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

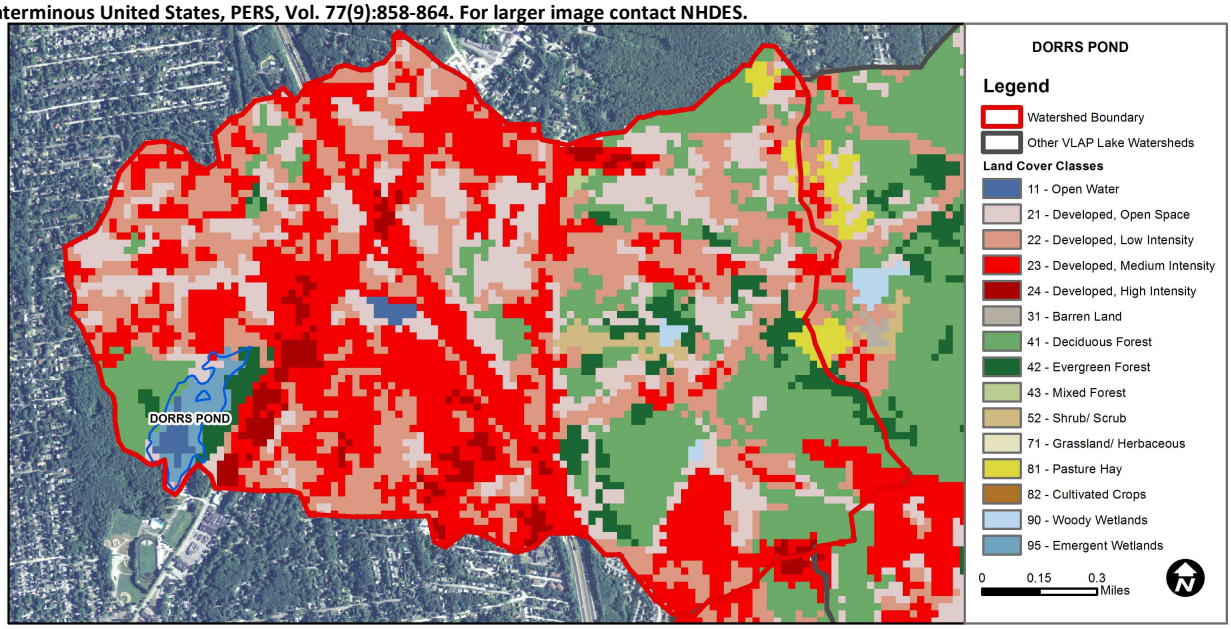
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Bad	The calculated median is from 5 or more samples and is > 2X indicator and the chlorophyll a indicator is exceeded.
	pH	Good	At least 10 samples with 1 sample but < 10% of samples exceeding criteria.
	Oxygen, Dissolved	Slightly Bad	There are >10% of samples (minimum of 2), exceeding criteria.
	Dissolved oxygen satura	Slightly Bad	There are >10% of samples (minimum of 2), exceeding criteria.
	Chlorophyll-a	Slightly Bad	The calculated median is from 5 or more samples and is > indicator.
Primary Contact Recreation	Escherichia coli	No Data	No data for this parameter.
	Chlorophyll-a	Slightly Bad	There are >10% of samples (minimum of 2), exceeding indicator.

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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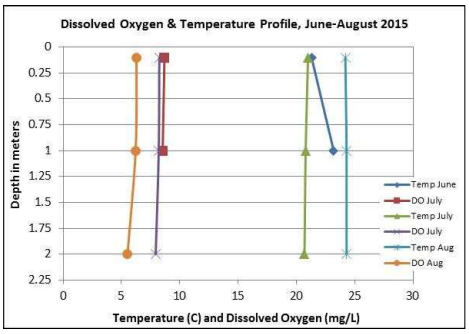
Dorrs Pond, Manchester

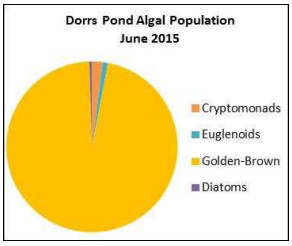
2015 Data Summary

Recommended Actions: The improving chlorophyll trend is a good sign and we hope to see this continue. However, Doors Pond is located within a highly urbanized watershed which leads to poor water quality. It is recommended to address the elevated chloride and phosphorus levels but we recognize the limitations in improving water quality. The installation of a fountain in the pond may lead to improved oxygen levels and help to decrease phosphorus and resulting algal growth. However, the pond transparency has been lower (worse) since 2013 and this may also be the result of the fountain. Continued monitoring will measure any impacts, positive or negative, that the fountain may have on water quality. Keep up the great work!

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

- **Chlorophyll-a:** Chlorophyll levels were elevated in June and approached levels indicative of an algal bloom. The June phytoplankton sample indicates Golden-Brown algae were dominant at that time and typically bloom in the spring and early summer. Chlorophyll levels decreased as the summer progressed but generally remained at an elevated level. The 2015 average chlorophyll level was stable with 2014 and greater than the state median. Historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began and we hope to see this continue!
- **Conductivity/Chloride:** Epilimnetic (deep spot) and tributary conductivity and chloride levels remained elevated and much greater than the state medians. Historical trend analysis indicates highly variable epilimnetic conductivity levels since monitoring began. East Inlet II and Lessard Inlet average chloride levels were greater than the state chronic chloride standard of 230 mg/L. Juniper St. Inlet and Outlet chloride levels were approximately equal to or exceeded the standard on one or more sampling events in 2015.
- **Total Phosphorus:** Epilimnetic phosphorus levels were elevated in June and July and decreased to average levels in August. Average epilimnetic phosphorus remained stable with 2014 and was much greater than the state median. Historical trend analysis indicates stable epilimnetic phosphorus since monitoring began. East II Inlet phosphorus levels were slightly elevated but remained stable from June to August. Lessard Inlet phosphorus levels were elevated but within an average range for that station. Juniper St. Inlet phosphorus levels were low in June and July and slightly elevated in August when tributary flow was low. Outlet phosphorus levels were average in June and July and elevated in August when tributary flow was low.
- **Transparency:** Transparency was lower in June when algal growth was higher, increased (improved) slightly in July and then decreased (worsened) slightly in August. Average NVS transparency decreased slightly from 2014 and was less than (worse than) the state median. Historical trend analysis indicates relatively stable transparency with moderate variability between years. Transparency measured with the viewscope (VS) was generally equal to NVS transparency.
- **Turbidity:** Epilimnetic turbidity was elevated in June and July. East Inlet II turbidity was low on each sampling event. Lessard and Juniper St. Inlet turbidities were slightly elevated in June and July and elevated in August when flow conditions were lowest. Outlet turbidity was slightly elevated from June to August.
- **pH:** Epilimnetic, East Inlet II, Lessard Inlet, and Outlet pH levels were within the desirable range 6.5-8.0 units. Juniper St. Inlet pH fluctuated below the desirable range. Historical trend analysis indicates relatively stable epilimnetic pH with moderate variability between years.

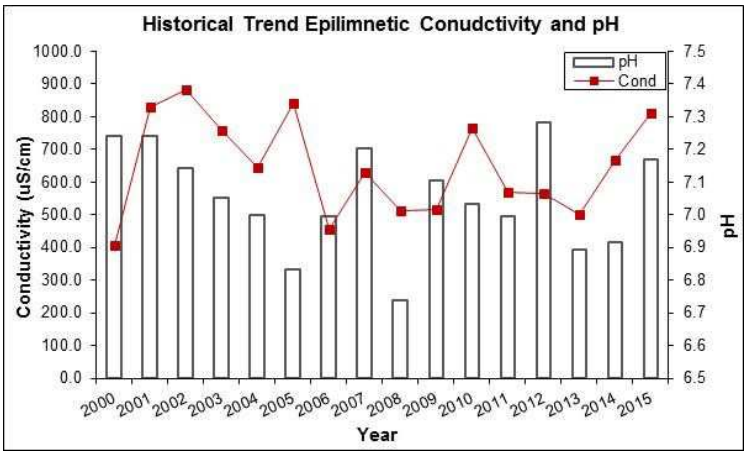
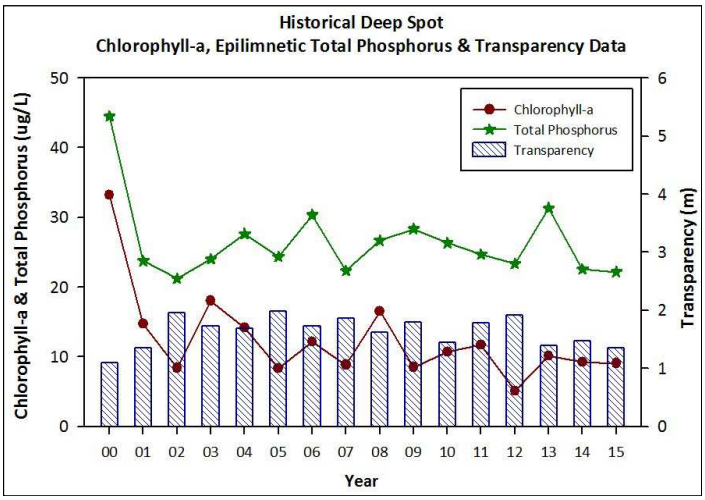




NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: > 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: between 6.5-8.0 (unless naturally occurring)

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^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

Station Name	Table 1. 2015 Average Water Quality Data for DORRS POND								
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	Total P ug/l	Trans. m		Turb. ntu	pH
						NVS	VS		
Epilimnion	29.3	9.07	217	810.7	22	1.35	1.35	5.05	7.17
East Inlet II			277	1029.3	23			0.61	7.14
Juniper St. Inlet			223	825.7	14			5.21	6.44
Lessard Inlet			413	1513.3	25			5.82	6.90
Outlet			227	811.7	31			3.22	7.08

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 moderately variable.	Transparency	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data show low variability.