Volunteer Lake Assessment Program Individual Lake Reports

TUREE POND, BOW, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	1,953	**Max. Depth (m):**	3	**Flushing Rate (yr^{-1}):**	9.5
Surface Area (Ac.):	47	**Mean Depth (m):**	1.9	**P Retention Coef:**	0.49
Shore Length (m):	1,800	**Volume (m^3):**	357,000	**Elevation (ft):**	328

TROPHIC CLASSIFICATION

Year	Trophic class
1989	EUTROPHIC

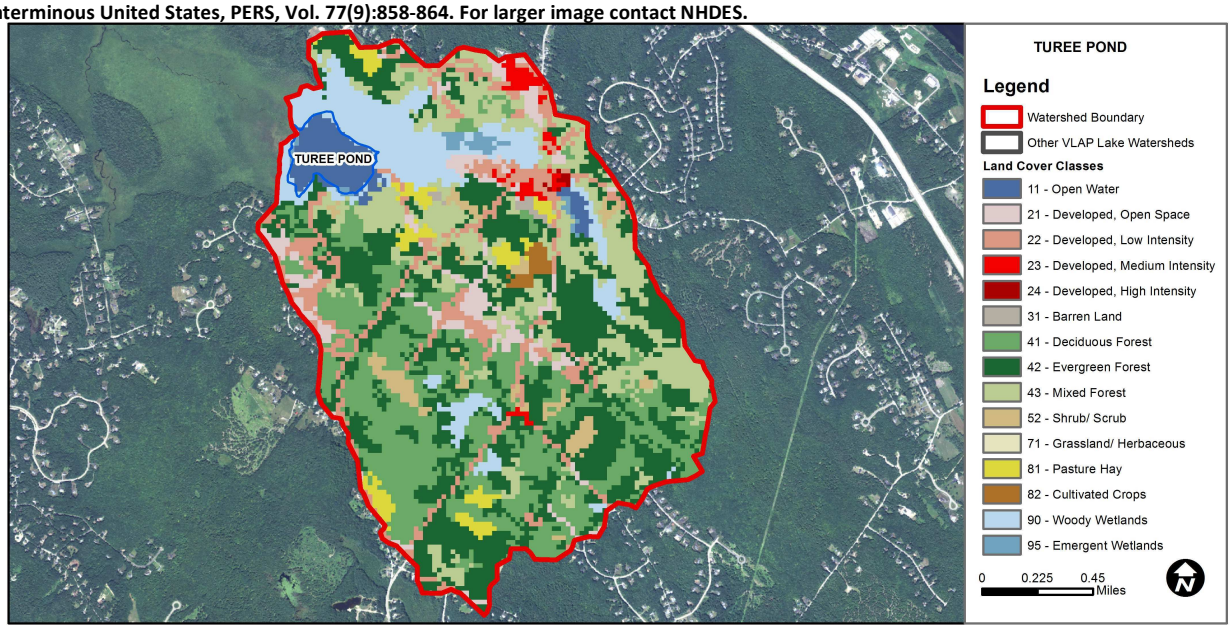
KNOWN EXOTIC SPECIES

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)	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator and the chlorophyll a indicator is okay.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Oxygen, Dissolved	Cautionary	There are < 10 samples with 1 exceedance of criteria. More data needed.
	Dissolved oxygen satura	Slightly Bad	There are >10% of samples (minimum of 2), exceeding criteria.
	Chlorophyll-a	Very Good	The calculated median is from 5 or more samples and is <= 1/2 indicator.
Primary Contact Recreation	Escherichia coli	Encouraging	There are no geometric means or there are > 2 single samples but those samples are within 75% of the geometric means criteria. More data needed.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of 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	3.29	Barren Land	0.29	Grassland/Herbaceous	0
Developed-Open Space	4.64	Deciduous Forest	22.25	Pasture Hay	2.66
Developed-Low Intensity	8.39	Evergreen Forest	27.92	Cultivated Crops	0.58
Developed-Medium Intensity	1.14	Mixed Forest	15.64	Woody Wetlands	9.78
Developed-High Intensity	0.13	Shrub-Scrub	2.5	Emergent Wetlands	0.78

Volunteer Lake Assessment Program Individual Lake Reports

Turee Pond, Bow

2015 Data Summary

Recommended Actions: Variable milfoil (*Myriophyllum heterophyllum)* an exotic aquatic plant species, was discovered in Turee Pond in 2015. The growth was well established and present for more than one season. Management actions are currently being developed for 2016. Water quality improved in 2015 however only one sampling event was conducted. Additional sampling events in 2016 are recommended to assess any water quality impacts from milfoil management activities.

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

- **Chlorophyll-a:** Chlorophyll levels were low in June and decreased from the slightly elevated levels measured in 2014. Chlorophyll levels were much less than the state median and visual inspection of the data indicates variable chlorophyll levels since 2007.
- **Conductivity/Chloride:** Epilimnetic (upper water layer) and Village Inlet conductivity and chloride levels remain elevated. Epilimnetic conductivity increased again in 2015 and was much greater than the state median. Chloride levels at both stations, while less than the chronic chloride standard for surface waters, were elevated and much greater than the state median of 4 mg/L. Visual inspection of historical data indicates epilimnetic conductivity has increased since 2012.
- **E. coli:** Village Inlet E. coli levels were low and much less than the state standard of 406 cts/100 mL for surface waters.
- **Total Phosphorus:** Epilimnetic phosphorus levels were slightly greater than the state median yet decreased from 2014 which likely led to the decreased algal growth. Visual inspection of historical data indicates variable epilimnetic phosphorus levels since 2007, however average phosphorus levels between 1996 and 2002 were much lower than those measured between 2007 and 2015. Village Inlet phosphorus levels were average.
- **Transparency:** Transparency was good in June and the Secchi disk was almost visible on the pond bottom. The low levels of algal growth likely contributed to the improved transparency. Visual inspection of historical data indicate worsening transparency between 2007 and 2013, however transparency improved in 2014 and 2015 and we hope to see this trend continue.
- **Turbidity:** Epilimnetic turbidity was relatively low and decreased from 2014. Village Inlet turbidity was low.
- **pH:** Epilimnetic pH was invalidated due to a meter error and we apologize for the inconvenience. Village Inlet pH was within the desirable range 6.5-8.0 units.

Table 1. 2015 Average Water Quality Data for TUREE POND

Station Name	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m		Turb. ntu	pH
							NVS	VS		
Epilimnion	12.4	2.36	56	260.0		17	2.30	2.50	1.24	
Village Inlet			76	365.7	60	12			0.33	6.61

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

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	N/A	Ten consecutive years of data necessary for analysis.	Chlorophyll-a	N/A	Ten consecutive years of data necessary for analysis.
pH (epilimnion)	N/A	Ten consecutive years of data necessary for analysis.	Transparency	N/A	Ten consecutive years of data necessary for analysis.
			Phosphorus (epilimnion)	N/A	Ten consecutive years of data necessary for analysis.