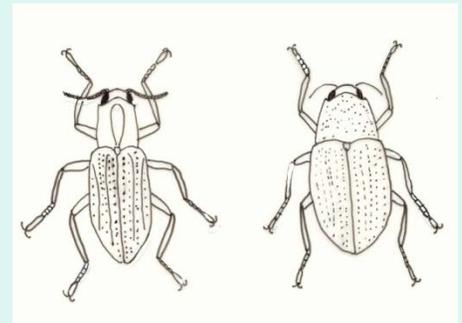
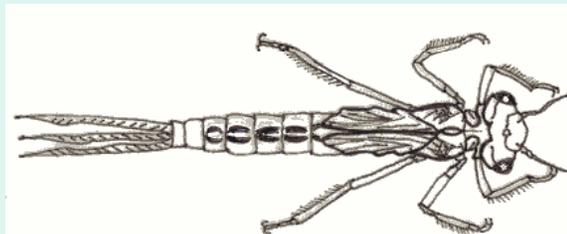
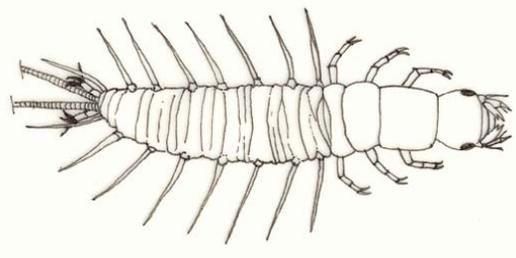
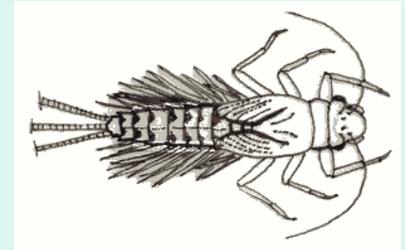
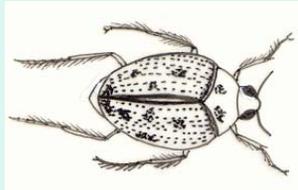


# *Introduction to Biological Monitoring*



# Biological Assessment

- There are many types of life in a stream.
- Biological indicators - species that cannot survive ecological or environmental degradation.
  - Non-tolerant
  - Environmental thermometer
- A wide variety of plants and animals living in a stream usually indicate a healthy environment.

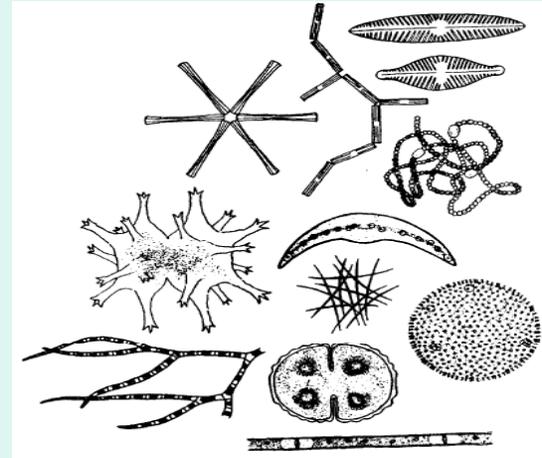
# Benthic Macroinvertebrates

- Benthic – ***Bottom-dwelling***
- Macro – ***Big***  
(1-700 mm long)
- Invertebrates – ***No backbone***

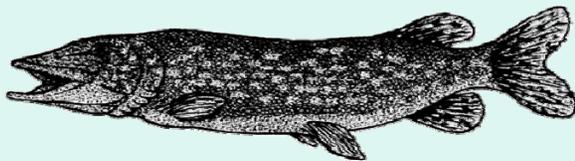


# Why Benthic Macroinvertebrates?

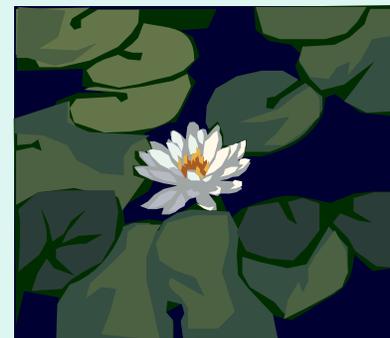
- Can't migrate easily
- Easy to collect and identify
- Known tolerance levels



Algae – too small  
Lots of algae = nutrient enrichment



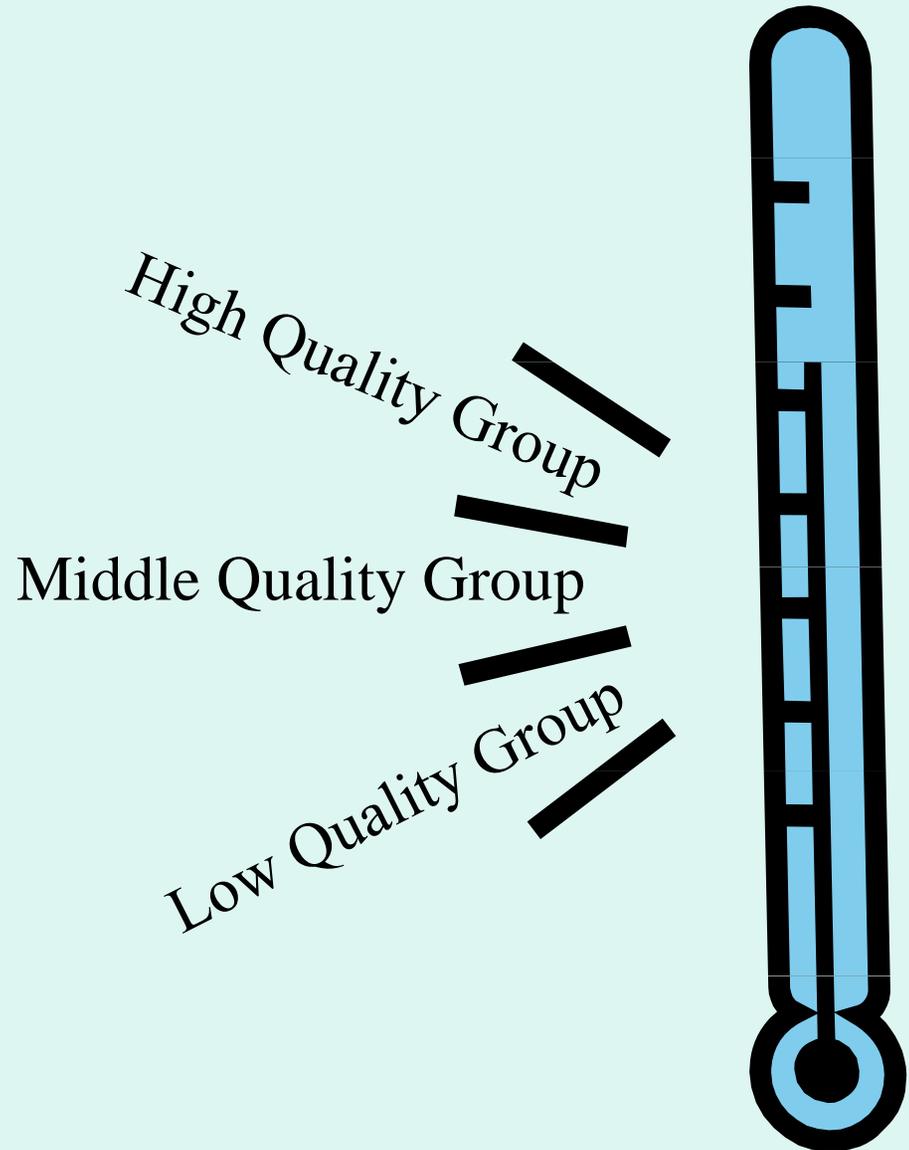
Vertebrates – migrate easily



Aquatic plants – no tolerance values  
More plants = more diversity

# Environmental Thermometer

- Pollution Intolerant (High Quality)
- Somewhat Pollution Tolerant (Middle Quality)
- Pollution Tolerant (Low Quality)



# Index Period

- **Maximum** of Three Samples Collected Each Year
- At least one sample collected between mid-July and mid-October
- Time of year when samples are collected affects what you find



# Sewage Algae

**Bacteria that thrive on high nutrients commonly associated with waste.**



Sewage Algae

**Bloodworms**

