Volunteer Lake Assessment Program Individual Lake Reports

OSSIPEE LAKE, OSSIPEE, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	209,595	**Max. Depth (m):**	18.5	**Flushing Rate (yr^{1})**	4.6
Surface Area (Ac.):	3092	**Mean Depth (m):**	8.5	**P Retention Coef:**	0.39
Shore Length (m):	17,100	**Volume (m^{3}):**	108,421,500	**Elevation (ft):**	406

TROPHIC CLASSIFICATION

Year	Trophic class
1987	OLIGOTROPHIC
2003	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.

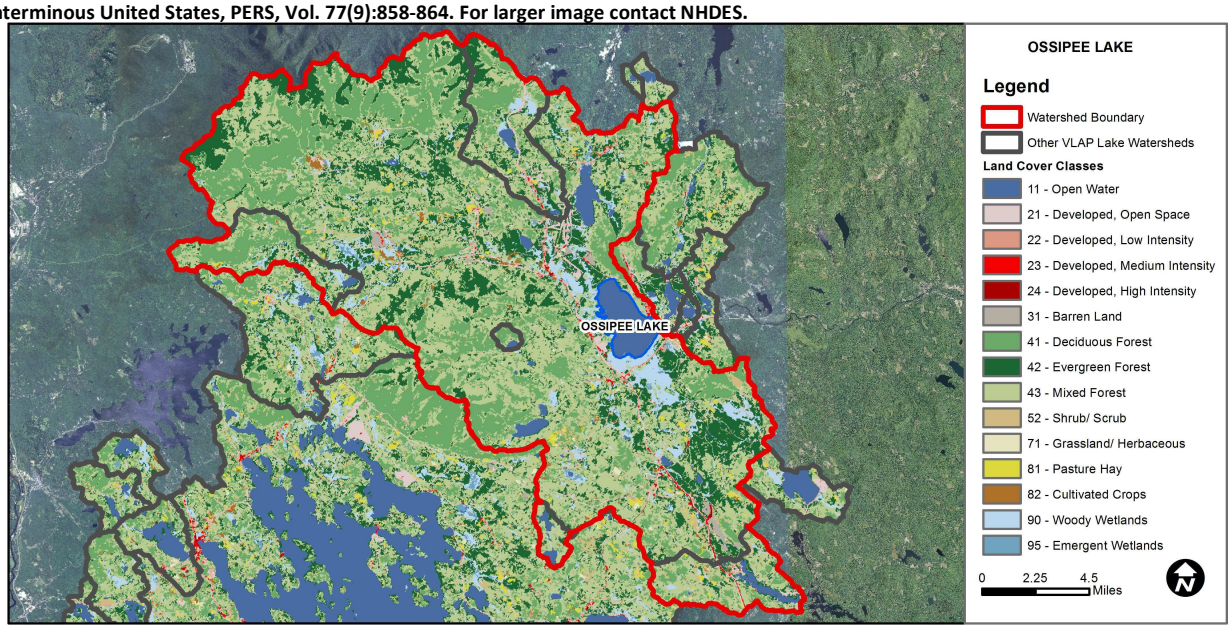
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Encouraging	>2 samples exist that are > 75% of geometric mean criteria, but not enough samples to calculate geomertic mean. No single sample exceedances. More data needed.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

OSSIPEE LAKE - OSSIPEE LAKE NATURAL AREA	E. coli	Slightly Bad	Slightly exceeds criteria.
OSSIPEE LAKE - CAMP CODY FOR BOYS BEACH	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.
OSSIPEE LAKE - DEER COVE PB BEACH	E. coli	No Data	No Data for this parameter.
OSSIPEE LAKE - CAMP CALUMET BEACH	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.

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.

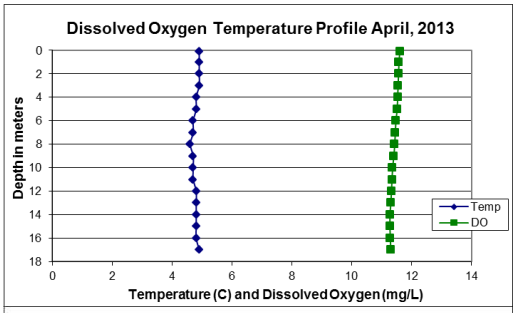


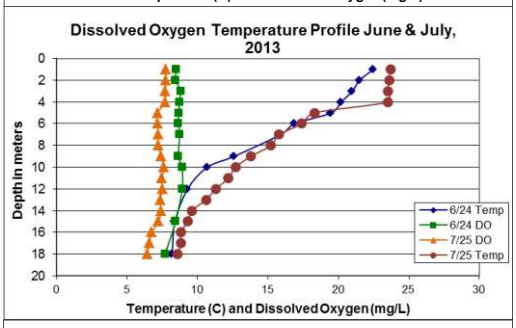
Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	3.48	Barren Land	0.66	Grassland/Herbaceous	0.37
Developed-Open Space	2.87	Deciduous Forest	22.98	Pasture Hay	0.86
Developed-Low Intensity	0.75	Evergreen Forest	20.55	Cultivated Crops	0.51
Developed-Medium Intensity	0.25	Mixed Forest	38.67	Woody Wetlands	4.85
Developed-High Intensity	0.04	Shrub-Scrub	2.52	Emergent Wetlands	0.59

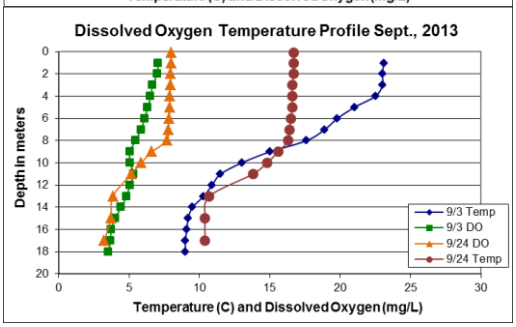
VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
OSSIPEE LAKE, OSSIPEE, NH
2013 DATA SUMMARY

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

- **CHLOROPHYLL-A:** Chlorophyll levels were stable and low throughout the summer and less than the state median. Historical trend analysis indicates relatively stable chlorophyll with moderate variability between years.
- **CONDUCTIVITY/CHLORIDE:** Deep spot conductivity and chloride levels were low and approximately equal to the state medians. Historical trend analysis indicates significantly decreasing (improving) epilimnetic conductivity since monitoring began. We hope to see this continue!
- **TOTAL PHOSPHORUS:** April phosphorus levels were elevated (range 14-20 ug/L) throughout the water column. Epilimnetic phosphorus decreased to low levels in and June and September. July epilimnetic phosphorus results were invalidated due to potential cross contamination. Metalimnetic and hypolimnetic phosphorus levels remained low and stable throughout the summer. Historical trend analysis indicates relatively stable epilimnetic phosphorus with moderate variability between years.
- **TRANSPARENCY:** Transparency was relatively low, less than 3.0 meters, in June, July and early September. Transparency improved in late September and viewscope transparency was better than non-viewscope transparency, and likely a better representation of actual transparency at the Ossipee Lake station.
- **TURBIDITY:** Deep spot turbidity levels were low and relatively stable throughout the summer.
- **PH:** Metalimnetic and hypolimnetic pH were less than desirable range 6.5 – 8.0 units. Epilimnetic pH remained good and historical trend analysis indicates moderately variable epilimnetic pH.
- **RECOMMENDED ACTIONS:** The improving epilimnetic conductivity trend is a good sign. The transparency measured with the viewscope is typically much better than without the viewscope and likely a better representation of actual conditions. Consider utilizing the viewscope on each sampling event in the future. The increased frequency and intensity of storm events highlights the importance of reducing stormwater runoff to the lake. Educate lake and watershed residents on ways to reduce stormwater runoff from their properties utilizing DES' "NH Homeowner's Guide to Stormwater Management".





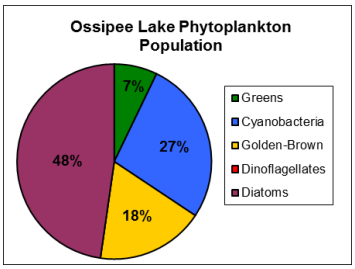


Station Name	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	Total P ug/l	Trans. m NVS	Trans. m VS	Turb. ntu	pH
Epilimnion	5.50	1.84	4.15	37.5	5	3.04	4.63	0.55	6.80
Metalimnion				35.9	6			0.44	6.27
Hypolimnion				35.5	7			0.49	6.08

Table 1. 2013 Average Water Quality Data for OSSIPEE LAKE

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: 6.5-8.0 (unless naturally occurring)



HISTORICAL WATER QUALITY TREND ANALYSIS

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