

TOWNHOUSE POND

2015 SAMPLING HIGHLIGHTS

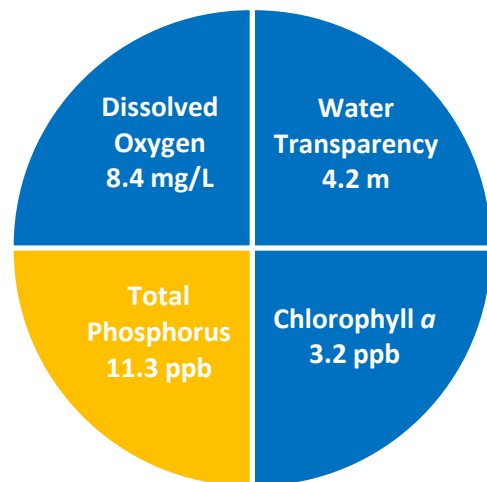
Milton, NH

Blue = Excellent =
Oligotrophic

Yellow = Fair = Mesotrophic

Red = Poor = Eutrophic

Gray = No Data



Please refer to the Milton Three Ponds Annual Report (2015) for additional information

Figure 1. Townhouse Pond Water Quality (2015)

Table 1. 2015 Townhouse Pond Seasonal Averages and NHDES Trophic Level Classification Criteria

Parameter	Oligotrophic "Excellent"	Mesotrophic "Fair"	Eutrophic "Poor"	Townhouse Pond Average (range)	Townhouse Pond Classification
Water Clarity (meters)	4.0 – 7.0	2.5 - 4.0	< 2.5	4.2 meters (3.3 – 5.1)	Oligotrophic
Chlorophyll <i>a</i> (ppb)	< 3.3	> 3.3 – 5.0	> 5.0 – 11.0	3.2 ppb (2.4 – 4.2)	Oligotrophic
Total Phosphorus (ppb)	< 8.0	> 8.0 – 12.0	> 12.0 – 28.0	11.3 ppb (8.7 – 21.4)	Mesotrophic
Dissolved Oxygen (mg/L)	5.0 – 7.0	2.0 – 5.0	<2.0	8.4 mg/L (4.3 – 12.1)	Oligotrophic

*Dissolved oxygen concentrations measured on May 26, 2015 between 5.5 and 13.0 meters in the bottom water layer

Table 2. 2015 Townhouse Pond Seasonal Average Accessory Water Quality Measurements

Parameter	Assessment Criteria					Townhouse Pond Average (range)	Townhouse Pond Classification
	< 10 uncolored	10 – 20 slightly colored	20 – 40 lightly tea colored	40 – 80 tea colored	> 80 highly colored		
Color (color units)	< 10 uncolored	10 – 20 slightly colored	20 – 40 lightly tea colored	40 – 80 tea colored	> 80 highly colored	27.9 color units (range: 18.7 – 39.5)	Lightly tea colored
Alkalinity (mg/L)	< 0.0 acidified	0.1 – 2.0 extremely vulnerable	2.1 – 10 moderately vulnerable	10.1 – 25.0 low vulnerability	> 25.0 not vulnerable	7.6 mg/L (range: 6.5 – 9.2)	Moderately Vulnerable
Specific Conductivity (uS/cm)	< 50 uS/cm Minimally impacted		50-100 uS/cm Some human influence		> 100 uS/cm Experiencing human disturbances	91.9 uS/cm (range: 91.8 – 92.0)	Some human influence

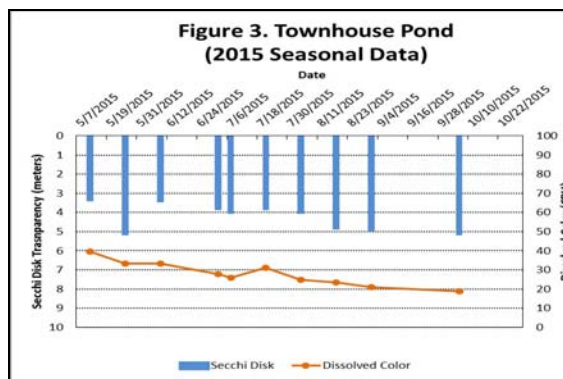
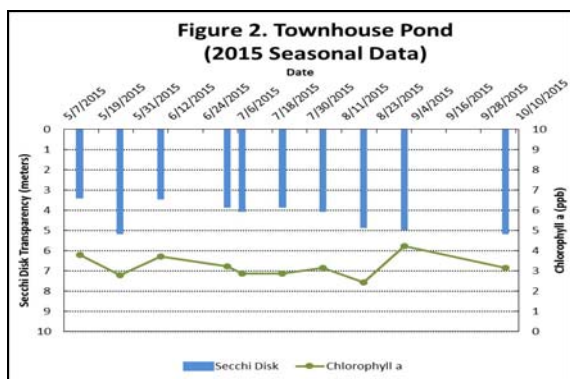


Figure 2 and 3. Seasonal Secchi disk transparency, chlorophyll *a* changes and dissolved color concentrations. Figures 2 and 3 illustrate the interplay among Secchi Disk transparency, chlorophyll *a* and dissolved color. Shallower water transparency measurements oftentimes correspond to increases in chlorophyll *a* and/or color concentrations.

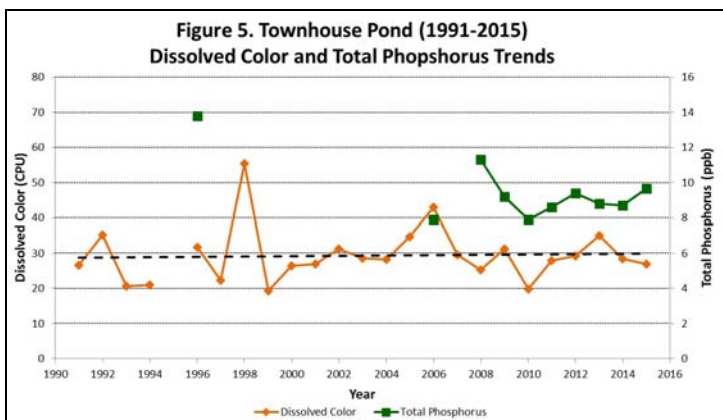
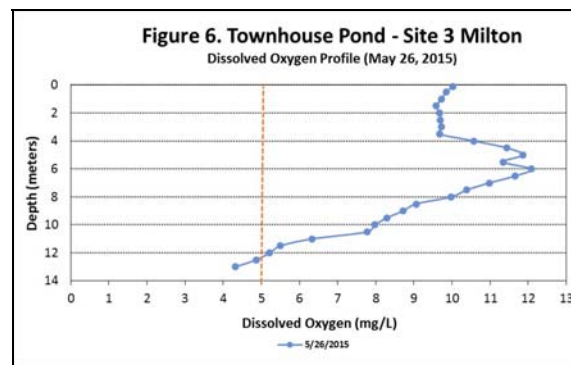
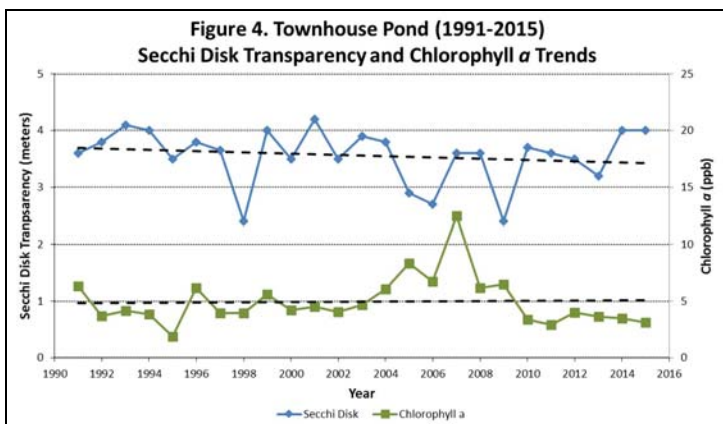
LONG TERM TRENDS

WATER CLARITY: The Townhouse Pond water clarity measurements, measured as Secchi Disk transparency, display a trend of decreasing water clarity over the past twenty-five years.

CHLOROPHYLL: The Townhouse Pond chlorophyll *a* concentrations, a measure of microscopic plant life within the lake, display a stable trend of chlorophyll *a* concentrations over the past twenty-five years.

TOTAL PHOSPHORUS: Phosphorus is the nutrient most responsible for microscopic plant growth. Due to limited total phosphorus data, including gaps among sampling years, a trend analysis was not performed. Once ten years of total phosphorus data have been collected, a trend analysis will be performed.

COLOR: The Townhouse Pond color data, the result of naturally occurring “tea” color substances from the breakdown of soils and plant materials, display a stable trend of dissolved color concentrations over the past twenty-four years.



Figures 4 and 5. Changes in the Townhouse Pond water clarity (Secchi Disk depth), chlorophyll *a*, dissolved color and total phosphorus concentrations measured between 1991 and 2015. **These data illustrate the relationship between plant growth, natural water color and water clarity. Total phosphorus data are also displayed and are oftentimes correlated with the amount of plant growth.** Trendlines are displayed when ten or more years of data are available.

Figure 6. Townhouse Pond dissolved oxygen profile taken by the **Center for Freshwater Biology** on May 26, 2015. The vertical red line indicates the oxygen concentration commonly considered the threshold for successful growth and reproduction of cold water fish such as trout and salmon.

Recommendations:

Implement Best Management Practices within the Townhouse Pond 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 suggestions that can help 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 7. Townhouse Pond

Milton, NH

2015 Deep water sampling sites and average water clarity



0 0.045 0.09 0.18 0.27 0.36 Miles



University of New Hampshire
Cooperative Extension



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