



Volunteer Lake Assessment Program Individual Lake Reports

GLEN LAKE, GOFFSTOWN, NH

MORPHOMETRIC DATA

TROPHIC CLASSIFICATION

KNOWN EXOTIC SPECIES

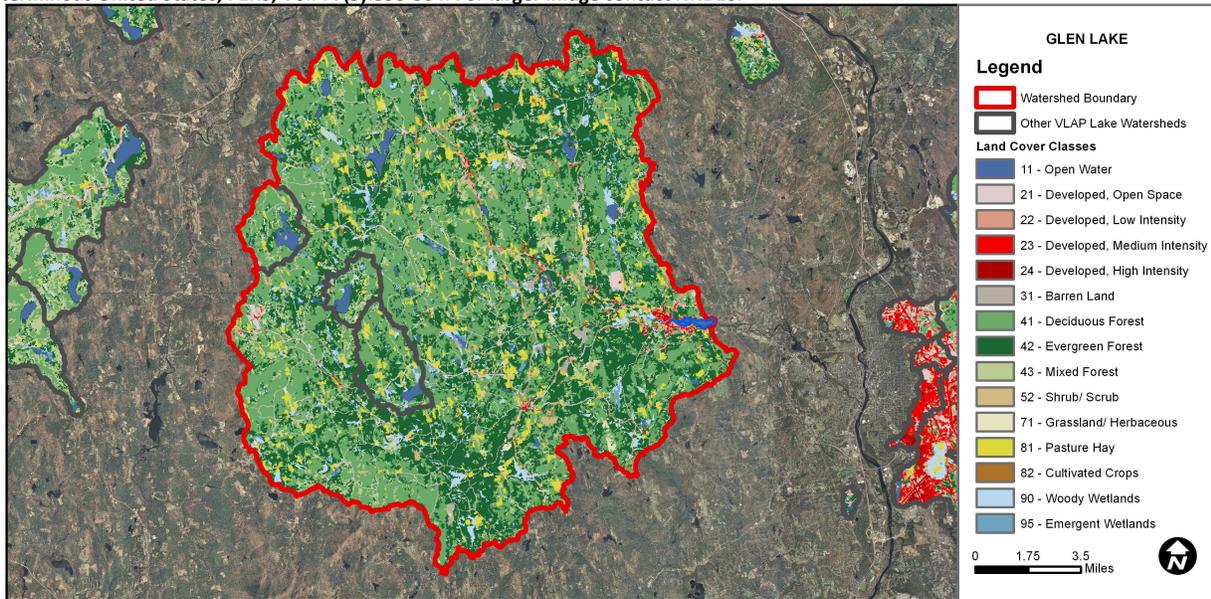
Watershed Area (Ac.):	129,480	Max. Depth (m):	15.8	Flushing Rate (yr ⁻¹)	80	Year	Trophic class	Variable Milfoil
Surface Area (Ac.):	119	Mean Depth (m):	5.9	P Retention Coef:	0.01	1979	EUTROPHIC	
Shore Length (m):	4,700	Volume (m ³):	2,826,500	Elevation (ft):	271	1991	MESOTROPHIC	

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)	Cautionary	The calculated median is fewer than 5 samples but > indicator and the chlorophyll a indicator is okay. More data needed.
	pH	Cautionary	< 10 samples and 1 exceedance of criteria. More data needed.
	Oxygen, Dissolved	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Dissolved oxygen satura	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Chlorophyll-a	Cautionary	The calculated median is fewer than 5 samples but > indicator. More data needed.
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.





VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

GLEN LAKE, GOFFSTOWN

2014 DATA SUMMARY

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

- CHLOROPHYLL-A:** Chlorophyll levels were low and remained stable from June to July. The 2014 average chlorophyll level decreased sharply from 2013 and was less than the state median. We hope to see this continue!
- CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer) and Inlet conductivity and chloride were slightly greater than the state medians. The 2014 average epilimnetic conductivity was slightly greater than 2013 and increased sharply since 2007.
- TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels remained stable from June to July and average epilimnetic phosphorus was greater than the state median. Metalimnetic (middle water layer) and hypolimnetic (bottom water layer) phosphorus levels increased from June to July and the turbidity increased as well indicating the potential release of phosphorus from the bottom sediments when dissolved oxygen levels fall below 1.0 mg/L. Inlet phosphorus was within an average range of 10–20 ug/L and remained relatively stable from June to July.
- TRANSPARENCY:** Transparency decreased slightly from June to July and average transparency was slightly less than the state median. The 2014 average transparency improved from 2013 due to the lower levels of algal growth as indicated by the chlorophyll-a measurement.
- TURBIDITY:** Epilimnetic turbidity was low in June and July. Metalimnetic and hypolimnetic turbidity increased from June to July potentially due to algal growth at that depth and/or from organic compounds released from bottom sediments when dissolved oxygen levels fall below 1.0 mg/L.
- pH:** Epilimnetic pH was sufficient to support aquatic life and within the desirable range of 6.5–8.0 units. Hypolimnetic pH decreased to below 6.5 units in July likely due to the formation of acidic by-products when dissolved oxygen levels decrease below 1.0 mg/L.
- RECOMMENDED ACTIONS:** Continue the monitoring program to establish baseline water quality data and to assess water quality trends in the future. Several water quality parameters were above average for NH lakes which highlights the importance of monitoring and managing watershed pollution sources. Most pollutants enter waterways through stormwater runoff. Therefore, the increased frequency and intensity of storm events highlights the importance of managing stormwater runoff in the watershed. DES' "Homeowner's Guide to Stormwater Management" is a great resource for lake residents. Keep up the great work!

Station Name	Table 1. 2014 Average Water Quality Data for GLEN LAKE								
	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	8.9	2.63	20	98.3	16	2.63	2.69	1.09	6.82
Metalimnion				96.3	16			2.17	6.70
Hypolimnion				101.5	17			4.46	6.59
Inlet			19	94.8	16			1.77	6.98

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

