

NEWFOUND LAKE

2016 SAMPLING HIGHLIGHTS

Station – Follansbee 8



Blue = Excellent = Oligotrophic

Yellow = Fair = Mesotrophic

Red = Poor = Eutrophic

Light Gray = No Data

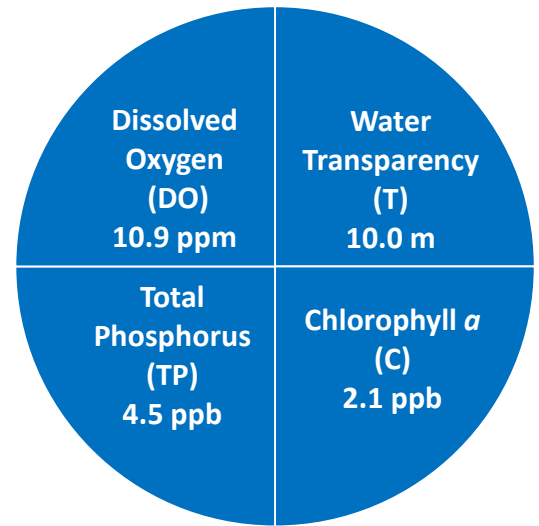


Figure 1. Station Follansbee 8 Water Quality

Table 1. 2016 Station Follansbee 8 Seasonal Averages and NHDES Trophic Level Classification Criteria

Parameter	Oligotrophic “Excellent”	Mesotrophic “Fair”	Eutrophic “Poor”	Station Follansbee 8 Average (range)	Station Follansbee 8 Classification
Water Clarity (meters)	4.0 – 7.0	2.5 - 4.0	< 2.5	10.0 meters (range: 8.9 – 10.8)	Oligotrophic
Chlorophyll <i>a</i> (ppb)	< 3.3	> 3.3 – 5.0	> 5.0 – 11.0	2.1 ppb (range: 1.5 – 2.8)	Oligotrophic
Total Phosphorus (ppb)	< 8.0	> 8.0 – 12.0	> 12.0 – 28.0	4.5 ppb (range: 4.2 – 5.0)	Oligotrophic
Dissolved Oxygen (ppm)	5.0 – 7.0	2.0 – 5.0	<2.0	10.9 ppm (range: 10.6 – 11.1)	Oligotrophic

* Dissolved oxygen concentrations measured on 8/23/16 between 12.5 and 14.5 meters in the bottom water layer.

Table 2. 2016 Station Follansbee 8 Seasonal Average Accessory Water Quality Measurements.

Parameter	Assessment Criteria					Station Follansbee 8 Average (range)	Station Follansbee 8 Classification
Color (color units)	< 10 uncolored	10 – 20 slightly colored	20 – 40 lightly tea colored	40 – 80 tea colored	> 80 highly colored	6.5 color units (range: 6.2 – 7.1)	Uncolored
Alkalinity (ppm)	< 0.0 acidified	0.1 – 2.0 extremely vulnerable	2.1 – 10 moderately vulnerable	10.1 – 25.0 low vulnerability	> 25.0 not vulnerable	4.3 ppm (range: 3.4 – 5.0)	Moderately vulnerable
pH (std units)	< 5.5 suboptimal for successful growth and reproduction		6.5 – 9.0 optimal range for fish growth and reproduction			7.0 standard units (range: 6.9 – 7.1)	Optimal range for fish growth and reproduction
Specific Conductivity (<i>uS/cm</i>)	< 50 <i>uS/cm</i> Characteristic of minimally impacted NH lakes		50-100 <i>uS/cm</i> Lakes with some human influence	> 100 <i>uS/cm</i> Characteristic of lakes experiencing human disturbances		39.2 <i>uS/cm</i> (range: 38.3 – 40.9)	Characteristic of minimally impacted NH lakes

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.

- https://extension.unh.edu/resources/files/Resource001799_Rep2518.pdf
- <http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-11-11.pdf>

LONG TERM WATER QUALITY

Site Follansbee 8 is located in a westerly basin near Wellington State Park (Figure 4). The condition of site Follansbee 8 is best reflected by activities along Wellington State Beach, local nearshore development and inputs that enter the lake through local stream inlets. Further review of water quality measurements at the other Newfound Lake sampling locations will provide a better assessment of more localized pollutant inputs that impact the other sampling locations (refer to the 2016 summary data contained in Table 3).

WATER CLARITY: The site Follansbee 8 water clarity display an increasing trend over the thirteen years of sampling (2003–2016).

CHLOROPHYLL: The site Follansbee 8 chlorophyll *a* data display a trend of increasing chlorophyll *a* concentrations over the thirteen years of sampling (2003–2016).

COLOR: The site Follansbee 8 color data display a trend of decreasing color concentrations over the thirteen years of sampling (2003–2016).

TOTAL PHOSPHORUS: The site Follansbee 8 total phosphorus concentrations have decreased over the past twelve years of sampling (2003-2016).

In summary, the site Follansbee 8 continues to display good water quality. The water clarity data display a trend of increasing water clarity while the chlorophyll *a* concentrations have increased and the total phosphorus (nutrient) concentrations have decreased. One should be aware that data have not been collected on an annual basis and that data gaps among years exist (Figure 2 and 3).

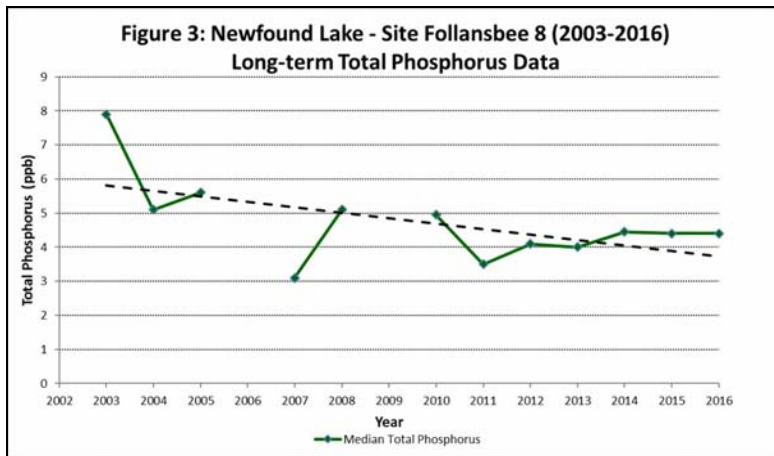
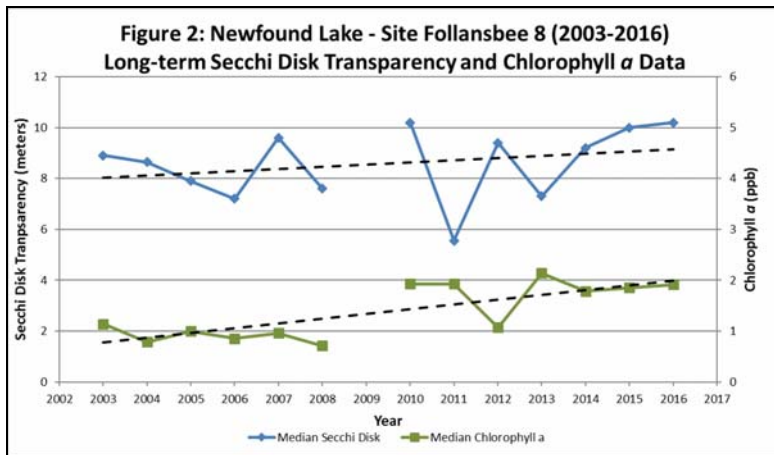


Table 3. Seasonal Average Water Quality by Sampling Location (2016)

Site	Average Secchi Disk Transparency (meters)	Average Chlorophyll <i>a</i> (ppb)	Average Total Phosphorus (ppb)	Average Dissolved Oxygen (ppm)
Deep 1	10.3	2.0	3.6	10.6
Mayhew 2	8.5	1.9	3.8	0.6
Pasquaney 3	8.7	3.1	4.9	11.2
Loon Island 4	9.7	1.6	4.0	XXXX
Cockermouth 5	9.4	2.2	3.9	9.4
Beechwood 6	9.4	2.2	4.2	10.7
Follansbee 8	10.0	2.1	4.5	10.9

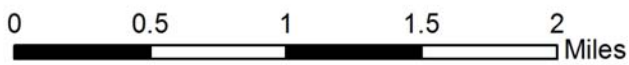
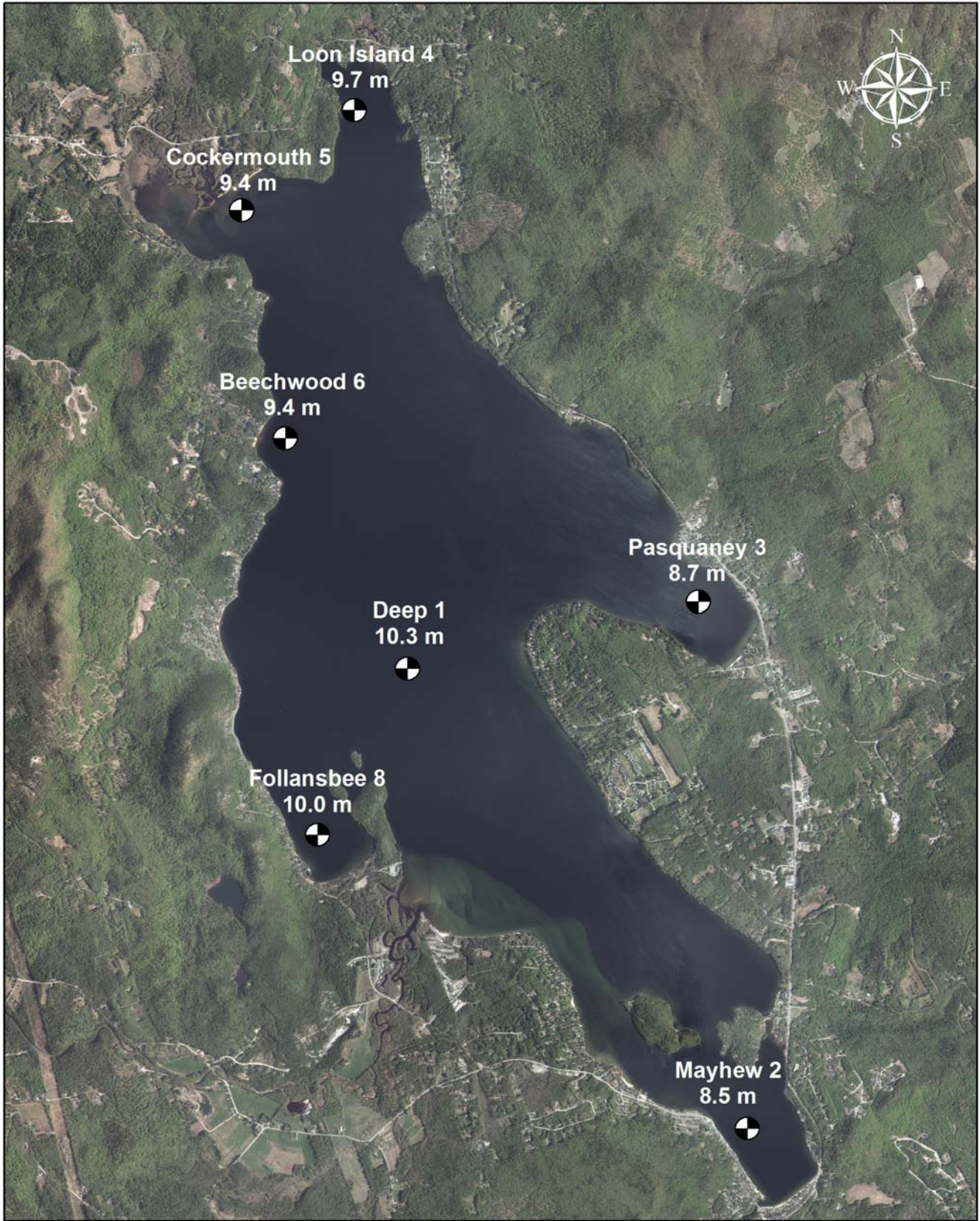
XXXX indicates site is too shallow to collect comparable oxygen data.

Figures 2 and 3. Changes in the Newfound Lake water clarity (Secchi Disk depth), chlorophyll *a* and total phosphorus concentrations measured between 2003 and 2016 at site Follansbee 8. **These data indicate the relationship between plant growth and water clarity. Total phosphorus data are also displayed and are oftentimes correlated with the amount of plant growth.** Note: due to personnel limitations and budgetary constraints, there are years between 2003 and 2016 when incomplete data were collected at site Follansbee 8.

Figure 4. Newfound Lake

Bristol, Alexandria, Bridgewater & Hebron, NH

2016 Deep sampling sites with seasonal average water clarity



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



Extension

