

SITE STATUS SUMMARY OF CONDITIONS

4.1  WATER CLARITY

7.9  TOTAL PHOSPHORUS

3.9  CHLOROPHYLL A

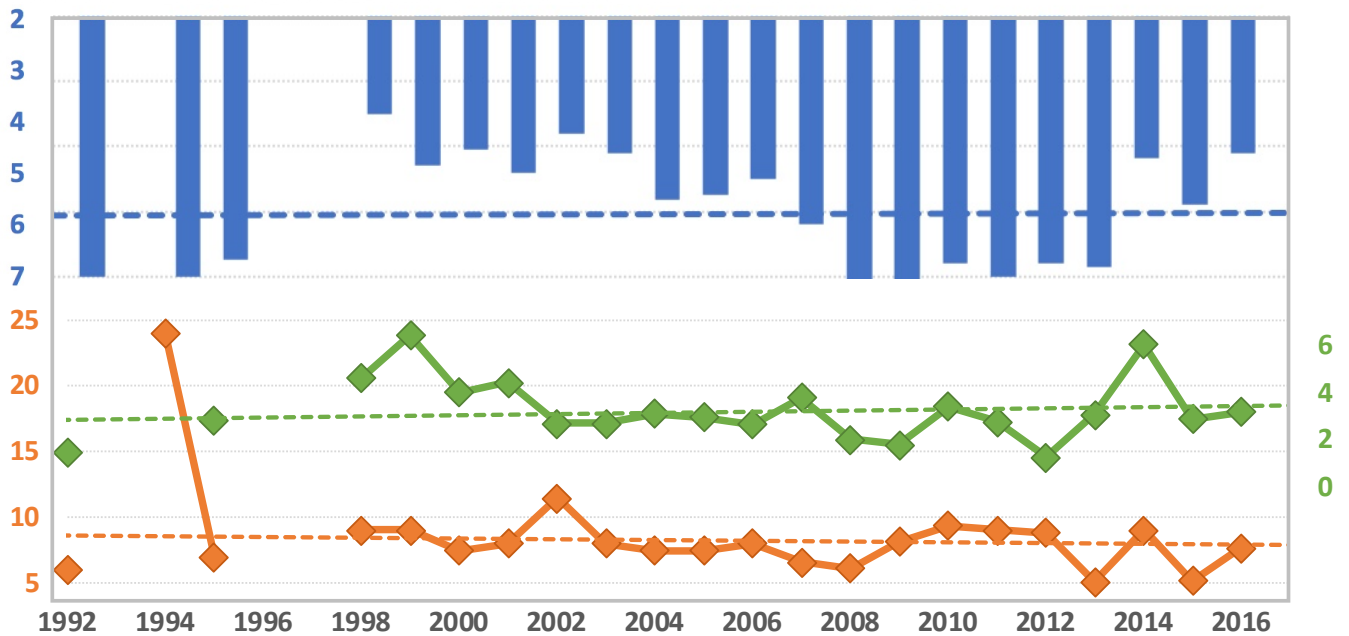
 DISSOLVED OXYGEN

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.

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

SITE RESULTS ANNUAL WATER QUALITY PATTERNS



WATER CLARITY (m) CHLOROPHYLL A (mg L⁻¹) TOTAL PHOSPHORUS (mg L⁻¹)

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

4.1  **WATER CLARITY**

8.6  **TOTAL PHOSPHORUS**

5.2  **CHLOROPHYLL A**

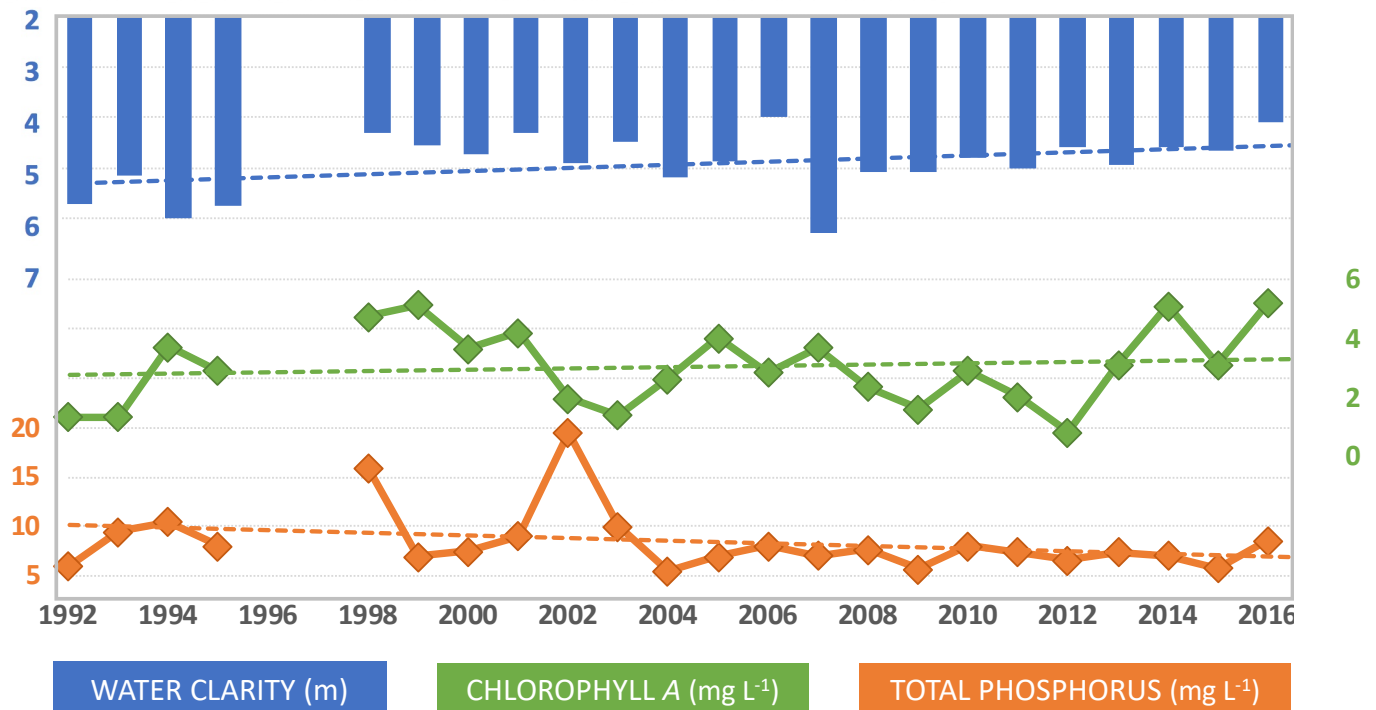
 **DISSOLVED OXYGEN**

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.

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

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



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

LEARN MORE ABOUT LAKE HEALTH

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.

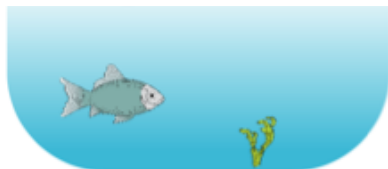
CHLOROPHYLL A A green pigment found in plants and algae, it is used to estimate algal biomass. Algal growth is promoted by phosphorus, increasing chlorophyll.

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

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

LAKE TROPHIC STATE is generally broken into three categories

OLIGOTROPHIC



DEEP
LOW
LOW
HIGH THROUGHOUT WATER COLUMN
MINIMAL PLANTS

MESOTROPHIC



REDUCED
MODERATE
MODERATE
OCCASIONALLY LOW IN BOTTOM WATERS
MODERATE PLANTS

EUTROPHIC



SHALLOW
HIGH
HIGH
FREQUENTLY LOW IN BOTTOM WATERS
ABUNDANT PLANTS

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.



Extension

