12.2 PROTOCOL FOR BIOFILM SAMPLING – SAND-CORING METHOD

Overview

The sand coring method is used to quantitatively sample episammic benthic algae for chlorophyll-a or biomass determination. Some watercourses or sections of watercourses have sandy or silt substrates, these environments support communities of episammic algae. The template method is not appropriate for these soft substrates because algae are not attached to a defined surface: rather the algae are intermixed with the upper sediment layers. Coring techniques are far more effective to quantitatively sample algae from the upper layers of soft substrates.

Sources

Environment Canada (1999), British Columbia MWLAP (2003), Alberta Environment (2006 a)

At a glance

1. Place a clean Plexiglas liner in the barrel of the corer until the o-ring fits snugly.
2. Push the corer into the substrate and affix a rubber stopper to top of the tube.
3. Lift up the corer, but before it breaks the water surface place a cap on the bottom of the liner.
4. Remove the liner from corer and place a cap on top of it.
5. Remove the bottom cap and quickly place the liner on the core extruder and remove top cap.
6. Carefully push the liner down; this will dispel the overlying water.
7. Place the core slicer on top of the liner and push the core up into the slicer until the required depth of core is obtained.
8. Slice off the core and transfer it to a glass filtering apparatus equipped with a GF/C filter.
9. Gently (7 psi or 48 kPa) vacuum the core until dry.
10. Add 2 mL of saturated $MgCO_3$ per core (optional) and vacuum to remove water.
11. Carefully place the filter and core material in a 300 mL Nalgene container.
12. Rinse (with acetone) any remaining material on the funnel into the Nalgene container. Add approximately 25 mL of acetone for each core.
13. Shake the core/filter/acetone mixture for 1 minute.
14. Label the Nalgene container and field sheet with the date, site, depth of water, depth of core, number of cores, volume of acetone used, and sampler's initials.
15. Cool to 4°C and transport to laboratory.