Urban freshwater environments are often being exposed to nutrient loading through groundwater movement and runoff of potent fertilizers. These nutrients impose imbalances that influence biological and chemical processes. The impacts are generally negative, causing onsets of algal blooms and widespread fluctuations in oxygen levels. Through an ongoing monitoring program, Rob Bowen of Diversified Scientific Solutions has been conducting surveys of dissolved oxygen, pH, oxidation-reduction potential, temperature, nitrogen and phosphorous at Swan Lake, in Victoria, BC, Canada.

Cyanobacteria play a key role in the oxygen production in this system as there is an abundance of the species *Aphanizomenon flos-aquae.* Over the last three years, it has been observed that the lake experiences a dramatic collapse of oxygen in the late summer leading to hypoxia and fish kills. Using a drop-down camera, pre-hypoxic conditions have shown an abundance of *Aphanizomenon flos-aquae* throughout the water column. Once hypoxia is established, *Aphanizomenon flos-aquae* are no longer visible within the water column.

In this study, an ASL Environmental Sciences' Acoustic Zooplankton Fish Profiler (AZFP) will be deployed over the late summer to collect data during this transitional period. There are a growing number of successful ocean deployments for this instrument to detect zooplankton and fish presence and abundance. Because *Aphanizomenon flos-aquae* are relatively large acoustic targets, it is hopeful that this new application of the AZFP will provide valuable insights into the dynamics of this freshwater system.

Underwater drop-down camera view of abundant suspended *Aphanizomenon flos-aquae*. Image taken approximately 0.75 m below surface. Filaments are typically about 1 cm in length.

Rob Bowen with Jay Rastogi (Swan Lake and Christmas Hill Nature Sanctuary site manager) and AZFP (photo credit Matt Stone).

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For additional information, please visit www.aslenv.com
or contact Jan Buermans jbuermans@aslenv.com
Phone: +1 250-656-0177 ext 125