



## Volunteer Lake Assessment Program Individual Lake Reports

### DUTCHMAN POND, SPRINGFIELD, NH

#### MORPHOMETRIC DATA

Watershed Area (Ac.):	114	Max. Depth (m):	3	Flushing Rate (yr <sup>-1</sup> ):	1.4
Surface Area (Ac.):	28	Mean Depth (m):	1.9	P Retention Coef:	
Shore Length (m):	1,400	Volume (m <sup>3</sup> ):	210,000	Elevation (ft):	1543

#### TROPHIC CLASSIFICATION

Year	Trophic class
1984	OLIGOTROPIC
2003	OLIGOTROPIC

#### 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 this parameter by a small 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	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	Very Good	Sampling data is 50 percent 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	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	28.6	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	2.9	Deciduous Forest	19.06	Pasture Hay	0
Developed-Low Intensity	0	Evergreen Forest	14.29	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	36.66	Woody Wetlands	0
Developed-High Intensity	0	Shrub-Scrub	0	Emergent Wetlands	0



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

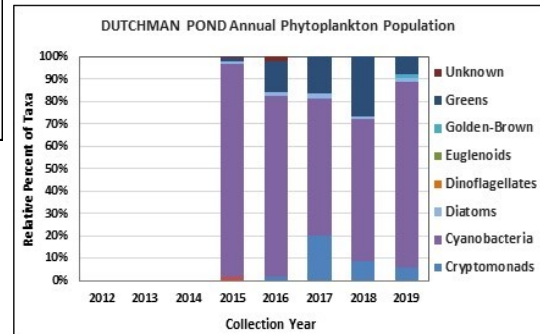
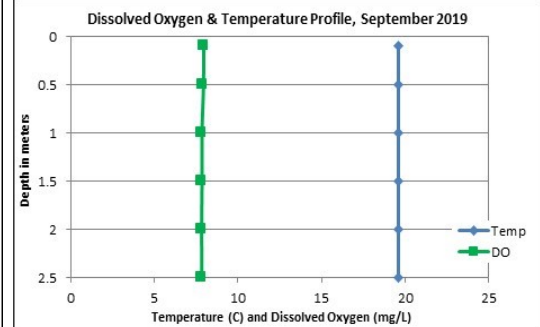
## DUTCHMAN POND, SPRINGFIELD

### 2019 DATA SUMMARY

**RECOMMENDED ACTIONS:** Pond quality is generally representative of oligotrophic, or high quality, conditions. However, phosphorus levels tend to fluctuate above the desirable threshold for oligotrophic lakes. To better assess pond quality throughout the summer, it is recommended to increase monitoring frequency to once per month during the summer, typically June, July and August. The VLAP satellite laboratory located at Colby Sawyer College in New London could be utilized for this purpose. Efforts should be made to limit the amount of nutrients entering the pond from the surrounding watershed. Maintaining vegetated buffers along the shoreline, eliminating fertilizer use, inspecting and maintaining septic systems, and reducing stormwater runoff from surrounding properties can help to reduce nutrient loading to the pond. The improving conductivity levels are a positive sign as many lakes are experiencing the opposite due to winter de-icing materials. Keep up the great work!

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

- ◆ **CHLOROPHYLL-A:** Chlorophyll level was very low in September, decreased from 2018, and was much less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates stable yet variable chlorophyll levels since monitoring began.
- ◆ **CONDUCTIVITY/CHLORIDE:** Epilimnetic (deep spot) conductivity and chloride levels were within a very low range. Epilimnetic conductivity levels were much less than the state median and historical trend analysis indicates significantly decreasing (improving) conductivity levels since monitoring began.
- ◆ **COLOR:** Apparent color measured in the epilimnion indicates the pond water was borderline clear to lightly tea colored, or light brown.
- ◆ **E. COLI:** Samples collected at Hull-Schulman and Soleau found no bacteria present.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus level was within a low range, decreased from 2018, and was less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began.
- ◆ **TRANSPARENCY:** Transparency was high (good) and the Secchi disk was visible on the pond bottom. Transparency increased (improved) from 2018 and historical trend analysis indicates stable transparency since monitoring began.
- ◆ **TURBIDITY:** Epilimnetic turbidity level was within a very low range in September.
- ◆ **pH:** Epilimnetic pH level was slightly less than the desirable range 6.5-8.0 units. Historical trend analysis indicates relatively stable epilimnetic pH levels since monitoring began.



Station Name	Table 1. 2019 Average Water Quality Data for DUTCHMAN POND - SPRINGFIELD									
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Color pcu	Cond. us/cm	E. coli mpn/100ml	Total P mg/l	Trans. m	Turb. ntu	pH
Epilimnion	2.9	0.96	3	25	15.1		7	2.70	0.28	6.32
Hull-Schulman						0				
Soleau						0				

**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	Improving	Data significantly decreasing.	Chlorophyll-a	Stable	Trend not significant; data highly 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 moderately variable.

