Macroinvertebrate sub-sampling

Equipment:

- Sub-sampling trays (two trays, one with a 250-micron mesh bottom)
- Tripod with sorting tray platform for field sorting (optional)
- Random number table or other random number generator
- Cookie cutter or other small square device, about 6 x 6 cm (optional)
- Denatured ethanol
- Storage vials, approximately 20 mL or 3-5 dram
- 1 – ½ gallon HPDE containers (field collection)
- Labels, clear tape and alcohol-resistant marking pens or pencils
- Forceps, small spatula and/or razor-blades
- Tally counter (optional)
- Dissecting microscope (10x – 60x zoom)
- Light source
- Macroinvertebrate taxonomic keys
- Data recording sheets

Procedure:

1. To sort the sample, place the composited sample into the mesh bottomed sorting tray, similar to the equipment described by Caton (1991); the tray is a 250-micron mesh bottom that is evenly divided into numbered sections.

2. Place the mesh bottomed tray into the plastic outer tray and add approximately 3 cm of water to facilitate the even distribution of debris. In the field, place the tray on a level tripod platform.

3. Evenly distribute the material in the tray and lift the mesh bottom tray out of the water.

4. Use the random number table to select a minimum of one-quarter of the sections. Use a cookie cutter or other similar device to segregate; remove the macro-invertebrates from the selected squares with a small spatula.

5. Distribute the contents of the four squares into a separate white plastic tray with a small quantity of clean water. All the macroinvertebrates are removed with forceps and placed in a labeled vial of alcohol. An inside paper and pencil label is recommended as well as an exterior label.

6. A minimum of 300 specimens or ¼ of the tray is sorted. If necessary, randomly select additional squares to attain the 300 organism minimum sample size. All organisms are completely removed from all sub-sampled squares to avoid biasing the macroinvertebrate sample toward the larger, more visible species. Using a tally counter is recommended. Keep track of the number of squares sub-sampled in order to estimate the original macroinvertebrate density in the stream.

7. Identify the macroinvertebrates to the taxonomic level desired.

Adapted from US EPA, River Network, Oregon DEQ and WVDEP Watershed Branch procedures; click-here for more information.

Macroinvertebrate sub-sampling

Below is an example of a sequence of random numbers used for sub-sampling macroinvertebrates from WV Save Our Streams modified Caton sub-sampling trays.

7	2	4	14	11
2	11	14	10	8
9	15	15	6	9
4	8	13	7	15
10	12	12	2	5
5	10	7	11	4
11	5	11	4	1
6	4	9	15	3
13	13	6	8	6
14	14	1	9	10
12	3	10	12	12
8	9	5	5	13
15	6	2	13	7
3	7	3	1	14
1	1	8	3	2
1	**2**	**3**	**4**	**5**

http://www.random.org/sequences/

Adapted from US EPA, River Network, Oregon DEQ and WVDEP Watershed Branch procedures; click-here for more information.

Stream Name _____ Basin _____
Collection Date _____ Station ID _____ County _____

ANNELIDA	COUNT	TRICHOPTERA	COUNT
BIVALVIA			
GASTROPODA			
		PLECOPTERA	
CRUSTACEA			
MEGALOPTERA			
		ODONATA	
EPHEMEROPTERA			
		COLEOPTERA	
		DIPTERA	
MISCELLANEOUS			
TOTAL			
TOTAL FAMILIES			

ID DATE _____ ID BY: _____ LAT |___|___|___| LON |___|___|___|

WV Save Our Streams

Outside of container

Inside of container

Outside of container labels (×6), each:

Stream Name _____
County _____ Date _____
Stream Code _____
Basin _____
Latitude _____ Longitude _____

Deg.	Min.	Sec.	Deg.	Min.	Sec.

Check the collection method used

Standard Kick-net	Rectangular Kick-net	D-net	Hand Picked

Collectors _____
Preservatives

Inside of container labels (×8), each:

Stream Name _____
County _____ Date _____
Stream Code _____
Basin