



Volunteer Lake Assessment Program Individual Lake Reports

IVANHOE, LAKE, WAKEFIELD, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	397	Max. Depth (m):	6.1	Flushing Rate (yr ⁻¹)	0.5
Surface Area (Ac.):	68	Mean Depth (m):	3.6	P Retention Coef:	0.83
Shore Length (m):	2,700	Volume (m ³):	1,809,000	Elevation (ft):	596

TROPHIC CLASSIFICATION

Year	Trophic class
1981	OLIGOTROPHIC
1992	OLIGOTROPHIC

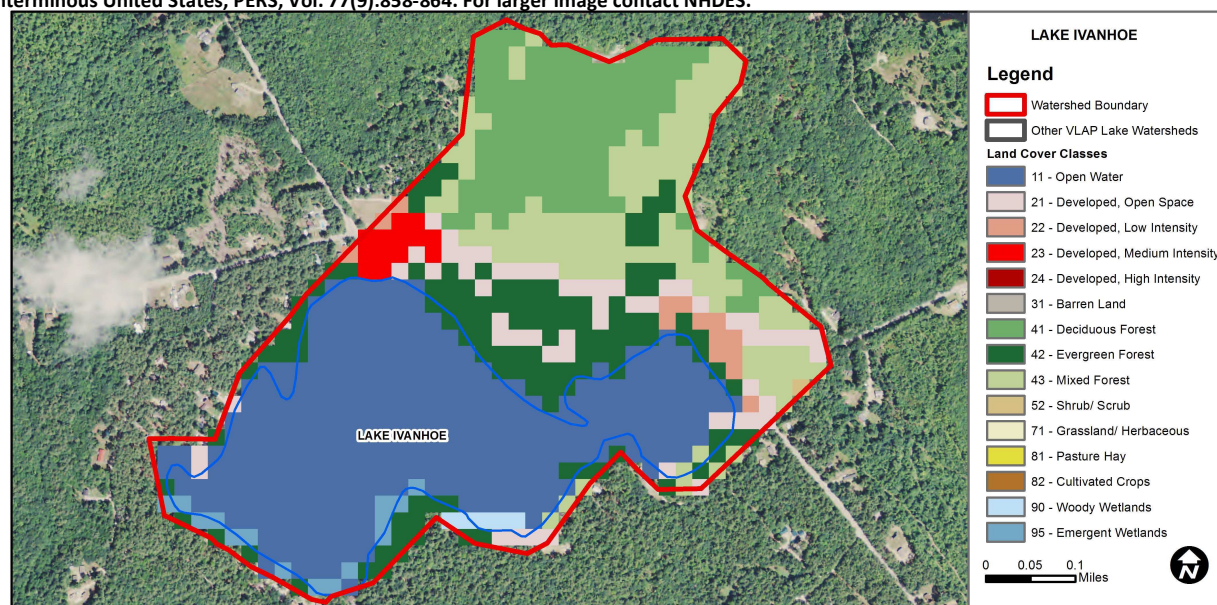
KNOWN EXOTIC SPECIES

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)	Very Good	At least 10 samples with 0 exceedances of criteria.
	D.O. (% sat)	Very Good	At least 10 samples with 0 exceedances of criteria.
	Chlorophyll-a	Good	>=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

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	39.6	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	7.23	Deciduous Forest	15.25	Pasture Hay	0
Developed-Low Intensity	1.84	Evergreen Forest	15.91	Cultivated Crops	0
Developed-Medium Intensity	1.71	Mixed Forest	15.78	Woody Wetlands	0.66
Developed-High Intensity	0	Shrub-Scrub	0.13	Emergent Wetlands	1.97



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

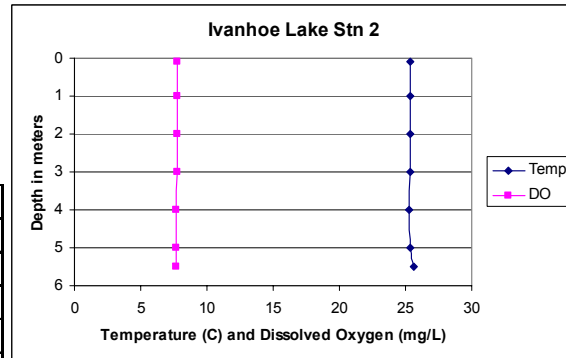
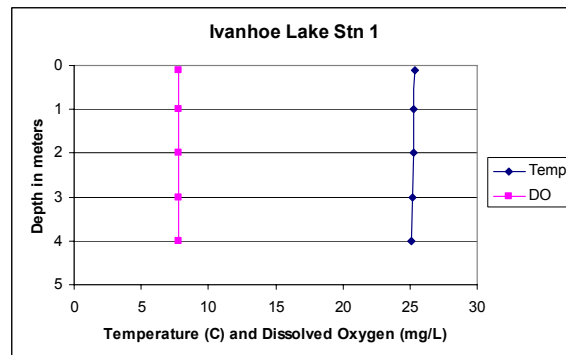
IVANHOE LAKE, WAKEFIELD, NH

2012 DATA SUMMARY

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

- 🔥 **CHLOROPHYLL-A:** Chlorophyll levels were slightly above average at both deep spot stations. Historical trend analysis indicates a relatively stable chlorophyll level since monitoring began.
- 🔥 **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride levels were slightly greater than the NH lake medians.
- 🔥 **E. COLI:** E. coli levels were well below state standards for public beaches and surface waters.
- 🔥 **TOTAL PHOSPHORUS:** Phosphorus levels were relatively low and historical trend analysis indicates a significantly decreasing (improving) phosphorus level since monitoring began.
- 🔥 **TRANSPARENCY:** Transparency levels were slightly lower than average likely due to the increased algal growth. Historical trend analysis indicates lake transparency tends to fluctuate from year to year.
- 🔥 **TURBIDITY:** Turbidity levels were relatively low this year.
- 🔥 **pH:** pH levels were slightly lower than desirable.
- 🔥 **RECOMMENDED ACTIONS:** Increase monitoring frequency to three sampling event per summer to better assess summer water quality and historical trends. A small cyanobacteria bloom was noted this summer. Please report any suspected cyanobacteria blooms to DES for further identification.

Dissolved Oxygen & Temperature Profiles



Station Name	Table 1. 2012 Average Water Quality Data for LAKE IVANHOE									
	Alk.	Chlor-a	Chloride	Cond.	E. Coli	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	#/100ml	ug/l	m		ntu	
							NVS	VS		
Carlsons Cove				65.1		6			0.98	6.54
Rileys Cove					10					
Stn 1 Epilimnion	1.60	4.63	11	64.8		7	4.25	4.5	0.93	6.25
Stn 1 Hypolimnion				64.6		9			0.86	6.56
Stn 2 Epilimnion	1.60	5.55	11	65.3		7	3.5	3.7	1.03	6.44
Stn 2 Hypolimnion				64.8		7			0.95	6.37

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	Stable	Data not significantly increasing or decreasing.
Transparency	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.
Phosphorus (epilimnion)	Improving	Significantly decreasing.

This report was generated by the NH DES Volunteer Lake Assessment Program (VLAP). For more information contact:

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Historical Deep Spot Chlorophyll-a, Epilimnetic Total Phosphorus & Transparency Data

