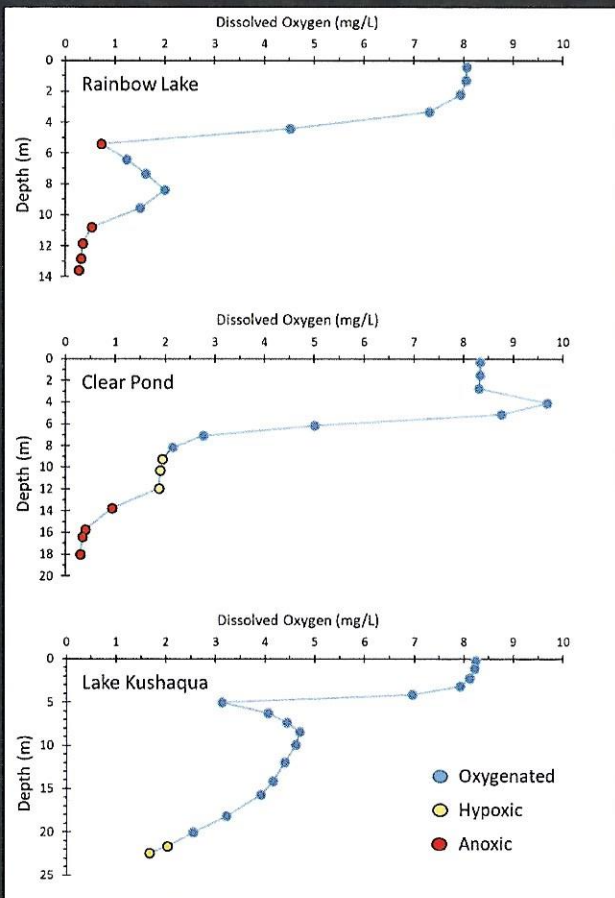




Oxygen profiles in the Rainbow Lake chain during late August of 2019.

All three lakes in the chain experience oxygen depletion in the bottom strata. When lake sediments contain high amounts of organic material, bacterial decomposition consumes all of the available oxygen, resulting in hypoxia (low O_2), or anoxia (no O_2).

Rainbow Lake experiences the most extreme oxygen reduction in the lake chain. By the middle of August, over 35% of the water column above the deep hole is anoxic. Depleted oxygen along the bottom reduces habitat space for sport-fish and allows phosphorus to leak out of the sediment and build in the water column.

HELP PROTECT THE RAINBOW LAKE CHAIN

- If you have a dry sump-style septic system, make a plan for its replacement. The system should be away from the lake shore and designed using holding tanks and a leach field.
- Have your septic system pumped every 3-5 years and inspect it annually.
- Refrain from using fertilizers on your property and maintain a natural shoreline.
- Limit the use of rock salt during winter months.

The mission of the Adirondack Watershed Institute is to protect clean water, conserve habitat, and support the health and well-being of people in the Adirondacks through science, collaboration and real world experiences for students.



For more information on the Rainbow Lake Chain Limnology and Water Quality Program, please contact:
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RAINBOW chain of lakes

water quality update 2020

(based on 2019 survey)

Funded by the Rainbow Lake Association and the Paul Smith's College Adirondack Watershed Institute

HOW'S THE WATER?

The Rainbow Lake Association and the Paul Smith's College Adirondack Watershed Institute have collaborated to continue a comprehensive water quality monitoring program first initiated in 1997. Now, over 20 years later, the program represents an excellent example of long-term monitoring in the Adirondacks. Long-term datasets are essential for evaluating ecosystem response to disturbance, providing a baseline to evaluate change, and detecting responses to management or intervention.

In general, the water quality of the Rainbow Lake Chain is quite good. The lakes have seen a historical reduction in phosphorus availability in the surface water, and significant algae blooms and cyanobacteria problems have not been reported in recent years. The relatively low transparency of Rainbow and Kushaqua is likely due to elevated dissolved organic material from large wetland tracts in the watershed. All three lakes are slightly acidic to circumneutral in terms of their acidity, with pH values ranging from 6.2 to 6.8. The lake chain possesses relatively high alkalinity, ranging from 10 to 22 mg/L, indicating that the water is well buffered from the negative effects of acid deposition.

A detailed explanation of water quality indicators and historical trends can be found in the 2017 report: **Rainbow Lake Chain Water Quality Report**. The full report is available at the AWI website: www.adkwatershed.org

STATUS



TREND



WATER QUALITY INDICATORS

			RAINBOW LAKE		CLEAR POND		LAKE KUSHAQUA	
			STATUS	TREND	STATUS	TREND	STATUS	TREND
PHOSPHORUS	An essential nutrient for lake productivity. High phosphorus levels stimulate excess algae growth.	Surface water						
		Bottom water						
ALGAL BIOMASS	Excessive algal growth is aesthetically displeasing and results in depressed oxygen concentration. Some cyanobacteria can release toxins, which may be harmful to humans and pets.	Algae						
		Cyanobacteria						
WATER CLARITY	The clarity of the water is influenced by algae as well as dissolved organic material.	Transparency						
ACIDITY	Long-term acid deposition has influenced the chemistry and biology of many Adirondack lakes.	Water pH						