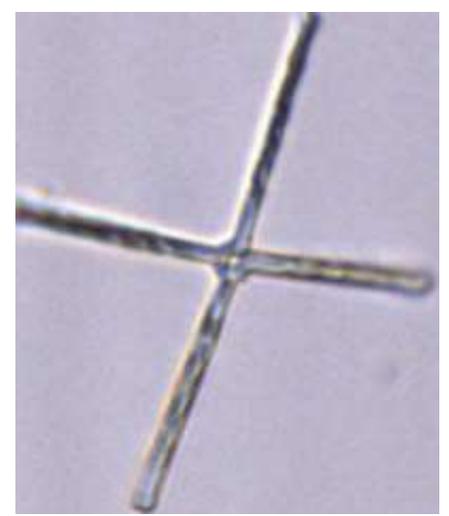


WESTERN UNIVERSITY

A July/August Update from the Dr. Creed/Trick Lab



A QUICK SNAPSHOT:

- 1) Lake Dickson Algae Bloom Assessment
- 2) Preservation Experiments
- 3) Ugandan Phytoplankton

UPCOMING:

- 1) Ontario Lakes Sampling Campaign
- 2) Microplastic Experiments
- 3) Fanshawe Lake Monitoring

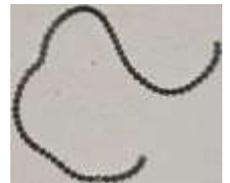
LAKE DICKSON

In 2014 Dickson Lake in Algonquin Provincial Park experienced an algal bloom that concerned many. The specific cause remains unknown. Unfortunately, Dickson Lake has once again experienced a bloom which has sparked a great deal of concern for managers. The Trick/Creed lab has been working alongside the Ministry of Natural Resources and Forestry (MNRF) and the Ministry of the Environment and Climate Change (MOECC) to investigate these unusual and troubling blooms. The FlowCAM® has been a very useful tool for this task. During various stages of the bloom samples from the lake were taken and immediately processed. These samples revealed the extent and composition of the bloom including coarse concentrations of potentially toxin-producing species of cyanobacteria as well as the relative percentage of these species as part of the phytoplankton community. The FlowCAM® was an invaluable tool during times of peak biomass and enabled members of the lab as well as scientists at Algonquin Provincial Park to make timely assessments of the potentially harmful nature of the bloom. Dickson, along with other lakes in the region, will be continually monitored throughout the summer and fall with samples being taken to be analyzed by the FlowCAM®.



Bryant Oakes Sampling from Lake Dickson

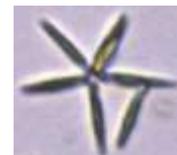
GETTING THE PICTURE ON PRESERVATION



In broad-scale and/or long-term monitoring programs and sampling campaigns it is often impractical for phytoplankton samples to be analyzed immediately after collection. Thus, the sample preservation protocol in such studies is an important consideration. Through the rapid-counting and analysis capabilities of the FlowCAM® running a large number of natural samples to examine the effects of different preservation protocols is possible. The overall objective of this component is to evaluate the effect of common preservation techniques on the cell count, biovolume, and genus (or species when possible) diversity from samples of natural phytoplankton communities. Thus far we have tested two of the most common preservation techniques (Lugol's iodine/glutaraldehyde) observing their affects at various concentrations and experimenting with user modes, and storage periods.



Erika Freeman collecting samples in Alberta wetlands



UGANDA- A MISCOSCOPIC WORLD

Back from a trip to Uganda, Dr. Creed brought with her water samples from a collection of large and well-known lakes within the region – including Lake Victoria. These samples were analyzed with the FlowCAM® to examine phytoplankton genera from a different continent. The samples were then grown in batch cultures based on size fractions and further examined under the FlowCAM® to add to our growing library.

ON THE HORIZON

At the end of August 2015 the Creed/Trick lab will be sending a 6-person team into the field to sample communities of zooplankton and phytoplankton as well as plastics in the famous cottage country of Ontario- part of the Canadian Shield. The aim of the project will be to collect samples to inform our library, to assess changes in phytoplankton community structure with changing chemical parameters and to collect plastics from their “natural environment”. This campaign will reach over 30 lakes in the region and the FlowCAM® will play an important role in the analysis.

Experiments involving the isolation and classification of plastics from natural samples are also being tested in the upcoming months including the isolation of plastic fragments from common household products.

London, Ontario is home to Fanshawe Reservoir and Conservation Area which is a great recreational resource for the region. During the month of September we will be monitoring the reservoir regularly in order to observe changes in the species compositions of phytoplankton heading towards the end of the growing season.

