

NEWFOUND LAKE

2016 SAMPLING HIGHLIGHTS

Georges Brook Subwatershed



Blue = Excellent

Yellow = Fair

Red = Poor

Light Gray = No Data

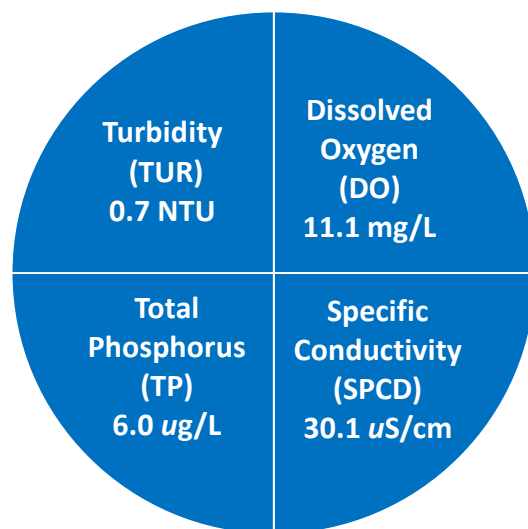


Figure 1. Georges Brook Subwatershed Average Water Quality (2016)

Table 1. 2016 Georges Brook Subwatershed Seasonal Average Water Quality Measurements.

| Parameter | Assessment Criteria | | | | | Georges Brook Subwatershed Average (range) | Georges 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 | 0.7 NTU (range: 0.4 - 1.0) | Desirable |
| 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 | 5.8 standard units (range: 5.4 - 6.0) | 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 | | 11.1 mg/L (range: 10.5 - 11.6) | 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 | | 30.1 uS/cm (range: 14.5 - 46.0) | Normal |
| Total * Phosphorus (ug/L) | < 10 ug/L Ideal | 11 - 25 Average | 26.0 - 50.0 More than desirable | > 51 Excessive | | 6.0 ug/L (range: 3.9 - 8.9) | Ideal |

* 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. 2016 Georges 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) |
|-----------|-------------------------|---------------------------------------|---------------------------------|---------------------------------|-----------------------------|
| GB-H10 | 1.0 | 44.6 | 8.9 | 10.5 | 6.0 |
| GB-U10 | 0.8 | 46.0 | 6.7 | 11.0 | 6.0 |
| GB-U20 | 0.5 | 14.5 | 4.5 | 11.2 | 5.7 |
| GB-U30 | 0.4 | 15.3 | 3.9 | 11.6 | 5.4 |

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

Georges Brook Subwatershed Highlights

The Georges Brook subwatershed is the third largest stream drainage network that feeds into Newfound Lake. The 3,031-acre Georges Brook subwatershed is monitored with four active sampling locations that are positioned at various points along Georges Brook and its feeder streams. Sampling locations were selected to characterize the overall water quality and to screen for potential problem areas within the Georges Brook subwatershed.

The 2016 Georges 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) are apparent among sites (Figure 2). Site GB-U10 was characterized by the highest average specific conductivity in 2016 (Figure 2) while the average specific conductivity measured at sites GB-U20 and GB-U30 were low (Figure 2). A comparison between the 2016 and the 2010-2015 average specific conductivity data exhibits similar patterns among the sampling locations (Figure 2); stations with lower average specific conductivity in 2016 were generally characterized by lower 2010-2015 specific conductivity.

The 2016 average turbidity (suspended soil and other particles) and total phosphorus (nutrient) levels were low in the Georges Brook subwatershed (Figure 3).

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

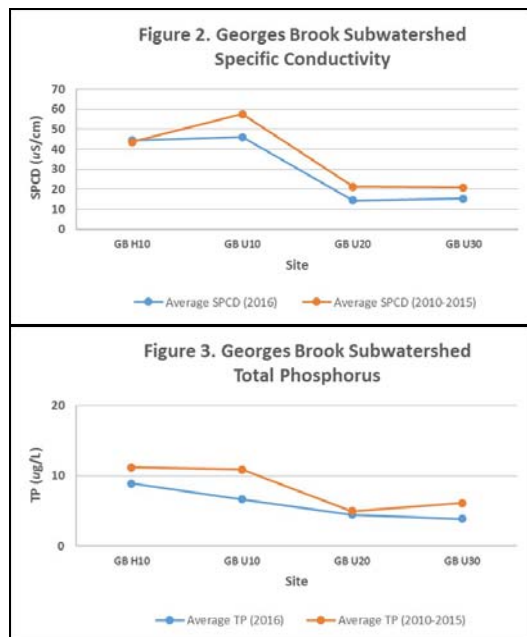


Table 3. Comparison of Seasonal Average Water Quality by Subwatershed (2016)

| Subwatershed | Average * Turbidity (NTU) | Average * Specific Conductivity (uS/cm) | Average * Total Phosphorus (ug/L) | Average * Dissolved Oxygen (mg/L) | Average * pH (Standard Units) |
|-------------------|---------------------------|---|-----------------------------------|-----------------------------------|-------------------------------|
| Black Brook | 2.1 | 143.7 | 18.9 | 7.5 | 5.8 |
| Cockermouth River | 0.4 | 52.6 | 5.0 | 7.9 | 5.9 |
| Dick Brown Brook | 1.2 | 45.2 | 14.4 | 10.8 | 6.3 |
| Fowler River | 1.1 | 72.1 | 12.0 | 8.8 | 5.5 |
| Georges Brook | 0.7 | 30.1 | 6.0 | 11.1 | 5.8 |
| Hemlock Brook | 0.7 | 47.2 | 7.2 | 9.0 | 6.3 |
| Whittemore Brook | 0.7 | 20.2 | 9.4 | 7.5 | 6.0 |
| Tilton Brook | 2.2 | 81.5 | 19.0 | 6.4 | 6.3 |

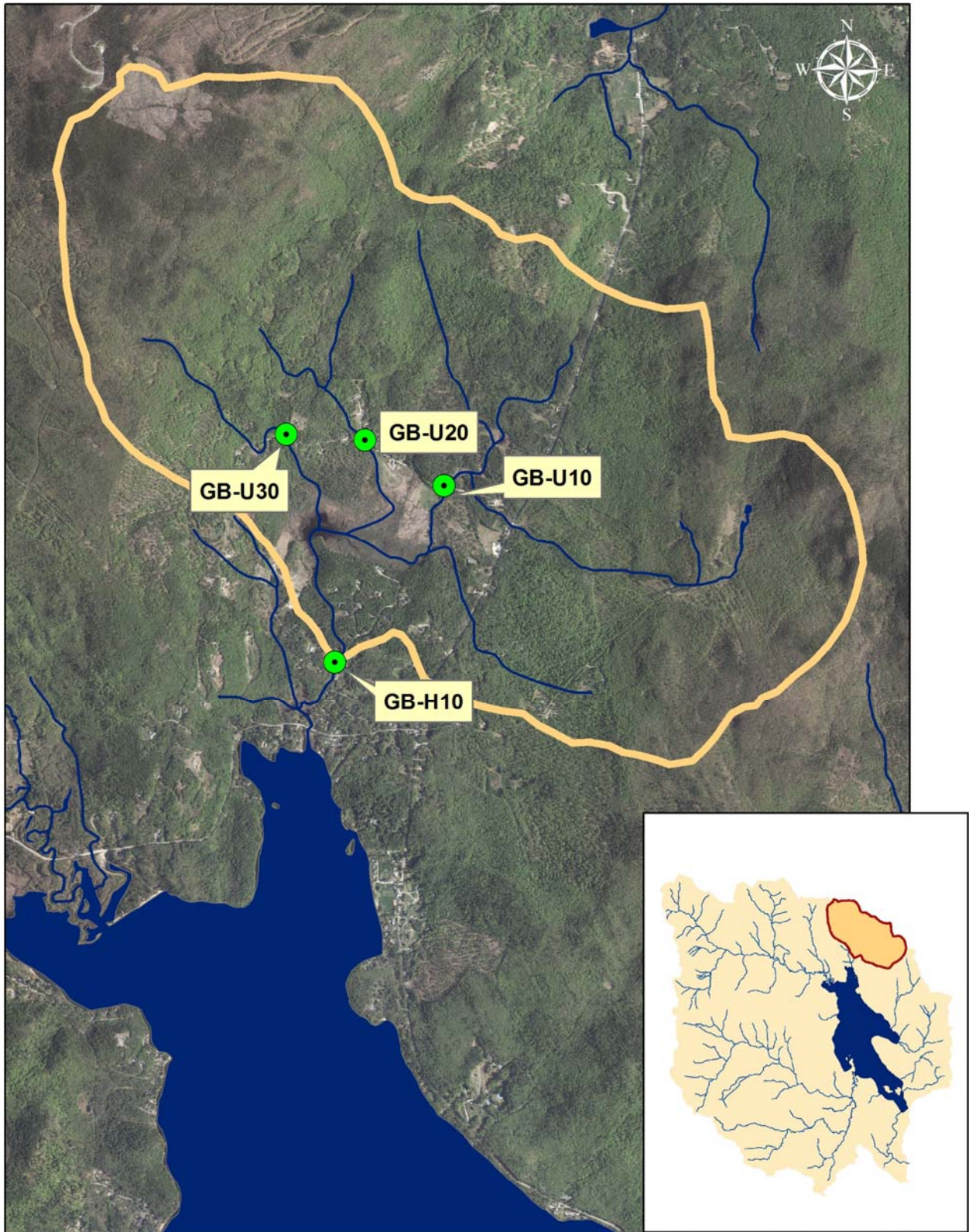
* The displayed water quality results are average values for all sampling locations within the respective subwatersheds.

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.
2016 Sampling Highlights - Georges Brook Subwatershed



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



Extension