At site 2 Ivanhoe, water quality fairly good. Water clarity is holding steady, while chlorophyll a is slightly increasing and phosphorus is slightly decreasing.
LAKE IVANHOE 2016

WATER QUALITY REPORT

1 ROUND POND

SITE STATUS SUMMARY OF CONDITIONS

- WATER CLARITY
- TOTAL PHOSPHORUS
- CHLOROPHYLL A
- DISSOLVED OXYGEN

TROPHIC STATE: MESOTROPHIC

At site 1 Round Pond, water quality is fair. In spite of a decreasing trend in phosphorus, water clarity and chlorophyll \( a \) are degrading.

SITE RESULTS ANNUAL WATER QUALITY PATTERNS

LAKE BASICS BACKGROUND INFO

Site Depth: 1 Round Pond – 15 feet
Lake Max/Mean Depth: 20 feet / 12 feet
Location: Wakefield, NH (Carroll Co.)
Watershed Area: 0.7 square miles
Lake Area: 68 acres
Shore Length: 1.7 miles
Lake Volume: 1.0 million cubic meters
Flushing Rate: 0.9 times per year
Lake Elevation: 596 feet
LAKE IVANHOE 2016

LAKE STATUS AND FUTURE CONCERNS

The lake is on the threshold of transitioning from Oligotrophic to Mesotrophic, something which is already noticeable in 1 Round Pond.

CHLOROPHYLL A long-term trends are improving in spite of increasing PHOSPHORUS. Why? Water quality can also vary due to rainfall, temperature, lake color, fish, etc.

WATERSHED RESTORATION EFFORTS by the Acton Wakefield Watersheds Alliance began in 2008 to help improve water quality. Work will be ongoing to achieve water quality goals.

Lake Ivanhoe is part of the Salmon Falls Headwater Watershed MANAGEMENT PLAN

WATER QUALITY REVIEW

LAKE PRODUCTIVITY is determined by multiple factors, including

<table>
<thead>
<tr>
<th>WATER CLARITY</th>
<th>Water clarity is used as an indirect measure of algal productivity, but is also influenced by suspended sediments and dissolved color.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHOSPHORUS</td>
<td>A key nutrient that stimulates algal blooms and excessive plant growth, particularly for invasive species.</td>
</tr>
<tr>
<td>CHLOROPHYLL A</td>
<td>A green pigment found in plants and algae, it is used to estimate algal biomass. Algal growth is promoted by phosphorus, increasing chlorophyll.</td>
</tr>
<tr>
<td>DISSOLVED OXYGEN</td>
<td>Low dissolved oxygen can kill or stress organisms and release phosphorus from sediments, further degrading water quality.</td>
</tr>
</tbody>
</table>

LAKE TROPHIC STATE is generally broken into three categories

<table>
<thead>
<tr>
<th>OLIGOTROPHIC</th>
<th>MESOTROPHIC</th>
<th>EUTROPHIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEEP LOW</td>
<td>REDUCED MODERATE</td>
<td>SHALLOW HIGH</td>
</tr>
<tr>
<td>LOW LOW</td>
<td>OCCASIONALLY LOW IN BOTTOM WATERS</td>
<td>HIGH</td>
</tr>
<tr>
<td>HIGH THROUGHOUT WATER COLUMN</td>
<td>MODERATE</td>
<td>FREQUENTLY LOW IN BOTTOM WATERS</td>
</tr>
<tr>
<td>MINIMAL PLANTS</td>
<td>MODERATE PLANTS</td>
<td>ABUNDANT PLANTS</td>
</tr>
</tbody>
</table>

LAKE AGING is both natural and accelerated by human activities

Lakes NATURALLY age or become more productive over thousands of years. In recent geologic time, humans have enhanced the rate of nutrient enrichment and lake productivity, speeding up this natural process to tens or hundreds of years.

HUMANS introduce excess phosphorus enters the lake in eroding sediment, groundwater (e.g. aging septic systems), or stormwater runoff, which contains fertilizers, detergents, or other phosphorus-based products. Algal blooms and uncontrolled sediment erosion along the shoreline can decrease water clarity, which can reduce shoreline property values.