



2009

RCMS MI TEAM Macro-Invertebrate Stream Monitoring

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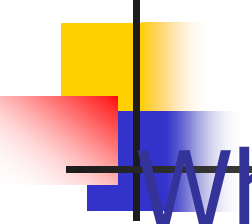
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RCMS MI TEAM Macro- Invertebrate Stream Monitoring

Conclusion



What can we learn about stream health using Macro-invertebrate identification?

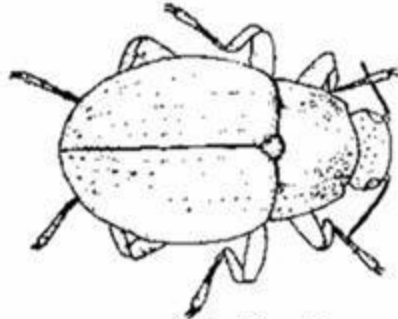
Macro-invertebrates have tolerance levels that range from 1-10. If organisms tolerance levels are 3 or less, then they have a low tolerance for a polluted environment.

If organisms have tolerance levels 7 or greater they can live in a polluted environment. Large numbers of high tolerance organisms, or the lack of low tolerance organisms may indicate a polluted stream.

Tolerance levels are used to calculate the macro-invertebrate group index.

We collected and sorted samples from the Norroway Stream.

Michigan Environmental Education Curriculum
Stream Monitoring



Riffle Beetle



Caddisfly



Hellgrammite



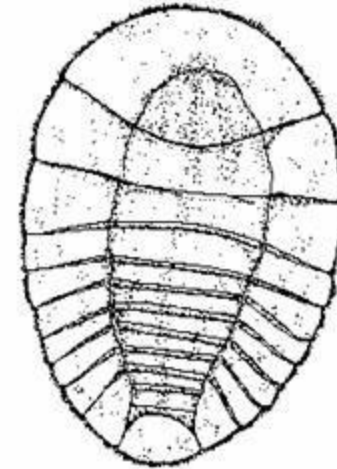
Mayfly



Gilled Snail



Stonefly Larva



Water Penny

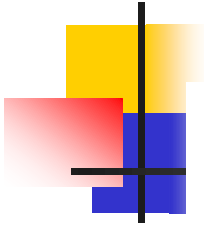


Blackfly Larva



Planarian

es



Next, we counted and calculated the biotic index using tolerance levels. Our MGBI was 6.19.

RCMS Grove Street Norroway Creek- Macroinvertebrate Identification-200 Hallway 8th Grade MI Team

Major Group	Common Name	Count 1	Count 2	Average Gr. Count	Average Org. Density	Group %	Tolerances
Ephemeroptera	Mayfly	3	0	2	24	4.17%	2
Plecoptera	Stonefly	0	0	0	0	0.00%	1
Trichoptera	Caddesfly	9	0	5	60	10.42%	3
Diptera:Chronomidae		29	19	24	288	50.00%	7
Diptera: other		5	3	4	48	8.33%	4
Odonata	Dragonfly	0	1	1	12	2.08%	5
Megaloptera		0	0	0	0	0.00%	2
Coleoptera		0	0	0	0	0.00%	4
Hemiptera		0	0	0	0	0.00%	8
Amphipoda	Scuds	0	0	0	12	2.08%	7
Isopoda	Sow Bugs	4	1	3	36	6.25%	8
Decapoda		0	0	0	0	0.00%	6
Gastropoda	Snails	2	1	2	24	4.17%	7
Nematoda	worms	2	0	1	12	2.08%	0
Pelecypoda		0	2	1	12	2.08%	7
Oligochaeta	worms	2	3	3	36	6.25%	9
hirudinea	leeches	1	0	1	12	2.08%	10
Turbellaria		0	0	0	0	2.08%	4
		57	30	44	576		

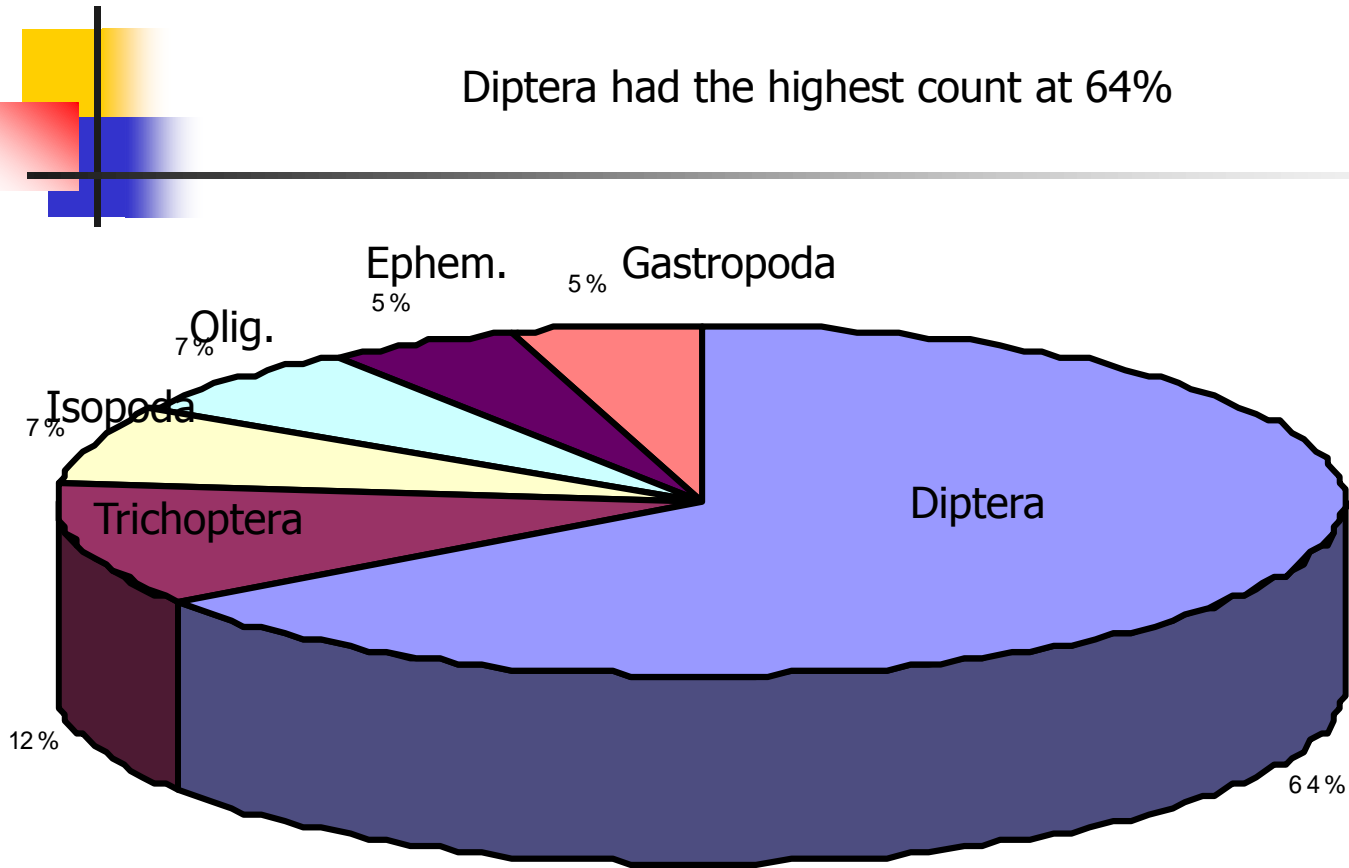
12

MGBI
6.1875

Percentage of Top % Groups
 Diptera: 58.3
 Trichoptera 10.42
 Isopoda 6.25
 Oligochaeta 6.25
 Ephemeroptera 4.17
 Gastropoda 4.17

Invertebrate Groups by Top 5 Percentages

Diptera had the highest count at 64%



- Diptera
- Trichoptera
- Isopoda
- Oligochaeta
- Ephemeroptera
- Gastropoda



Diptera:

- We found two main types(Chironomidae and Simuliidae) but our sample was over 50% Chironomidae.
- Total percentage was 64%
- Tolerance level for Chironomidae is 7. This means it can tolerate contaminated streams



Trichoptera:

- My organism is Trichoptera. It is also called caddis fly. The tolerance level is 3. It means it can't stand pollution.
- Trichoptera is a case builder. We found lots of mineral cases.
- Our sample was 12%

Isopoda:

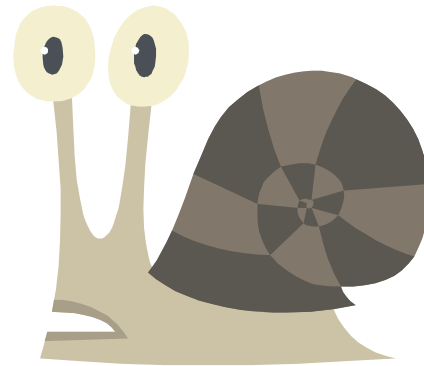


- Sow bugs were present in our sample at 7%
- They have a tolerance level of 8
- They are often found in dark nooks and crannies
- They eat decaying animals, vegetation and fungi
- They can tolerate polluted streams

Gastropoda (Snails)

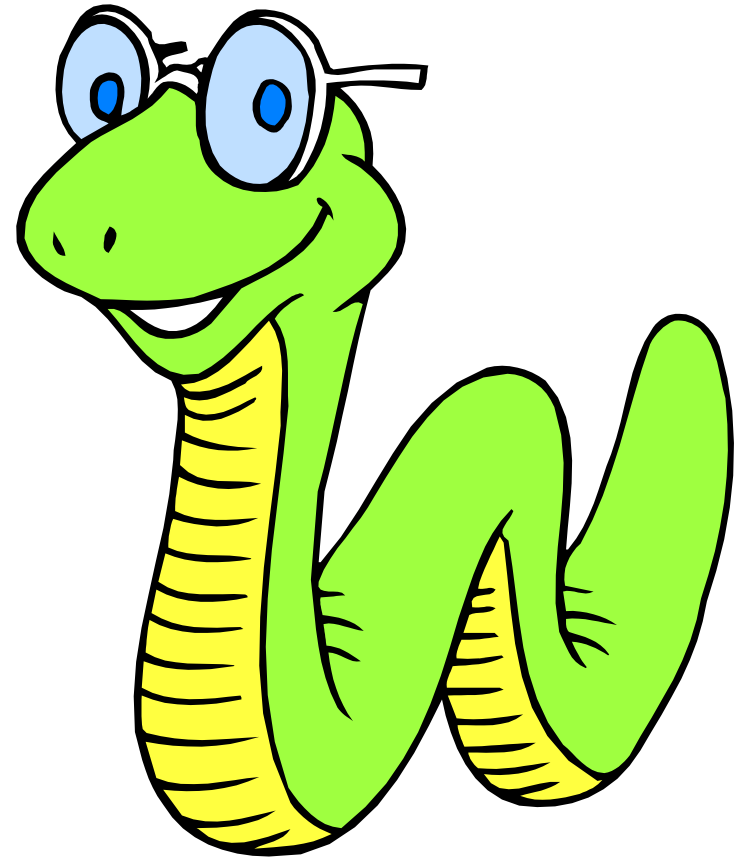
Our sample contained 7% snails
Snails have a tolerance of 7
They have a high tolerance.

Something smells fishy

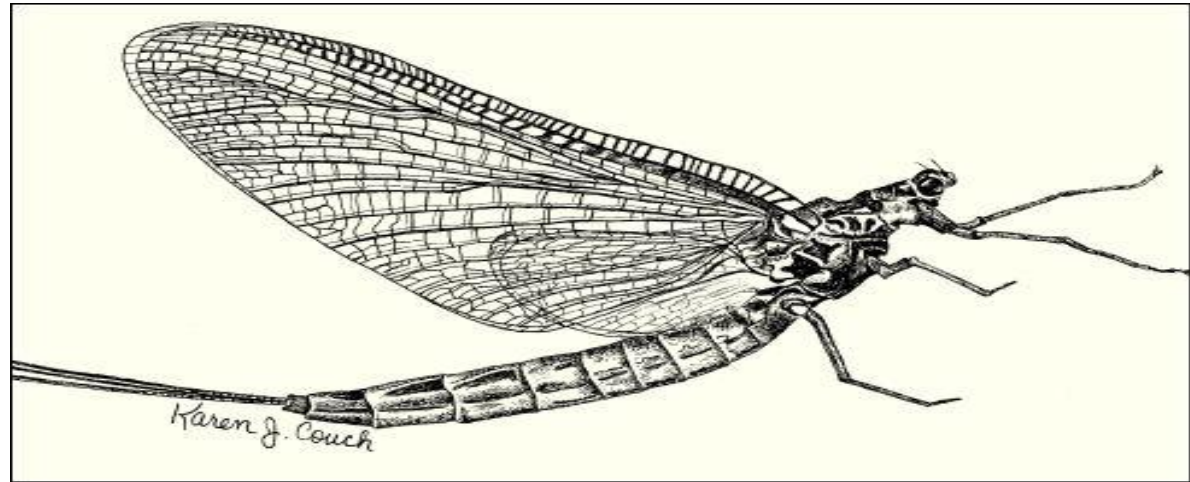


Oligochaeta: Worm

- Present at 7%
- Has a tolerance level of 9
- Can live in a polluted environment



Ephemeroptera (Mayfly)



Made up 5% of our sample

Has a tolerance of 2

Very low counts may mean that the organism can not tolerate the aquatic Environment due to pollution.



Our analysis of Grove St. Creek

- According to our calculations the MGBI of our stream is 6.19 .
- According to our references a reading of 6.19 would indicate a moderately polluted (impaired) creek. A non impaired creek would have a range of 0-3.75.
- Also we had a very small number of low tolerance organisms which may mean that our stream is polluted.
- We would need a larger sample of Macro-invertebrates before we could be certain.



Thank you.

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