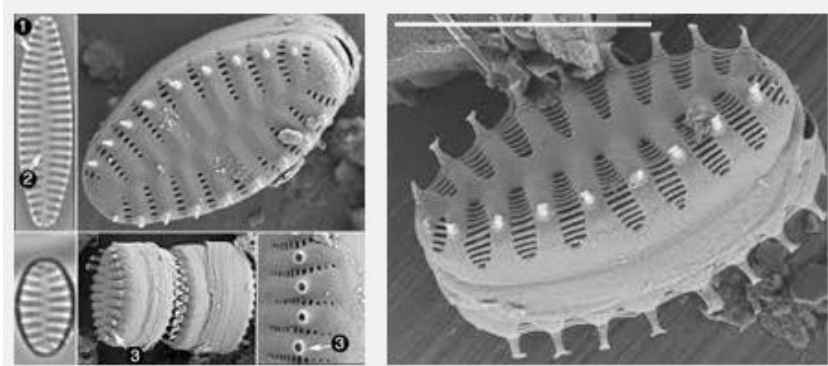


Research Paper on White Lake Water Quality is Published

A research paper on White Lake was recently published in the *Journal of Lake and Reservoir Management*, which is a highly respected publication read by lake scientists around the world. The paper was entitled ‘*Assessing the ecological responses of a shallow mesotrophic lake to multiple environmental stressors using paleolimnological techniques.*’ The [paper](#) was the result of a three-year collaboration between Prof. Jesse Vermaire’s research group at Carleton University and White Lake Environment Volunteers, and was co-authored by Michael J. J. Murphy, Branaavan Sivarajah, D. Conrad Grégoire and Jesse C. Vermaire.

Paleolimnological studies involve the study of diatoms in lake sediments in order to gain information about water quality changes over time. Diatoms, like those shown on the right, are the skeletal remains of microscopic plankton. Different species



of diatoms thrive in different environments and so the study of these can be used to reveal the history of lake water quality for the last several hundred years or even longer periods.



Prof. Jesse Vermaire and Conrad Grégoire taking a sediment sample for study

The findings of the study indicate that White Lake has contained moderate amounts of nutrients for at least the past 200 years. Recorded in the sediments are significant changes in water quality starting in the 1890s when there were logging and land clearance activities. However, the largest single change in the diatom assemblage, and hence water quality of White Lake, was correlated to water level changes resulting from the damming of the lake in 1845 and subsequent alterations to the water level management plan up to the present day.

The research also revealed increasing amounts of nutrients entering the lake as a result of human activity resulting in a deterioration in water quality. The study also found that impacts of future shoreline development should be assessed while taking into account that there are several co-occurring stressors which together have an amplified impact on water quality. These include climate change and invasive species such as zebra mussels and Eurasian milfoil. A sign of the need for careful management are the annual algal blooms which have occurred in White Lake since 2013.

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