



*HKSYC&IA WTSMC*

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# An Investigation on the Effects of Water Flow on Stream Animal Abundance

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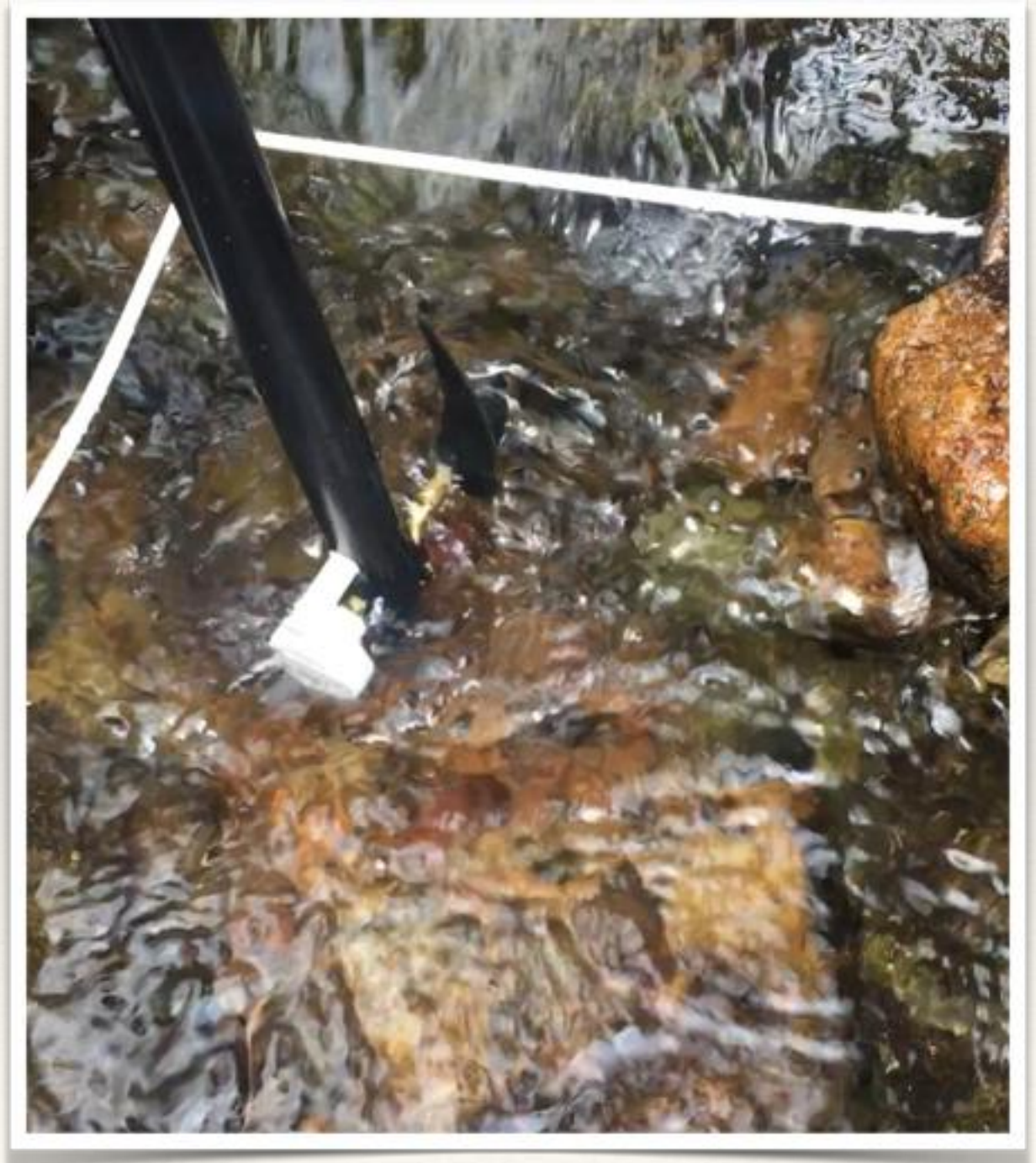
# Hypothesis

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- ❖ Abundance of species and stream animals decreases with increasing water flow rate.

# Independent variable

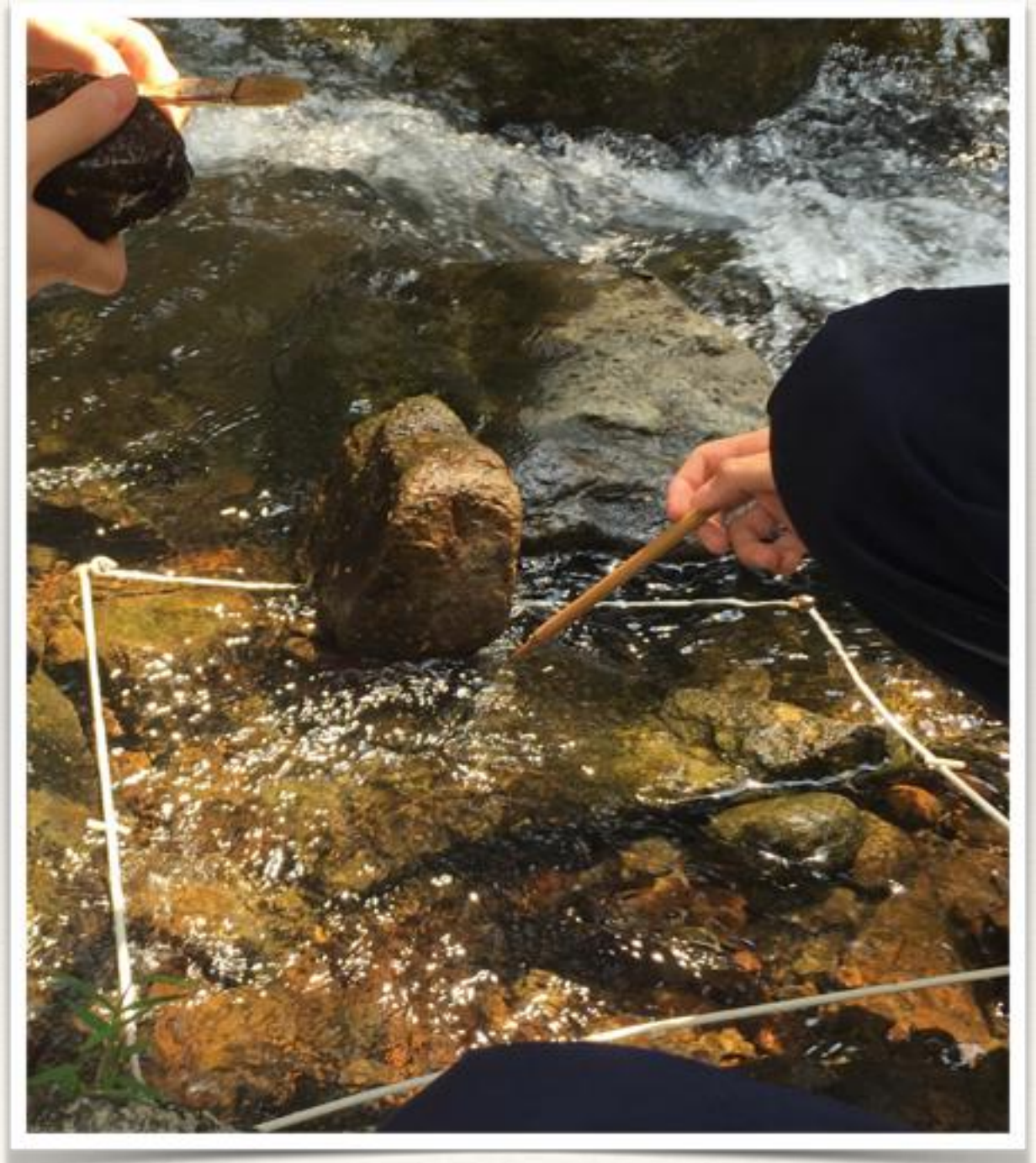
- ❖ **Water Flow Rate**
- ❖ measured by Water Flow Meter
- ❖ 1. Immerse the blades of the Water Flow Meter into the river.
- ❖ 2. Record the water flow rate at 10 seconds interval in one minute.
- ❖ 3. Take an average value of the results.





# Dependent variable

- ❖ **Number of Stream Animals in different sites**
- ❖ 1. Place a quadrant into the river.
- ❖ 2. Count the numbers of different species of stream animals with the use of brush pens, metal sieve and plastic sorting tray.
- ❖ Record the data and make comparison



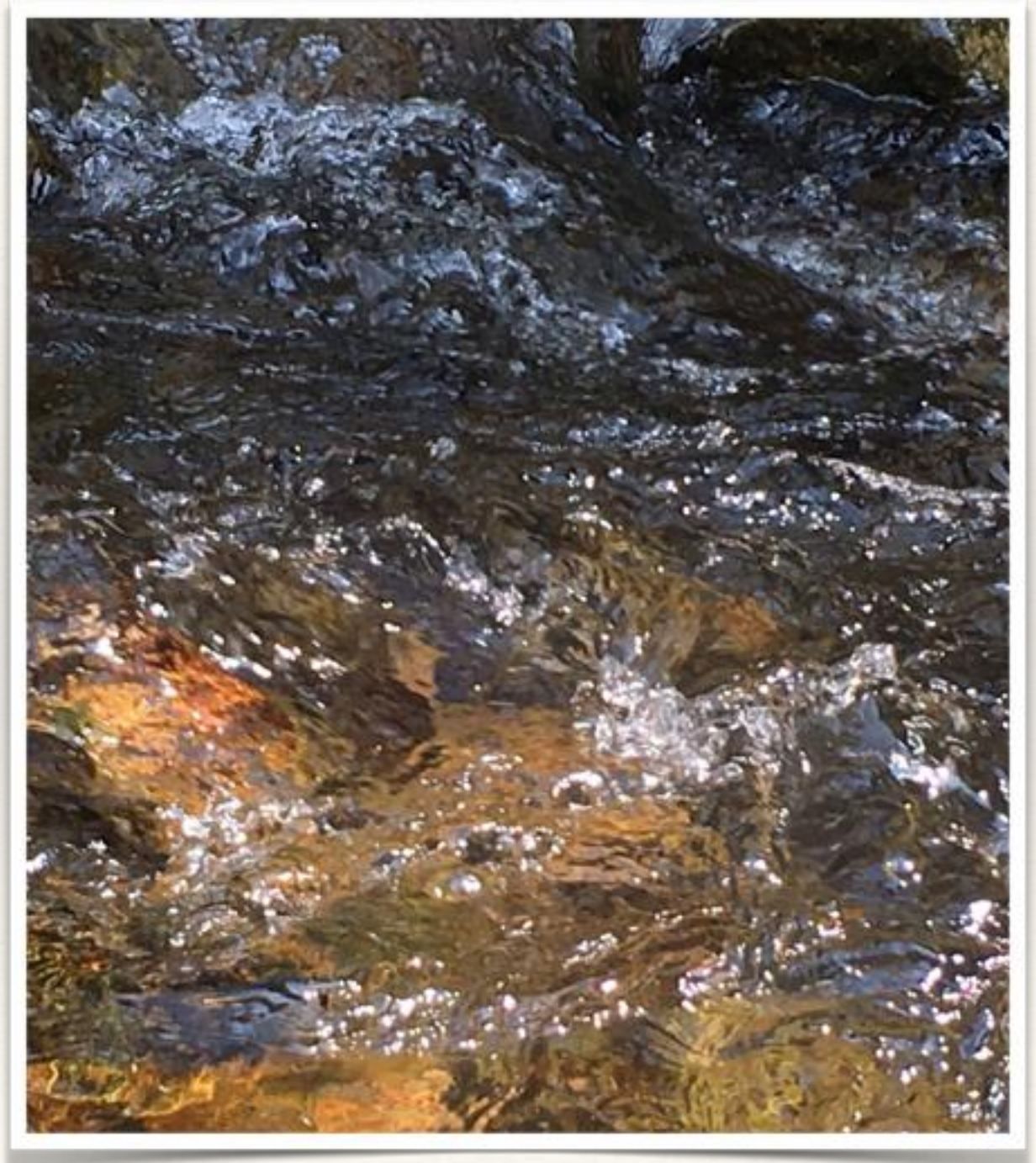


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# Controlled variables

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- ❖ **Light Intensity**
  - ❖ measured by Light Meter
- ❖ **Water Temperature**
  - ❖ measured by Digital Thermometer
- ❖ **Time spent on counting stream animals in each site**



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# Water Flow Rate

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❖ Site 1:

❖ 0.249 m/s

❖ Site 2:

❖ 0.133 m/s

❖ Site 3:

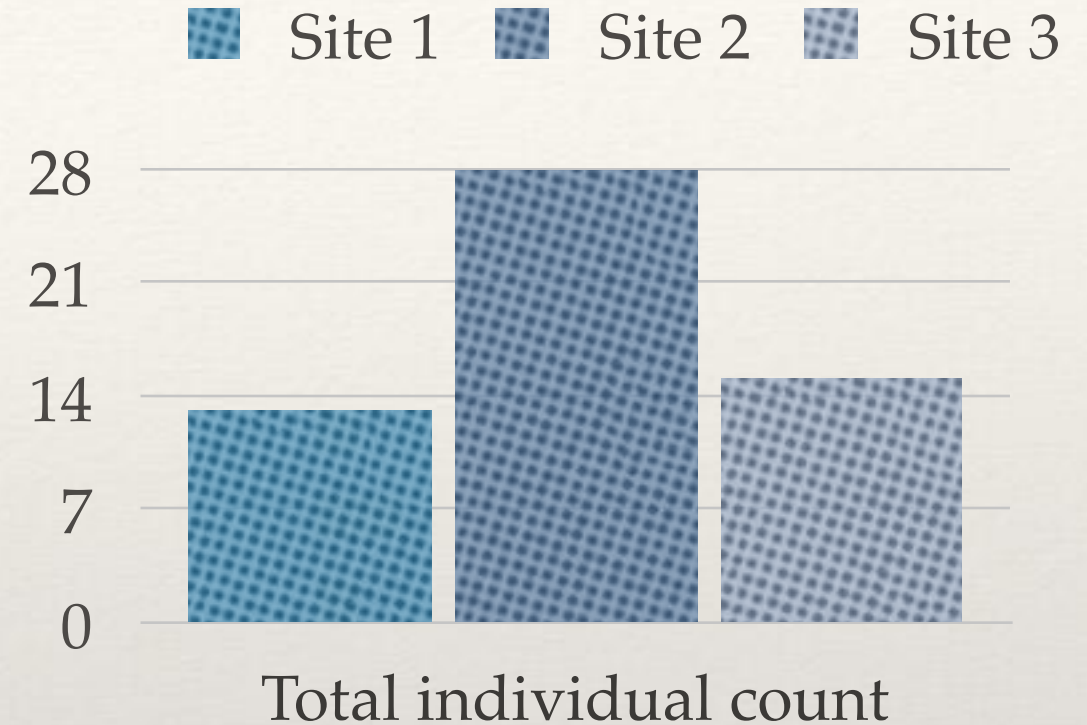
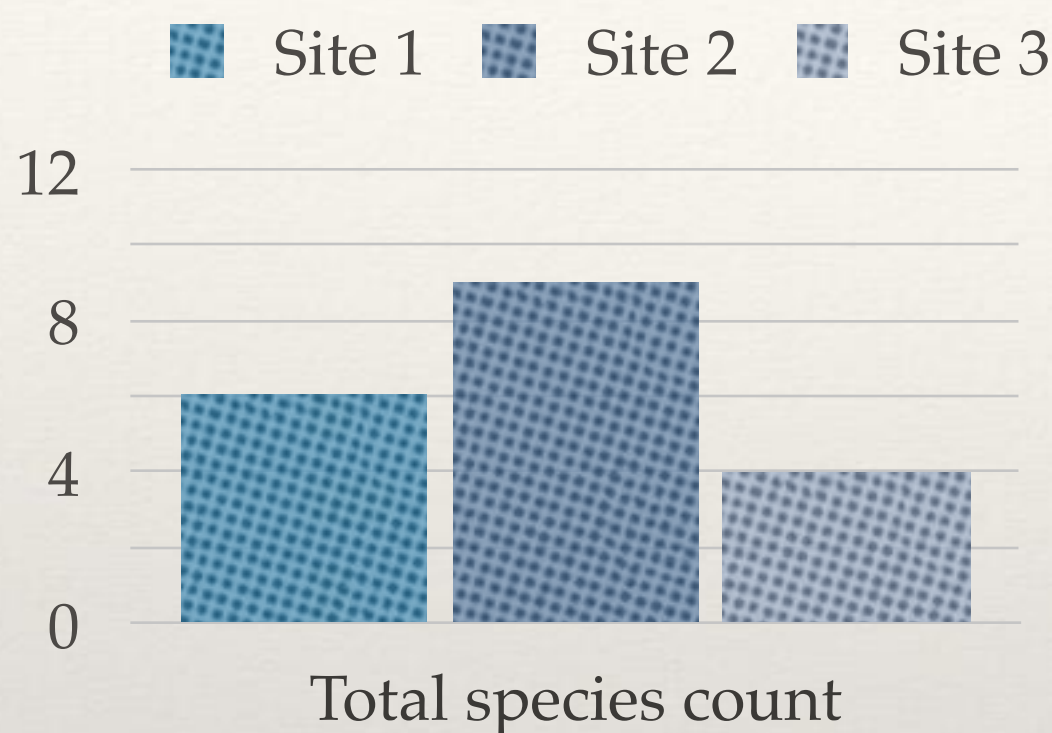
❖ 0 m/s



# Results

	Site 1	Site 2	Site 3
Species Name \ Water Flow Rate(m/s)	0.249	0.133	0
Mayfly Nymph	1	14	6
Damselfly Nymph	1	1	0
Dragonfly Nymph	1	1	0
Caddisfly Larva	1	1	1
Caddisfly Larva (Net Spinning)	3	3	0
Large Stream Snail	6	3	7
Goby	0	3	1
Broken-band Hillstream Loach	0	1	0
Banded Folk-tailed Loach	0	1	0
Total species count	6	9	4
Total individual count	13	28	15

# Bar charts showing the results



- ❖ Site 2, which has medium water flow rate, has the highest number of stream animals and number of stream animal species
- ❖ The results in Site 1(highest rate) and 3(lowest rate) didn't show apparent differences.



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# Errors

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- ❖ 1. There is variation of the time spent on counting the numbers of stream animals, affecting the experimental results.
- ❖ 2. We cannot ensure the light intensity and water temperature can be kept constant, leading to variations of results.
- ❖ 3. When moving the rocks inside the river, the stream animals may be scared away from the site.

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# Selected species

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- ❖ **Caddisfly Larva**
- ❖ Collected-gatherer
  
- ❖ **Caddisfly Larva (Net Spinning)**
- ❖ Collected-filterer





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# Conclusion

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- ❖ Based on the results shown, the correlation between water flow rate and the number of stream animals is not established by this investigation.
- ❖ Further improvements of the procedures should be carried out.