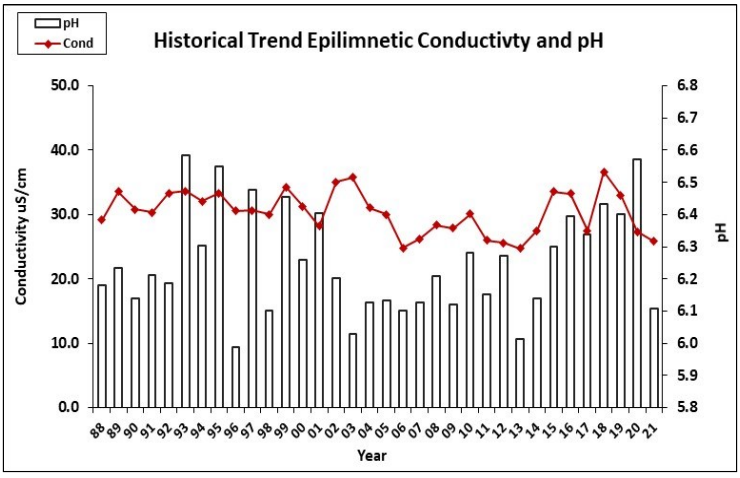
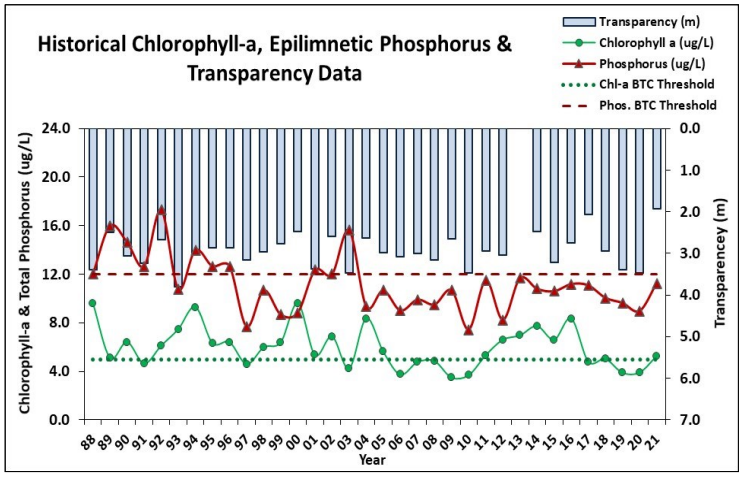
Volunteer Lake Assessment Program Individual Lake Reports
Island Pond, Stoddard
2021 Data Summary

Recommended Actions: Great job sampling in 2021! Pond nutrient (phosphorus) levels remain representative of mesotrophic conditions and the improving levels are encouraging. Algal growth (chlorophyll) has also remained below the threshold for mesotrophic lakes since 2017 following a steady increase which is encouraging, however the pond experienced a brief cyanobacteria bloom in early June. This is the second year in a row that the pond experienced reports of elevated cyanobacteria growth in June and Hypolimnetic phosphorus levels were elevated suggesting a layer of cyanobacteria deep in the water column and surfaced when conditions were optimal for growth. Consider adding a May sampling event to assess nutrient levels earlier in the summer. Water levels were noted as being low throughout the summer despite the record rainfall amounts in July. Evaluate conditions at the Outlet to ensure water levels remain as close to normal as possible. Add dissolved oxygen monitoring to better understand if the hypolimnion experiences anoxia as the summer progresses and to what extent. Water color was darker due to flushing of wetland systems rich in dissolved organic matter, which led to a poor water clarity (transparency). Continue to measure the relations between water color and clarity. Encourage shoreline property owners to be certified LakeSmart through NH LAKES lake-friendly living program. Keep up the great work!

Historical Water Quality Trend Analysis

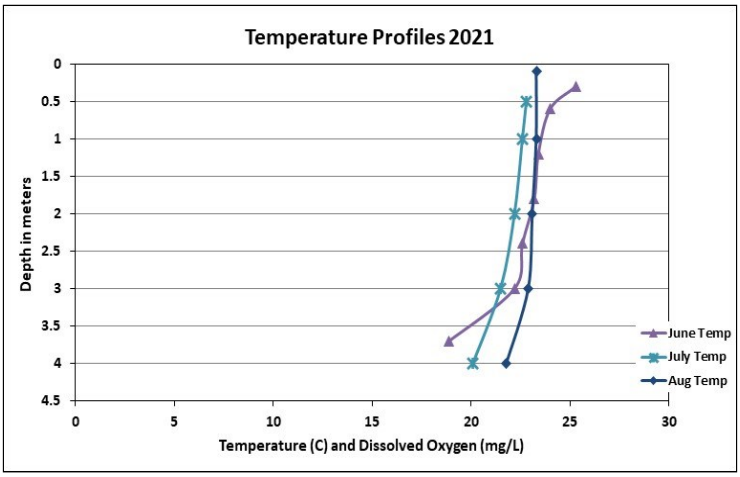
Parameter	Trend	Parameter	Trend
Conductivity	Stable	**Chlorophyll-a**	Stable
pH (epilimnion)	Stable	**Transparency**	Stable
		Phosphorus (epilimnion)	Improving

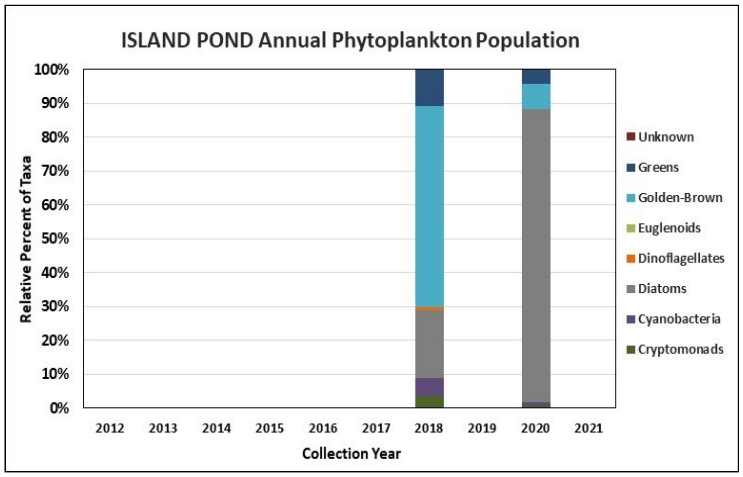




Dissolved Oxygen and Phytoplankton

(Note: Information may not be collected annually)





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

- **Chlorophyll-a:** Chlorophyll level was elevated in June following reports of cyanobacteria growth, decreased to a low level in July and remained stable in August. Average chlorophyll level increased from 2020 and was slightly greater than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates stable chlorophyll levels since monitoring began.
- **Conductivity/Chloride:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer), Inlet, and Outlet conductivity levels were within a low range and less than the state median. Epilimnetic chloride level was also low and less than the state median. Historical trend analysis indicates stable epilimnetic conductivity levels since monitoring began.
- **Color:** Apparent color measured in the epilimnion indicates the water was moderately tea colored, or brown, in June and then increased significantly to highly tea colored, or dark brown, conditions in July and August following record rainfall amounts and flushing of wetland systems rich in dissolved organic matter.
- **E. coli:** Epilimnion, Inlet and Outlet 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 within a low range in June and increased gradually to a moderate level as the summer progressed. Average epilimnetic phosphorus level increased from 2020, was approximately equal to the state median, and was slightly less than the threshold for mesotrophic lakes. Historical trend analysis indicates significantly decreasing (improving) epilimnetic phosphorus levels since monitoring began. Hypolimnetic phosphorus level was elevated in June and lab data note lightly colored water with organic matter, and then decreased to a low level as the summer progressed. The elevated June level could indicate a layer of cyanobacteria deep in the water column. Inlet phosphorus levels were slightly higher in July following record rainfall amounts for the month, but levels were within an average range for this station. Outlet phosphorus levels fluctuated within an average range for this station.
- **Transparency:** Transparency measured without the viewscope (NVS) was below average for the pond in June likely due to elevated algal growth, decreased (worsened) in July and August due to the darker water color. Average NVS transparency decreased from 2020 and was less (worse) than the state median. Historical trend analysis indicates relatively stable NVS transparency since monitoring began. Viewscope transparency (VS) was higher (better) than NVS transparency but also below average in 2021.
- **Turbidity:** Epilimnetic, Inlet and Outlet turbidity levels fluctuated within a low range and were highest in July following record rainfall amounts. Hypolimnetic turbidity level was slightly elevated in June potentially due to a layer of cyanobacteria.
- **pH:** Epilimnetic, Hypolimnetic, Inlet and Outlet pH levels were slightly acidic and less than desirable range 6.5-8.0 units. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began.

Station Name	Table 1. 2021 Average Water Quality Data for ISLAND POND - STODDARD										
	Alk. (mg/L)	Chlor-a (ug/L)	Chloride (mg/L)	Color (pcu)	Cond. (us/cm)	E. coli (mpn/100mL)	Total P (ug/L)	Trans. (m)		Turb. (ntu)	pH
								NVS	VS		
Epilimnion	3.1	5.26	4	120	25.8	4	11	1.93	2.63	0.79	6.11
Hypolimnion					26.1		16			1.16	5.50
Inlet					26.1	6	12			0.57	5.93
Outlet					27.6	1	11			0.70	5.96

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)