

## 9.14 PROTOCOL FOR SAMPLING INVERTEBRATES FOR TISSUE

### Overview

The sampling of benthic invertebrates for tissue contaminant analysis is useful because it provides an indication of exposure or the bioavailability of contaminants in the sediment/water to biota. The sampling of contaminants in benthic invertebrates provides a measure of the current status of contaminants in the aquatic system. Yet it is important to note that this does not demonstrate that the contaminant is causing a detrimental effect to the organism it is simply a measure of exposure. Specifically, the determination of contaminant bioaccumulation in benthic invertebrates identifies the presence and concentration of contaminants in whole organisms, or specific organs and tissues, depending on the study objective and logistics.

### Sources

Alberta Environment (2006 a)

### At a glance

*rinse  
invertebrates*

- 1** One person will hold the screen/net into the current of the stream and another person will disturb the upstream substrate with feet and/or hand.
- 2** Bring nets/screens to shore. Place the net contents into several pans for easier sorting of invertebrates; screens can be examined directly.
- 3** Pick out the target invertebrates for tissue analysis. Candidates for tissue analysis will depend on study objectives and design.
- 4** Invertebrates of different taxonomic groups (Order, Family, or Genus) can either be a composite in one container, or into separate containers using forceps. Rinse the invertebrates with stream water (passed through the sampling mesh) prior to putting them into the sample containers to remove attached debris/sediment.
- 5** Sample container should be labeled with site name, date, taxonomic group, and analysis required.
- 6** Samples should be stored on dry ice immediately and deep frozen to -70°C within 24 hours.
- 7** Adequate notes should be kept describing site conditions, substrate, physical variables (temp, pH, DO, conductivity), and site latitude/longitude.
- 8** Variations of this protocol may incorporate gut depuration/clearance procedures and procedures to remove contaminants adsorbed to the surface of the sampled invertebrates. The objectives of the study will determine the variations required.