



## Volunteer Lake Assessment Program Individual Lake Reports

### BEECH POND, LOWER, TUFTONBORO, NH

#### MORPHOMETRIC DATA

Watershed Area (Ac.):	1,600	Max. Depth (m):	15.2	Flushing Rate (yr <sup>-1</sup> )	0.8
Surface Area (Ac.):	155	Mean Depth (m):	6.8	P Retention Coef:	0.63
Shore Length (m):	4,700	Volume (m <sup>3</sup> ):	4,250,500	Elevation (ft):	968

#### TROPIC CLASSIFICATION

Year	Trophic class
1980	OLIGOTROPIC
2001	OLIGOTROPIC

#### 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](http://www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm)

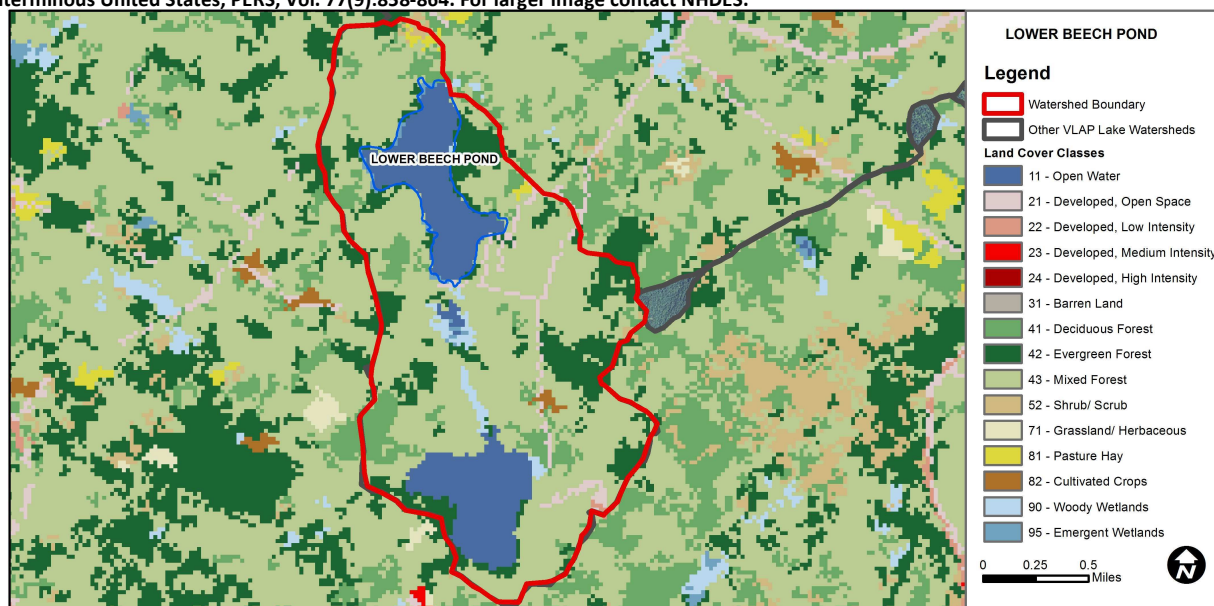
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
	pH	Bad	Data periodically exceed water quality standards or thresholds for this parameter by a large margin.
	Oxygen, Dissolved	Encouraging	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.
	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	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.

#### BEACH PRIMARY CONTACT ASSESSMENT STATUS

LOWER BEECH POND - WILLIAM LAWRENCE CAMP 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	17.6	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	2.37	Deciduous Forest	7.5	Pasture Hay	0.42
Developed-Low Intensity	0.11	Evergreen Forest	15.44	Cultivated Crops	0.31
Developed-Medium Intensity	0	Mixed Forest	53.72	Woody Wetlands	1.57
Developed-High Intensity	0	Shrub-Scrub	0.44	Emergent Wetlands	0.59



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

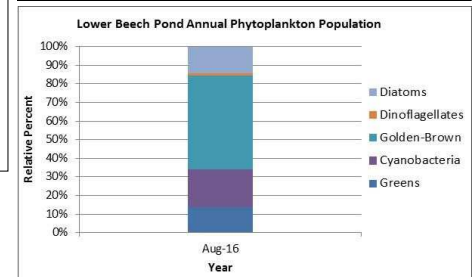
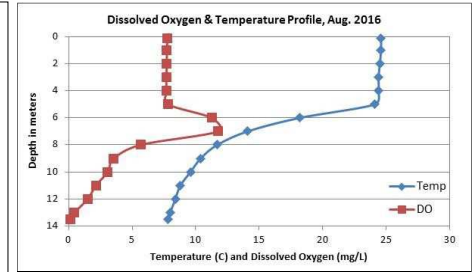
## LOWER BEECH POND, TUFTONBORO

### 2016 DATA SUMMARY

**RECOMMENDED ACTIONS:** Pond water quality remained very good in 2016 and is representative of Oligotrophic, or high quality water, conditions. Historical analysis of Beach and Outlet E. coli data indicate no samples have exceeded or approached the state standards for public beaches or surface waters. If you are concerned about bacteria at beach areas, we suggest joining the DES Beach Inspection Program to monitor the beaches monthly. Otherwise, we feel you could eliminate E. coli monitoring at these areas. Keep up the great work!

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

- ◆ **CHLOROPHYLL-A:** Chlorophyll levels were very low in August, decreased slightly from 2015 and were much less than the state median. Historical trend analysis indicates stable chlorophyll levels with high variability between years.
- ◆ **CONDUCTIVITY/CHLORIDE:** Deep spot, Inlet, Outlet and Beach conductivity levels were average and approximately equal to the state median. Chloride levels were slightly greater than the state median however not above a level of concern and were much less than the state chronic chloride standard. Historical trend analysis indicates significantly increasing (worsening) epilimnetic (upper water layer) conductivity levels since monitoring began.
- ◆ **E. COLI:** Beach, Inlet and Outlet E. coli levels were very low and much less than the state standard of 88 cts/100 mL for public beaches and 406 cts/100 mL for surface waters.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic and Metalimnetic (middle water layer) phosphorus levels were very low. Epilimnetic phosphorus decreased from 2015 and was much less than the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic phosphorus levels since monitoring began. Hypolimnetic phosphorus was slightly elevated in August. Beach, Inlet and Outlet phosphorus levels were all very low.
- ◆ **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was high (very good), increased (improved) from 2015, was much better than the state median, and was the highest (best) measured since monitoring began! Historical trend analysis indicates stable transparency with high variability between years.
- ◆ **TURBIDITY:** Epilimnetic, Metalimnetic, Beach, Inlet, and Outlet turbidity levels were all within a low range in August. Hypolimnetic turbidity was slightly above average for that station but within a low to average range for most lakes.
- ◆ **pH:** Epilimnetic, Metalimnetic, Beach, Inlet, and Outlet pH levels were within the desirable range 6.5-8.0 units, however epilimnetic pH has historically fluctuated below the desirable range. Historical trend analysis indicates relatively stable epilimnetic pH levels since monitoring began. Hypolimnetic pH was slightly acidic and less than desirable.



Station Name	Table 1. 2016 Average Water Quality Data for BEECH POND, LOWER-TUFTONBORO									
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m		Turb. ntu	pH
							NVS	VS		
Epilimnion	4.3	1.39	8	40.2		3	6.75	7.13	0.47	6.84
Metalimnion				39.4		3			0.78	6.95
Hypolimnion				40.7		16			1.35	5.99
First Beach			7	39.9	10	3			0.25	6.91
Inlet				40.7	10	3			0.26	6.83
Outlet				40.6	10	3			0.26	6.85
Second Beach			7	40.6	10	3			0.29	6.95

**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<sup>3</sup>

**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	Worsening	Data significantly increasing.	Chlorophyll-a	Stable	Trend not significant; data highly variable.
pH (epilimnion)	Stable	Trend not significant; data moderately variable.	Transparency	Stable	Trend not significant; data highly variable.
			Phosphorus (epilimnion)	Improving	Data significantly decreasing.

