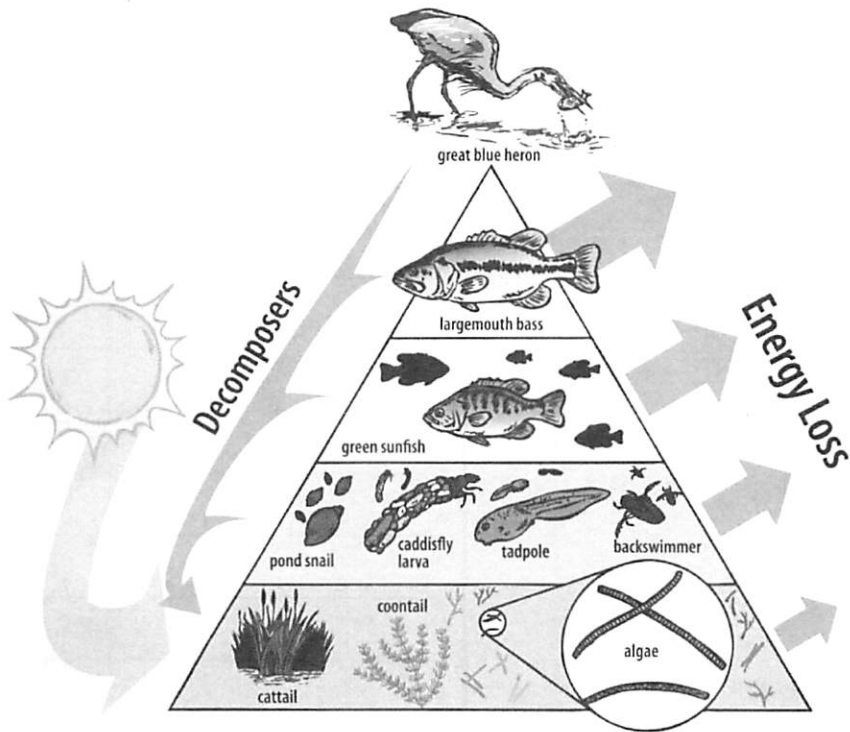
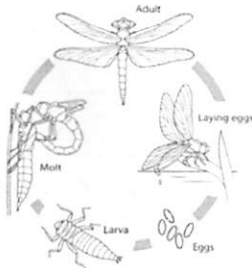


BENTHIC MACROINVERTEBRATES

Benthic macroinvertebrates are an integral part of stream and lake *ecosystems*. These organisms may spend all or part of their lives in water; usually their immature phases (larvae and nymphs) are spent entirely in water. A variety of environmental stressors can impact macroinvertebrate populations.



Life Cycle of a Dragonfly



Mayflies, stoneflies, caddisflies, and many other insects have a similar life cycle to the dragonfly.

BENTHIC MACROINVERTEBRATES

Benthic Macroinvertebrates are found in streams, rivers, ponds and lakes. Macroinvertebrates have different tolerance levels to water pollution, which makes them great indicators of water quality. They live in the same portion of the stream most of their lives so a sample of the macroinvertebrate population reveals the physical, chemical and biological conditions of the water body.

COMMON NAME

Scientific Name (Order)

● Pollution Intolerant

● Pollution Sensitive

● Pollution Tolerant



CADDISFLY LARVA
Trichoptera



MAYFLY LARVA
Ephemeroptera



GILLED SNAIL
Mollusca



**WATER
PENNY BEETLE**
Coeloptera



RIFLE BEETLE
Coleoptera



STONEFLY NYMPH
Plecoptera



**WATERSNIPE
FLY LARVA**
Atherisidae



SCUD
Amphipoda



CRANE FLY LARVA
Tipulidae



DOBSONFLY LARVA
Megaloptera



DAMSELFLY LARVA
Zygoptera



CLAMS & MUSSELS
Mollusca



CRAYFISH
Decapoda



DRAGONFLY LARVA
Zygoptera



**NET-SPINNING
CADDISFLY LARVA**
Trichoptera



SOWBUG
Isopoda



ALDERFLY LARVA
Megaloptera



LEECH
Hirudinea



AQUATIC WORM
Annelida



LUNGED SNAIL
Mollusca



MIDGE LARVA
Chironomidae



BLACKFLY LARVA
Simuliidae

* Illustrations are not to scale

Illustration & Design: Susan S Lee
by: susanlee@gmail.com

Do any of the macroinvertebrates that were collected look like these?

MACROINVERTEBRATE POLLUTION TOLERANCE GROUPS

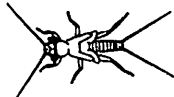
GROUP 1



RIFFLE BEETLE
(larva)



RIFFLE BEETLE
(adult)



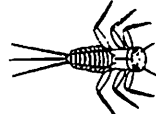
STONEFLY
(nymph)



CADDISFLY
(larva)



SNAIL



MAYFLY
(nymph)



MAYFLY
(nymph)



SNAIL.

opens to the right

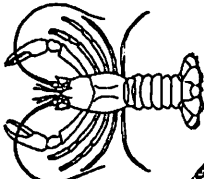
GROUP 2



DRAGONFLY
(nymph)



CRANEFLY
(larva)



CRAYFISH



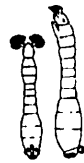
SOWBUG



FILTERING
CADDISFLY
(Hydropsychidae)
(larva)



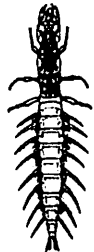
BLACKFLY
(pupa)



BLACKFLY
(larva)

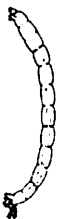


SCUD



HELLGRAMMITE
(Dobsonfly)
(larva)

GROUP 3



MIDGE
(larva)



MIDGE
(larva)

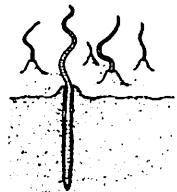


MIDGE
(pupa)



POUCH
SNAIL.
(Physidae)

opens to the left



AQUATIC WORM

Group 1 organisms are generally pollution intolerant. Their dominance generally signifies excellent to good water quality. **Group 2** organisms exist in a wide range of water quality conditions. **Group 3** organisms are generally tolerant of pollution. Their dominance usually signifies fair to poor water quality.