



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

## LAKE WINNISQUAM, POT ISLAND, LACONIA

### 2014 DATA SUMMARY

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

- ◆ **CHLOROPHYLL-A:** Chlorophyll levels remained low and stable from July to August and were much less than the state median. Historical trend analysis indicates relatively stable chlorophyll levels with moderate variability between years.
- ◆ **CONDUCTIVITY/CHLORIDE:** Deep spot and tributary conductivity and chloride levels were greater than the state medians. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity since monitoring began.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic (upper water layer), metalimnetic (middle water layer) and hypolimnetic (lower water layer) phosphorus levels increased slightly from July to August but remained at low levels and less than the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic and hypolimnetic phosphorus levels since monitoring began. We hope to see this continue! Black Bk. phosphorus was low in July but increased in August following a rain event. Winnepesaukee River phosphorus remained low in July and August.
- ◆ **TRANSPARENCY:** Transparency was good and remained stable from July to August. Transparency improved greatly from 2013 and was much better than the state median. Historical trend analysis indicates stable transparency since monitoring began.
- ◆ **TURBIDITY:** Deep spot turbidities were low in July and August. Black Bk. turbidity was low in July and increased slightly in August, however remained within a low range. Winnepesaukee River turbidity was low in July and August.
- ◆ **pH:** Deep spot pH levels were within desirable range 6.5—8.0 units in July and August, however have historically fluctuated below the desirable range. Historical trend analysis indicates relatively stable epilimnetic pH with moderate variability between years.
- ◆ **RECOMMENDED ACTIONS:** The improving epilimnetic and hypolimnetic phosphorus trend is encouraging and we hope to see this continue! Continue implementing and installing stormwater best management practices in the Black Bk. sub-watershed. The worsening epilimnetic conductivity trend is likely a result of winter deicing practices on roadways, parking lots, walkways and driveways. Encourage local watershed residents, town road agents and winter maintenance companies to obtain a Voluntary NH Salt Applicator license through UNH's Technology Transfer Center's Green SnowPro Certification Program. More information and educational resources can be found at [www.t2.unh.edu/green-snowpro-training-and-certification](http://www.t2.unh.edu/green-snowpro-training-and-certification). Keep up the great work!

Station Name	Table 1. 2014 Average Water Quality Data for LAKE WINNISQUAM								
	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	7.65	1.91	18	92.4	6	8.38	8.50	0.45	7.02
Metalimnion				93.4	9			0.62	6.81
Hypolimnion				94.7	8			0.45	6.64
Black Bk			18	92.9	7			0.85	6.97
Winnepesaukee R			17	87.4	8			0.53	7.11

**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	Worsening	Data significantly increasing.	Chlorophyll-a	Stable	Trend not significant; data moderately variable.
pH (epilimnion)	Stable	Trend not significant; data moderately variable.	Transparency	Stable	Trend not significant; data show low variability.
			Phosphorus (epilimnion)	Improving	Data significantly decreasing.

