LAKE IVANHOE 2017

LAKE BASICS  BACKGROUND INFO
Site Depth  2 Ivanhoe – 20 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

SITE STATUS  SUMMARY OF CONDITIONS
WATER CLARITY  5.6
TOTAL PHOSPHORUS  9.3
CHLOROPHYLL A  2.1
DISSOLVED OXYGEN

TROPHIC STATE  OLIGOTROPHIC
At site 2 Ivanhoe, water quality fairly good. Water clarity is holding steady, while chlorophyll a is slightly increasing and phosphorus is slightly decreasing.

CURRENT  poor  good  excellent  no data
TREND  degrading  improving  flat  too few data

SITE RESULTS  ANNUAL WATER QUALITY PATTERNS

LAKE IVANHOE 2017
WATER QUALITY REPORT 2 IVANHOE
LAKE IVANHOE 2017

WATER QUALITY REPORT 1 ROUND POND

SITE STATUS  SUMMARY OF CONDITIONS

**WATER CLARITY** | **5.0**

**TOTAL PHOSPHORUS** | **8.9**

**CHLOROPHYLL A** | **2.1**

**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 2017

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 Lakes Watershed **MANAGEMENT PLAN**

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### WATER QUALITY REVIEW

**LAKE PRODUCTIVITY** is determined by multiple factors, including

**WATER CLARITY** Water clarity is used as an indirect measure of algal productivity, but is also influenced by suspended sediments and dissolved color.

**PHOSPHORUS** A key nutrient that stimulates algal blooms and excessive plant growth, particularly for invasive species.

**CHLOROPHYLL A** A green pigment found in plants and algae, it is used to estimate algal biomass. Algal growth is promoted by phosphorus, increasing chlorophyll.

**DISSOLVED OXYGEN** Low dissolved oxygen can kill or stress organisms and release phosphorus from sediments, further degrading water quality.

### LAKE TROPHIC STATE

**OLIGOTROPHIC**

- **DEEP**
- **LOW**
- **LOW**
- **HIGH THROUGHOUT WATER COLUMN**
- **MINIMAL PLANTS**

**MESOTROPHIC**

- **REDUCED**
- **MODERATE**
- **OCCASIONALLY LOW IN BOTTOM WATERS**
- **MODERATE PLANTS**

**EUTROPHIC**

- **SHALLOW**
- **HIGH**
- **HIGH**
- **FREQUENTLY LOW IN BOTTOM WATERS**
- **ABUNDANT PLANTS**

### LAKE AGING

**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.