



## Volunteer Lake Assessment Program Individual Lake Reports

### BURNS POND, WHITEFIELD, NH

#### MORPHOMETRIC DATA

Watershed Area (Ac.):	3,072	Max. Depth (m):	6.1	Flushing Rate (yr <sup>1</sup> )	4.1
Surface Area (Ac.):	117	Mean Depth (m):	2.9	P Retention Coef:	0.53
Shore Length (m):	3,700	Volume (m <sup>3</sup> ):	1,390,500	Elevation (ft):	1016

#### TROPHIC CLASSIFICATION

Year	Trophic class
1984	MESOTROPIC
1993	MESOTROPIC

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

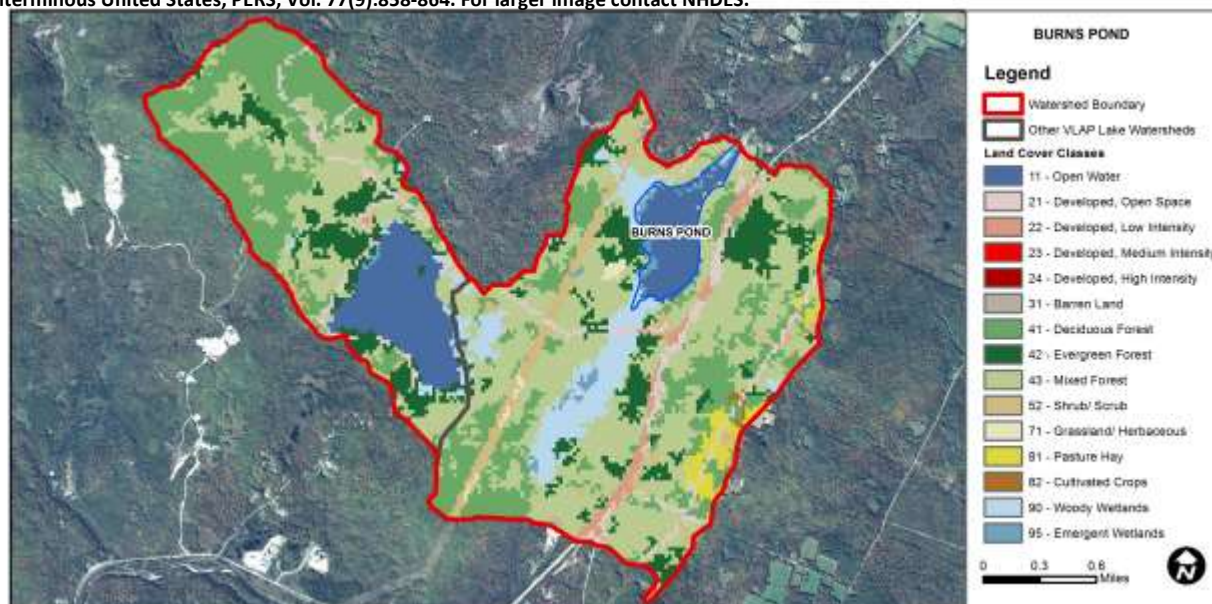
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Cautionary	Limited data for this parameter predicts exceedance of water quality standards or thresholds; however more data are necessary to fully assess the parameter.
	pH	Slightly Bad	Data periodically exceed water quality standards or thresholds for a given parameter by a small margin.
	Oxygen, Dissolved	Cautionary	Limited data for this parameter predicts exceedance of water quality standards or thresholds; 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	No Data	No data for this parameter.
	Chlorophyll-a	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

#### BEACH PRIMARY CONTACT ASSESSMENT STATUS

BURNS POND - PUBLIC 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	9.42	Barren Land	0.08	Grassland/Herbaceous	0.36
Developed-Open Space	4.11	Deciduous Forest	23.85	Pasture Hay	1.47
Developed-Low Intensity	1.45	Evergreen Forest	11.25	Cultivated Crops	0.12
Developed-Medium Intensity	0	Mixed Forest	36.88	Woody Wetlands	6.25
Developed-High Intensity	0	Shrub-Scrub	3.77	Emergent Wetlands	0.95



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

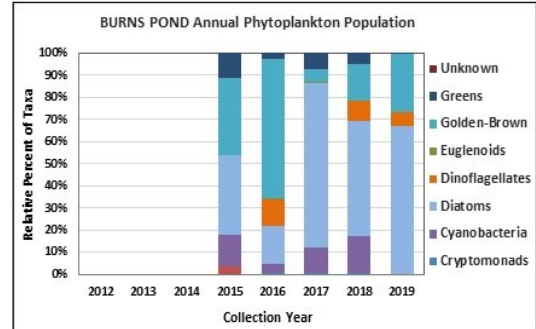
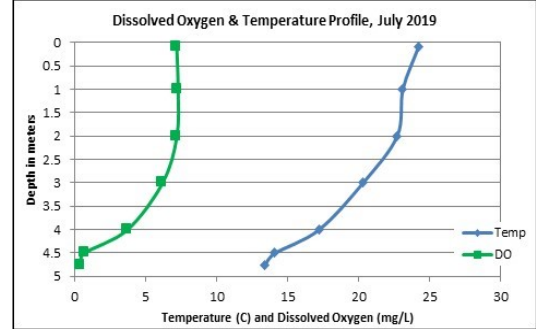
## BURNS POND, WHITEFIELD

### 2019 DATA SUMMARY

**RECOMMENDED ACTIONS:** Continue current annual monitoring to build a baseline data set and increase monitoring frequency to once per month, typically June, July and August, to better assess seasonal and historical variations in water quality. Pond quality is generally representative of mesotrophic, or average, conditions and we hope to see this continue. The higher conductivity levels at the Inlet likely reflect the use of winter de-icing materials. Encourage local winter maintenance companies to obtain NH Voluntary Salt Applicator license through UNH Technology Transfer Center's Green SnowPro Certification program. Continue to educate lake and watershed residents on best practices to reduce nutrient loading to the pond. Encourage the use of phosphate free fertilizers, regularly maintain and pump septic systems, prevent stormwater erosion and runoff from shorefront properties, maintain vegetative buffers along the shoreline, and stabilize steep slopes. UNH Cooperative Extension's "Landscaping at the Water's Edge" and DES' "NH Homeowner's Guide to Stormwater Management" are great resources. Keep up the great work!

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

- ◆ **CHLOROPHYLL-A:** Chlorophyll level was moderate in August, increased slightly from 2018, was slightly greater than the state median, and was approximately equal to the threshold for mesotrophic lakes. Historical trend analysis indicates relatively stable chlorophyll levels since monitoring began.
- ◆ **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Metalimnetic (middle water layer) and Outlet conductivity and/or chloride levels remained slightly greater than the state median, yet were less than a level of concern. Historical trend analysis indicates stable epilimnetic conductivity levels since monitoring began. Inlet conductivity levels were slightly elevated and the highest measured since 2011.
- ◆ **COLOR:** Apparent color measured in the epilimnion indicates the water was moderately tea colored or brown.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic, Hypolimnetic, Inlet, and Outlet phosphorus levels fluctuated within a low to moderate range. Epilimnetic phosphorus level increased slightly from 2018 and was slightly less than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates stable epilimnetic phosphorus levels since monitoring began.
- ◆ **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was within an average range for the pond and increased (improved) slightly from 2018. Historical trend analysis indicates stable transparency since monitoring began.
- ◆ **TURBIDITY:** Epilimnetic, Hypolimnetic, Inlet, and Outlet turbidity levels were within a low range.
- ◆ **pH:** Epilimnetic and Outlet pH levels were within the desirable range 6.5-8.0 units and historical trend analysis indicates relatively stable epilimnetic pH levels since monitoring began. Hypolimnetic and Inlet pH levels were slightly less than desirable.



Station Name	Table 1. 2019 Average Water Quality Data for BURNS POND - WHITEFIELD									
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Color pcu	Cond. us/cm	Total P mg/l	Trans. m		Turb. ntu	pH
							NVS	VS		
Epilimnion	7.7	5.38	13	80	73.5	10	2.12	2.25	0.52	6.84
Hypolimnion					76.8	11			0.50	6.32
Inlet					146.0	15			0.57	6.22
Outlet					73.7	10			0.48	6.90

**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 show low variability.	Chlorophyll-a	Stable	Trend not significant; data moderately variable.
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.

