



Volunteer Lake Assessment Program Individual Lake Reports

LEAVITT BAY, OSSIPEE, NH

MORPHOMETRIC DATA

| | | | | | |
|-----------------------|---------|---------------------------|-----------|-----------------------------------|-----|
| Watershed Area (Ac.): | 227,357 | Max. Depth (m): | 12.8 | Flushing Rate (yr ⁻¹) | 221 |
| Surface Area (Ac.): | 176 | Mean Depth (m): | 3.4 | P Retention Coef: | 0 |
| Shore Length (m): | 4,800 | Volume (m ³): | 2,429,000 | Elevation (ft): | 406 |

TROPHIC CLASSIFICATION

| Year | Trophic class |
|------|---------------|
| 1987 | MESOTROPHIC |
| 2003 | OLIGOTROPHIC |

KNOWN EXOTIC SPECIES

| |
|------------------|
| Variable Milfoil |
| |
| |

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

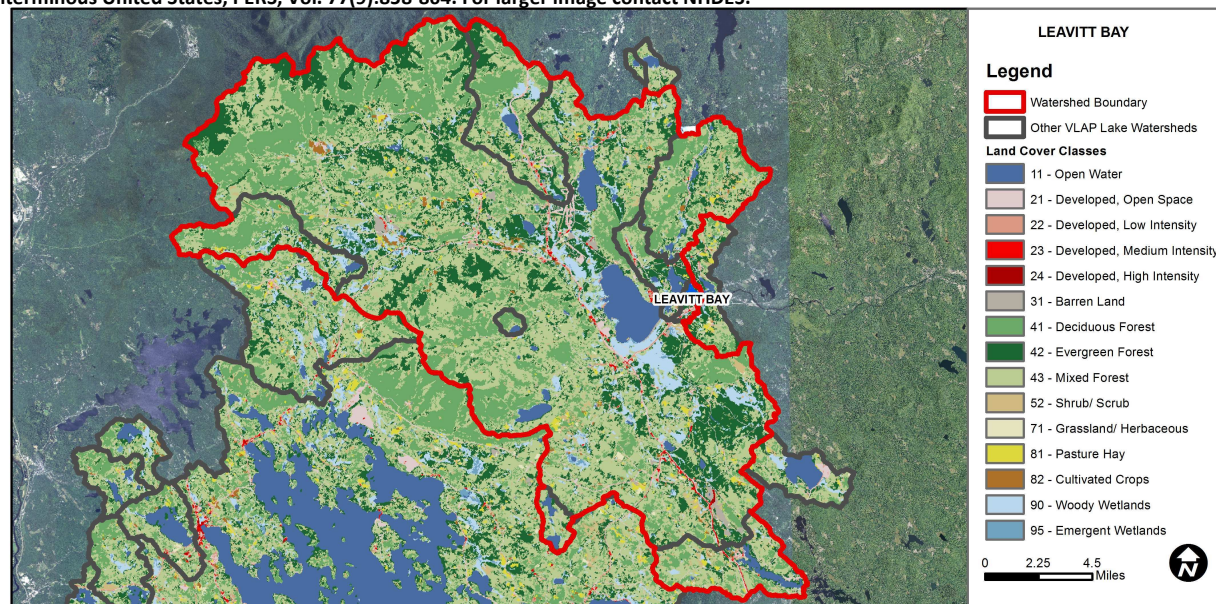
| Designated Use | Parameter | Category | Comments |
|----------------------------|-----------------------------|--------------|---|
| Aquatic Life | Phosphorus (Total) | Good | Sampling data is better than the water quality standards or thresholds for this parameter. |
| | pH | Slightly Bad | Data periodically exceed water quality standards or thresholds for this parameter by a small margin. |
| | Oxygen, Dissolved | Very Good | All sampling data meet water quality standards or thresholds for this parameter. |
| | Dissolved oxygen saturation | Slightly Bad | Data periodically exceed water quality standards or thresholds for a given parameter by a small margin. |
| | Chlorophyll-a | Good | Sampling data is better than the water quality standards or thresholds for this parameter. |
| Primary Contact Recreation | Escherichia coli | No Data | No data for this parameter. |
| | Chlorophyll-a | Very Good | All sampling data meet water quality standards or thresholds for this parameter. |

BEACH PRIMARY CONTACT ASSESSMENT STATUS

| | | | |
|-----------------------------------|------------------|------------|--|
| BROAD BAY - CAMP HUCKINS BEACH | Escherichia coli | Cautionary | Limited data for this parameter predicts exceedance of water quality standards or thresholds; however more data are necessary to fully assess the parameter. |
| BROAD BAY - CAMP ROBIN HOOD BEACH | Escherichia coli | Very Good | All sampling data meet water quality standards or thresholds for this parameter. |
| LEAVITT BAY - CAMP MARIST 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 | 3.64 | Barren Land | 0.64 | Grassland/Herbaceous | 0.36 |
| Developed-Open Space | 2.95 | Deciduous Forest | 23.25 | Pasture Hay | 0.85 |
| Developed-Low Intensity | 0.77 | Evergreen Forest | 20.38 | Cultivated Crops | 0.5 |
| Developed-Medium Intensity | 0.25 | Mixed Forest | 38.4 | Woody Wetlands | 4.65 |
| Developed-High Intensity | 0.04 | Shrub-Scrub | 2.67 | Emergent Wetlands | 0.6 |



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

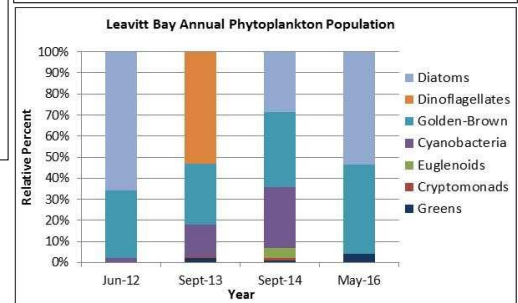
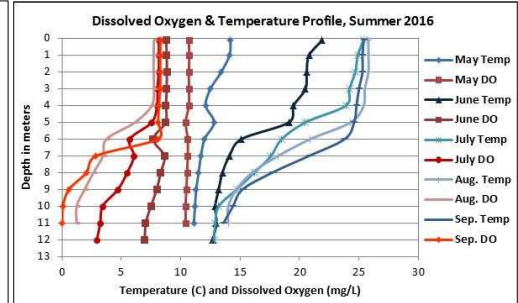
LEAVITT BAY, OSSISPEE

2016 DATA SUMMARY

RECOMMENDED ACTIONS: Lake water quality is generally representative of oligotrophic, or high quality water, conditions. However, conductivity has significantly increased in Leavitt and Broad Bays. This likely reflects the proximity of Rt. 25 and residential development in the sub-watersheds. Educate watershed residents on ways to reduce the application of de-icing products containing sodium chloride on their walkways and driveways. The UNH Technology Transfer (T2) Center's Road Salt Reduction website contains helpful links and documents. Encourage local road agents to obtain Green SnowPro Certification through UNH T2's Green SnowPro training program. The lack of stormwater runoff may have helped to improve water clarity in 2016. Educate lake properties 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 very low in May, increased to low levels in June and remained stable through September. Average chlorophyll levels remained stable with 2015 and were much less than the state median. Historical trend analysis indicates stable chlorophyll levels since monitoring began.
- **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 significantly increasing (worsening) epilimnetic conductivity since monitoring began. Epilimnetic chloride levels were stable and low from May through September and were much less than the state acute and chronic chloride standards.
- **TOTAL PHOSPHORUS:** Epilimnetic, metalimnetic and hypolimnetic phosphorus levels were stable and low throughout the summer. Average epilimnetic phosphorus decreased from 2015 and was much 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 lower in May and then increased (improved) through August. Average NVS transparency improved greatly from 2015, however historical trend analysis indicates significantly decreasing (worsening) transparency since monitoring began. Transparency measured with the viewscope (VS) was much better than NVS transparency and likely a better representation of actual conditions.
- **TURBIDITY:** Epilimnetic and Metalimnetic turbidities remained low throughout the summer. Hypolimnetic turbidity was low May through August, but increased to slightly elevated levels in September potentially due to sediment in the sample as the boat drifted while collecting samples.
- **pH:** Epilimnetic, metalimnetic and hypolimnetic pH levels fluctuated below the desirable range 6.5-8.0 units on several occasions. Historical trend analysis indicates significantly decreasing (worsening) epilimnetic pH since monitoring began.



| Station Name | Table 1. 2016 Average Water Quality Data for LEAVITT BAY-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 | 5.9 | 2.21 | 7 | 48.7 | 5 | 4.89 | 5.40 | 0.58 | 6.63 |
| Metalimnion | | | | 49.3 | 7 | | | 0.79 | 6.53 |
| Hypolimnion | | | | 49.9 | 8 | | | 1.54 | 6.40 |

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

