

Collecting freshwater macroinvertebrate samples



There are a number of methods that can be used to sample macroinvertebrates in freshwaters. The most appropriate depends upon the purpose of the sampling. Individual recorders also tend to develop their own styles which are tailored for specific organisms. Detailed below are two generalised sampling methods that are used for small, shallow flowing and still waters, and enable the capture of a diverse range of freshwater macroinvertebrates. These methods are qualitative but are standardised enough to allow comparisons between samples.

Stream sampling method (kick-sampling)

The typical sampling method for streams and rivers involves a three minute kick/sweep sample using a standard 1 mm mesh pond (hand) net. It is important to move around the site during this time to sample the different habitats in the stream, such as fast moving riffles, shallow water, slow water, weeds and tree roots. This should ensure that the full complement of animals at the site is represented in the sample.

Once the different habitats have been identified, divide the total sampling time (three minutes) proportionally according to the relative habitat areas. Place the pond net on the riverbed and disturb (with foot, kicking motion) the area just upstream of the net for the time allocated to that habitat type. The animals will then be carried downstream by the current into the net. For the weeds and tree roots, sweep the net through the area for the allocated time. It is also advisable to carry out an additional one minute hand search of large stones by gently rubbing the stones in the water letting any animals be carried downstream into the net. Be careful as there may be glass, metal or other sharp objects on the riverbed.



Fill your white tray with river water to a depth of a couple of centimetres and then lower the net into the water in the tray, carefully turn inside out, and shake gently, to release the contents for examination. If you have collected a large sample or lots of debris, it may be necessary to examine the contents by taking sub-samples. To do this you will need to empty the contents of the net into a bucket half filled with water. Remove a sample from that bucket using a kitchen sieve or similar, and empty the contents into your tray. When you have finished examining the sample, empty the contents into a second bucket or put it back into the river. Continue taking sub-samples until your first bucket is empty.

Pond sampling method

As with sampling streams and rivers, the macroinvertebrate sampling method for ponds involves a three minute net sample plus an additional one minute search for animals which may otherwise be missed in the three minute sample. It is advisable to carry out the one minute search before the net sample as the water will be disturbed during the net search. Areas to search for the additional one minute sample include the water surface and under stones and logs.

As with the stream sampling method, divide the sampling time equally between the different habitat types. Each habitat type should be netted vigorously for the allocated time. You should lightly kick stony or sandy substrates to dislodge the macroinvertebrates.

Try and avoid netting deep accumulations of soft sediment, large accumulations of plant material and root masses, as it makes subsequent sorting difficult. The netted sample should be as debris and silt-free as possible.

As above, the net should then be lowered into the water in the tray, carefully turned inside out and shaken gently, to release the contents.