DEPOT POND
2017 SAMPLING HIGHLIGHTS
Milton, NH

Refer to the Milton Three Ponds Annual Report (2017) for additional information

Table 1. 2017 Depot Pond Seasonal Averages and NH DES Aquatic Life Nutrient Criteria

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Oligotrophic “Excellent”</th>
<th>Mesotrophic “Fair”</th>
<th>Eutrophic “Poor”</th>
<th>Depot Pond Average (range)</th>
<th>Depot 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>3.0 meters (2.3 – 3.7)</td>
<td>Mesotrophic</td>
</tr>
<tr>
<td>Chlorophyll α (ppb)</td>
<td>&lt; 3.3</td>
<td>&gt; 3.3 – 5.0</td>
<td>&gt; 5.0 – 11.0</td>
<td>4.0 ppb (2.7 – 6.6)</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>10.4 ppb (7.5 – 12.8)</td>
<td>Mesotrophic</td>
</tr>
<tr>
<td>Dissolved Oxygen (mg/L)</td>
<td>5.0 – 7.0</td>
<td>2.0 – 5.0</td>
<td>&lt; 2.0</td>
<td>5.5 mg/L (4.1 – 6.4)</td>
<td>Oligotrophic*</td>
</tr>
</tbody>
</table>

*Dissolved oxygen concentrations measured on July 25, 2017 between 9.0 and 12.5 meters in the bottom water layer.

Table 2. 2017 Station Depot Pond Seasonal Average Accessory Water Quality Measurements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Assessment Criteria</th>
<th>Depot Pond Average (range)</th>
<th>Depot Pond Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color (color units)</td>
<td>&lt; 10 uncolored</td>
<td>44.9 color units (range: 24.8–63.1)</td>
<td>Tea colored</td>
</tr>
<tr>
<td>Alkalinity (mg/L)</td>
<td>&lt; 0.0 acidified</td>
<td>8.9 mg/L (range: 7.0 – 11.0)</td>
<td>Moderately vulnerable</td>
</tr>
<tr>
<td>pH (Std units)</td>
<td>&lt; 5.5 suboptimal for successful growth and reproduction</td>
<td>6.5 – 9.0 optimal range for fish growth and reproduction</td>
<td>No Data</td>
</tr>
<tr>
<td>Specific Conductivity (μS/cm)</td>
<td>50-100 μS/cm Lakes with some human influence</td>
<td>91.0 μS/cm (range: 87.4–95.9)</td>
<td>Characteristic of lakes with some human influence</td>
</tr>
</tbody>
</table>

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

WATER CLARITY: The Depot Pond water clarity measurements, measured as Secchi Disk transparency, have oscillated among years while the long-term trend is relatively stable (Figure 4).

CHLOROPHYLL: The Depot Pond chlorophyll α concentrations, a measure of microscopic plant life within the lake, have oscillated among years while the long-term trend is relatively stable (Figure 4).

TOTAL PHOSPHORUS: Phosphorus is the nutrient most responsible for microscopic plant growth. The Depot Pond total phosphorus concentrations display a trend of increasing concentrations (Figure 5).

COLOR: The Depot Pond color data, the result of naturally occurring “tea” color substances from the breakdown of soils and plant materials, have oscillated among years while the long-term trend is relatively stable (Figure 5).

Figures 4 and 5. Changes in the Depot Pond water clarity (Secchi Disk depth), chlorophyll α, dissolved color and total phosphorus concentrations measured between 1991 and 2017. 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. Depot Pond dissolved oxygen profile collected by the Center for Freshwater Biology on July 25, 2017. 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:


Figure 7. Depot Pond
Milton, NH
2017 Deep water sampling site and average water clarity

Average Depth = 18.0 feet
Maximum Depth = 51.8 feet
Surface Area = 165 acres

Depot Pond
Secchi Disk Transparency = 9.8 feet

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