Volunteer Lake Assessment Program Individual Lake Reports

NUBANUSIT LAKE, NELSON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	5,184	**Max. Depth (m):**	30.2	**Flushing Rate (yr^{1})**	0.4
Surface Area (Ac.):	715	**Mean Depth (m):**	11.5	**P Retention Coef:**	0.67
Shore Length (m):	13,700	**Volume (m^3):**	30,024,500	**Elevation (ft):**	1376

TROPHIC CLASSIFICATION

Year	Trophic class
1988	OLIGOTROPHIC
2003	OLIGOTROPHIC

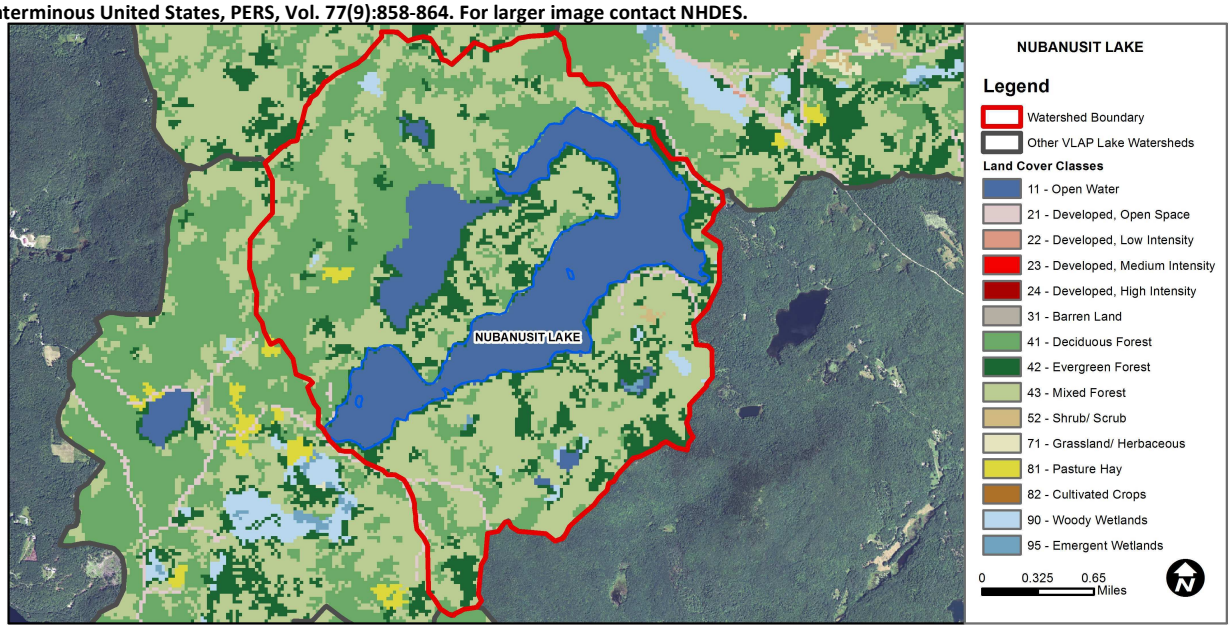
KNOWN EXOTIC SPECIES

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	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	Oxygen, Dissolved	Good	There are at least 10 samples with one, but < 10% of samples, exceeding criteria.
	Dissolved oxygen satura	Good	There are at least 10 samples with one, but < 10% of samples, 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	Good	There are geometric means and all geometric means are < geometric mean criteria; and there has been a single sample exceedance.
	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	23.4	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	0.66	Deciduous Forest	22.98	Pasture Hay	0.22
Developed-Low Intensity	0	Evergreen Forest	12.97	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	38.92	Woody Wetlands	0.68
Developed-High Intensity	0	Shrub-Scrub	0.1	Emergent Wetlands	0.13

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Nubanusit Lake, Nelson

2014 Data Summary

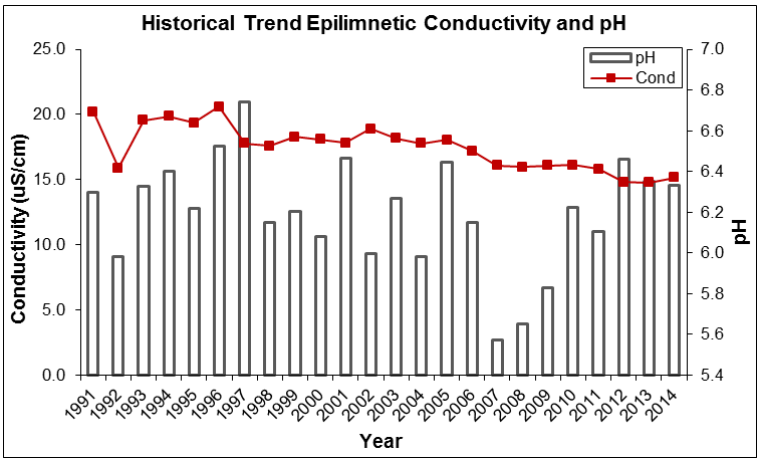
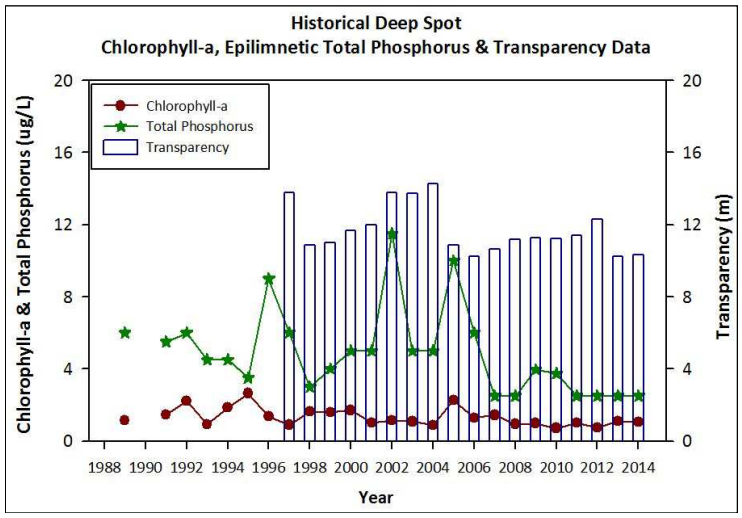
Observations and Recommendations (*Refer to Table 1 and Historical Deep Spot Data Graphics*)

- **Chlorophyll-a:** Chlorophyll levels decreased from June to September and were at low levels. Historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began.
- **Conductivity/Chloride:** Deep spot and tributary conductivity and chloride levels were stable and low, and much less than the state medians. Historical trend analysis indicates significantly decreasing (improving) epilimnetic (upper water layer) conductivity levels since monitoring began. A similar trend has occurred at other area lakes.
- **E. coli:** Hancock Landing E. coli levels were very low and much less than the state standards for public beaches (88 cts/100 mL) and surface waters (406 cts/100 mL).
- **Total Phosphorus:** Deep spot and tributary phosphorus levels were very low in June and September and much less than the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic phosphorus since monitoring began.
- **Transparency:** Transparency measured with the viewscope (VS) improved slightly from June to September and average transparency was stable with 2013 and much better than the state median. Historical trend analysis indicates relatively stable transparency with moderate variability between years.
- **Turbidity:** Deep spot turbidity remained stable and low in June and September. Daloz Cove turbidity was slightly elevated in June potentially due to stormwater runoff from a recent rain event. All other tributary station turbidities were low.
- **pH:** Deep spot and tributary pH levels were generally less than the desirable range 6.5-8.0 units. Historical trend analysis indicates highly variable epilimnetic pH since monitoring began. Epilimnetic pH, although variable, has improved steadily since 2007 and we hope to see this continue.
- **Recommended Actions:** Maintain current monitoring and watershed management efforts. Water quality has improved or remained stable since monitoring began and we hope to see this continue. Daloz Cove turbidity was slightly elevated in June and a recent rain event may have caused localized erosion that contributed to the elevated turbidity. Identify any areas of localized erosion in Daloz Cove and encourage landowners to install stormwater best practices to capture and infiltrate stormwater before entering the lake. DES' "NH Homeowner's Guide to Storwmater Management" is a great resource. Keep up the great work!

Station Name	Table 1. 2014 Average Water Quality Data for NUBANUSIT LAKE									
	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	1.30	1.06		15.2		3		10.35	0.43	6.33
Metalimnion				15.2		3			0.47	6.21
Hypolimnion				16.0		3			0.63	5.99
Daloz Cove				15.2					1.04	6.35
Hancock Landing			3	15.2	10	3			0.47	6.42
Lot 10 Inlet				15.5					0.45	6.40
Outlet In Stream			3	15.2					0.46	6.37
Shadrack Pd Brook				15.2					0.35	6.44
Spoonwood Dam				15.2					0.56	6.38

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

Historical Water Quality Trend Analysis

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Improving	Data significantly decreasing.	Chlorophyll-a	Improving	Data significantly decreasing.
pH (epilimnion)	Stable	Trend not significant; data highly variable.	Transparency	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion)	Improving	Data significantly decreasing.