Calculate the River's Water Quality Based on Macroinvertebrates

1. Identify the macroinvertebrates you collected. Use the picture guide in this document.
2. In the chart below, put a check next to the name of all the macroinvertebrates you found.
3. Add up the number of checks in each column. This is the number of **TAXA** (different kinds of) macroinvertebrates that belong to that group.
4. Multiply the number of taxa by the group's weighting factor. This gives you the **GROUP SCORE**.
5. Add up all the group scores. This will give you the **TOTAL GROUP SCORE**.
6. Add up the number of taxa from all the columns. This is the **TOTAL NUMBER OF TAXA**.
7. Divide the <u>total</u> group score (from step 5) by the <u>total</u> number of taxa (from step 6). This will give you the **WATER QUALITY INDEX** for your river.
8. Using the table at the bottom right of the page, find how the river's water quality index ranks.

	GROUP 1 **Intolerant to pollution**	**GROUP 2** **Moderately intolerant to pollution**	**GROUP 3** **Fairly tolerant to pollution**	**GROUP 4** **Very tolerant to pollution**
Macro-invertebrates (check all the ones you found)	Alderfly ____ Dobsonfly ____ Snipe Fly ____ Stonefly ____	Caddisfly ____ Clam/Mussel ____ Cranefly ____ Crayfish ____ Damselfly ____ Dragonfly ____ Mayfly ____ Riffle Beetle ____ Water Penny ____	Black Fly ____ Midge ____ Right-handed or other snails ____ Scud ____ Sowbug ____	Aquatic worm ____ Blood worm midge ____ Leech ____ Left-handed snail ____
# of TAXA (add up checks)				
WEIGHTING FACTOR	x 1	x 2	x 3	x 4
GROUP SCORE (TAXA x weighting factor)	=	=	=	=

TOTAL GROUP SCORE (add up the group scores from all the columns)	
TOTAL NUMBER OF TAXA (add up the number of taxa from all columns)	
WATER QUALITY INDEX (total group score ÷ total number of taxa)	

Water Quality (circle one)	
Excellent	1.0 – 2.0
Good	2.1 – 2.5
Fair	2.6 – 3.5
Poor	greater than 3.6

Group 1 – These organisms are generally considered to be intolerant to pollution


Alderfly Larva


Dobsonfly Larva


Snipe Fly Larva


Stonefly Larva

Group 2 – These organisms are generally considered to be moderately intolerant to pollution

Caddisfly Larvae


Freeswimming (green)


Case Maker

Clams


Fingernail

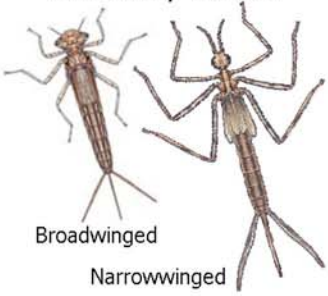

Asiatic

Mussels

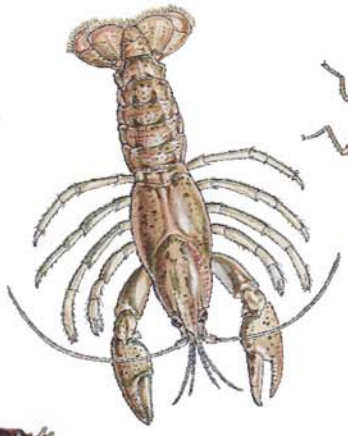

Zebra Mussel


Water Penny

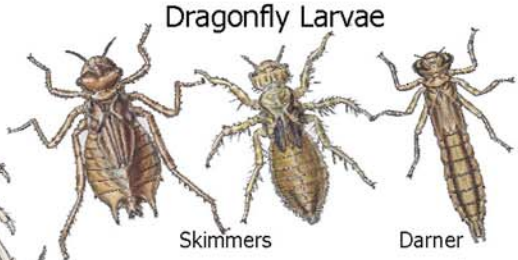
Damselfly Larvae


Broadwinged

Narrowwinged


Crayfish

Dragonfly Larvae


Skimmers

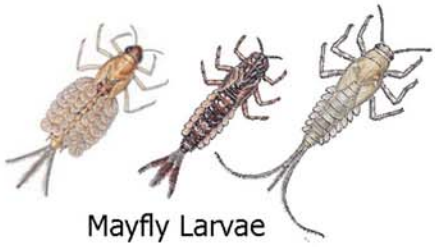
Darner

Riffle Beetle

Adult


Larva


Cranefly Larva

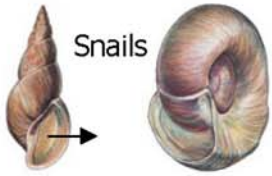

Mayfly Larvae

Group 3 – These organisms are generally considered to be fairly tolerant to pollution


Black Fly Larva


Midge Larva

Snails


Right-Handed

Orb


Scud


Sowbug

Group 4 – These organisms are generally considered to be very tolerant to pollution


Aquatic Worm


Bloodworm
Midge Larva (bright red)


Leech


Left-Handed Snail

Other Aquatic Organisms (These organisms are not used as water quality indicators)


Crawling Water Beetle


Giant Water Bug


Backswimmer


Whirligig Beetle


Water Strider


Waterboatman


Planaria


Water Scavenger Beetle


Water Scorpion