



Macroinvertebrate Sampling Protocol (The Cheat Sheet)

***** **If you do not feel comfortable – DO NOT SAMPLE** *****

Fill out Field Data Sheets completely! Remove flagging tape after sampling!

Establish sample station

1. The sampling station should be established on the upstream side of the road crossing.
2. Using the 100 ft. tape, measure a distance of 30 ft. upstream and away from the road crossing. This is to ensure the station will be established outside of the influence of the road crossing. If additional distance is needed to achieve this, continue measuring. Record the distance from the road crossing to the start of the station on the Field Data Sheet and place a piece of flagging tape or other noticeable landmark (such as a stick or rock) on the stream bank to mark the start of the sample station.
3. Measure 300 ft. from this point. We recommend breaking the 300 feet up into 100-foot sections. Place a piece of flagging tape or other noticeable landmark on the stream bank to mark at every 100 feet and at the end of the sample station. While walking along, make note of the types of habitats available and how abundant they are (see the “Examples of Macroinvertebrate Habitats” color sheet for help). You should measure the distance within the stream channel or immediately on the stream bank.
4. If this is a return-visit to the site, look at a previous Field Data Sheet for establishing the station in the same manner as was done previously.

Select habitat proportions and number of jabs

1. As you walk back to the start of the station, look at the types of habitats available and discuss with your partner what you think the percentage (out of 100%) each habitat represents within the 300 ft. station. The habitat categories are listed on your Field Data Sheet, and picture examples are given on the “Examples of Macroinvertebrate Habitats” color sheet. Habitat does not equal substrate; you are identifying all of the HABITATS in the stream. These habitats are sometimes correlated with sediment type on the bottom of the stream but not limited to sediment type. For example if you have a stream with a mostly sandy bottom, you would not call it all “hard bottom,” you would look for and identify all of the habitat categories you can find within the stream.
2. Decide on the habitat percentages and fill out the Field Data Sheet with the percentages. This will correlate with the number of jabs within each habitat you will collect. You will end up with a total of 10 jabs within the 300 ft. station. You should try and make this proportionate to the habitat percentages. For instance, if there are 50% hard bottom habitats, then 5 of the 10 jabs will be taken within this habitat type, if there are 20% undercut banks, then 2 of the 10 jabs will be taken from that habitat type.

Collect the sample

1. Work from the downstream end of your station to the upstream end. Work with your partner to keep track of the number of jabs you have taken as you go.

2. A single jab into an undercut bank or overhanging vegetation, aquatic plants, and snags consists of forcefully thrusting the net into the habitat for a distance of 1-2 ft., accompanied by sweeping the area with the net to capture all dislodged macroinvertebrates. A single jab in hard bottom habitats is a stationary sampling accomplished by positioning the net and disturbing the substrate (shuffling your feet on the bottom of the stream) at a distance of 1-2 ft. upstream of the net. A jab into a leaf pack involves positioning the net downstream and dislodging the leaf pack over about a 1-2 ft. distance into the net.
3. There is no set amount of time that a jab should take. The most important thing is to thoroughly disturb and dislodge the organisms present in the 1-2 ft. area you are sampling. Feel free to take a jab for 20-30 seconds and then check the net to see what you have found. You can always repeat the jab within the same area to make sure you have thoroughly sampled the habitat. If clogging does occur that may hinder obtaining an appropriate sample, discard the material in the net and redo that portion of the sample in the same habitat type but in a different location.
4. After each jab is collected, dump the net contents into the wide pan in your kit. Be sure to inspect the inside of the net to see if any macroinvertebrates are still clinging on. Pick those off the net and put them in the pan.

Clean, pick, and preserve the sample

1. The sample (which will be in the wide pan) will likely contain rocks, leaves, sticks, sand, and other material that will need to be thoroughly picked of macroinvertebrates and discarded. All macroinvertebrates picked from this material are part of the sample and must be collected and put into the collection jar with the ethanol preservative. This process can occur as the sample is being collected and completed once all 10 jabs have been collected.
2. Pick ALL macroinvertebrates from the wide pan and place them in the glass sample container half-filled with 70% ethanol. It will be easier to see the macroinvertebrates and pick them if you remove as much large debris from your sample as possible as you go, so you are left with a wash tub full of macroinvertebrates and stream water.
3. **The goal is to collect 125 specimens.** As you and your sampling partner pick out macroinvertebrates, make sure you are counting them as they are placed in the jar. If at the end of picking through your sample of 10 jabs you do not have 125 specimen, you should return to the stream and take more samples. Try to samples from habitats in a way that is representative of your habitat percentage breakdown. For example, if most of your habitat is hardbottom, try to do most of your extra jabs there. If those sites turned out to be unproductive, then jab in places you know you'll find macroinvertebrates, and make a note on your datasheet stating so.
4. Fill out the sample label with the site, date, and sampler's names. You've completed your sample collection!

Conduct habitat assessment and estimation of flow

1. Before or after collecting and preserving the macroinvertebrate sample, complete the habitat assessment portion on the Field Data Sheet. Consider the whole 300 ft. station as you fill out each section.
2. Measure flow at one spot within the 300 ft. station. Find a straight stretch of stream and measure a distance of 10 ft. with the measuring tape. Have one person drop the float (such as an apple, orange, or a small stick) and the other person measure the time it takes the float to travel 10 ft.
3. Take a total of four flow measurements at the same spot in the stream; two from high velocity water and two from low velocity water.

4. Also measure the wetted width of the stream in this section and take depth measurements at one-foot intervals across the stream at this location. Record your measurements on the Field Data Sheet.

Complete site sketch

1. Sketch major features and mark the areas from which samples were taken.