

SITE STATUS SUMMARY OF CONDITIONS

WATER CLARITY



4.9

TOTAL PHOSPHORUS



7.1

CHLOROPHYLL A



3.9

DISSOLVED OXYGEN



1.7

TROPHIC STATE

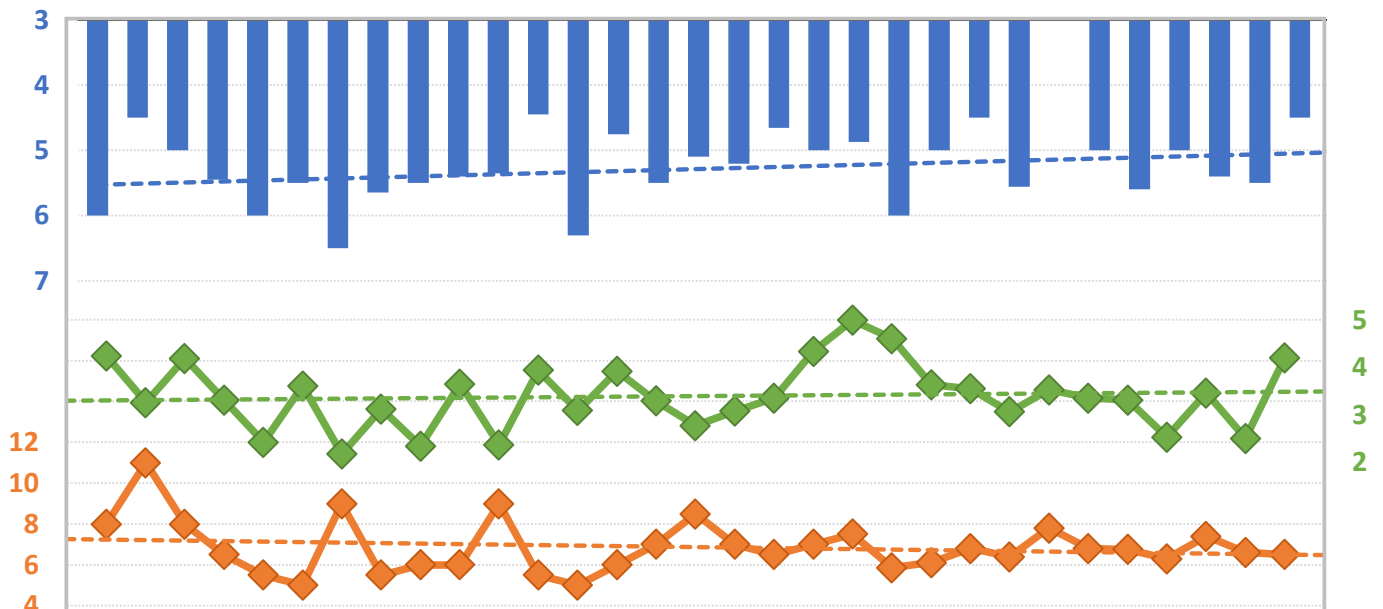
OLIGOTROPIC

At site 1 Deep, water quality is generally good. While decreasing phosphorus concentrations show improving water quality, water clarity is decreasing. Very low dissolved oxygen in the deep layer reveals potential for internal phosphorus loading, which could result in degraded water quality.

CURRENT ■ poor ■ good ■ excellent ■ no data

TREND degrading improving flat too few data

SITE RESULTS ANNUAL WATER QUALITY PATTERNS



1986 1988 1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018

WATER CLARITY (m)

CHLOROPHYLL A (mg L⁻¹)

TOTAL PHOSPHORUS (mg L⁻¹)

LAKE BASICS BACKGROUND INFO

Site Depth	1 Deep – 56 feet
Lake Max/Mean Depth	56 feet / 12 feet
Location	Wakefield, NH (Carroll Co.)
Watershed Area	12.2 square miles
Lake Area	593 acres
Shore Length	12.2 miles
Lake Volume	8.5 million cubic meters
Flushing Rate	2.2 times per year
Lake Elevation	582 feet



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PINE RIVER POND 2017 LAKE STATUS AND FUTURE CONCERNS

LOW DISSOLVED OXYGEN at 1 Deep indicates susceptibility to internal phosphorus loading, which could increase the amount of phosphorus available to stimulate plant and algal growth.

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.

Pine River Pond has a **LAKE HOST** program and no record of invasive species.

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.

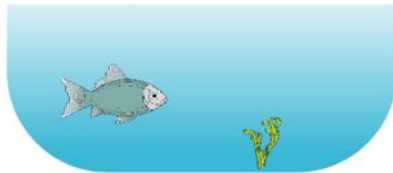
CHLOROPHYLL A A green pigment found in plants and algae, it is used to estimate algal biomass. Algal growth is promoted by phosphorus, increasing chlorophyll.

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

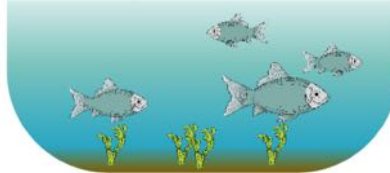
LOW

LOW

HIGH THROUGHOUT
WATER COLUMN

MINIMAL PLANTS

MESOTROPHIC



REDUCED

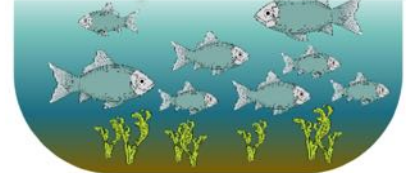
MODERATE

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.



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