Station 1 South Dam was used as a reference point to represent the overall Mendums Pond water quality. Water quality data displayed in Tables 1 and 2 are surface water measurements with the exception of the dissolved oxygen data that are measured near the lake bottom.

Table 1. 2018 Mendums 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>Mendums Pond Average (range)</th>
<th>Mendums 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>4.7 meters (3.8 – 5.6)</td>
<td>Oligotrophic</td>
</tr>
<tr>
<td>Chlorophyll a 1 (ppb)</td>
<td>&lt; 3.3</td>
<td>&gt; 3.3 – 5.0</td>
<td>&gt; 5.0 – 11.0</td>
<td>1.3 ppb (0.5 – 2.9)</td>
<td>Oligotrophic</td>
</tr>
<tr>
<td>Total Phosphorus 1 (ppb)</td>
<td>&lt; 8.0</td>
<td>&gt; 8.0 – 12.0</td>
<td>&gt; 12.0 – 28.0</td>
<td>7.5 ppb (5.1 – 11.8)</td>
<td>Oligotrophic</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>No Data</td>
<td>Not Assessed</td>
</tr>
</tbody>
</table>

Table 2. 2018 Mendums Pond Seasonal Average Accessory Water Quality Measurements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Assessment Criteria</th>
<th>Mendums Pond Average (range)</th>
<th>Mendums Pond Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color (color units)</td>
<td>&lt; 10 uncolored</td>
<td>50.1 color units (31.3 – 58.8)</td>
<td>Tea colored</td>
</tr>
<tr>
<td>Alkalinity (mg/L)</td>
<td>&lt; 0.0 acidified</td>
<td>1.7 mg/L (1.3 – 2.2)</td>
<td>Extremely vulnerable</td>
</tr>
</tbody>
</table>

Figure 1. Mendums Pond Water Quality (2018)

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. Shallow water transparency measurements oftentimes correspond to increases in chlorophyll a and/or color concentrations.
LONG-TERM TRENDS

**WATER CLARITY:** The Mendums Pond water clarity measurements, measured as Secchi Disk transparency, oscillate among years but the long-term trend has remained stable since 1987 (Figure 4).

**CHLOROPHYLL:** The Mendums Pond chlorophyll $a$ concentrations, a measure of microscopic plant life within the lake, oscillate among years but the long-term trend is stable (Figure 4).

**TOTAL PHOSPHORUS:** Phosphorus is the nutrient most responsible for microscopic plant growth. The Mendums Pond total phosphorus concentrations display a trend of increasing concentrations largely driven by low total phosphorus values collected in 1991 and 1992 (Figure 5).

**COLOR:** The Mendums 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 since 1987 (Figure 5).

**Recommendations**

Implement Best Management Practices within the Mendums Pond watershed to minimize the adverse impacts of polluted runoff and erosion into Mendums Pond. 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:

Figure 7. Mendums Pond
Barrington, NH
2018 Deep water sampling sites and seasonal average water clarity

Surface Area = 265 acres
Average Depth = 21 feet
Maximum Depth = 52 feet

Site 2 West Mid
Secchi Disk Transparency = 15.4 feet

Site 1 South Dam
Secchi Disk Transparency = 15.4 feet

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