A Tale of Two Lakes: The effects of macrophytes on algal blooms in Calder Lake vs. North Lake
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Introduction
Calder Lake is a mesoeutrophic, 4-hectare lake with a dense community of submerged macrophytes, dominated by Vallisneria americana, while North Lake is a eutrophic, 7.7-hectare lake that has been bio-manipulated by the addition of sterile triploid carp to remove submerged aquatic vegetation. The two lakes are only ~10 km apart but have markedly different phytoplankton conditions. Following carp introduction in North Lake, submerged vegetation has declined to near zero cover, and the lake has experienced yearly cyanobacteria blooms linked to elevated nitrogen and phosphorus conditions. This study aimed to assess the influence of V. americana on susceptibility to algal blooms.

Methods
Eight, 100L tubs were used at each site
Treatments: (+) Macrophyte, No macrophyte X Replicates A-D
(+) Macrophyte: 5 pots with sediment X 3 plants
No macrophyte: 5 pots with sediment
Analytical variables: Nitrate, Soluble Reactive Phosphorus, Total Phosphorus, Chlorophyll a
Probe measurements: Water temperature, Dissolved O₂, % O₂ Saturation, pH, Conductivity
Sample Times: Days 0, 2, 4, 6

Results

Vallisneria americana

V. americana is an aquatic plant native to North America and is common in many freshwater ecosystems. It colonizes river and lake bottoms at depths of 0 to 5 meters.

Hypothesis
In the absence of macrophytes, there will be a greater abundance of algae.

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