

Benthic Macroinvertebrates

What? Why? How?

Benthic Macroinvertebrates

- What are they?
- Why do we study them?
- How do we study them?

Benthic Macroinvertebrates

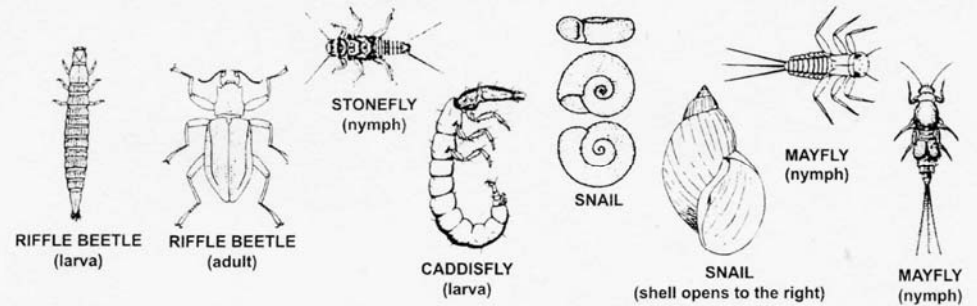
- Benthic – Living or located on the bottom of a body of water
- Macro – Prefix indicating large (as opposed to micro). In this case, large enough to be seen without a microscope – or larger than $\frac{1}{2}$ mm.
- Invertebrates – An animal without a backbone.

Benthic Macroinvertebrates, also known as benthos, include:

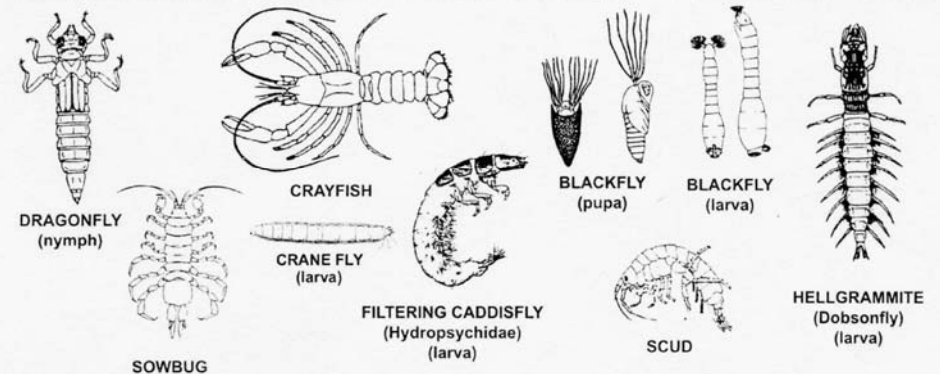
- Molluscs such as snails, clams, mussels
- Worms and leeches
- Arthropods including **6-legged** Insects and their **immature** stages, and those with **more than six legs**, such as crayfish and pillbugs.

Macroinvertebrate Picture Key

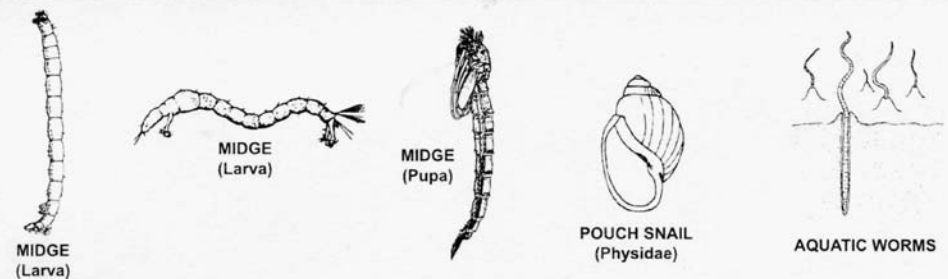
GROUP 1 These organisms are generally pollution intolerant. Their dominance generally signifies **Excellent-Good Water Quality**.



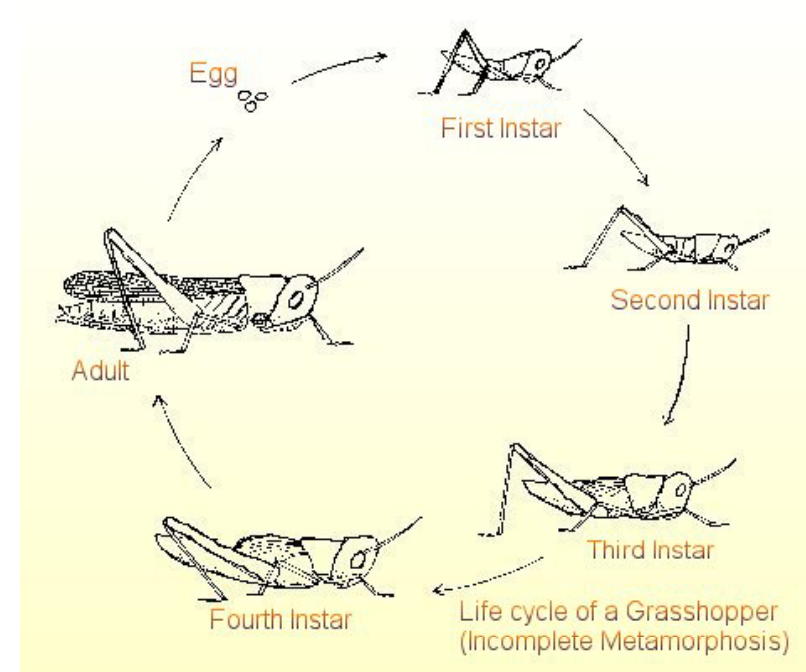
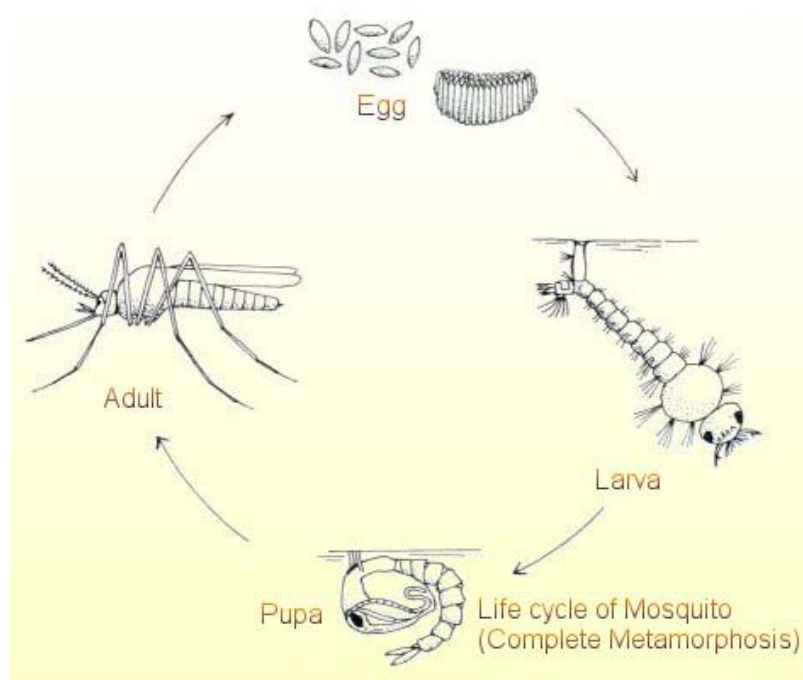
GROUP 2 These organisms exist in a **Wide Range** of water quality conditions.



GROUP 3 These organisms are generally tolerant of pollution. Their dominance generally signifies **Fair-Poor Water Quality**.



Insects and Immature stages



Complete vs. Incomplete Metamorphosis

- EPA sites about Benthos:
- with pictures
- <http://www.epa.gov/bioiweb1/html/benthosclean.html>

- Showing adults and immature stages
- <http://www.epa.gov/owow/nps/kids/BUGTHTR.HTM>

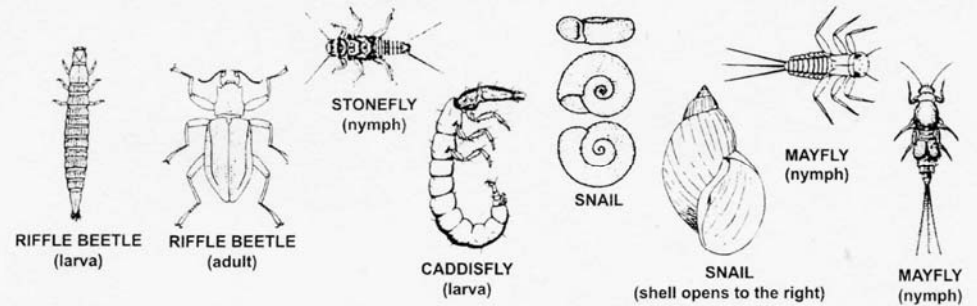
Benthos as Bioindicators

- In testing for pollution, we can't possibly test for everything that might be polluting a water body.
- One way to assess the health of a body of water is to look at what lives there.
- Also these invertebrates are at the base of the food chain, they feed the all the other wildlife.

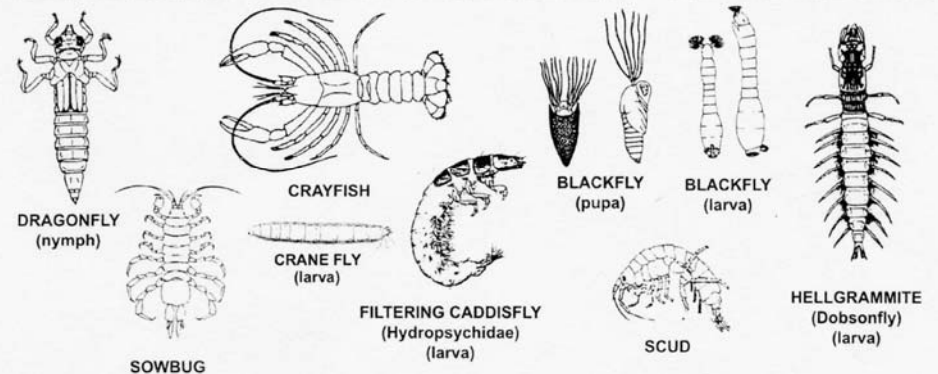
Scientists have determined that some Benthics are tolerant of high pollution levels, while others are not.

Macroinvertebrate Picture Key

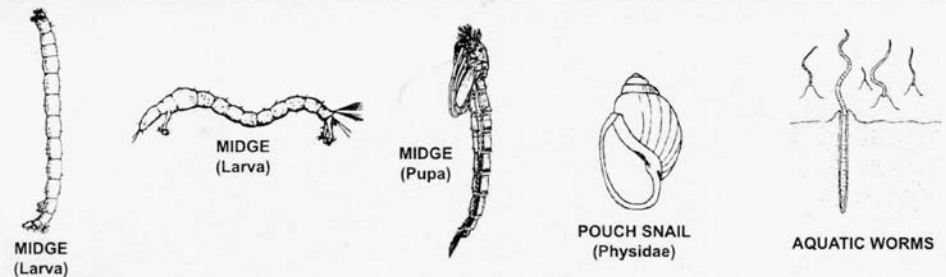
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Collecting Benthos



Natural Leaf Pack



Artificial Leaf Pack

Many benthic macroinvertebrates live in leaf packs. By placing artificial leaf packs and leaving them in the water for 3-4 weeks. These leaf packs are colonized and can be collected and brought back to the school or lab to sort and identify the benthos.

- Background Info on Leaf Packs from “Leaf Pack Network”
- <http://www.stroudcenter.org/lpn/more/trees2streams.htm>