



### **Summer LakeKeepers Methodology:**

Participants in the Summer LakeKeepers program were provided with a field manual in their probe kits, with an online version available at [www.alms.ca/summer-lakekeepers](http://www.alms.ca/summer-lakekeepers). Lakes were sampled up to three times during the open water season, from May 29th to September 30th. The sampling design allows participants to choose their lake of interest and sampling site(s). These sites can be historical sampling locations, the deepest part of the lake, or areas of particular interest or concern to the participant. Sampling is conducted from a boat at the selected sampling location.

Each participant received a sampling kit containing field sheets, a Secchi disk, a YSI ProSolo water quality probe (to measure dissolved oxygen (DO) and temperature), nutrient bottles with preservatives, a chlorophyll-a (ChlA) sample bottle and filtration kit, and a microcystin sample bottle. The kit also included nitrile gloves to protect volunteers from the sulfuric acid preservative and to maintain sample integrity during ChlA filtration. The Secchi disk was used to measure Secchi depth as a proxy for lake water clarity.

Profile measurements for DO and temperature were taken at 1-meter intervals starting at 0.1m depth until reaching the lake bottom. Nutrient and ChlA grab samples were collected near the surface, specifically at 0.5m depth. Nutrient samples were preserved with a 2mL sulfuric acid vial and submitted for two total phosphorus analyses (duplicate) and a single total Kjeldahl nitrogen (TKN) analysis. The ChlA sample was filtered onshore, and three separate filters were submitted for analysis to assess algae and cyanobacteria levels. A microcystin grab sample was also collected at 0.5m depth. Microcystin is a toxin produced by some species of cyanobacteria, and its levels indicate the toxicity potential of a lake bloom. In Canada, the Recreational Water Guideline for Total Microcystins is 10 µg/L.

In addition to water sampling, participants recorded environmental observations such as air temperature, wind direction and speed, 24-hour rainfall, and % cloud cover. They were also asked to observe for the presence of cyanobacteria blooms. GPS coordinates of the sampling location were recorded to ensure precise location tracking. ALMS coordinated the delivery of all samples to the respective analytical laboratories and the shipment of sampling kits to participants.

Data collected from each sampling event was compiled and formatted for upload to the Gordon Foundation's DataStream platform (<https://gordonfoundation.ca/initiatives/datastream>), and it was used for ALMS data visualization and reporting. Data analysis was performed using the R programming language.