



Volunteer Lake Assessment Program Individual Lake Reports

SHELLCAMP POND, GILMANTON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	2,052	Max. Depth (m):	4.9	Flushing Rate (yr ¹)	4.7
Surface Area (Ac.):	149	Mean Depth (m):	1.6	P Retention Coef:	0.59
Shore Length (m):	5,300	Volume (m ³):	950,000	Elevation (ft):	832

TROPHIC CLASSIFICATION

Year	Trophic class
1982	MESOTROPHIC
2000	MESOTROPHIC

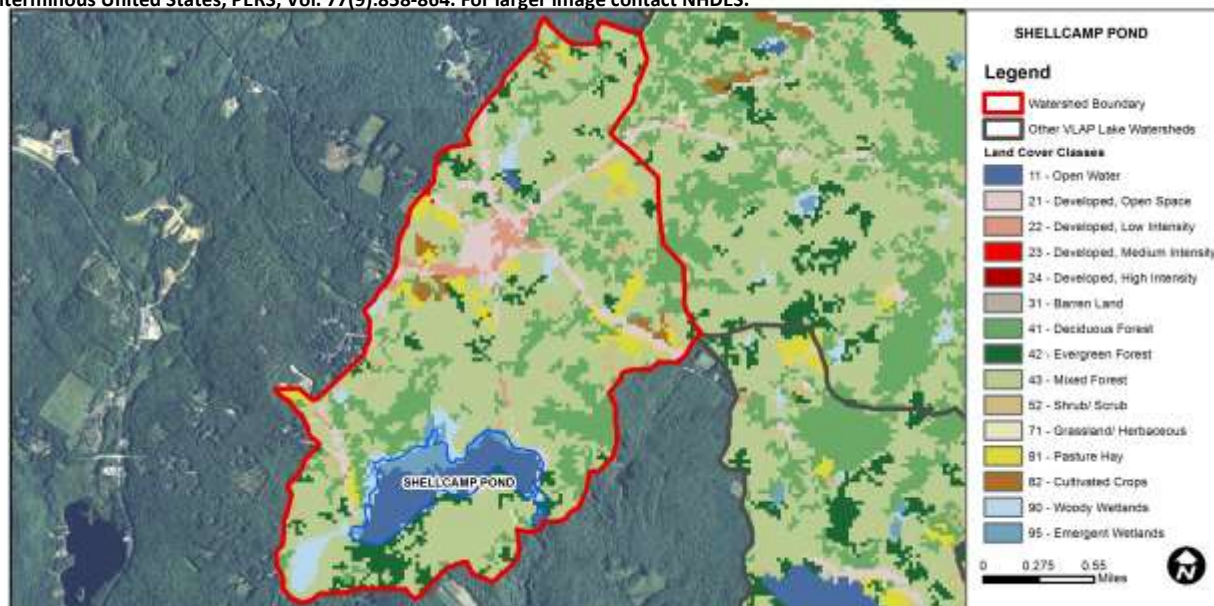
KNOWN EXOTIC SPECIES

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)	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 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	Chlorophyll-a	Slightly Bad	Data exceed water quality standards or thresholds for a given parameter by a small margin.
	Escherichia coli	No Data	No data 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.

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	5.09	Barren Land	0	Grassland/Herbaceous	0.04
Developed-Open Space	5.7	Deciduous Forest	16.26	Pasture Hay	3.79
Developed-Low Intensity	1.57	Evergreen Forest	6.57	Cultivated Crops	1.04
Developed-Medium Intensity	0.04	Mixed Forest	52.62	Woody Wetlands	3.38
Developed-High Intensity	0	Shrub-Scrub	1.8	Emergent Wetlands	1.91



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

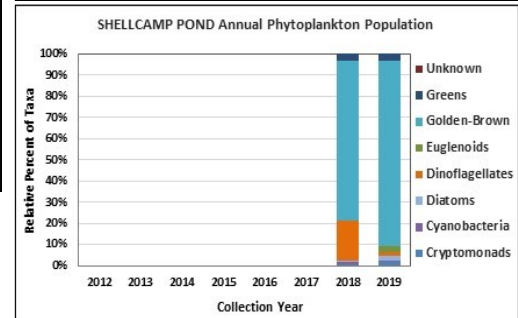
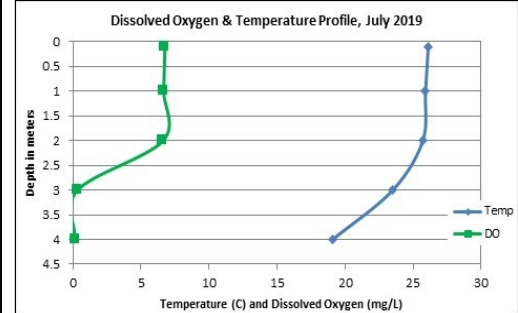
SHELLCAMP POND, GILMANTON

2019 DATA SUMMARY

RECOMMENDED ACTIONS: Great job collecting monthly water quality samples in 2019! This will help to re-establish a baseline data set to assess seasonal and annual variability and detect long-term water quality trends. Pond nutrient (phosphorus) levels and algal growth (chlorophyll-a) remained elevated in 2019 and above the thresholds for mesotrophic lakes. This highlights the importance of identifying and reducing sources of nutrients within the watershed which can include erosion from dirt/gravel roads and sandy beaches, septic systems, stormwater runoff, fertilizers, and suspension of lake bottom sediments disturbed by motorized water craft. Stormwater runoff is one of the major sources of nutrient pollution to NH lakes. Addressing stormwater runoff from lake front properties is a recommended first step in helping to reduce nutrient loads. DES' "NH Homeowner's Guide to Stormwater Management" is a great resource. Consider converting beach areas to perched beaches to help reduce erosion of beach sand into the pond. DES fact sheet WD-WB-18 "Perching Beaches to Lessen Impacts to Lake Quality" is a great resource. Educate boat owners to minimize disturbance of bottom sediments while recreating on the pond. DES Fact Sheet WD-WMB-25 "Impacts of Motorized Craft on New Hampshire's Waterbodies" is another great resource. Keep up the great work!

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

- ◆ **CHLOROPHYLL-A:** Chlorophyll levels were elevated in July, increased in August, and then decreased slightly in September but remained within an elevated range. Average chlorophyll level increased from 2018 and was greater than the state median and the threshold for mesotrophic lakes.
- ◆ **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer) and Outlet conductivity levels were elevated and greater than the state median. Epilimnetic chloride levels were slightly elevated and greater than the state median, however remained less than the state chronic chloride standard.
- ◆ **COLOR:** Apparent color measured in the epilimnion indicates the water was highly tea colored, or dark brown, particularly in August following as significant storm event.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus level was elevated in July, decreased to a low level in August, and then increased to a moderate level in September. Average epilimnetic phosphorus level decreased slightly from 2018 and was greater than the state median and the threshold for mesotrophic lakes. Hypolimnetic phosphorus levels fluctuated within a slightly elevated range. Outlet phosphorus levels were slightly elevated in July and September and the turbidity of the samples was also slightly elevated.
- ◆ **TRANSPARENCY:** Transparency measured without the viewscope (NVS) was within an average range in July, remained stable in August, and then decreased (worsened) slightly in September. Average NVS transparency increased (improved) slightly from 2018. Viewscope transparency (VS) was much higher (better) than NVS transparency and likely a better measure of actual conditions.
- ◆ **TURBIDITY:** Epilimnetic turbidity levels were slightly elevated on each sampling event potentially due to significant storm events prior to sampling and/or the elevated algal growth. Hypolimnetic turbidity levels fluctuated within a moderate range for this station. Outlet turbidity levels were slightly elevated in July and September.
- ◆ **pH:** Epilimnetic and Outlet pH levels were within the desirable range 6.5-8.0 units, however epilimnetic pH has historically fluctuated below the desirable range. Hypolimnetic pH levels were approximately equal to the low end of the desirable range.



Station Name	Table 1. 2019 Average Water Quality Data for SHELLCAMP POND - GILMANTON									
	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	7.6	9.26	34	107	141.5	14	1.89	2.48	1.41	6.56
Hypolimnion					142.3	16			1.42	6.46
Outlet					140.0	16			2.27	6.75

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.

