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^{1})**	31.2
Surface Area (Ac.):	18	**Mean Depth (m):**	1.3	**P Retention Coef:**	0.39
Shore Length (m):	1,600	**Volume (m^{3}):**	92,000	**Elevation (ft):**	270

TROPHIC CLASSIFICATION

Year	Trophic class
1981	EUTROPHIC
1997	MESOTROPHIC

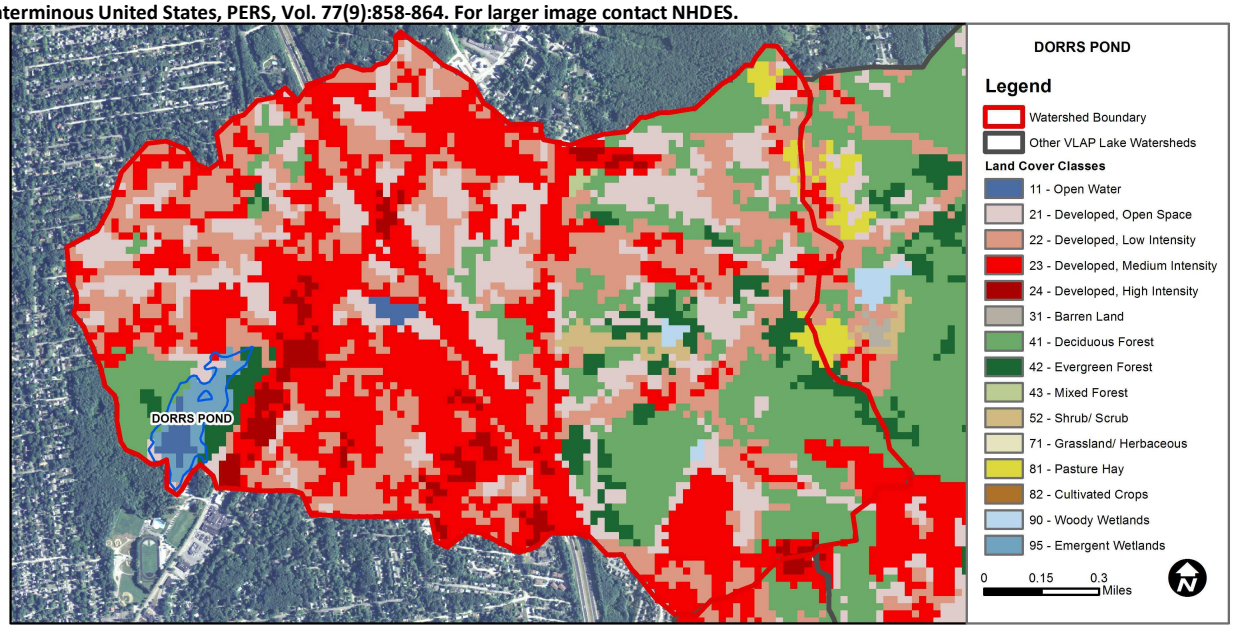
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 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

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	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	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

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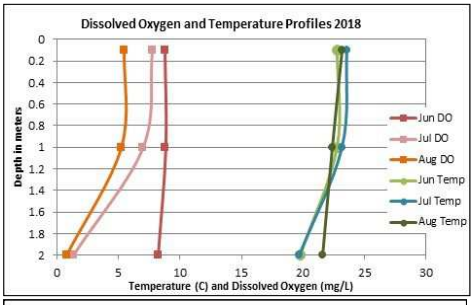
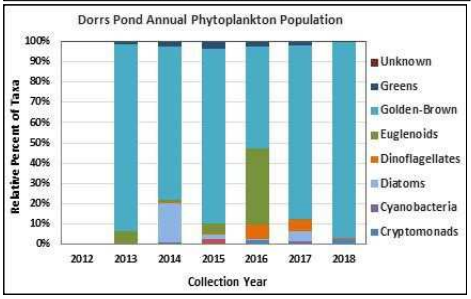
Dorrs Pond, Manchester
2018 Data Summary

Recommended Actions: The improving chlorophyll levels are a positive sign, however chlorophyll and phosphorus levels remain greater than the thresholds for mesotrophic lakes. Above average rainfall in late July and early August resulted in elevated phosphorus and turbidity levels at all stations indicating stormwater runoff continues to negatively impact the pond, particularly during these high volume and high intensity events. This is not unusual for an urban watershed and best management efforts should continue to occur where possible. Chloride levels are likely toxic to some aquatic life in the pond. Once again, this is representative of an urban watershed, and best efforts should be made to try and reduce the use of salts on 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 elevated in June, remained stable in July, and then decreased to low levels in August. Average chlorophyll increased from 2017 and was 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) and tributary conductivity and chloride levels remained elevated and much greater than the state medians. Chloride levels in East II Inlet and Lessard Inlet exceeded the state chronic chloride standard in June and July. Epilimnetic and Outlet chloride levels exceeded the state standard in June. Conductivity and chloride levels at all stations improved (decreased) greatly in August following several inches of rainfall prior to sampling which diluted the salt content. Historical trend analysis indicates highly variable epilimnetic conductivity levels since monitoring began.
- **Color:** Apparent color was measured in the epilimnion and indicated the pond water is highly tea colored, or dark brown. Water color increased, became darker, as the summer progressed particularly in August after rainfall flushed in highly colored water.
- **Total Phosphorus:** Epilimnetic phosphorus levels were slightly elevated in June and increased to elevated levels by August. Average epilimnetic phosphorus level increased from 2017 and was much greater than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates stable epilimnetic phosphorus levels since monitoring began. East II Inlet and Juniper St. Inlet phosphorus levels were low in June and July and elevated in August following significant rainfall, and the turbidity of the samples also increased. Lessard Inlet phosphorus levels fluctuated within the normally elevated range for the station and increased in August. Outlet phosphorus levels were moderate in June and elevated in July and August.
- **Transparency:** Transparency measured with (VS) and without (NVS) the viewscope was slightly below average in June and then decreased (worsened) as the summer progressed. Average NVS transparency decreased from 2017 and historical trend analysis indicates relatively stable transparency since monitoring began.
- **Turbidity:** Epilimnetic, East II Inlet and Outlet turbidity levels were within low ranges for those stations in June and July and then increased to slightly elevated levels in August. Lessard Inlet and Juniper St. Inlet turbidity levels were low in June and slightly elevated in July and August.
- **pH:** Epilimnetic and tributary pH levels were within the desirable range 6.5-8.0 units on each sampling event. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began.





Station Name	Table 1. 2018 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 mg/l	Trans. m		Turb. ntu	pH
							NVS	VS		
Epilimnion	18.5	9.63	162	157	577.0	29	1.33	1.58	2.79	7.07
East II Inlet			301		1068.0	19			0.80	7.20
Juniper St. Inlet			175		661.3	16			4.12	6.52
Lessard Inlet			254		873.3	30			2.89	6.91
Outlet			165		585.3	31			2.86	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^3
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 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.