



## Volunteer Lake Assessment Program Individual Lake Reports

### CONTENTION POND, HILLSBOROUGH, NH

#### MORPHOMETRIC DATA

#### TROPHIC CLASSIFICATION

#### KNOWN EXOTIC SPECIES

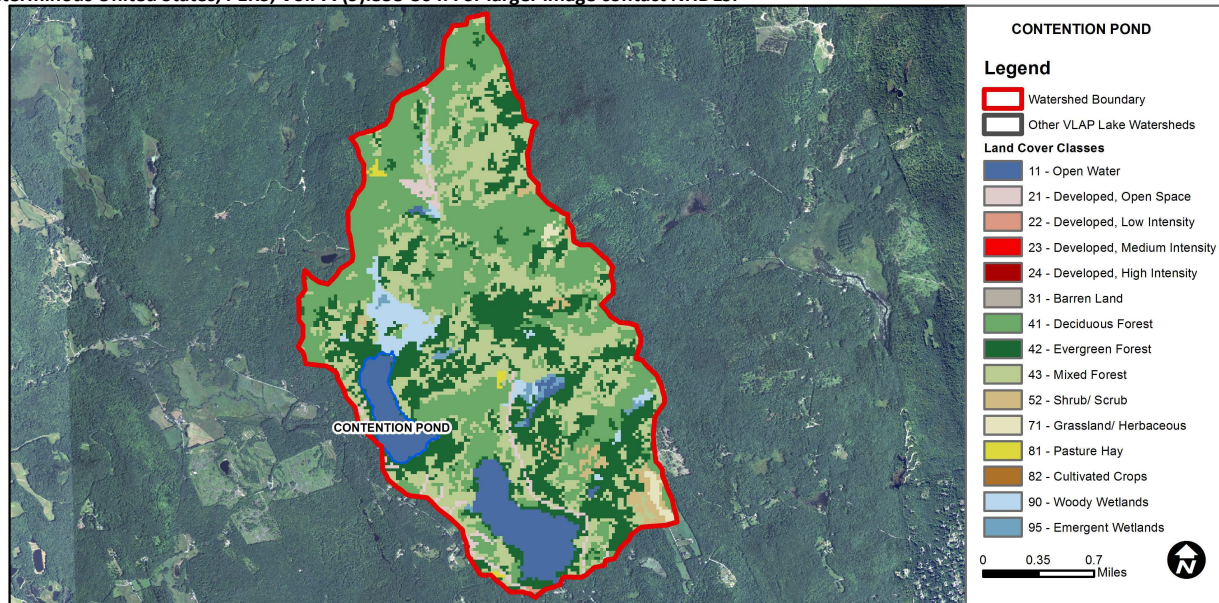
Watershed Area (Ac.):	1,984	Max. Depth (m):	9.7	Flushing Rate (yr <sup>1</sup> ):	2.2	Year	Trophic class	
Surface Area (Ac.):	95	Mean Depth (m):	5.7	P Retention Coef:	0.53	1985	MESOTROPHIC	
Shore Length (m):	2,900	Volume (m <sup>3</sup> ):	2,168,500	Elevation (ft):	857	2004	MESOTROPHIC	

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)	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
	pH	Slightly Bad	Data periodically exceed water quality standards or thresholds for a given parameter by a small margin.
	Oxygen, Dissolved	Very Good	All sampling data meet water quality standards or thresholds for this 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.
Primary Contact Recreation	Chlorophyll-a	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
	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.

#### 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	8.39	Barren Land	0.02	Grassland/Herbaceous	0.57
Developed-Open Space	2.11	Deciduous Forest	32.14	Pasture Hay	0.3
Developed-Low Intensity	0.04	Evergreen Forest	23.99	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	27	Woody Wetlands	2.95
Developed-High Intensity	0	Shrub-Scrub	1.75	Emergent Wetlands	0.7



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

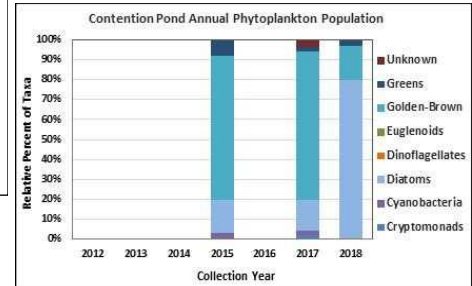
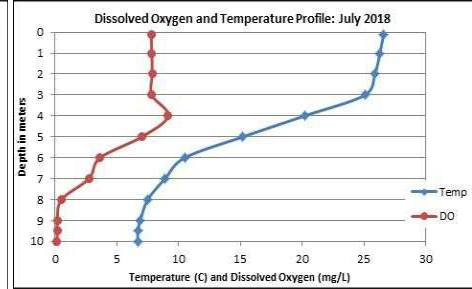
## CONTENTION POND, HILLSBOROUGH

### 2018 DATA SUMMARY

**RECOMMENDED ACTIONS:** Pond quality is generally representative of oligotrophic, or high quality, conditions. Pond nutrient levels and algal growth have remained at a lower level since 2015 resulting in improved water clarity (transparency). We hope to see this continue! However, the increased frequency and intensity of storm events highlights the importance of managing stormwater runoff in from lake front properties. Consult DES' "NH Homeowner's Guide to Stormwater Management" for recommendations on ways to reduce stormwater runoff from residential properties. Keep up the great work!

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

- ◆ **CHLOROPHYLL-A:** Chlorophyll level was very low in July, decreased from 2017, and was much less than the state median and 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), Hypolimnetic (lower water layer), North Inlet, and Outlet conductivity and/or chloride levels were low and less than the state medians. Historical trend analysis indicates relatively stable epilimnetic conductivity levels since monitoring began.
- ◆ **COLOR:** Apparent color was measured in the epilimnion and indicates the pond water is lightly tea colored, or light brown.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic and Metalimnetic phosphorus levels were within a low range. Epilimnetic phosphorus level decreased slightly from 2017 and was much less than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates stable epilimnetic phosphorus levels since monitoring began. Hypolimnetic phosphorus levels were slightly elevated but within an average range for that station, however the turbidity of the sample was also elevated. North Inlet and Outlet phosphorus levels were within a low range.
- ◆ **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was high (good), increased (improved) from 2017, and was higher (better) than the state median. Historical trend analysis indicates relatively stable transparency with high variability between years.
- ◆ **TURBIDITY:** Epilimnetic, Metalimnetic, North Inlet, and Outlet turbidity levels were within a low range. Hypolimnetic turbidity levels were elevated potentially due to the formation and accumulation of organic compounds under anoxic (no dissolved oxygen) conditions.
- ◆ **pH:** Epilimnetic pH value was invalidated due to a suspected analytical error. We apologize for the inconvenience. Historical trend analysis indicates relatively stable epilimnetic pH levels with high variability between years. Metalimnetic and Hypolimnetic pH levels were slightly acidic and less than the desirable range 6.5-8.0 units. North Inlet and Outlet pH levels were within the desirable range.



Station Name	Table 1. 2018 Average Water Quality Data for CONTENTION POND - HILLSBOROUGH									
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Color pcu	Cond. us/cm	Total P ug/l	Trans. m		Turb. ntu	pH
							NVS	VS		
Epilimnion	4.7	2.69	3	50	25.0	7	4.50	4.75	0.53	
Metalimnion					25.3	11			1.25	6.06
Hypolimnion					30.4	23			13.50	6.02
North Inlet			3		25.6	7			0.46	6.63
Outlet					25.6	5			0.40	6.78

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.  
**Alkalinity:** 4.5 mg/L  
**Chlorophyll-a:** 4.39 mg/m<sup>3</sup>  
**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 moderately variable.	Chlorophyll-a	Stable	Trend not significant; data moderately variable.
pH (epilimnion)	Stable	Trend not significant; data highly variable.	Transparency	Stable	Trend not significant; data highly variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data show low variability.

