

Healthy Rivers

What are healthy rivers, and why are they important?

A healthy river supports many different species of fish and wild life. It can provide safe drinking water for a community and is safe for recreation and harvesting food.



How to determine if a river is healthy?

- Use a data logger to determine:
 - pH
 - Temperature
 - Salinity
- Collect macroinvertebrates
 - A healthy river should support many different kinds of insects
 - Determine if the macroinvertebrates are sensitive to pollution

What are macroinvertebrates?

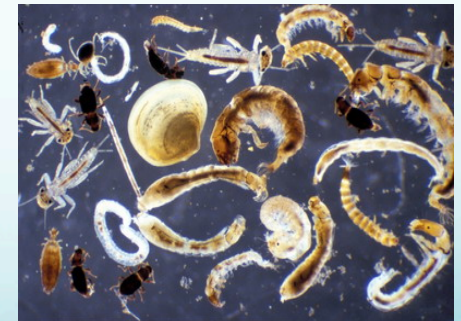
- Macroinvertebrates are animals that do not have a spine
- Macroinvertebrates are large enough to see with out a microscope
 - Bugs
 - Jellies
 - Snails
 - Others?



<http://www.dailydesktop.eu/data/media/863/Jelly%20Fish%2003%20-%20Medusa.jpg>



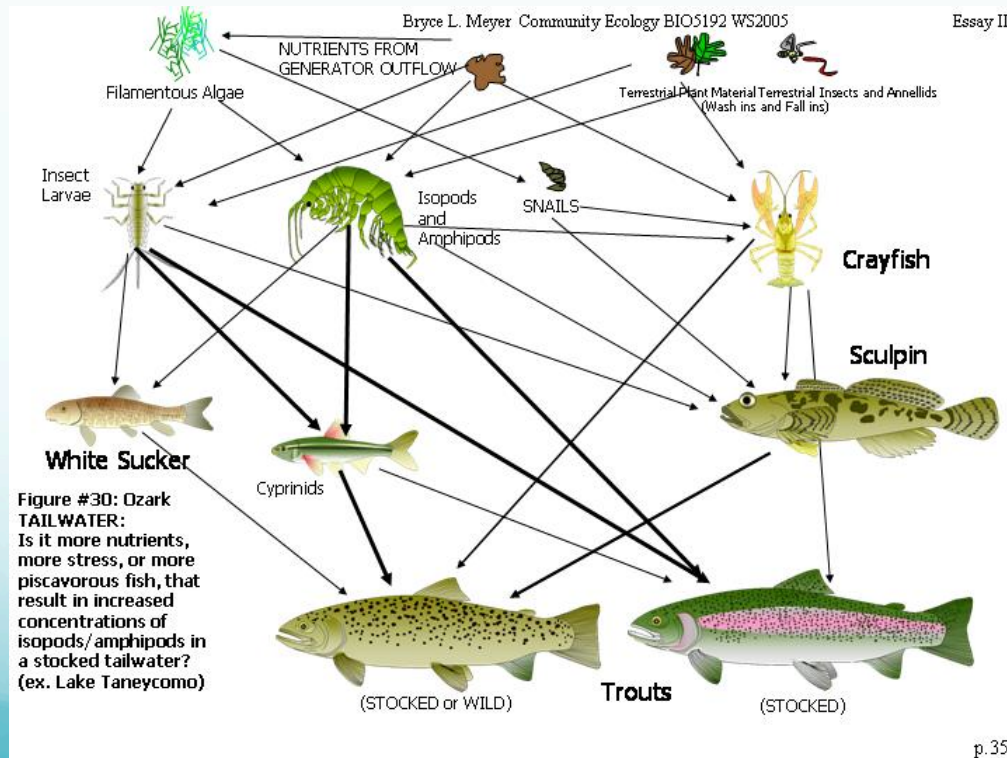
<http://www.the-edison-lightbulb.com/wp-content/uploads/2011/03/snails.jpg>



<http://ecologyadventure2water.edublogs.org/files/2011/04/macroinvertebrates-1qaji9r.jpg>

Why are macroinvertebrates important?

- In aquatic systems, macroinvertebrates serve as a food source for fish and other, larger animals
- For this bioassessment, we are primarily concerned with insects, as this is what the fish will eat



What kind of macroinvertebrates can we find here?



How to collect macroinvertebrates: What you'll need

For the river:



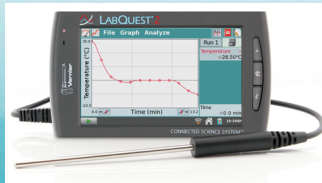
D-loop net

Boots



A bucket

A data logger



For the identification:



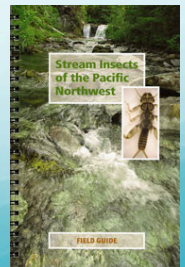
A turkey baster

An Ice cube tray



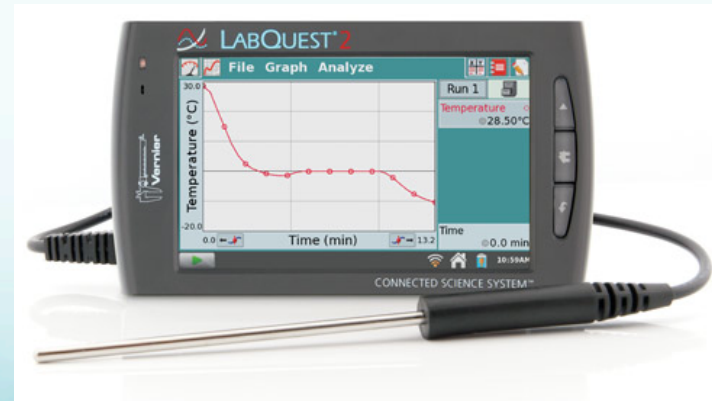
A magnifying glass

An identification key
(specific for your area)



Data collection

- Make sure to name and note each site the students are collecting from
- Use the data logger to collect information from each site in the river that students will collect macroinvertebrates from
 - Temperature
 - Salinity
 - pH
 - Flow rate



How to collect macroinvertebrates: What you do

- One person will hold the net
- The other will kick rocks and debris from the bottom of the river
- Look to see if macros have been collected in the net
- Dump the contents of the net into a bucket with a little water



For the identification

- Place individual insects in each of the compartments of the ice cube tray using the turkey baster
- Use the identification key to determine which insects you have collected
- Record your results



Results

Macro-invertebrate	How many?	Sensitivity to pollution	Location collected	Temp	Salinity	pH	Flow rate

How healthy is the river?

- How many different types of insects were collected?
- Were any of the insects sensitive to pollution?
- How were macroinvertebrates influenced by pH, and flow rate?
 - Temperature?
 - Salinity?