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 (m³):	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
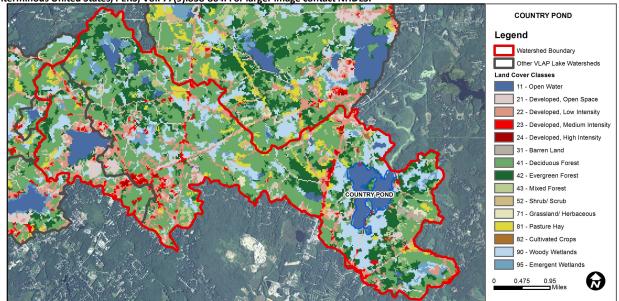
Designated Use	Parameter	Category	Comments
Aquatic Life	pH	Slightly Bad	Data periodically exceed water quality standards or thresholds for a given parameter by a small margin.
	Oxygen, Dissolved	Encouraging	Limited data for this parameter predicts water quality standards or thresholds are being met; 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.
Primary Contact Recreation	Escherichia coli	No Data	No data for this parameter.
	Cyanobacteria hepatoto	Slightly 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	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.
COUNTRY POND - LONE TREE SCOUT RESV. BEACH	Escherichia coli	Good	Sampling data commonly 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	Slightly Bad	Cyanobacteria bloom(s).
COUNTRY POND - LONE TREE SCOUT RESV. BEACH	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
COUNTRY POND - TOWN BEACH	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).

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.

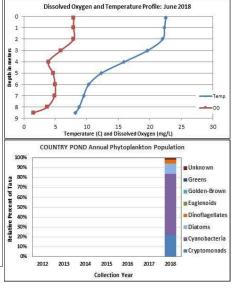| Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	6.83	Barren Land	0.31	Grassland/Herbaceous	0.29
Developed-Open Space	6.43	Deciduous Forest	37.74	Pasture Hay	3.15
Developed-Low Intensity	9.87	Evergreen Forest	14.06	Cultivated Crops	0.17
Developed-Medium Intensity	2.94	Mixed Forest	1.5	Woody Wetlands	12.72
Developed-High Intensity	0.24	Shrub-Scrub	0.85	Emergent Wetlands	2.74

RECOMMENDED ACTIONS: Welcome back to VLAP! Continue collecting monthly water quality data to build a baseline data set for the pond. This will help to assess seasonal variations in water quality and develop long term water quality trends. Based upon data collected historically, phosphorus, chlorophyll, transparency (clarity), and pH levels were better than measured in the past, however pond conductivity levels were higher than measured in the past. The use of road salt in the winter has caused increases in conductivity and chloride levels in surface waters. Encourage local road agents and private winter maintenance companies to obtain Voluntary NH Salt Applicator License through UNH Technology Transfer Center's Green SnowPro Certification Program. Contact the VLAP Coordinator in the spring to schedule a biologist visit for 2019.

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

- **CHLOROPHYLL-A:** Chlorophyll levels were low in June, increased slightly in July, decreased slightly in August, and remained stable in September. Average chlorophyll level was much less than the state median and the threshold for mesotrophic lakes.
- **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Metalimnetic (middle water layer), Hypolimnetic (lower water layer), Northwest Inlet, South Inlet, and Outlet conductivity levels were elevated and much greater than the state median. Chloride levels were also elevated and much greater than the state median however levels remained less than the state chronic chloride standard.
- **COLOR:** Apparent color was measured in the epilimnion and indicates the pond water is highly tea colored, or dark brown.
- **TOTAL PHOSPHORUS:** Epilimnetic and Metalimnetic phosphorus levels were slightly elevated in June and may have fueled the cyanobacteria growth. Phosphorus levels decreased in July, remained stable in August, and decreased again in September. Average epilimnetic phosphorus level was slightly greater than the state median and the threshold for mesotrophic lakes. Northwest Inlet phosphorus levels were elevated in September and the turbidity of the sample was also slightly elevated. South Inlet phosphorus levels were slightly elevated in June. Outlet phosphorus levels fluctuated within a moderate range.
- **TRANSPARENCY:** Transparency measured without the viewscope (NVS) was average in June, decreased slightly in July, increased (improved) in August, and decreased again in September. Average NVS transparency was the highest (best) measured for the pond compared to historical data points, however was slightly less (worse) than the state median. Transparency measured with the viewscope (VS) was higher (better) than NVS transparency and likely a better measure of actual conditions.
- **TURBIDITY:** Epilimnetic turbidity levels were slightly elevated in September when water levels were noted to be high, and monitors noted heavy boat traffic. Metalimnetic turbidity levels were slightly elevated in August potentially due to algal growth. Hypolimnetic turbidity levels were elevated in July, August and September likely due to the formation and accumulation of organic compounds under anoxic (no dissolved oxygen) conditions. South Inlet and Outlet turbidity levels fluctuated within a low range. Northwest Inlet turbidity levels were slightly elevated in September.
- **PH:** Epilimnetic, Metalimnetic, Northwest Inlet, South Inlet, and Outlet pH levels were within the desirable range 6.5-8.0 units. Hypolimnetic pH levels were approximately equal to the low end of the desirable range.

Dissolved Oxygen and Temperature Profile: June 2018

COUNTRY POND Annual Phytoplankton Population

Station Name	Table 1. 2018 Average Water Quality Data for COUNTRY POND - NEWTON/KINGSTON									
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Color pcu	Cond. us/cm	Total P mg/l	Trans. m NVS	Trans. m VS	Turb. ntu	pH
Epilimnion	16.2	2.72	52	115	236.5	13	2.46	3.50	1.00	7.16
Metalimnion					235.2	14			1.28	6.57
Hypolimnion					232.8	21			5.90	6.49
Northwest Inlet			52		232.0	15			1.07	6.92
South Inlet			54		229.0	12			1.03	6.96
Outlet			56		230.2	12			0.77	7.04

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.5 mg/L
Chlorophyll-a: 4.39 mg/m^3
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 years of data necessary for analysis.	Chlorophyll-a	N/A	Ten years of data necessary for analysis.
pH (epilimnion)	N/A	Ten years of data necessary for analysis.	Transparency	N/A	Ten years of data necessary for analysis.
			Phosphorus (epilimnion)	N/A	Ten years of data necessary for analysis.

Historical Trend Epilimnetic Conductivity and pH

Historical Chlorophyll-a, Epilimnetic Phosphorus & Transparency Data