BENTHIC MACROINVERTEBRATES

What are benthic macroinvertebrates?

Benthic macroinvertebrates are small organisms that live in and on the bottom of waterbodies. These organisms do not have backbones and include insects, worms, molluscs, and crustaceans.

How do we measure them?

Sampling for benthic macroinvertebrates occurs in wadeable streams and smaller rivers typically once or twice a year in the spring and/or fall. Organisms are collected by stirring up the stream bed, picking up and rubbing rocks, or disturbing habitats and catching benthic organisms in a net. After collecting the samples, the benthic species are identified and counted, either in the field or the sample is preserved and sent to a lab for analysis. Benthic sampling is typically done by a team with a minimum of two participants.

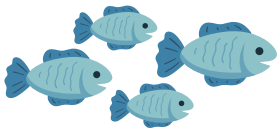
Equipment	Cost	Monitoring Time
Kick-net (Rocky streams), Field identification to order level	$	3–4 hours
D-net (Muddy streams), Field identification to order level	$	3–4 hours
D-net, Lab identification to family/genus level	$$$	1–1.5 hours

Photo by the Izaak Walton League of America.

Why do we care?

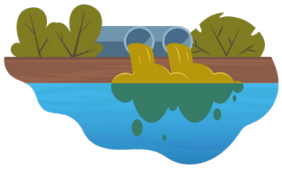
Aquatic Life

Benthic species provide the foundation for a healthy aquatic food web. Fishes, birds, and amphibians all rely on benthic organisms as a food source.



Pollution

Benthic macroinvertebrates are easily harmed by pollution. When high levels of pollution are present, benthic organisms cannot survive.



Stream Health

Changes in stream hydrology, temperature, salinity, or pH affect benthic species. Relatively small changes in environmental conditions over the course of a season are reflected in the composition of a benthic sample.

How is my water?

Healthy streams are home to an abundant and diverse community of benthic macroinvertebrates. Streams with fewer species and lower numbers show poorer stream conditions. The presence and number of species can be used to calculate a stream health score.

PLEASE NOTE:

This fact sheet provides general information about benthic macroinvertebrates, but monitoring in specific locations may require more detailed methods and considerations.