Weston Pond

2017 SAMPLING HIGHLIGHTS

Station – Buoy

Amherst, NH

Station Buoy was used as a reference point to represent the overall Weston Pond water quality. Water quality data displayed in Tables 1 and 2 are surface water measurements.

Blue = Excellent = Oligotrophic
Yellow = Fair = Mesotrophic
Red = Poor = Eutrophic
Gray = No Data

Table 1. 2017 Weston Pond Seasonal Averages and NH DES Aquatic Life Nutrient Criteria¹

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Oligotrophic “Excellent”</th>
<th>Mesotrophic “Fair”</th>
<th>Eutrophic “Poor”</th>
<th>Weston Pond Average (range)</th>
<th>Weston Pond Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Clarity (meters)</td>
<td>4.0 – 7.0</td>
<td>2.5 – 4.0</td>
<td>&lt; 2.5</td>
<td>1.6 meters (1.3 – 1.9)</td>
<td>Eutrophic</td>
</tr>
<tr>
<td>Chlorophyll a (ppb)</td>
<td>&lt; 3.3</td>
<td>&gt; 3.3 – 5.0</td>
<td>&gt; 5.0 – 11.0</td>
<td>4.9 ppb (4.5 – 5.3)</td>
<td>Mesotrophic</td>
</tr>
<tr>
<td>Total Phosphorus (ppb)</td>
<td>&lt; 8.0</td>
<td>&gt; 8.0 – 12.0</td>
<td>&gt; 12.0 – 28.0</td>
<td>14.5 ppb (14.3 – 14.6)</td>
<td>Eutrophic</td>
</tr>
</tbody>
</table>

Table 2. 2017 Weston Pond Seasonal Average Accessory Water Quality Measurements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Assessment Criteria</th>
<th>Weston Pond Average (range)</th>
<th>Weston Pond Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color (color units)</td>
<td>&lt; 10 uncolored</td>
<td>111.8 color units (111.8 – 111.8)</td>
<td>Highly colored</td>
</tr>
<tr>
<td></td>
<td>10 – 20 slightly colored</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20 – 40 lightly tea colored</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>40 – 80 tea colored</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 80 highly colored</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1. Weston Pond Water Quality (2017)

Figure 2 and 3. Seasonal Secchi disk transparency, chlorophyll a concentrations 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.

**WATER CLARITY**: The Weston Pond water clarity measurements, measured as Secchi Disk transparency, display a trend of decreasing water transparency over ten years of water quality monitoring conducted between 2008 and 2017 (Figure 4).

**CHLOROPHYLL**: The Weston Pond chlorophyll a concentrations, a measure of microscopic plant life within the lake, have oscillated among years but do not display a trend of increasing or decreasing chlorophyll a concentrations over the ten years of water quality monitoring conducted between 2008 and 2017 (Figure 4).

**TOTAL PHOSPHORUS**: Phosphorus is the nutrient most responsible for microscopic plant growth. The Weston Pond total phosphorus concentrations have oscillated among years but do not display a trend of increasing or decreasing total phosphorus concentrations over the ten years of water quality monitoring conducted between 2008 and 2017 (Figure 5).

**COLOR**: The Weston Pond color data, the result of naturally occurring “tea” color substances from the breakdown of soils and plant materials, have oscillated among years but do not display a trend of increasing or decreasing color concentrations over the ten years of water quality monitoring conducted between 2008 and 2017 (Figure 5).

Figures 4 and 5. Long-term changes in the Weston Pond water clarity (Secchi Disk depth), chlorophyll a, water color and total phosphorus concentrations measured between 2008 and 2017. These data illustrate the relationship among plant growth, water color and water clarity. Total phosphorus data are also displayed and are oftentimes correlated with the amount of plant growth.

Figure 6. Inter-site comparison of the Weston Pond total phosphorus concentrations; Sites Buoy, North End, and Outlet. The inter-site comparison data provide a general sense of the variability among the three Weston Pond sampling locations.

**Recommendations**


Figure 7. Weston Pond
Amherst, NH
2017 deep and nearshore water sampling sites with seasonal average water clarity

Surface Area = 15 acres
Average Depth = 6.9 feet
Maximum Depth = 13.9 feet

North End
Outlet
Buoy
Secchi Disk Transparency = 5.2 feet

Aerial Orthophoto Source: NH GRANIT