

6.4 PROTOCOL FOR SURFACE LAYER SAMPLING

Overview

The surface micro-layer has been defined as the top layer of surface waters, approximately 50 microns thick. The micro-layer is important for aquatic habitats, as it is used by many species as their “nurseries” for egg and/or larval forms. Surface layer sampling is conducted to determine the presence of trace organic contaminants in surface films present in surface waters. The surface micro-layer can also be an area of high contaminant concentrations. A wide mouth vessel can be used to collect surface films. Efforts should be made to collect the sample using only 100 to 200 mL of dichloromethane (DCM) since too much DCM hinders analytical recovery of the contaminants. Drum rollers can also be used.

Sources

ISO (2008 a), BC WLAP (Undated)

Special safety concerns

Avoid coming in contact with DCM it may cause irreversible health effects. Ensure you have read the MSDS and use appropriate personal protective gear.

At a glance

Grab samples

- 1** Label bottles with the site name, sample date and sample type.
- 2** Do not rinse bottles. Do not touch the inside of the lid or bottle mouth.
- 3** Wearing suitable safety gloves, rinse the Teflon funnel with DCM from the squirt bottle. Catch all waste DCM into a closed container.
- 4** Hold the glass plate by the handle and rinse the other side of the plate using DCM from the squirt bottle. Clean entire area of glass plate and capture all waste DCM into a closed container.
- 5** Gently lower the glass plate until it comes in contact with the surface of the water. The plate and the water surface will form a natural adhesion. Hold plate to the surface for a fraction of a second then remove from water’s surface. Be careful not to submerge the plate below surface.
- 6** Insert Teflon funnel into trace organic bottle.
- 7** Rinse glass plate with DCM squirt bottle into the Teflon funnel. Rinse entire surface area of the glass plate collecting all the DCM into trace organic bottle. Collect about 100 mL – 200 mL of DCM.

keep glass plate on water surface

Drum roller

- 1** A drum roller can be employed over the side of a boat adjacent to the aft deck upstream from the vessel’s outboard motor.
- 2** Set the boat forward at a speed of between 2 and 3 knots to equal the drum speed and to minimize wave action on the

sampler. This speed may have to be varied depending on the actual sample conditions.

3 Hold the sampler off the hull of the vessel and apply pressure to the tray scraper of the rotating drum (Photo 8).

4 Estimate the area traversed in sampling. Do not cut across an earlier path of the vessel to avoid contamination from the vessel motor.



Photo 8. Use of drum roller
(Source: B.C. Ministry of
Environment (Undated))