



Volunteer Lake Assessment Program Individual Lake Reports

HAWKINS POND, CENTER HARBOR, NH

MORPHOMETRIC DATA

| | | | | | |
|-----------------------|-------|---------------------------|-----------|-----------------------------------|------|
| Watershed Area (Ac.): | 1,088 | Max. Depth (m): | 10 | Flushing Rate (yr ⁻¹) | 1.7 |
| Surface Area (Ac.): | 93 | Mean Depth (m): | 3.4 | P Retention Coef: | 0.63 |
| Shore Length (m): | 2,900 | Volume (m ³): | 1,270,500 | Elevation (ft): | 601 |

TROPHIC CLASSIFICATION

| Year | Trophic class |
|------|---------------|
| 1977 | EUTROPHIC |
| 1997 | EUTROPHIC |

KNOWN EXOTIC SPECIES

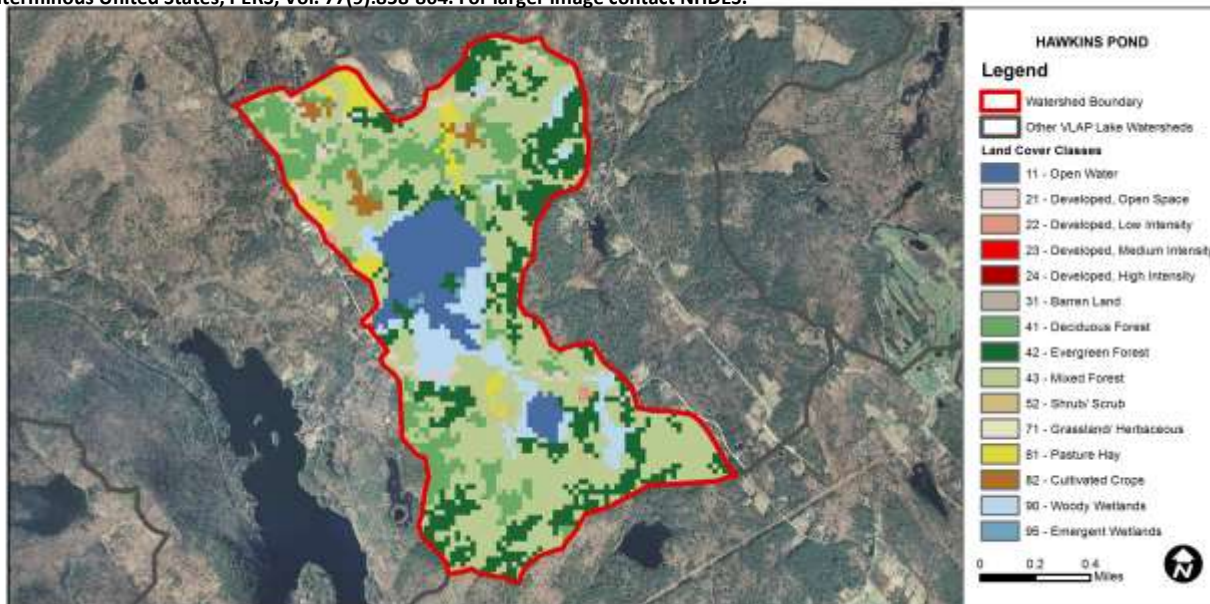
| |
|--|
| |
| |
| |

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) | Very Good | Sampling data is 50 percent 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 | Bad | Data periodically exceed water quality standards or thresholds for this parameter by a large margin. |
| | Dissolved oxygen saturation | Cautionary | Limited data for this parameter predicts exceedance of water quality standards or thresholds; however more data are necessary to fully assess the parameter. |
| Primary Contact Recreation | Chlorophyll-a | Good | Sampling data is better than the water quality standards or thresholds for this parameter. |
| | 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 | Cautionary | Limited data for this parameter predicts exceedance of water quality standards or thresholds; however more data are necessary to fully assess the 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.





VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

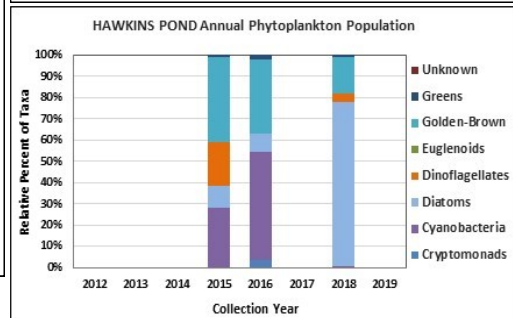
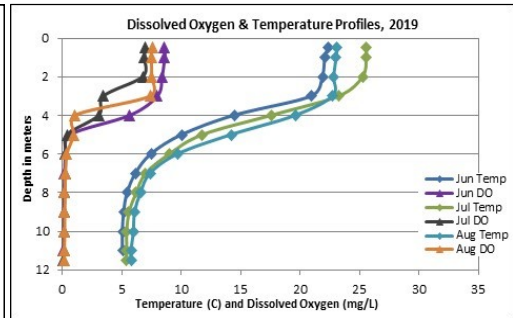
HAWKINS POND, CENTER HARBOR

2019 DATA SUMMARY

RECOMMENDED ACTIONS: Pond quality is generally representative of mesotrophic, or average, conditions. Continue monitoring efforts to establish a baseline data set to help assess the health of the pond, track seasonal and annual variations, and track water quality trends over time. The pond experiences a large zone of hypoxia (lack of dissolved oxygen) that extends into the Metalimnion during the summer months which influences phosphorus levels, algal growth and pH. Bear Pond Inlet conductivity and chloride levels are indicative of the impacts of winter road salting activities. Encourage local winter maintenance companies to obtain NH Voluntary Salt Applicator License through UNH Technology Transfer Center's Green SnowPro Certification program to help mitigate these impacts. Consider working with the Fish and Game Dept. to minimize stormwater erosion and runoff from the boat launch area. Keep up the great work!

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

- **CHLOROPHYLL-A:** Chlorophyll level was slightly elevated in June and volunteers noted clouds of algae in the water, and then decreased to within a low to moderate range in July and August. Average chlorophyll level increased slightly from 2018, was slightly greater than the state median, and was much less than the threshold for eutrophic lakes. Visual inspection of historical data 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 slightly elevated and greater than the state median. Epilimnetic chloride levels were also slightly elevated and greater than the state median yet much less than the state chronic chloride standard. Visual inspection of historical data indicates stable epilimnetic conductivity levels since monitoring began. Bear Pond Inlet conductivity and chloride levels were also elevated. Northeast Inlet conductivity levels were low and within an average range for NH lakes.
- **COLOR:** Apparent color measured in the epilimnion indicates the water was moderately tea colored, or brown, in June, and decreased to within a lightly tea colored range by August.
- **TOTAL PHOSPHORUS:** Epilimnetic and Bear Pond Inlet phosphorus levels fluctuated within a low range. Average epilimnetic phosphorus level increased slightly from 2018, was less than the state median, and was much less than the threshold for eutrophic lakes. Visual inspection of historical data indicates stable epilimnetic phosphorus level since monitoring began. Metalimnetic phosphorus levels were within a moderate range. Hypolimnetic phosphorus levels were elevated indicating the release of phosphorus from bottom sediments under anoxic conditions. Northeast Inlet phosphorus levels were elevated but within a normal range for this station.
- **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope fluctuated within a high (good) range for the pond. Average NVS transparency remained stable with 2018 and was higher (better) than the state median. Visual inspection of historical data indicates stable transparency since monitoring began.
- **TURBIDITY:** Epilimnetic, Bear Pond Inlet and Northeast Inlet turbidity levels were low on each sampling event. Metalimnetic turbidity level was slightly elevated in August likely due to a layer of algae. Hypolimnetic turbidity levels were elevated and increased as the summer progressed.
- **pH:** Epilimnetic and Northeast Inlet pH levels were within the desirable range 6.5-8.0 units, however epilimnetic pH levels have historically fluctuated below the desirable range. Visual inspection of historical data indicates variable epilimnetic pH levels. Metalimnetic, Hypolimnetic and Bear Pond Inlet pH levels were slightly acidic and less than desirable.



| Station Name | Table 1. 2019 Average Water Quality Data for HAWKINS POND - CENTER HARBOR | | | | | | | | | |
|-----------------|---|--------------|---------------|-----------|-------------|--------------|----------|------|-----------|------|
| | Alk. mg/l | Chlor-a ug/l | Chloride mg/l | Color pcu | Cond. us/cm | Total P mg/l | Trans. m | | Turb. ntu | pH |
| | | | | | | | NVS | VS | | |
| Epilimnion | 7.7 | 5.26 | 29 | 63 | 121.7 | 8 | 4.52 | 4.55 | 0.33 | 6.70 |
| Metalimnion | | | | | 127.4 | 20 | | | 1.21 | 6.09 |
| Hypolimnion | | | | | 166.6 | 53 | | | 5.48 | 6.32 |
| Bear Pond Inlet | | | 43 | | 176.2 | 11 | | | 0.26 | 6.42 |
| Northeast Inlet | | | | | 61.4 | 46 | | | 0.30 | 6.92 |

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

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 | N/A | Ten consecutive years of data necessary for analysis. | Chlorophyll-a | N/A | Ten consecutive years of data necessary for analysis. |
| pH (epilimnion) | N/A | Ten consecutive years of data necessary for analysis. | Transparency | N/A | Ten consecutive years of data necessary for analysis. |
| | | | Phosphorus (epilimnion) | N/A | Ten consecutive years of data necessary for analysis. |

