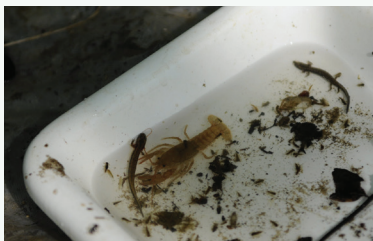


My Backyard Stream

Macroinvertebrates

Key Terms



Bioindicator

An organism whose status in an ecosystem is analyzed as an indication of the ecosystem's health



Substrate

The surface or material on or from which an organism lives, grows, or obtains its nourishment



Forceps

A handheld, hinged instrument used for grasping and holding objects, and one of the tools found in your My Backyard Stream kit

What are macroinvertebrates?

Macroinvertebrates are important organisms that live in freshwater streams and rivers. They live along the bottom of streams and rivers, lack a backbone, and can be seen without the use of a microscope.

They are important because they are bioindicators and are frequently used to test the health of streams. They are also an important part of the stream food web, as they feed on organic matter like leaves, and serve as prey for larger stream organisms like fish.



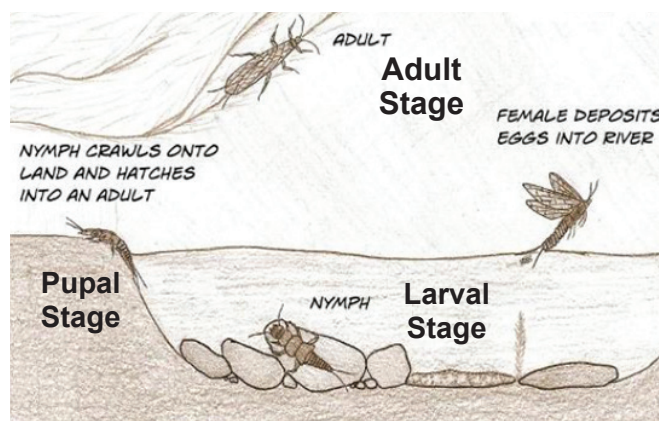
Did you know that macroinvertebrates can live in polluted water?

These amazing organisms have adaptations that allow them to live in low quality water, such as water with low dissolved oxygen levels and nutrient-enriched water. This is why scientists use them as an indicator of water quality. If a pollutant sensitive macroinvertebrate is found in your local stream, then the water quality is good.

However, if only pollutant tolerant organisms are found in your local stream, this is an indicator that the water quality is poor.

Did you know that macroinvertebrates have 3 stages in their life cycle?

These include the larval stage, the pupal stage, and the adult stage. The larval stage mostly takes place in water and can take 5 years! The pupal stage involves shape changes. The adult stage is short and typically occurs on land.



<https://www.realisticflies.ro/date/the-lifecycle-of-stoneflies-plecoptera-1>



Safety: Before you get started make sure you are aware of your surroundings and traffic. Always be with an adult while exploring, be cautious of sharp objects that may be in the creek or on the streambank, and never enter a stream with high or fast-moving water.



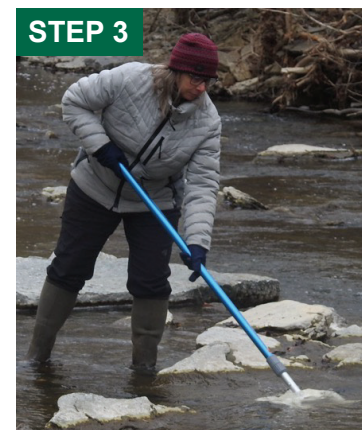
STEP 1

Fill a white bin with a small amount of water from the stream (~1 inch) and set aside.



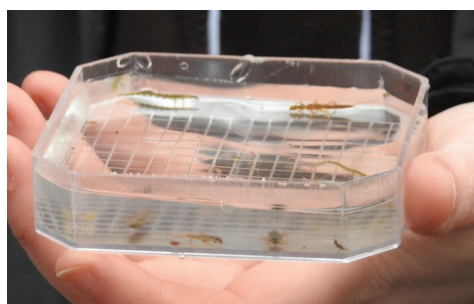
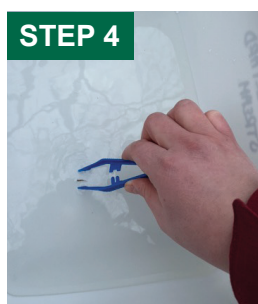
STEP 2

Lift the magnifying top off the box, leaving the square base behind.



STEP 3

Catch a macroinvertebrate using your dip net.



STEP 4

Place or dump the organism you found into the white bin. Use the forceps to remove one specimen at a time to the gridded base of the magnifying box.

DO NOT collect any bivalves such as clams or mussels. These are protected since many species are endangered.

Tip: shift rocks and substrate with your feet or edge of your net to stir up the stream

Tip: if you catch fish and salamanders always wet your hands before handling, dry hands can harm their protective coating.

STEP 6

Once you have collected all the data on the My Backyard Steam biological field notetaking sheet, you can submit your findings into the My Backyard Stream database!

- Visit watersheddata.com/Education/BackYardStreamCode.aspx
- Click the "Citizen Scientist Data Submission" button.
- Enter in the data you collected and submit.
- Remember to take a photo and submit with your data.

For more Information:
Jen Bowman, bowmanj2@ohio.edu



STEP 5

Using magnification, try to identify characteristics of your organism, such as number of legs and coloring. Use the flashcards and identification key provided in My Backyard Stream kit.

Classify your organism using what you observe through the lens, and record your data on the biological field sheet.

Tip: For additional guidance, refer to the macroinvertebrate key provided try and estimate their size.



OhioSTEM | Southeast Hub

OHIO UNIVERSITY | Voinovich School of Leadership and Public Service