



Volunteer Lake Assessment Program Individual Lake Reports

STEVENS POND, MANCHESTER, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	445	Max. Depth (m):	5.2	Flushing Rate (yr ⁻¹):	4.9
Surface Area (Ac.):	15	Mean Depth (m):	2.8	P Retention Coef:	0.51
Shore Length (m):	1,075	Volume (m ³):	176,000	Elevation (ft):	315

TROPIC CLASSIFICATION

Year	Trophic class
1981	EUTROPHIC
1997	EUTROPHIC

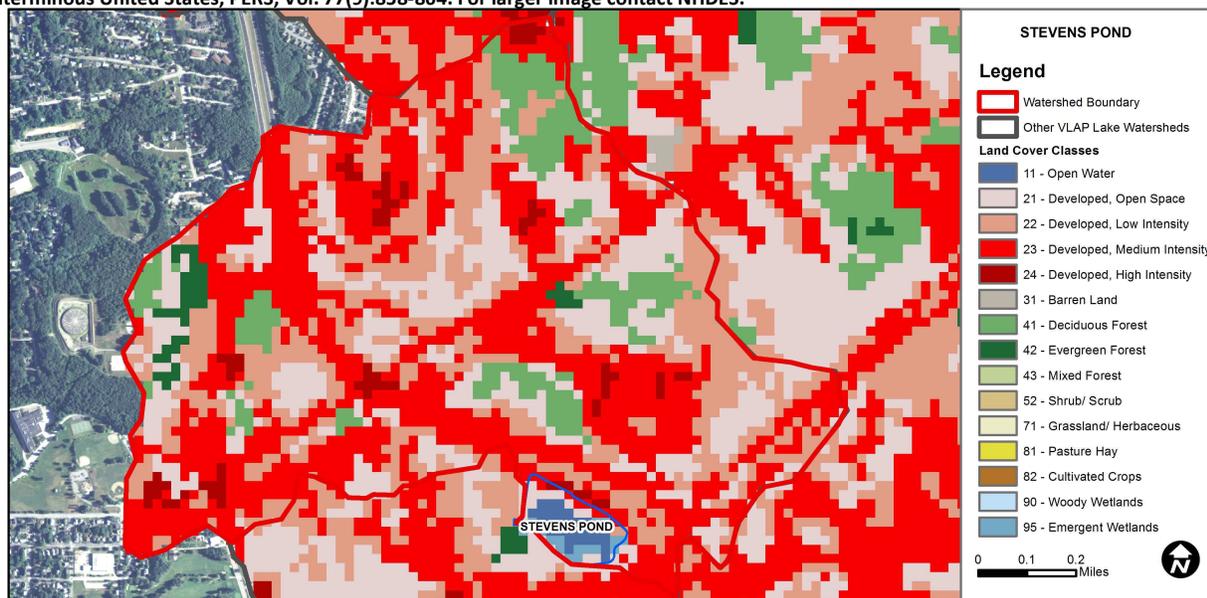
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
Primary Contact Recreation	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	E. coli	No Data	No Data for this parameter.
	Chlorophyll-a	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large 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	1	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	20.7	Deciduous Forest	7.98	Pasture Hay	0
Developed-Low Intensity	26.3	Evergreen Forest	1.45	Cultivated Crops	0
Developed-Medium Intensity	38.4	Mixed Forest	0	Woody Wetlands	0
Developed-High Intensity	2.82	Shrub-Scrub	0	Emergent Wetlands	0.52



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

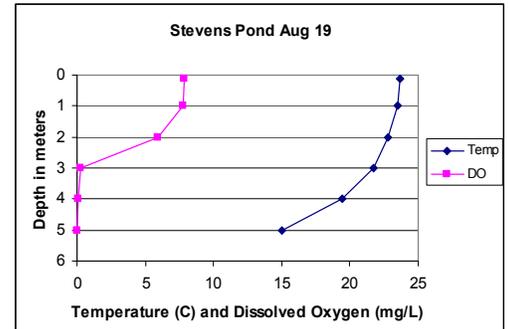
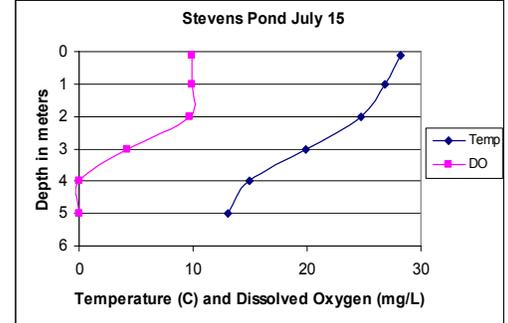
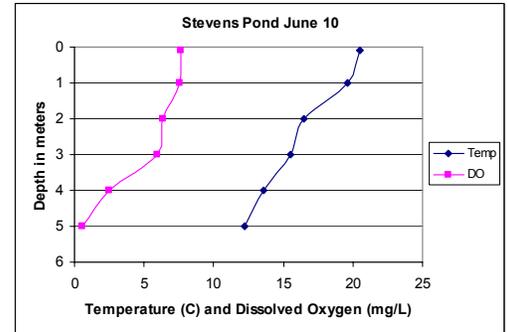
STEVENS POND, MANCHESTER, NH

2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphic)

- ♣ **CHLOROPHYLL-A:** Chlorophyll levels increased sharply in 2012 and were indicative of bloom conditions in July and August. Historical trend analysis indicates chlorophyll levels fluctuate annually.
- ♣ **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride were elevated at all stations and indicate of the urbanized watershed.
- ♣ **TOTAL PHOSPHORUS:** Epilimnetic (upper water layer) phosphorus levels increased slightly from June to August and were greater than the NH lake median. Historical trend analysis indicates epilimnetic phosphorus levels tend to fluctuate annually. Hypolimnetic (lower water layer) phosphorus levels were elevated due to the release of phosphorus from the sediments under oxygen depleted conditions. Outlet phosphorus levels were relatively low.
- ♣ **TRANSPARENCY:** Transparency decreased in August due to the elevated algal growth. Historical trend analysis indicates a relatively stable transparency since monitoring began.
- ♣ **TURBIDITY:** Epilimnetic and metalimnetic (middle water layer) turbidity were slightly elevated due to algal growth. Hypolimnetic turbidity was elevated due to the formation and accumulation of organic compounds under oxygen depleted conditions.
- ♣ **pH:** Hypolimnetic pH decreased to undesirable levels in July.
- ♣ **RECOMMENDED ACTIONS:** Stevens Pond is an urban pond greatly impacted by its watershed. While it is recommended to address conductivity, chloride and internal phosphorus loading, we recognize the limitations in improving water quality.

Dissolved Oxygen & Temperature Profile



Station Name	Alk.	Chlor-a	Chloride	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	ug/l	NVS	VS	ntu	
Deep Epilimnion	28.1	32.6	195	636.0	25	2.25	2.21	2.28	7.35
Deep Metalimnion				602.7	35			3.25	6.92
Deep Hypolimnion				843.3	61			16.6	6.64
Outlet				639.0	20			1.34	6.77

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

- Alkalinity:** 4.9 mg/L
- Chlorophyll-a:** 4.58 mg/m³
- 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:** 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.
Transparency	Stable	Data not significantly increasing or decreasing.
Phosphorus (epilimnion)	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.

This report was generated by the NH DES Volunteer Lake Assessment Program (VLAP). For more information contact:
 Sara Steiner
 PO Box 95
 Concord, NH 03302-0095
 (603) 271-2658
 sara.steiner@des.nh.gov

