



## Volunteer Lake Assessment Program Individual Lake Reports

### DORRS POND, MANCHESTER, NH

#### MORPHOMETRIC DATA

Watershed Area (Ac.):	1,473	Max. Depth (m):	2.9	Flushing Rate (yr <sup>-1</sup> )	31.2
Surface Area (Ac.):	18	Mean Depth (m):	1.3	P Retention Coef:	0.39
Shore Length (m):	1,600	Volume (m <sup>3</sup> ):	92,000	Elevation (ft):	270

#### TROPHIC CLASSIFICATION

Year	Trophic class
1981	EUTROPHIC
1997	MESOTROPHIC

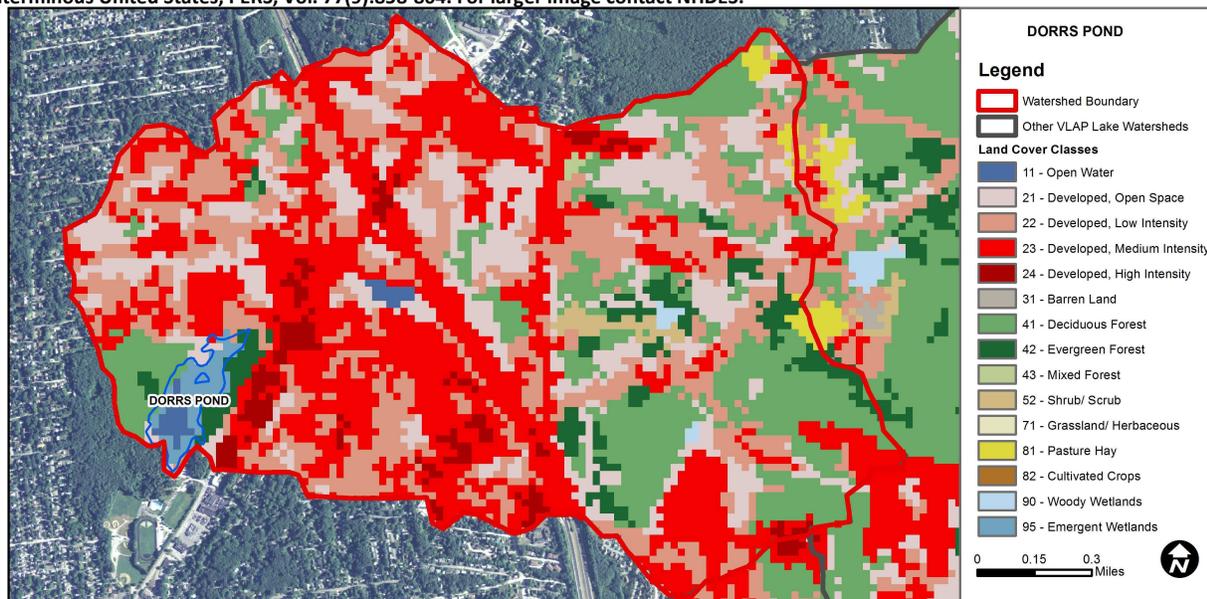
#### KNOWN EXOTIC SPECIES


The Waterbody Report Card tables are generated from the DRAFT 2016 305(b) report on the status of N.H. waters, and are based on data collected from 2006-2015. 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)	Bad	Data exceed water quality standards or thresholds for this parameter by a large margin.
	pH	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.
	Oxygen, Dissolved	Slightly Bad	Data periodically exceed water quality standards or thresholds for this parameter by a small margin.
	Dissolved oxygen satura	Slightly Bad	Data periodically exceed water quality standards or thresholds for this parameter by a small margin.
	Chlorophyll-a	Slightly Bad	Data exceed water quality standards or thresholds for this parameter by a small margin.
Primary Contact Recreation	Escherichia coli	No Data	No data for this parameter.
	Chlorophyll-a	Slightly Bad	Data periodically exceed water quality standards or thresholds for this parameter by a small margin.

#### 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	0.65	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	16.8	Deciduous Forest	16.18	Pasture Hay	0.63
Developed-Low Intensity	25.3	Evergreen Forest	4.15	Cultivated Crops	0
Developed-Medium Intensity	30.9	Mixed Forest	0.13	Woody Wetlands	0.26
Developed-High Intensity	2.94	Shrub-Scrub	0.76	Emergent Wetlands	1.23



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

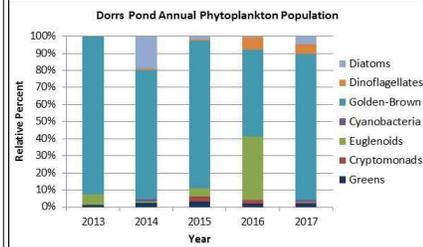
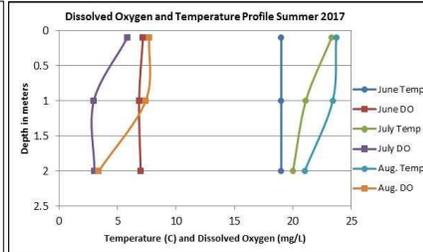
## DORRS POND, MANCHESTER

### 2017 DATA SUMMARY

**RECOMMENDED ACTIONS:** Pond quality improved in 2017 with low levels of algal growth and turbidity which led to improved water clarity (transparency). The fountain was not installed in the pond this year and this may have contributed to the improved quality. This suggests careful consideration should be given to the benefits of fountain installation versus the impacts to water quality. The extremely high chloride and conductivity levels of the pond and inlets highlights the impacts of an urban watershed. It is recommended to address the elevated chloride levels but we recognize the limitations in reducing winter de-icing materials applied to roads, parking lots, driveways, and walkways. Keep up the great work!

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

- **CHLOROPHYLL-A:** Chlorophyll levels were low in June, increased to moderate levels in July, and then increased to slightly elevated levels in August. Average chlorophyll level decreased from 2016 and was slightly greater than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Epilimnetic (deep spot), E II Inlet, Juniper St. Inlet, Lessard Inlet, and Outlet conductivity and chloride levels were greatly elevated and chloride levels exceeded the state chronic chloride standard of 230 mg/L at multiple stations. Historical trend analysis indicates highly variable epilimnetic conductivity levels since monitoring began.
- **COLOR:** Apparent color was measured in the epilimnion and indicates the pond water is highly tea colored, or dark brown.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels were elevated in June and July and decreased slightly in August. Average epilimnetic phosphorus levels decreased from 2016 but remained much greater than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates stable epilimnetic phosphorus levels since monitoring began. E II Inlet phosphorus level fluctuated within a low range for that station. Lessard Inlet phosphorus levels were elevated in July and August and turbidity levels were also elevated. Lab data noted colored water with some organics. Juniper St. Inlet phosphorus levels were low on each sampling event. Outlet phosphorus levels were slightly elevated in June and July but remained within an average range for that station.
- **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was good in 2017 and was highest (best) in June when algal growth was low, decreased in July as algal growth increased and remained stable in August. Average NVS transparency increased (improved) from 2017 and was the best measured since 2013. Historical trend analysis indicates relatively stable transparency with moderate variability between years.
- **TURBIDITY:** Epilimnetic turbidity levels improved in 2017 and were within a low range for that station. E II Inlet turbidity level were very low. Lessard and Juniper St. Inlet turbidity levels increased from low to slightly elevated as the summer progressed and flows decreased. Outlet turbidity levels were slightly elevated in July.
- **PH:** Epilimnetic, E II Inlet, Lessard Inlet, and Outlet pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began. Juniper St. Inlet pH levels were slightly less than the low end of the desirable range.



Station Name	Table 1. 2017 Average Water Quality Data for DORRS POND-MANCHESTER									
	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	25.0	5.69	193	133	705.3	23	1.70	1.83	2.82	6.99
E II Inlet			241		907.0	16			0.59	7.11
Juniper St. Inlet			208		766.3	11			3.72	6.46
Lessard Inlet			304		1240.3	28			4.50	6.87
Outlet			200		698.0	22			2.27	6.93

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

