

Licking County Soil and Water
Conservation District

Stream Team:
Biological Survey



Biological Survey

The stream biological survey is based on the sampling of macroinvertebrates and other aquatic organisms living in the stream. For this survey you will be collecting and identifying macroinvertebrates in the field and calculating a stream quality rating.

Step 1: First you will need to identify your three sampling areas and indicate them on your site sketch/photo that you completed of the area. When sampling always start down stream and work up stream so when you disturb the area you are not disturbing your sampling data. Your three sampling spots should be marked as Site 1 – farthest down stream, Site 2 – is the middle site and Site 3 – is the furthest upstream.

Step 2: Gather your equipment and start at Site 1. Remember, Site 1 is the sampling site farthest downstream.

Fill a sampling container half way with water from the stream. This will be used to collect all of the macroinvertebrates that you catch.

When entering the stream you should always enter downstream and walk up stream to sampling site to minimize the possibility of biasing your second and third collection sites.

You will be using a kick or a dip net to collect the specimens. First make sure the net(s) are clean. Next enter the stream very carefully. To use the kick net you will have one person hold the net handles open at a 45 degree angle to the waters surface. The net should be opened so that the stream is flowing through the net. Be sure to secure the bottom of the net so it fits tightly against the bottom of the stream bed with a few rocks. Do not allow the water to flow over the top of the net.

The second person will be the collector. This person will gently pick up rocks from the stream bed turn them over and look for macroinvertebrates. Once they place visual specimens in the collecting bucket filled half way with water they can gently rub the rest of the rock with their hands under the water and in front of the net, allowing anything they might have missed flow into the net. After they have wiped all the large rocks with your hands you should thoroughly stir up the sampling area with your feet. This will dislodge hiding or burrowing organisms. As a guide you should disturb the area for approximately 60 seconds.

Step 3: Remove your anchors and carefully pick up the net. Be careful that you do not allow any of your collected organisms to float away.

Step 4: Observe what type(s) of aquatic organisms you collected by placing them in your collecting bucket.

Step 5: Wash off net and complete sampling of Site 2 and Site 3. Put the samples from all three sites into the same bucket.

Step 6: Sort and Identify your macroinvertebrates by using the taxonomic key provided. Use body shape, size and other characteristics to identify the organisms. Record the results on the Biological Monitoring Data Sheet.

Step 7: Calculate stream quality rating. The stream quality rating takes into account the pollution sensitivity of the organisms and their diversity. Macroinvertebrates are classified into three categories based on their pollution tolerance or sensitivity. A stream quality rating is calculated by estimating the

number of specimens in each sensitivity category (Rare (R = 1-9); Common (C =10-99); Dominant (D = 100 +)); multiplying the number of types of organisms in each category by a weighting factor; adding the scores; and comparing the results to a stream quality scale.

Step 8: Check for completeness of the Biological Survey and return all organisms safely to the stream after sampling and data collection is completed.