



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

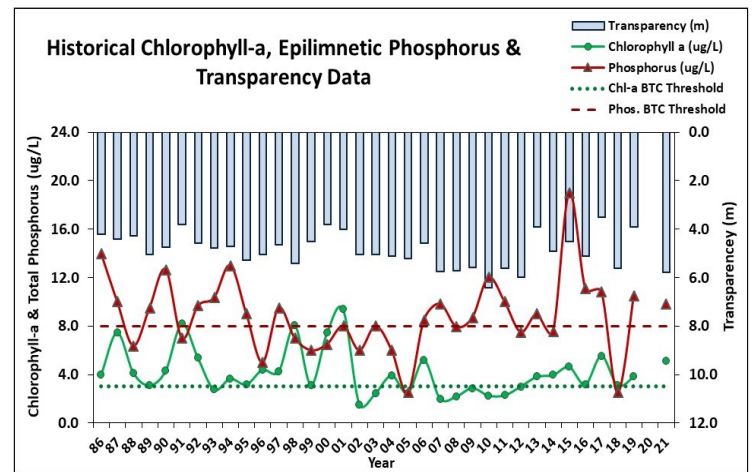
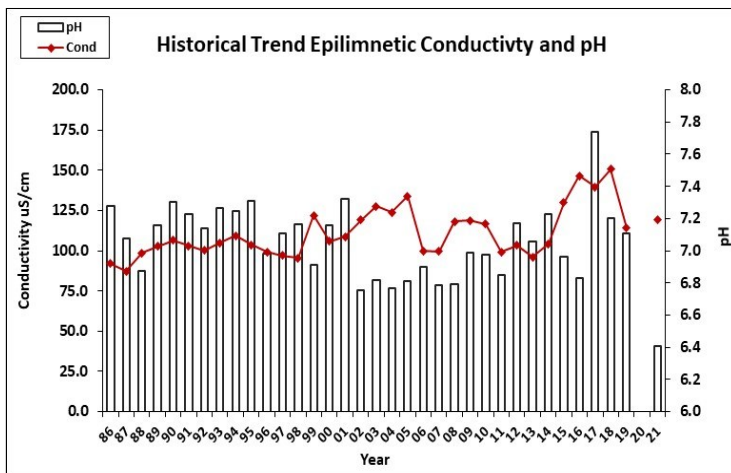
## ROCK POND, HUDSON

### 2021 DATA SUMMARY

**RECOMMENDED ACTIONS:** Pond nutrient levels and algal growth are generally representative of borderline oligo-trophic/mesotrophic, or high to average quality, conditions. However, both have become more variable following years of improvement. The increased frequency and intensity of storm events and associated stormwater runoff may be negatively impacting pond quality as well as shorter periods of ice cover, earlier ice-out, and warmer water temperatures. This highlights the importance of managing stormwater runoff, stabilizing steep slopes, maintaining vegetative buffers, maintaining septic systems, and preventing erosion and sedimentation into the pond. NHDES' NH Homeowner's Guide to Stormwater Management and UNH Cooperative Extension's Landscaping at the Water's Edge are great resources. Consider developing a watershed management plan to identify and quantify nutrient loads and make targeted recommendations to reduce nutrient loads. If possible, increase monitoring frequency to better assess seasonal variations and annual water quality trends. Keep up the great work!

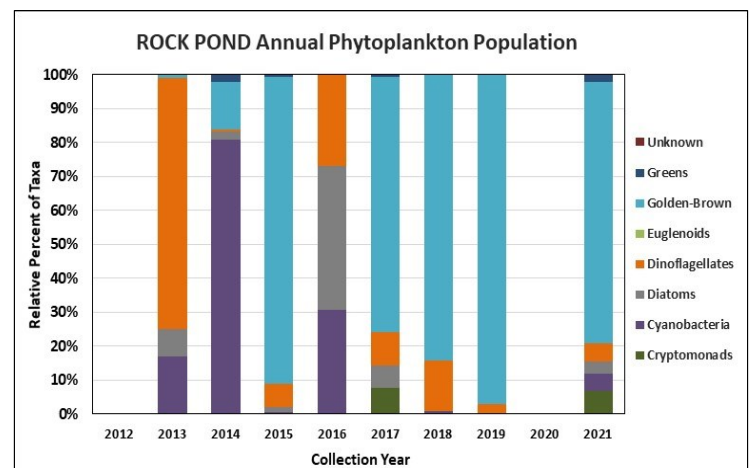
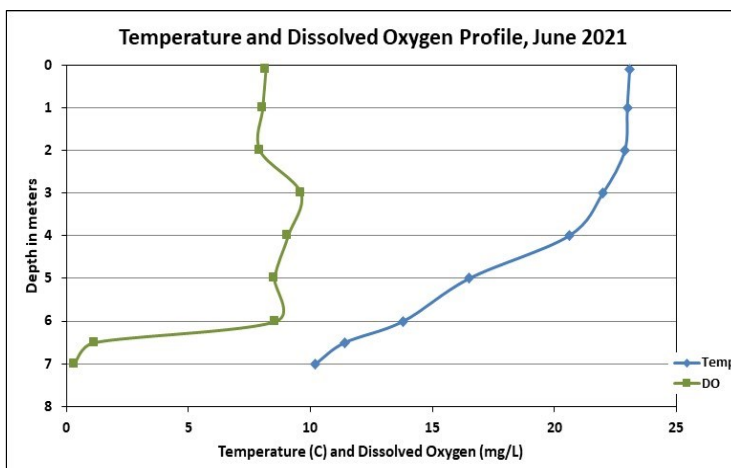
#### HISTORICAL WATER QUALITY TREND ANALYSIS

| Parameter       | Trend     | Parameter               | Trend  |
|-----------------|-----------|-------------------------|--------|
| Conductivity    | Worsening | Chlorophyll-a           | Stable |
| pH (epilimnion) | Stable    | Transparency            | Stable |
|                 |           | Phosphorus (epilimnion) | Stable |



#### DISSOLVED OXYGEN AND PHYTOPLANKTON

(Note: Information may not be collected annually)





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### ROCK POND, WINDHAM

### 2021 DATA SUMMARY

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

- **CHLOROPHYLL-A:** Chlorophyll level was slightly elevated in June, increased slightly from that measured in 2019, and was greater than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates stable, yet variable, chlorophyll levels since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Metalimnetic (middle water layer), Hypolimnetic (lower water layer), Inlet, and Outlet conductivity levels were slightly elevated and greater than the state medians. Epilimnetic chloride level was also slightly greater than the state median yet much less than the state chronic chloride standard. However, historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began.
- **COLOR:** Epilimnetic color data indicates the water was borderline clear to lightly tea colored, or light brown, in June.
- **E. COLI:** Burgess, Carpenter, Inlet and Swett E. coli levels were very low and much less than the state standards for public beaches and surface waters.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus level was slightly elevated in June, remained stable with 2019, was less than the state median, and was slightly greater than the threshold for oligotrophic lakes. Historical trend analysis indicates stable, yet variable, epilimnetic phosphorus levels since monitoring began. Metalimnetic phosphorus level was slightly elevated and Hypolimnetic phosphorus level was within a low range for that station. Inlet and Outlet phosphorus levels were within a low range for those stations.
- **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was above average (good) in June, increased (improved) from 2019, and was higher (better) than the state median. Historical trend analysis indicates relatively stable NVS transparency since monitoring began.
- **TURBIDITY:** Epilimnetic, Metalimnetic and Hypolimnetic turbidity levels were within a low range. Inlet and Outlet turbidity levels were also within a low range.
- **pH:** Epilimnetic pH level was slightly less than the desirable range 6.5-8.0 units and was more acidic than normal potentially due to spring snowmelt, runoff and slightly above average precipitation. Historical trend analysis indicates relatively stable epilimnetic pH levels since monitoring began. Metalimnetic, Hypolimnetic, Inlet and Outlet pH levels were within the desirable range.

| Station Name | Table 1. 2021 Average Water Quality Data for ROCK POND - WINDHAM |                   |                    |                |                  |                        |                   |            |      |                |      |
|--------------|------------------------------------------------------------------|-------------------|--------------------|----------------|------------------|------------------------|-------------------|------------|------|----------------|------|
|              | Alk.<br>(mg/L)                                                   | Chlor-a<br>(ug/L) | Chloride<br>(mg/L) | Color<br>(pcu) | Cond.<br>(us/cm) | E. coli<br>(mpn/100mL) | Total P<br>(ug/L) | Trans. (m) |      | Turb.<br>(ntu) | pH   |
|              |                                                                  |                   |                    |                |                  |                        |                   | NVS        | VS   |                |      |
| Epilimnion   | 15.5                                                             | 5.13              | 27                 | 30             | 119.3            |                        | 10                | 5.78       | 6.10 | 0.40           | 6.41 |
| Metalimnion  |                                                                  |                   |                    |                | 118.7            |                        | 14                |            |      | 0.65           | 7.09 |
| Hypolimnion  |                                                                  |                   |                    |                | 119.4            |                        | 11                |            |      | 0.83           | 6.77 |
| Burgess      |                                                                  |                   |                    |                |                  | 3                      |                   |            |      |                |      |
| Carpenter    |                                                                  |                   |                    |                |                  | 9                      |                   |            |      |                |      |
| Inlet        |                                                                  |                   |                    |                | 118.6            | 7                      | 11                |            |      | 0.56           | 7.00 |
| Outlet       |                                                                  |                   |                    |                | 114.6            |                        | 9                 |            |      | 0.36           | 7.00 |
| Swett        |                                                                  |                   |                    |                |                  | 10                     |                   |            |      |                |      |

#### NH Median Values

Median values 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. Water quality violation if thresholds exceeded.

**Chloride:** > 230 mg/L (chronic) **Turbidity:** > 10 NTU above natural

**E. coli:** > 88 cts/100 mL (beach)

**E. coli:** > 406 cts/100 mL (surface waters)

**pH:** between 6.5-8.0 (unless naturally occurring)