# Volunteer Lake Assessment Program Individual Lake Reports

## WINNEPOCKET, LAKE, WEBSTER, NH

**MORPHOMETRIC DATA**

| | | | | | |
|---|---|---|---|---|---|
| **Watershed Area (Ac.):** | 1,728 | **Max. Depth (m):** | 20.4 | **Flushing Rate ($yr^{1}$)** | 0.6 |
| **Surface Area (Ac.):** | 227 | **Mean Depth (m):** | 5.8 | **P Retention Coef:** | 0.73 |
| **Shore Length (m):** | 5,000 | **Volume ($m^3$):** | 5,315,500 | **Elevation (ft):** | 452 |

**TROPHIC CLASSIFICATION**

| Year | Trophic class |
|---|---|
| 1982 | OLIGOTROPHIC |
| 1998 | OLIGOTROPHIC |

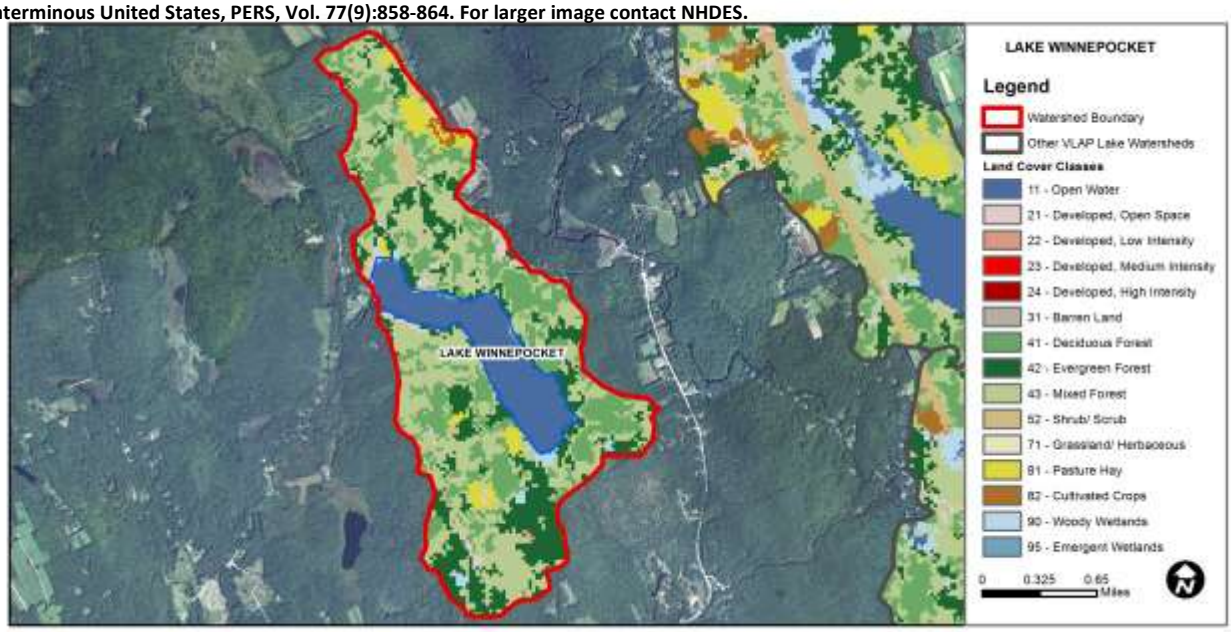
**KNOWN EXOTIC SPECIES**

**The Waterbody Report Card tables are generated from the DRAFT 2018 305(b) report on the status of N.H. waters, and are based on data collected from 2008-2017. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organization/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 | 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. |
| | 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 | Very Good | All sampling data meet water quality standards or thresholds for this parameter. |
| | Chlorophyll-a | 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 | 13.1 | Barren Land | 0 | Grassland/Herbaceous | 0.01 |
| Developed-Open Space | 1.82 | Deciduous Forest | 22.29 | Pasture Hay | 3.36 |
| Developed-Low Intensity | 0.09 | Evergreen Forest | 19.05 | Cultivated Crops | 0.38 |
| Developed-Medium Intensity | 0 | Mixed Forest | 37.97 | Woody Wetlands | 0.97 |
| Developed-High Intensity | 0 | Shrub-Scrub | 0.65 | Emergent Wetlands | 0.22 |

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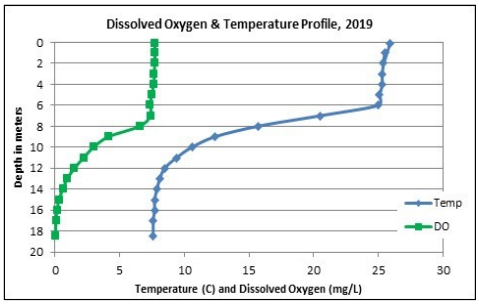
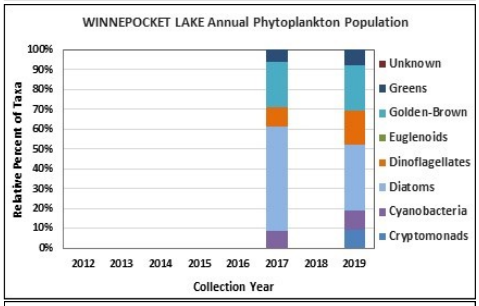
# Lake Winnepocket, Webster
# 2019 Data Summary

**Recommended Actions:** Lake quality remained very good and was representative of oligotrophic, or high quality, conditions. Algal growth has stabilized within a lower range since 2010, however phosphorus levels occasionally spike above the thresholds for oligotrophic lakes. The increased frequency and intensity of storm events highlights the importance of managing stormwater runoff within the watershed. Efforts should be made to identify and catalogue areas prone to stormwater runoff along shoreline properties, roadways and boat launches. DES' "NH Homeowner's Guide to Stormwater Management", UNH Cooperative Extension's "Landscaping at the Water's Edge", and Maine DEP's "Camp Road Maintenance Manual" are great resources. Epilimnetic pH levels have remained within a higher range since 2011 likely due to the recovery of NH surface waters from historical impacts of acid precipitation. For more information on how New Hampshire's waters are recovering see the "Acid Rain Status and Trends" report. Keep up the great work!

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

- **Chlorophyll-a:** Chlorophyll level was low in June and increased to a moderate level in August. Average chlorophyll level increased slightly from 2018, was less than the state median, and was approximately equal to the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable chlorophyll levels since monitoring began.
- **Conductivity/Chloride:** Epilimnetic (upper water layer), Metalimnetic (middle water layer), Hypolimnetic (lower water layer), Boxlet Inlet, Boxlet Inlet 2, Cogswell, Dawe Point, Outlet, West End Beach, and West Wind Village conductivity and/or chloride levels were low and approximately equal to the state medians. Historical trend analysis indicates significantly decreasing (improving) epilimnetic conductivity levels since monitoring began. We hope to see this continue!
- **Color:** Apparent color measured in the epilimnion indicates the water was clear with little to no tea, or brown, coloring.
- **E. coli:** Boxlet Inlet, Boxlet Inlet 2, Outlet, West End Beach, and West Wind Village E. coli levels were low and much less than the state standards for public beaches and surface waters.
- **Total Phosphorus:** Epilimnetic and Metalimnetic phosphorus levels were stable and low from June to August. Average epilimnetic phosphorus level decreased slightly from 2018 and was less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began. Hypolimnetic phosphorus level fluctuated within a low to moderate range. Boxlet Inlet, Boxlet Inlet 2, Cogswell, Dawe Point, Outlet, West End Beach, and West Wind Village phosphorus levels fluctuated within a low range.
- **Transparency:** Transparency measured without the viewscope (NVS) was within an average range for the lake in June and decreased slightly in August. Average NVS transparency remained stable with 2018 and was higher (better) than the state median. Historical trend analysis indicates relatively stable transparency since monitoring began. Viewscope transparency (VS) was much higher (better) than NVS transparency and likely a better measured of actual conditions.
- **Turbidity:** Epilimnetic, Boxlet Inlet, Boxlet Inlet 2, Cogswell, Dawe Point, Outlet, West End Beach and West Wind Village turbidity levels fluctuated within a low range. Metalimnetic turbidity level was slightly above average in August potentially due to algal growth. Hypolimnetic turbidity level fluctuated within a normal range for that station.
- **pH:** Epilimnetic, Boxlet Inlet, Boxlet Inlet 2, Cogswell, Dawe Point, Outlet, West End Beach, and West Wind Village pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began. Metalimnetic and Hypolimnetic pH levels were slightly less than desirable.




| Station Name | Table 1. 2019 Average Water Quality Data for LAKE WINNEPOCKET - WEBSTER | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Alk. mg/l | Chlor-a ug/l | Chloride mg/l | Color pcu | Cond. us/cm | E. coli mpn/100ml | Total P mg/l | Trans. m | | Turb. ntu | pH |
| | | | | | | | | NVS | VS | | |
| Epilimnion | 8.4 | 3.12 | 6 | 20 | 44.0 | | 8 | 5.88 | 7.15 | 0.35 | 6.94 |
| Metalimnion | | | | | 43.4 | | 8 | | | 0.90 | 6.38 |
| Hypolimnion | | | | | 45.3 | | 10 | | | 1.09 | 6.20 |
| Boxlet Inlet | | | | | 44.1 | 4 | 7 | | | 0.70 | 6.90 |
| Boxlet Inlet 2 | | | | | 44.5 | 6 | 6 | | | 0.23 | 7.03 |
| Cogswell | | | 6 | | 43.8 | | 6 | | | 0.53 | 6.94 |
| Dawe Point | | | | | 44.0 | | 6 | | | 0.34 | 7.00 |
| Outlet | | | | | 43.6 | 17 | 7 | | | 0.54 | 6.88 |
| West End Beach | | | | | 43.4 | 1 | 9 | | | 0.30 | 6.95 |
| West Wind Village | | | 5 | | 43.2 | 2 | 4 | | | 0.33 | 7.02 |

**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)

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.
**Alkalinity:** 4.5 mg/L
**Chlorophyll-a:** 4.39 ug/L
**Conductivity:** 42.3 uS/cm
**Chloride:** 5 mg/L
**Total Phosphorus:** 11 ug/L
**Transparency:** 3.3 m
**pH:** 6.6

## Historical Water Quality Trend Analysis

| Parameter | Trend | Explanation | Parameter | Trend | Explanation |
|---|---|---|---|---|---|
| Conductivity | Improving | Data significantly decreasing. | 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 show low variability. |
| | | | Phosphorus (epilimnion) | Stable | Trend not significant; data moderately variable. |