NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Unit 1 D-Macro invertebrates-Envirothon-Mrs. Weimer

Benthic Macroinvertebrates

Benthic means: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (stream, river, pond)

Macro- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Invertebrate- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Macroinvertebrate- large water dwelling invertebrate able to be seen without a microscope

What are Macroinvertebrates?

Organisms that have no backbone

Visible without a microscope

Found in Fresh Water Streams

Eats leaves & algae in stream

Source of Energy for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Life Cycles**

Incomplete metamorphosis (3 stages)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Include mayflies, stoneflies, dragonflies, damselflies, true bugs

Complete metamorphosis (4 stages)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Include flies, beetles, caddisflies, dobsonflies

**Functional Feeding Groups**

Based on their feeding methods and adaptations

They are an important part of the food web

They are a primary link between the base of the food chain and the larger animals such as fish

Shredders

The first group of macroinvertebrates to break down the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (leaves that have started to decompose).

Includes craneflies, some caddisflies, stoneflies, sowbugs, and scuds.

They break the detritus down into fine particles.

Collectors

Drifting downstream the fine particles become food for the collectors.

They use various methods of either \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or gathering of fine particles. Filterers use fan-like filaments near the mouth to capture food particles.

Includes some mayflies, midges, and net-spinning caddisflies.

Grazers (also called Scrapers)

Feed on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_that grow on the surface of rocks.

Includes some caddisflies, the water penny (a beetle), and certain midges and mayflies.

Predators

The shredders, collectors, and grazers are a food source for the predators.

Includes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Predators have large powerful mouth parts for grasping prey.

Indicator Species

Indicator Species means…

They tell scientists when there is a problem in nature- specifically the stream environment

The problem being \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Why are Macroinvertebrates Important?

Source of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for larger animals

Brook Trout or other fish eats them…

Then fish are eaten by birds, raccoons, humans

Helps with the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Where do Macroinvertebrates live?

Bottom of a Stream

Attached to rocks

Attached to plants

In fast moving water, need oxygen

<http://www.epa.gov/owow/nps/kids/masterbugtheater.html>

Why are Macroinvertebrates Important?

They are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the stream’s overall health

These animals are different sizes, shapes, and have different adaptations that make it easy for scientists to learn if a stream is healthy

Why do they need clean water?

To survive the macroinvertebrates that show that the water is clean need…

Lots of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to survive

Poor oxygen, they die and provide no food for the Trout, kingfishers, Salmon, etc.

Those macroinvertebrates that need poor dirty water to survive- tell scientists that the water is polluted

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