

NEWFOUND LAKE

2017 SAMPLING HIGHLIGHTS

Dick Brown Brook Subwatershed



Blue = Excellent

Yellow = Fair

Red = Poor

Light Gray = No Data

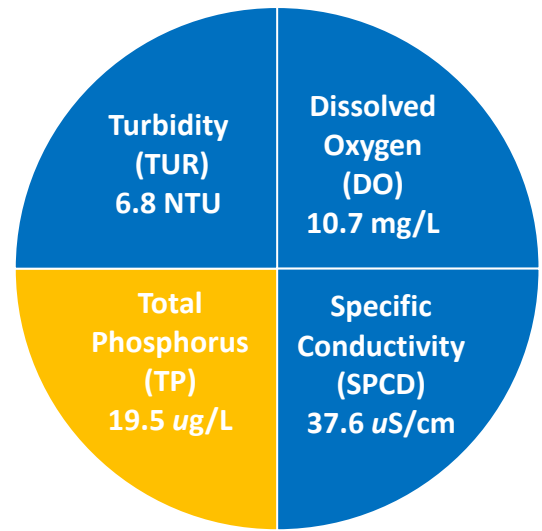


Figure 1. Dick Brown Brook Subwatershed Average Water Quality (2017)

Table 1. 2017 Dick Brown Brook Subwatershed Seasonal Average Water Quality Measurements.

Parameter	Assessment Criteria					Dick Brown Brook Subwatershed Average (range)	Dick Brown Brook Subwatershed Classification
	< 0 - 5.0 Desirable	6 - 10 Low Impact	11 - 50 Moderate impact	51 - 100 Moderate - high impact	> 101 High impact		
Turbidity * (NTU)	< 0 - 5.0 Desirable	6 - 10 Low Impact	11 - 50 Moderate impact	51 - 100 Moderate - high impact	> 101 High impact	6.8 NTU (range: 0.4 - 48.4)	Low Impact
pH (standard units)	< 5.5 suboptimal for successful fish growth and reproduction		5.5 - 6.5 sufficient for successful fish growth and reproduction		6.5 - 8.5 optimal range for fish growth and reproduction	6.0 standard units (range: 5.5 - 7.1)	Sufficient for successful fish growth and reproduction
Dissolved Oxygen (mg/L)	< 5 Suboptimal for successful brook trout growth and survival			> 5 Typically sufficient for successful brook trout growth and survival		10.7 mg/L (range: 6.8 - 13.3)	Typically sufficient for successful brook trout growth and survival
Specific * Conductivity (uS/cm)	0 - 100 Normal	101 - 200 Low Impact	201 - 500 Moderate Impact	> 501 High Impact		37.6 uS/cm (range: 16.1 - 82.5)	Normal
Total * Phosphorus (ug/L)	< 10 ug/L Ideal	11 - 25 Average	26.0 - 50.0 More than desirable	> 51 Excessive		19.5 ug/L (range: 4.3 - 113.8)	Average

* Water quality assessment criteria are provided by the New Hampshire Department of Environmental Services for general guidance only. Natural variations among rivers and streams will occur and should be considered when interpreting the water quality data.

Table 2. 2017 Dick Brown Brook Subwatershed Seasonal Average Water Quality Inter-comparison among Sampling Stations.

Site ID *	Average Turbidity (NTU)	Average Specific Conductivity (uS/cm)	Average Total Phosphorus (ug/L)	Average Dissolved Oxygen (mg/L)	Average pH (standard units)
DBB-H03	1.1	65.5	10.2	10.8	6.1
DBB-U05	24.4	22.8	41.4	11.0	6.1
DBB-U10	1.3	35.8	12.6	10.7	6.0
DBB-U20	0.4	26.2	14.0	10.3	6.0

* Refer to Figure 4 for a map of the sampling locations.

Dick Brown Brook Subwatershed Highlights

The Dick Brown Brook subwatershed is the fourth largest stream drainage network that feeds into Newfound Lake. The 2,096-acre Dick Brown Brook subwatershed is monitored with four active sampling locations that are positioned at various points along Dick Brown Brook and its feeder streams. Sampling locations were selected to characterize the overall water quality and to screen for potential problem areas within the Dick Brown Brook subwatershed.

The 2017 Dick Brown Brook water quality measurements generally indicate high water quality among the sampling sites. However, variations in average specific conductivity concentrations (a surrogate for salt runoff) among sites are apparent (Figure 2). The downstream sampling station, DBB-H03, was characterized by the highest average specific conductivity in 2017 (Figure 2). A comparison between the 2017 and the 2010-2016 average specific conductivity data exhibits similar patterns among the sampling locations (Figure 2); stations with lower average specific conductivity in 2017 were also characterized by lower 2010-2016 specific conductivity.

The 2017 average turbidity (suspended soil and other particles) levels were low while the average total phosphorus (nutrient) concentrations were low to moderate in the Dick Brown Brook subwatershed (Figure 3). A notable water quality anomaly was documented at Site DBB-U05 on April 14 when the turbidity and total phosphorus concentrations measured 48.2 NTU and 113.8 ppb, respectively.

Dissolved oxygen concentrations remained sufficient to support successful fish growth and reproduction.

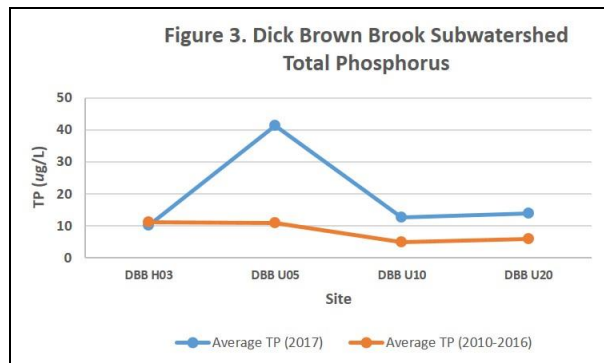
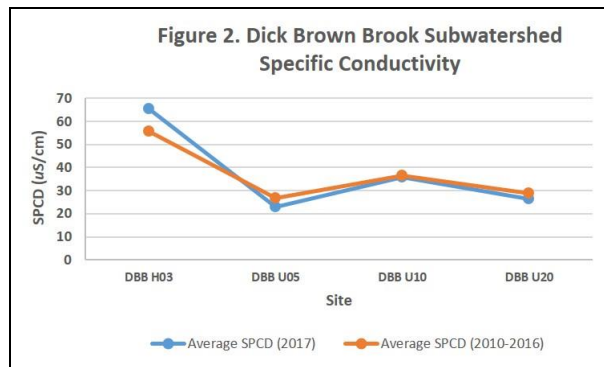


Table 3. Comparison of Seasonal Average Water Quality by Subwatershed (2017)

Subwatershed	Average * Turbidity (NTU)	Average * Specific Conductivity (µS/cm)	Average * Total Phosphorus (µg/L)	Average * Dissolved Oxygen (mg/L)	Average * pH (Standard Units)
Black Brook	1.7	167.8	15.3	9.2	6.0
Cockermouth River	0.3	39.4	5.2	12.8	5.9
Dick Brown Brook	6.8	37.6	19.5	10.7	6.0
Fowler River	0.8	28.2	10.2	13.5	5.4
Georges Brook	1.1	31.2	8.0	12.4	5.6
Hemlock Brook	1.1	42.4	7.3	11.0	6.1
Whittemore Brook	0.1	31.1	7.5	9.3	5.9
Tilton Brook	2.2	131.6	7.1	10.0	6.2

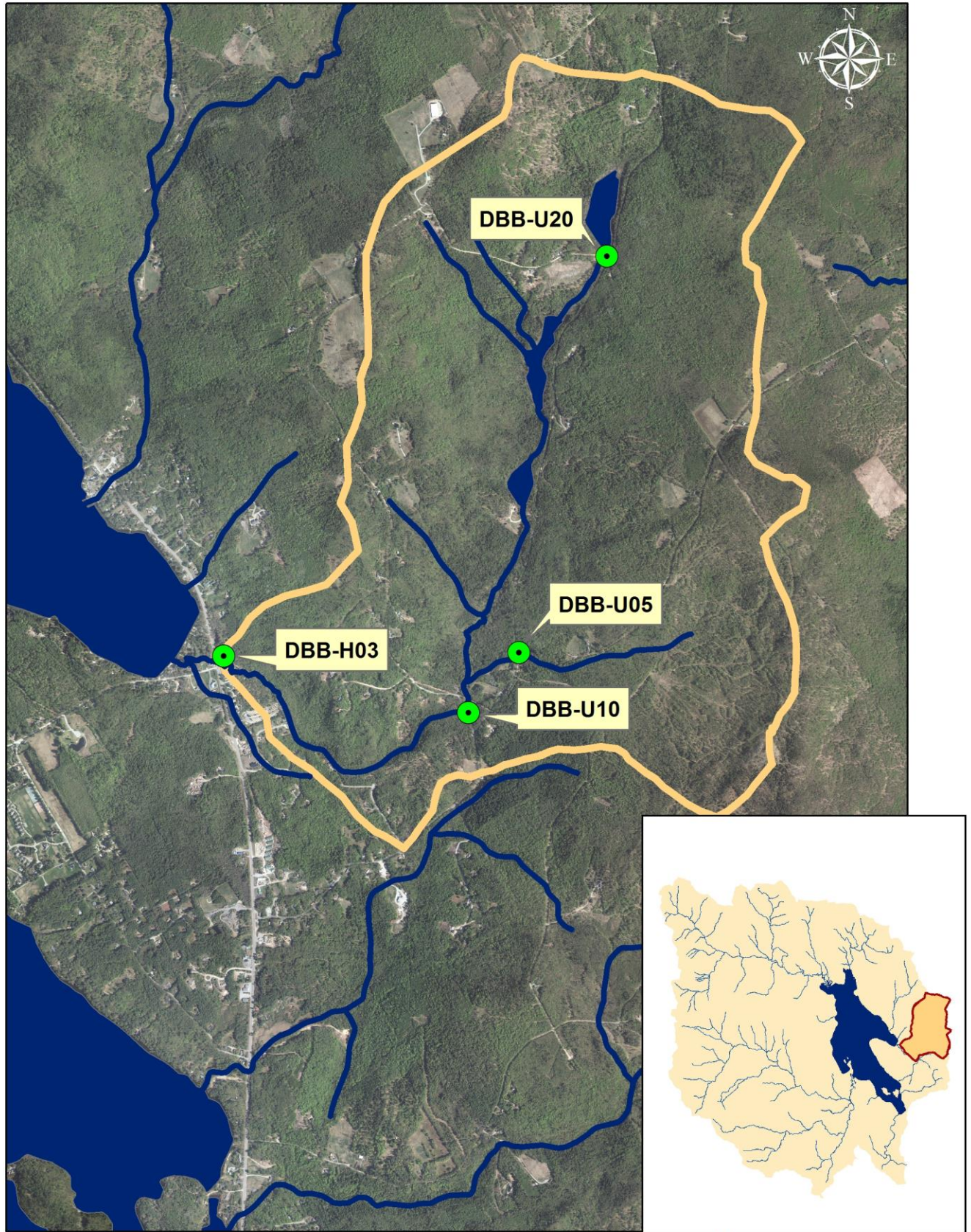
* The displayed water quality results are average values for all sampling locations within the respective subwatersheds.

Recommendations for Property Owners:

Implement Best Management Practices within the Newfound Lake watershed to minimize the adverse impacts of polluted runoff and erosion into the lake. Refer to “Landscaping at the Water’s Edge: An Ecological Approach” and “New Hampshire Homeowner’s Guide to Stormwater Management: Do-It-Yourself Stormwater Solutions for Your Home” for more information on how to reduce nutrient loading caused by overland run-off.

- http://extension.unh.edu/resources/files/Resource004159_Rep5940.pdf
- <http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-11-11.pdf>

Figure 4.
2017 Sampling Highlights - Dick Brown Brook Subwatershed



Aerial Orthophoto Source: NH GRANIT
Site location GPS coordinates collected by the UNH Center for Freshwater Biology



Extension