Volunteer Lake Assessment Program Individual Lake Reports

COUNTRY POND, KINGSTON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	10,432	**Max. Depth (m):**	9.4	**Flushing Rate (yr^{-1}):**	6.1
Surface Area (Ac.):	255	**Mean Depth (m):**	3	**P Retention Coef:**	0.48
Shore Length (m):	7,700	**Volume (m^3):**	3,159,000	**Elevation (ft):**	115

TROPHIC CLASSIFICATION

Year	Trophic class
1985	MESOTROPHIC
2002	MESOTROPHIC

KNOWN EXOTIC SPECIES

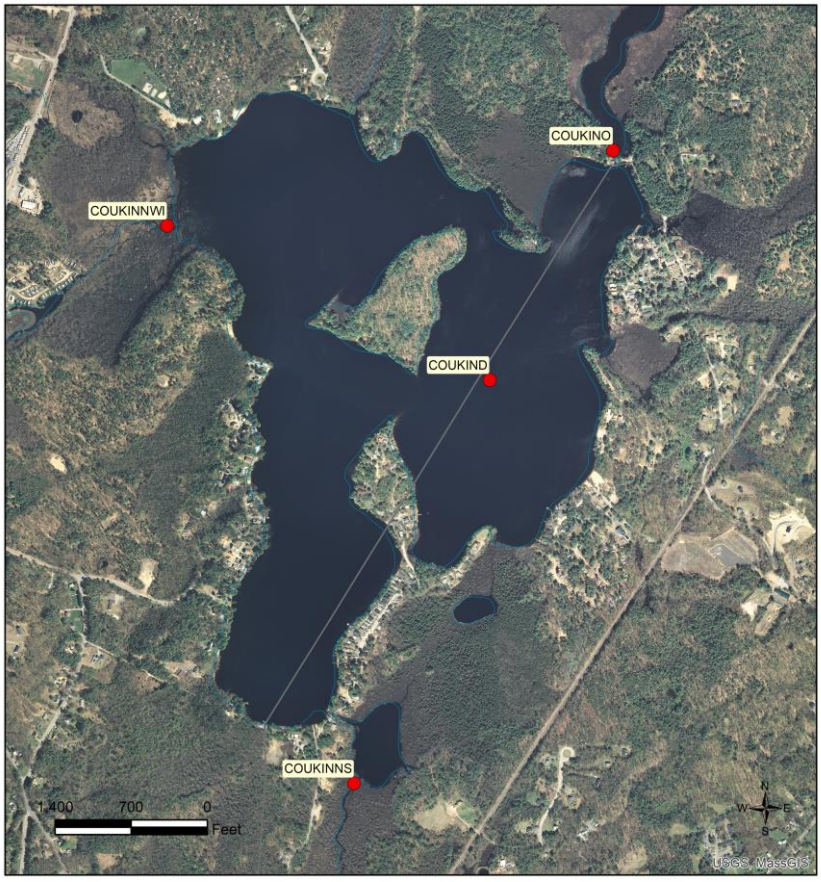
The Waterbody Report Card tables are generated from the DRAFT 2018 305(b) report on the status of N.H. waters, and are based on data collected from 2008-2017. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organization/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Cautionary	Limited data for this parameter predicts exceedance of water quality standards or thresholds; however more data are necessary to fully assess the parameter.
	pH	Slightly Bad	Data periodically exceed water quality standards or thresholds for a given 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	No Data	No data for this parameter.
	Cyanobacteria hepatoto	Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	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.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

COUNTRY POND - TASKER DAY CAMP BEACH	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.
COUNTRY POND - LONE TREE SCOUT RESV. BEACH	Escherichia coli	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
COUNTRY POND - TOWN BEACH	Escherichia coli	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
COUNTRY POND - TASKER DAY CAMP BEACH	Cyanobacteria	Bad	Cyanobacteria bloom(s).
COUNTRY POND - LONE TREE SCOUT RESV. BEACH	Cyanobacteria	Bad	Cyanobacteria bloom(s).
COUNTRY POND - TOWN BEACH	Cyanobacteria	Bad	Cyanobacteria bloom(s).

VLAP SAMPLE SITE MAP



COUNTRY POND
KINGSTON
VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
COUKIND	DEEP SPOT
COUKINNWI	NORTHWEST INLET
COUKINO	OUTLET
COUKINNS	SOUTH INLET

Source: The data layers are derived from NHDES data and are under constant revision. NHDES is not responsible for the use or interpretation of this information. Not intended for legal use.NHDES Watershed Management Bureau Date: 2/17/2021

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Country Pond, Newton
2020 Data Summary

Recommended Actions: Great job sampling in 2020! This will help to build a baseline data set to assess seasonal and annual trends in water quality. Pond quality has remained relatively stable since 2018 and is generally representative of mesotrophic, or average, conditions. Pond phosphorus, chlorophyll, transparency (clarity), and pH levels measured between 2018-2020 have improved from that measured historically which is a positive sign. However, hypolimnetic phosphorus levels indicate phosphorus release from bottom sediments under anoxic conditions which could fuel algal/cyanobacteria blooms, and conductivity levels are generally higher likely due to winter road salting activities within the watershed. Encourage local road agents and private winter maintenance companies to obtain Voluntary NH Salt Applicator License through the Green SnowPro Certification Program. Continue the great work to develop a watershed management plan to help identify and quantify nutrient loads to the pond. Educate shorefront property owner's on becoming certified LakeSmart through NHLAKES' lake-friendly living program www.nhlakes.org/lakesmart/. Keep up the great work!

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

- **Chlorophyll-a:** Chlorophyll levels fluctuated within a low range and were lowest in May and highest in August. Average chlorophyll level decreased slightly from 2019 and was less than the state median and the threshold for mesotrophic lakes. Visual inspection of historical data indicates stable chlorophyll levels since 2018.
- **Conductivity/Chloride:** Epilimnetic (upper water layer), Metalimnetic (middle water layer), Hypolimnetic (lower water layer), Northwest Inlet, South Inlet, and Outlet conductivity and/or chloride levels remained elevated and greater than the state medians. Chloride levels were lowest in May and increased as the summer progressed. Visual inspection of historical data indicates decreasing epilimnetic conductivity levels since 2018.
- **Color:** Apparent color measured in the epilimnion indicates the water was highly tea colored, or dark brown, in May and June and then lightened to within a moderately tea colored range from July through September.
- **Total Phosphorus:** Epilimnetic phosphorus levels were slightly elevated in May, July and September and within a low range in June and August. Average epilimnetic phosphorus level decreased slightly from 2019 and was slightly greater than the state median and the threshold for mesotrophic lakes. Visual inspection of historical data indicates stable epilimnetic phosphorus levels. Metalimnetic phosphorus level was greatly elevated in May and the turbidity of the sample was also elevated indicating a layer of algae or organic material. Metalimnetic phosphorus level decreased to a low range in June, increased to slightly elevated levels in July and August, and then decreased in September. Hypolimnetic phosphorus level was moderate in May and increased to elevated levels as the summer progressed likely due to phosphorus release from bottom sediments under anoxic (no dissolved oxygen) conditions. Northwest Inlet and Outlet phosphorus levels fluctuated within a low to moderate range. South Inlet phosphorus levels were elevated in May and then decreased to a low to moderate range from June through September.
- **Transparency:** Transparency measured with (VS) and without (NVS) the viewscope was below average (worse) in May and June when water color was darkest, and then increased (improved) steadily as the summer progressed. Average NVS transparency increased (improved) from 2019 but remained less than the state median. VS transparency was higher (better) than NVS transparency and likely a better measure of actual conditions.
- **Turbidity:** Epilimnetic, Northwest Inlet and Outlet turbidity levels fluctuated within a low range. Metalimnetic turbidity level was elevated in May and August likely due to a layer of algae and/or organic matter. Hypolimnetic turbidity levels were low in May and increased to elevated levels as the summer progressed due to the formation and accumulation of organic compounds under anoxic conditions.
- **pH:** Epilimnetic, Northwest Inlet, South Inlet, and Outlet pH levels were within the desirable range 6.5-8.0 units. Visual inspection of historical data indicates stable epilimnetic pH levels since 2018. Metalimnetic and Hypolimnetic pH levels fluctuated below the desirable range in June and July and average pH levels were slightly less than desirable.

Table 1. 2020 Average Water Quality Data for COUNTRY POND - KINGSTON

Station Name	Alk. (mg/L)	Chlor-a (ug/L)	Chloride (mg/L)	Color (pcu)	Cond. (us/cm)	Total P (ug/L)	Trans. (m)		Turb. (ntu)	pH
							NVS	VS		
Epilimnion	14	2.71	51	74	176.8	14	2.34	3.08	0.57	7.16
Metalimnion					171.0	23			1.14	6.49
Hypolimnion			51		171.4	31			4.42	6.29
Northwest Inlet			52		181.6	13			0.75	6.74
Outlet					176.5	12			0.58	6.76
South Inlet			51		176.9	17			0.99	6.80

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.