



Volunteer Lake Assessment Program Individual Lake Reports

THORNDIKE POND, JAFFREY, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	2,560	Max. Depth (m):	7	Flushing Rate (yr ⁻¹)	1.7
Surface Area (Ac.):	265	Mean Depth (m):	3.4	P Retention Coef:	0.64
Shore Length (m):	6,000	Volume (m ³):	3,513,500	Elevation (ft):	1159

TROPHIC CLASSIFICATION

Year	Trophic class
1998	OLIGOTROPHIC
2009	OLIGOTROPHIC

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

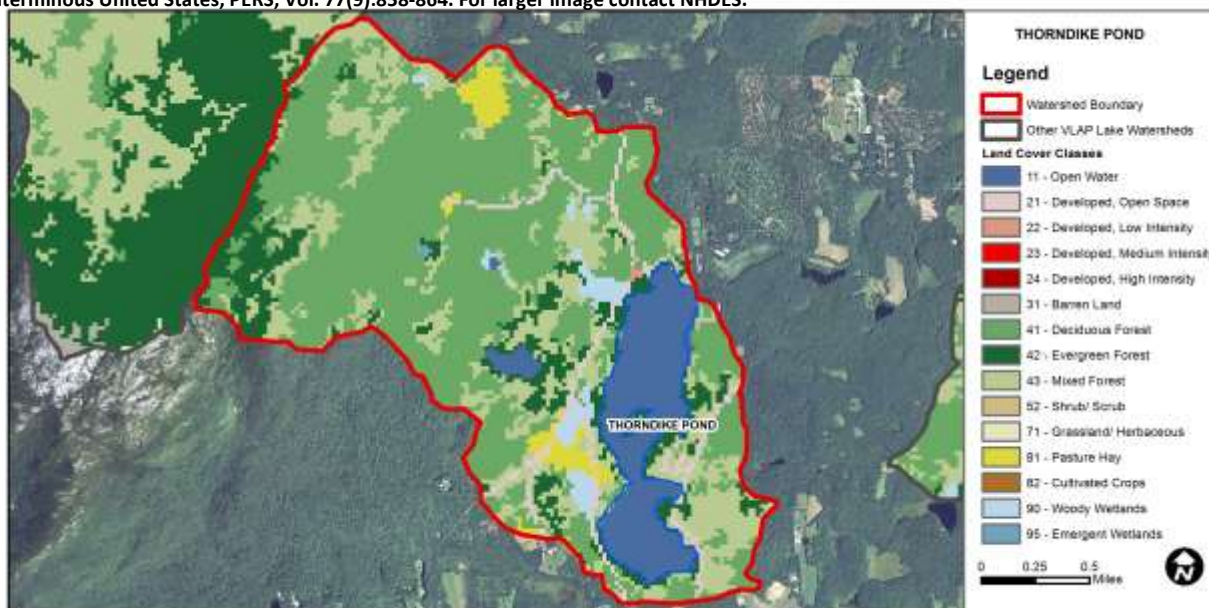
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	Data exceed water quality standards or thresholds for a given parameter by a small margin.
	pH	Slightly Bad	Data periodically exceed water quality standards or thresholds for this parameter by a small margin.
	Oxygen, 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.
Primary Contact Recreation	Chlorophyll-a	Slightly Bad	Data exceed water quality standards or thresholds for a given parameter by a small margin.
	Escherichia coli	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
	Chlorophyll-a	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

THORNDIKE POND - TOWN BEACH	Escherichia coli	Slightly Bad	Data periodically exceed water quality standards or thresholds for this parameter by a small margin.
THORNDIKE POND - CAMP WANOCKSETT BEACH	Escherichia coli	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
THORNDIKE POND - CAMP WA-KLO BEACH	Escherichia coli	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

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	11.1	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	3.08	Deciduous Forest	49.8	Pasture Hay	2.55
Developed-Low Intensity	0.08	Evergreen Forest	10.06	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	21.11	Woody Wetlands	2.07
Developed-High Intensity	0	Shrub-Scrub	0	Emergent Wetlands	0.08



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

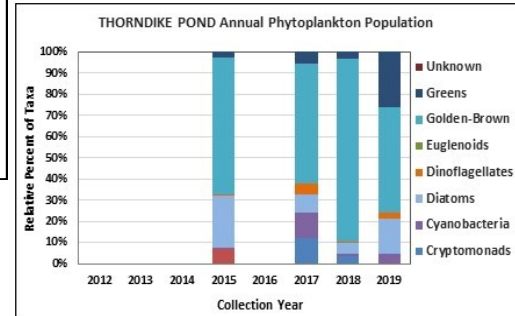
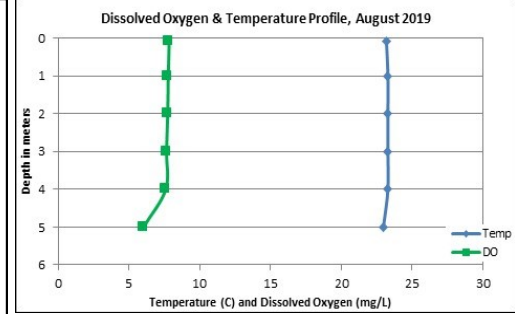
THORNDIKE POND, JAFFREY

2019 DATA SUMMARY

RECOMMENDED ACTIONS: Pond quality is generally representative of oligotrophic, or high quality, conditions with nutrient levels and algal growth stabilizing at a lower level since 2014. However, nutrient levels and algal growth spiked in 2019. Tributary flow was noted as stagnant which may have prevented replenishment of water to the pond. This replenishment can help flush nutrient laden water out of the pond instead of retaining nutrients in the pond. Keep an eye on tributary flow as it relates to nutrient retention during dry/wet years. Keep up the great work!

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

- ◆ **CHLOROPHYLL-A:** Chlorophyll levels were slightly elevated in June and decreased to a moderate range as the summer progressed. Average chlorophyll level increased from 2018 and was greater than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable chlorophyll levels since monitoring began.
- ◆ **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer), North West Inlet, Outlet, and South West Inlet conductivity and/or chloride levels were low and less than or approximately equal to the state medians. Historical trend analysis indicates stable epilimnetic conductivity levels since monitoring began.
- ◆ **COLOR:** Apparent color measured in the epilimnion indicates the water was lightly tea colored, or light brown.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels were slightly elevated in June and decreased to a moderate range as the summer progressed. Average epilimnetic phosphorus level increased from 2018, was approximately equal to the state median, and was greater than the threshold for oligotrophic lakes. Historical trend analysis indicates stable epilimnetic phosphorus levels since monitoring began. Hypolimnetic, North West and South West Inlet phosphorus levels were also slightly elevated in June and decreased gradually as the summer progressed. Outlet phosphorus levels were low.
- ◆ **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was low (worse) in June, increased (improved) to an average range in July, and then decreased (worsened) in August. Average NVS transparency decreased from 2018 and was approximately equal to the state median. Historical trend analysis indicates relatively stable transparency since monitoring began.
- ◆ **TURBIDITY:** Epilimnetic and Hypolimnetic turbidity levels fluctuated within an average range for those stations and were highest in June when algal growth was elevated. North West and South West Inlet turbidity levels were also higher in June during stagnant conditions. Outlet turbidity levels remained low.
- ◆ **pH:** Epilimnetic, North West and South West Inlet pH levels were slightly less than the desirable range 6.5-8.0 units. Historical trend analysis indicates significantly decreasing (worsening) epilimnetic pH levels since monitoring began. Hypolimnetic and Outlet pH levels were within the desirable range.



Station Name	Table 1. 2019 Average Water Quality Data for THORNDIKE POND - JAFFREY									
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Color pcu	Cond. us/cm	Total P mg/l	Trans. m		Turb. ntu	pH
							NVS	VS		
Epilimnion	3.2	5.17	5	43	31.5	11	3.26	3.71	1.10	6.41
Hypolimnion					33.4	12			1.18	6.50
North West Inlet					31.4	13			0.93	6.40
Outlet					31.1	9			0.74	6.60
South West Inlet					40.8	18			0.91	6.37

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

