

6.2.9 PROTOCOL FOR COLLECTING INTEGRATED AND/OR COMPOSITE INTEGRATED SAMPLES

Overview

The collection of a sample across a range of depths using equal volumes of sub-samples is referred to as depth-integrated sampling (e.g. spanning the euphotic zone). Composite integrated sampling is the collection of approximately equal volumes of sub-samples at various depths and sites. The samples are then pooled to form a single composite sample. Such a sample accounts for horizontal and vertical spatial heterogeneity and provides an estimate of average water quality. It can be used at several sites in a lake (area-integrated) or several sites across a stream (cross-section). The protocol detailed relates to the use of a sampling tube; however a Van Dorn or a Kemmerer sampler can also be used.

Sources

Alberta Environment (2006 a), Environment Canada (2009), US EPA (2005)

At a glance

Composite integrated samples can be made of individual grab samples. Ensure that the samples are collected according to the applicable protocols (e.g., Kemmerer sampler, multi-sampler, etc.) These samples can also be collected using a sampling tube as described below.

1 When collecting a composite integrated sample using a tube, rinse the sampling tube, sample bucket and lid three times with sample site water.

2 Place the sample bucket in a light proof container (or black plastic bag) to reduce light penetration and associated phytoplankton chlorophyll production. Place the open end of the sampling tube in the hole in the sampling bucket lid.

3 Lower the weighted end of the tube slowly (approx. 1 m per sec.) and vertically through the euphotic zone. If the depth of the sample site is less than the depth of the euphotic zone, only sample to within 1 m of the bottom.

check for sediment
4 Pull the tube up into the boat. Check for sediment in the water sample before it leaves the tube. If there is no sediment in the tube, invert the foot valve and drain the water into the sample bucket. If there is sediment in the tube, discard the sample, rinse the tube 3-5 times with lake water, move the boat a few metres, and repeat the haul to a shallower depth. If sediment gets into the sample bucket, discard the sample and start over.

5 Ensure that the sampling tube and bucket are well cleaned and rinsed.

Other sources

ISO 1987