



## Volunteer Lake Assessment Program Individual Lake Reports

### OSSIPPEE LAKE, OSSIPPEE, NH

#### MORPHOMETRIC DATA

Watershed Area (Ac.):	209,595	Max. Depth (m):	18.5	Flushing Rate (yr <sup>-1</sup> ):	4.6
Surface Area (Ac.):	3250	Mean Depth (m):	8.5	P Retention Coef:	0.39
Shore Length (m):	17,100	Volume (m <sup>3</sup> ):	108,421,500	Elevation (ft):	406

#### TROPHIC CLASSIFICATION

Year	Trophic class
1987	OLIGOTROPIC
2003	OLIGOTROPIC

#### 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](http://www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm)

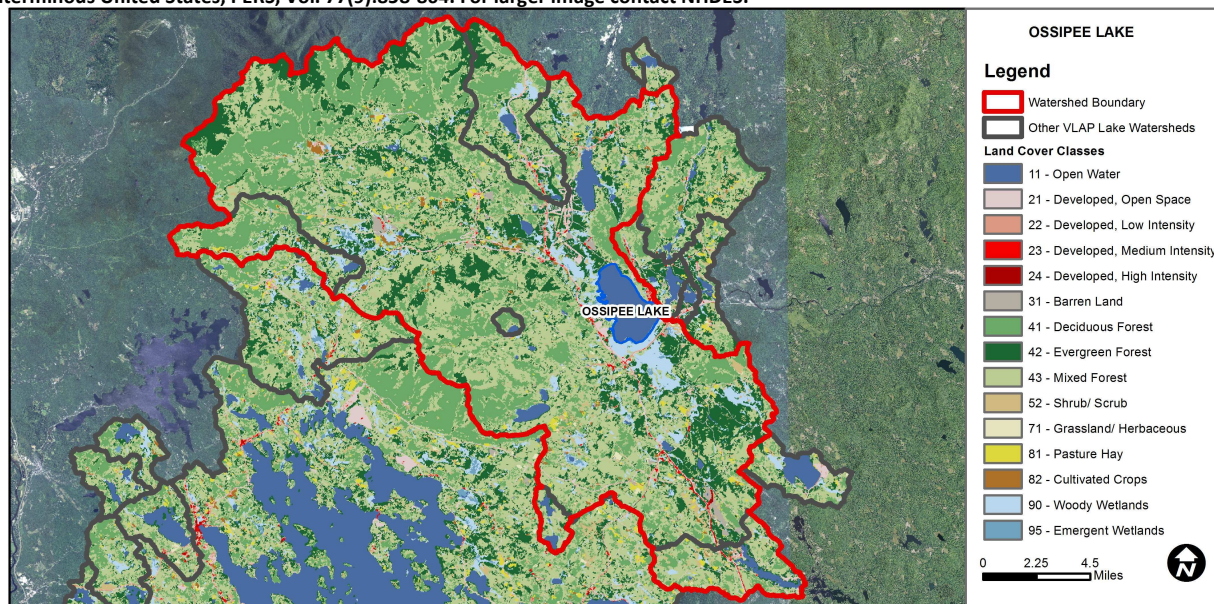
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
	pH	Bad	Data periodically exceed water quality standards or thresholds for this parameter by a large margin.
	Oxygen, Dissolved	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
	Dissolved oxygen satura	Encouraging	Limited data for this parameter predicts water quality standards or thresholds are being met; however more data are necessary to fully assess the parameter.
	Chlorophyll-a	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
Primary Contact Recreation	Escherichia coli	Encouraging	Limited data for this parameter predicts water quality standards or thresholds are being met; however more data are necessary to fully assess the parameter.
	Chlorophyll-a	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

#### BEACH PRIMARY CONTACT ASSESSMENT STATUS

Location	Parameter	Category	Comments
OSSIPEE LAKE - DEER COVE PB BEACH	Escherichia coli	No Data	No data for this parameter.
OSSIPEE LAKE - OSSIPPEE LAKE NATURAL AREA	Escherichia coli	Slightly Bad	Data periodically exceed water quality standards or thresholds for this parameter by a small margin.
OSSIPEE LAKE - CAMP CODY FOR BOYS BEACH	Escherichia coli	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
OSSIPEE LAKE - CAMP CALUMET BEACH	Escherichia coli	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

#### 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

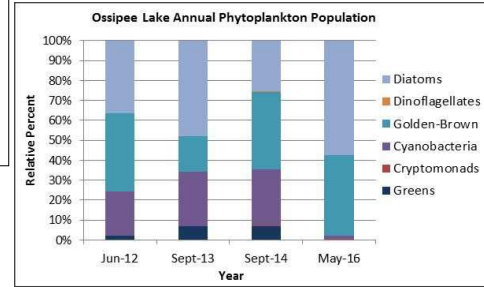
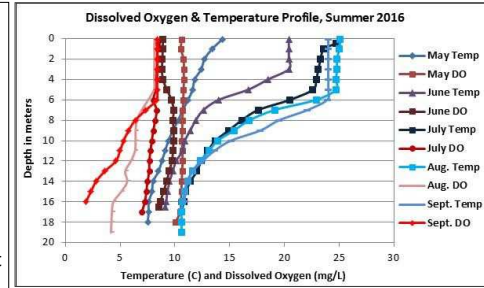
## OSSISPEE LAKE, OSSISPEE

### 2016 DATA SUMMARY

**RECOMMENDED ACTIONS:** Ossipee Lake water quality is generally indicative of Oligotrophic, or high quality water, conditions. A significant storm event 48 hours prior to the June sampling event likely contributed to the slightly elevated turbidity in the metalimnion through the fall out of suspended sediments and the lower water clarity measured in June. Overall, the lack of stormwater runoff may have helped to improve water clarity in 2016 indicating the negative impacts of stormwater runoff on Ossipee Lake. Educate lake property owners on ways to reduce stormwater runoff and utilize vegetated buffers along the shoreline. Educate boaters on best boating practices in shallow areas. UNH Cooperative Extension's "Landscaping at the Water's Edge", DES' "NH Homeowner's Guide to Stormwater Management" and DES Fact Sheet WD-WMB-25 "Impacts of Motorized Craft on New Hampshire's Waterbodies are great resources". Keep up the great work!

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

- **CHLOROPHYLL-A:** Chlorophyll levels were low in May, increased to average levels in June, then decreased to lower level through September. Average chlorophyll increased slightly from 2015 yet remained much less than the state median. Historical trend analysis indicates stable chlorophyll levels with moderate variability between years.
- **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), metalimnetic (middle water layer) and hypolimnetic (lower water layer) conductivity levels were approximately equal to the state median and remained stable throughout the summer. Historical trend analysis indicates stable epilimnetic conductivity since monitoring began.
- **TOTAL PHOSPHORUS:** Epilimnetic, metalimnetic and hypolimnetic phosphorus levels were slightly above average in May and generally decreased to low levels from June through September. Epilimnetic phosphorus was elevated in August however there's no indication as to what may have caused the elevated level. Average epilimnetic phosphorus increased from 2015 and was less than the state median. Historical trend analysis indicates stable epilimnetic phosphorus with high variability between years.
- **TRANSPARENCY:** Transparency measured without the viewscope (NVS) was high (good) in 2016 and was lowest in June but reached almost 7 meters in August making the 2016 average transparency the best measured since 2011. Historical trend analysis indicates stable NVS transparency with high variability between years. Transparency measured with the viewscope (VS) was generally better than that measured without and likely a better representation of actual conditions.
- **TURBIDITY:** Epilimnetic turbidity decreased as the summer progressed and remained within a low range. Metalimnetic turbidity was elevated in June following a significant storm event. Hypolimnetic turbidity was within a low range throughout the summer.
- **pH:** Epilimnetic and metalimnetic pH levels generally remained within the desirable range 6.5-8.0 units throughout the summer. Hypolimnetic pH fluctuated below the desirable range. Historical trend analysis indicates stable epilimnetic pH since monitoring began.



Station Name	Table 1. 2016 Average Water Quality Data for OSSISPEE LAKE-OSSISPEE								
	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	6.5	2.28	7	48.3	9	4.91	5.15	0.66	6.69
Metalimnion				45.1	7			0.97	6.62
Hypolimnion				44.3	27			0.79	6.42

**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<sup>3</sup>  
**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	Stable	Trend not significant; data show low variability.	Chlorophyll-a	Stable	Trend not significant; data moderately variable.
pH (epilimnion)	Stable	Trend not significant; data show low variability.	Transparency	Stable	Trend not significant; data highly variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data highly variable.

