Volunteer Lake Assessment Program Individual Lake Reports

DUTCHMAN POND, SPRINGFIELD, NH

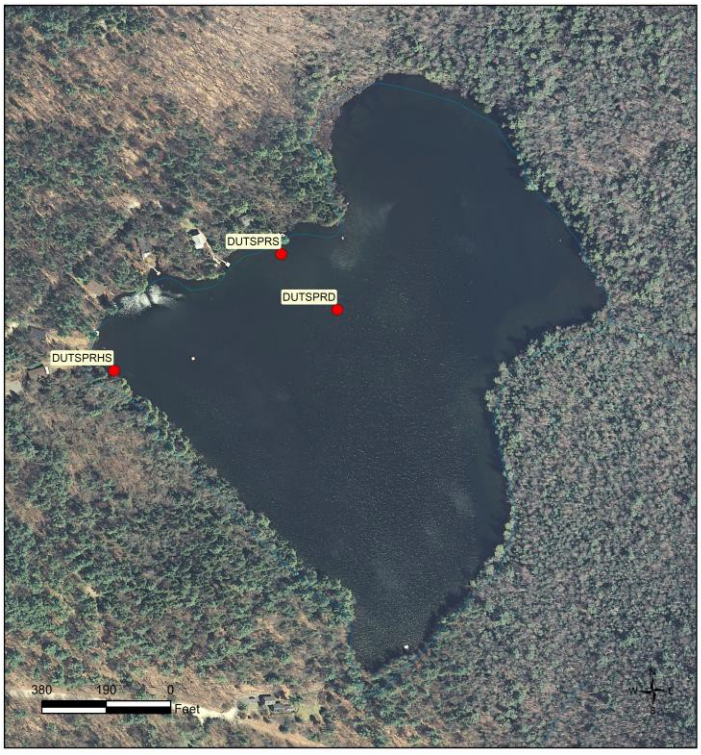
MORPHOMETRIC DATA | **TROPHIC CLASSIFICATION** | **KNOWN EXOTIC SPECIES**

Watershed Area (Ac.):	114	**Max. Depth (m):**	3	**Flushing Rate (yr^{1})**	1.4	**Year**	**Trophic class**	
Surface Area (Ac.):	28	**Mean Depth (m):**	1.9	**P Retention Coef:**		1984	OLIGOTROPHIC	
Shore Length (m):	1,400	**Volume (m^3):**	210,000	**Elevation (ft):**	1543	2003	OLIGOTROPHIC	

The Waterbody Report Card tables are generated from the DRAFT 2020 305(b) report on the status of N.H. waters, and are based on data collected from 2010-2019. Detailed waterbody assessment and report card information can be found at NHDES' Water Quality Assessment Website.

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 this 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	Very Good	Sampling data is 50 percent better than the water quality standards or thresholds for this parameter.
Primary Contact Recreation	Escherichia coli	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
	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.

VLAP SAMPLE STATION MAP: This map depicts the location of routine sampling stations discussed on page two of the report.



DUTCHMAN POND
SPRINGFIELD
VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
DUTSPRD	DEEP SPOT
DUTSPRS	SOLEAU
DUTSPRHS	HULL

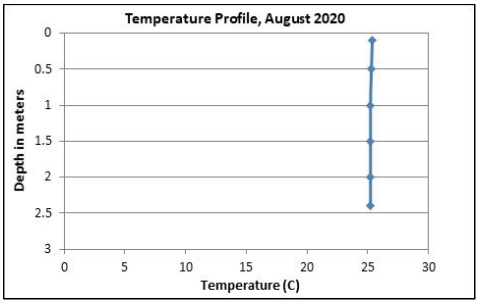
Source: The data layers are derived from NHDES data and are under constant revision. NHDES is not responsible for the use or interpretation of this information. Not intended for legal use.NHDES Watershed Management Bureau Date: 2/17/2021

Volunteer Lake Assessment Program Individual Lake Reports
Dutchman Pond, Springfield
2020 Data Summary

Recommended Actions: Great job sampling in 2020! Pond quality is generally representative of oligotrophic, or high quality, conditions. However phosphorus levels tend to fluctuate above the desirable threshold for oligotrophic lakes. Drought conditions in 2020 likely led to nutrients (phosphorus) being retained in the pond and not flushed out due to low water levels. Consider increasing sampling frequency to once per month during the summer, typically June, July and August, to better assess fluctuating nutrient and water levels. The VLAP satellite laboratory located at Colby Sawyer College could be utilized for increased monitoring. Encourage shoreline property owners to be certified LakeSmart through NHLAKES lake-friendly living program www.nhlakes.org/lakesmart/. The stable and improving water quality trends are a positive sign and we hope to see these continue! Keep up the great work!

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

- **Chlorophyll-a:** Chlorophyll level was very low in August, remained stable with 2019, and was much less 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 (deep spot) conductivity and chloride levels remained within a very low range for NH lakes and less than the state medians. Historical trend analysis indicates significantly decreasing (improving) epilimnetic conductivity levels since monitoring began.
- **Color:** Apparent color measured in the epilimnion indicates the pond water was clear with little to no tea coloring.
- **E. coli:** Soleau 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 August and lab data noted low levels of organic matter in the sample. Epilimnetic phosphorus increased from 2019 and was greater than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began.
- **Transparency:** Transparency measured with (VS) and without (NVS) the viewscope was very good as the Secchi disk was visible on the pond bottom. Transparency decreased slightly from 2019 and historical trend analysis indicates stable transparency since monitoring began.
- **Turbidity:** Epilimnetic turbidity level was within a low range for the pond in August.
- **pH:** Epilimnetic pH level was within the desirable range 6.5-8.0 units. Historical trend analysis indicates relatively stable epilimnetic pH levels since monitoring began.



Station Name	Table 1. 2020 Average Water Quality Data for DUTCHMAN POND - SPRINGFIELD										
	Alk. (mg/L)	Chlor-a (ug/L)	Chloride (mg/L)	Color (pcu)	Cond. (us/cm)	E. coli (cts/100 mL)	Total P (ug/L)	Trans. (m)		Turb. (ntu)	pH
								NVS	VS		
Epilimnion	2.9	1.06	3	20	16.8		12	2.40	2.40	0.34	6.61
Soleau						7					

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	Improving	Data significantly decreasing.	Chlorophyll-a	Stable	Trend not significant; data highly variable.
pH (epilimnion)	Stable	Trend not significant; data moderately variable.	Transparency	Stable	Trend not significant; data show low variability.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.