

# The Memory of the Mud: Paleolimnology reveals the impact of climate change on modern cyanobacterial bloom occurrence

**WHAT IS PALEOLIMNOLOGY?** Greek: paleon = old, limne = lake, logos = study

Paleolimnology is a multidisciplinary science that uses the physical, chemical, and biological information preserved in aquatic sediments to track past changes in ecosystems.

## Benefits of paleolimnology

- Understanding the past is key to putting environmental issues in context.
- Baseline conditions are critical to establish realistic and ecologically relevant management targets.
- Paleolimnology can be used to study the past when current monitoring data does not exist.

## CLIMATE CHANGE AND CYANOBACTERIAL BLOOMS

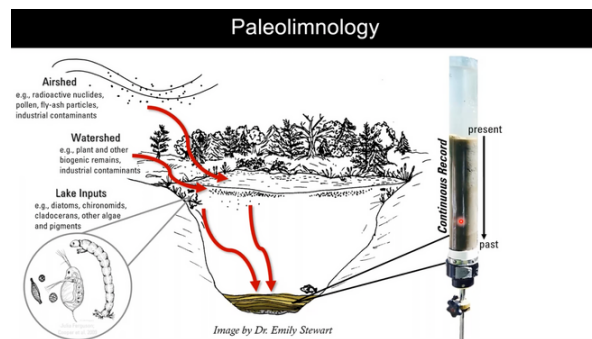
- Cyanobacteria (blue-green algae) are among the most ancient organisms on Earth. When in balance, they are essential and beneficial parts of an ecosystem.
- Blue-green algal blooms can be natural. However, they can have ecosystem-level impacts, including the production of toxins that affect water quality, wildlife, and human health.
- Algal blooms are increasing in frequency and severity with nutrient pollution and climate change.

## MANAGEMENT RECOMMENDATIONS

- The best way to control algal blooms is through prevention.
- A best practice includes minimizing nutrient concentrations by reducing nutrient runoff from a catchment.
- Research is critical for identifying lakes or areas of lakes that are most at-risk of developing climate change cyanobacterial blooms.
- Continuous long-term monitoring of water chemistry, temperature, and oxygen profiles are essential to management.

## ADDITIONAL RESOURCES

- Read [publications](#) about paleolimnology, cyanobacterial blooms, and climate change.
- Learn about the programs [Love Your Lake](#) and [The Natural Edge](#) to help naturalize your shoreline and protect the health of your lake or river.
- Read [resources and publications](#) by the North American Lake Management Society.
- Interested in monitoring phosphorus, calcium, and chloride in your local lake? Learn about the [Lake Partner Program](#).
- Watch "[The Ghost of Phosphorus Past](#)" Freshwater Stewardship Community webinar with Lamisa Malik.



Join the free Freshwater Stewardship Community!  
[watersheds.ca/freshwater-stewardship](https://watersheds.ca/freshwater-stewardship)

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