 2, WINDHAM, NH
2013 DATA SUMMARY

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

- **CHLOROPHYLL-A:** Chlorophyll levels were relatively low in June and September and less than the state median. However, historical trend analysis indicates significantly increasing (worsening) chlorophyll since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride levels were elevated at all stations, particularly at Castleton Culvert, Dinsmore East, Herons Cove, and Main Inlet at Castleton. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity since monitoring began.
- **E. COLI:** Community Beach E. coli levels were much less than state standard for public beaches.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels were slightly elevated in June but decreased to lower levels in September. Historical trend analysis indicates significantly increasing (worsening) epilimnetic phosphorus since monitoring began. Hypolimnetic phosphorus was elevated in September and turbidity was also elevated likely due to the release of phosphorus and organic compounds from bottom sediments under anoxic conditions. Phosphorus levels in Connies Brook, Dinsmore East, Herons Cove, Main Inlet, and Walkey Rd. were slightly elevated following significant storm event in June.
- **TRANSPARENCY:** Transparency was low in June potentially due to stormwater runoff from significant early summer rainfall. September transparency improved and viewscope transparency was much better than non-viewscope transparency suggesting a more accurate method. Historical trend analysis indicates significantly decreasing (worsening) transparency since monitoring began.
- **TURBIDITY:** Epilimnetic turbidity was low in June and September. Hypolimnetic turbidity was elevated in September likely due to the release or organic compounds from bottom sediments under anoxic conditions. Tributary turbidity was generally elevated, > 1.0 NTU, at all stations following significant storm event in June.
- **PH:** pH levels were sufficient to support aquatic life. Historical trend analysis indicates relatively stable epilimnetic pH with moderate variability between years.
- **DISSOLVED OXYGEN:** Hypolimnetic dissolved oxygen levels were low in June and less than 1.0 mg/L. September dissolved oxygen levels were approximate equal to 0.0 mg/L in the hypolimnion through the metalimnion. When phosphorus levels are below 1.0 mg/L, phosphorus and other organic compounds are released from bottom sediments resulting in elevated phosphorus and turbidity.
- **RECOMMENDED ACTIONS:** Increase monitoring frequency to three times per summer to better assess seasonal and historical trends. Continue implementing stormwater management projects in the watershed. Continue working with local and state officials to address chloride and conductivity either through implementing low salt zones, educating residents on proper use of de-icing materials, or local road agents and maintenance companies obtaining a NH Voluntary Salt Applicator License through the UNH Technology Transfer Center's Green SnowPro Certification. Keep up the great work!





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)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

Table 1. 2013 Average Water Quality Data for COBBETTS POND, STN 2

Station Name	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m NVS	Trans. m VS	Turb. ntu	pH
Armstrong			86	465.0		16			0.30	7.16
Castleton Culvert			120	601.0		14			2.79	6.98
Community Beach				321.0	30	19			1.42	7.25
Connies Brook			92	406.0		23			1.72	7.20
Connies Brook At 111			31	263.0					1.14	6.57
Dinsmore East				455.0		25			2.64	7.12
Herons Cove			160	794.0		24			2.63	7.41
Horseshoe Rd			82	356.0		13			1.62	7.05
Main Inlet Castleton			130	625.0		22			2.80	6.82
Epilimnion	24.3	4.29	57	327.5		13	3.39	4.30	0.90	7.39
Metalimnion				339.5		14			1.34	6.85
Hypolimnion				387.3		36			6.63	6.81
Walkey Rd			64	333.0		37			3.98	7.19

HISTORICAL WATER QUALITY TREND ANALYSIS

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