



Select a riffle typical of the stream, that is, a shallow, fast-moving area with a depth of 3 to 12 inches (8 to 30 cm) and stones which are cobble-sized (2 to 12 inches) or larger. Stone size is important since the macroinvertebrates surveyed prefer these stones for protection and food supply. In addition, the bubbling of the water over the rocks provides needed oxygen for healthy growth.

1. Place the kick seine perpendicular to the flow of water immediately downstream of the 1x1 foot area in the riffle you have selected to sample. The bottom, weighted edge of the net should fit tightly against the stream bottom. You may wish to use cleaned rocks from outside your sampling area to hold the net firmly to the bottom. This will prevent insects from escaping under the net. Tilt the net back, so the water flowing through the net covers a large portion of the net, however, be careful not to tilt the net so much that water flows over the top, allowing organisms to escape.
2. Quickly sample the targeted area for 20 seconds. To sample, lift and rub underwater all large rocks in the sample area to dislodge any clinging organisms. Rub all exposed surfaces of rocks in the sampling area that are too large to lift – do the rock-rubbing for about 15 seconds. For the final 5 seconds, dig around in the small rocks and sediments on the streambed in order to dislodge any burrowing macroinvertebrates.
3. After sampling for 20 seconds, carefully rub off any rocks used to anchor the net. Then remove the seine with an upstream scooping motion to keep all the macroinvertebrates in the net.
4. Place the net on a flat, light colored surface, such as a white sheet, table, or piece of plastic. This makes the organisms easier to see. Using tweezers or your fingers, gently pick all the macroinvertebrates from the net and place them in your collecting container. Carefully look on both sides of any debris in the sample, as many insects will cling to any available litter. Any moving creature is considered a part of the sample. Look closely for very small organisms and take your time. It is important to thoroughly pick all the organisms from the net. Once you have sorted all the organisms off the net, lift the net and examine the underlying area. Collect any organisms that have crawled through the net. Again, it is important to collect all these organisms to have an accurate sample.
5. Once all the macroinvertebrates are removed from the seine, count the number of organisms in the sample. If at least 200 organisms have not been sampled, another net must be collected from a different area in the same riffle. The organisms from the second net will be added to the first. The length of sampling time can be adjusted depending on the number of organisms collected in the first, with the maximum sampling time per net being 90 seconds. For subsequent nets, do the rock rubbing for about $\frac{3}{4}$ of the time you are sampling and substrate disturbing (scraping) for $\frac{1}{4}$ of the

time. The second net and area beneath are again sorted in their entirety. Again the organisms are counted, and a third net will be collected if 200 organisms have not been obtained. This process is repeated until at least 200 organisms are found or 4 nets are collected, whichever is first. Each net collected must be sorted in its entirety, even if that leads to a sample of well over 200 organisms.

6. Once at least 200 organisms have been obtained, separate the organisms into look-alike groups. Use primarily body shape and number of legs and tails, since the same family or order can vary considerably in size and color. Use the tally sheet and macroinvertebrate key to aid in the identification process. Record the number of individuals you find in each taxonomic group on the tally sheet. Include the total number of organisms in the sample on the lower right corner of the tally sheet. Follow the tables attached to the tally sheet to calculate the individual metrics and the final ecological condition score.

If you have questions about the stream survey instructions, contact:

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