Why are aquatic macroinvertebrates so useful for evaluating water quality? Why might you use aquatic macroinvertebrates for this as opposed to, for example, chemically testing the water?

Quicker, easier, saves time

Example what if...

One researcher finds WQ for a creek in 2.5 days, the other finds the same info in 3 hours. How might this have happened?

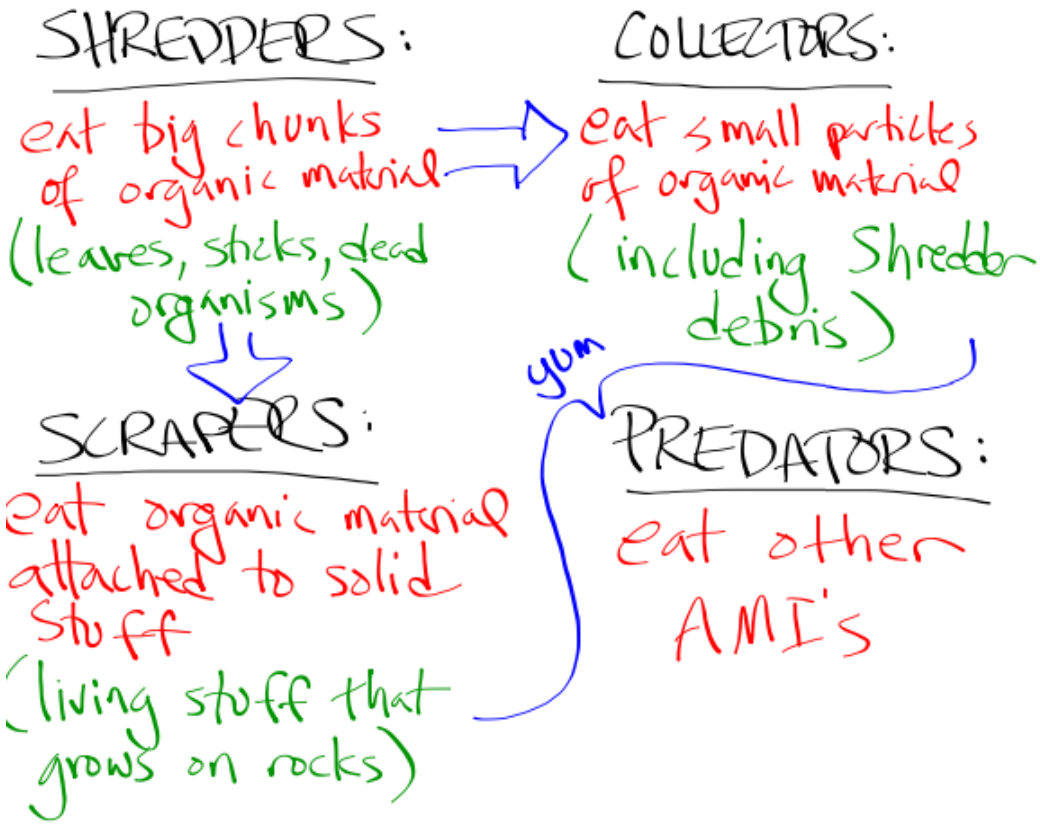
Calculate the diversity of a stream where you collect: 12 mayflies, 9 stoneflies, 23 snails, 2 true flies, 9 dragonflies, 6 caddisflies, and 11 other organisms. (You can calculate by hand or use excel). How would you characterize the diversity of this stream? How would you compare the diversity of this stream to one that has a diversity score of 0.83?

	Pop	fraction	fraction^2
may	12	0.17	0.028
stone	9	0.125	0.016
snails	23	0.319	0.102
true	2	0.028	0.001
dragon	9	0.125	0.016
caddis	6	0.083	0.007
other	11	0.153	0.023
	72		0.193

→ this is pretty diverse (close to 0) — much more diverse than 0.83

Describe how members of each of the following functional feeding groups get their food and characterize the nature of their interdependence in the aquatic ecosystem:

a. Shredders
b. Scrapers
c. Collectors
d. Predators



Make sure you can correctly describe the defining features of the following aquatic macroinvertebrate taxa: Ephemeroptera (Mayflies), Diptera (true flies), Trichoptera (Caddies flies), Plectopera (Stoneflies), Odonata (dragonflies), *Juga* (snails).

What water quality parameters are mayflies, caddisflies, and stoneflies generally most sensitive to? What would these parameters tell you about the suitability of the water for trout habitat? What would these parameters tell you about the suitability of the water for use as drinking water?

what are the preferred values for these parameters?

pH: 5-8

DO: high

temp: low (40-50°F)

turb: low

this is just what trout/other fish like!

this doesn't tell us much about drinking water

Using the sample data set below, calculate the water quality score by using the modified Oregon AMI water quality index on the class website – and INTERPRET this score using the same methodology.

Taxa	Number
Caddis fly	4
Mayfly	2
True fly	7
Dragonfly	1
Stonefly	2
Snail	14
Beetle Larva	4

Group			Raw	Score
All	(total)		34	5
Mayfly	(total)		2	3
Stonefly	(total)		2	3
Caddisfly	(total)		4	3
% true fly	(% of total)	7/34	21%	3
% dominance	(% of total)	14/34	41%	3
			Total:	20

20 - this stream is moderately impaired, meaning it has possibly been disturbed from its natural state. It would not support fish (trout and salmon) as well as a stream that had a higher proportion of mayflies, stoneflies, and caddisflies.