



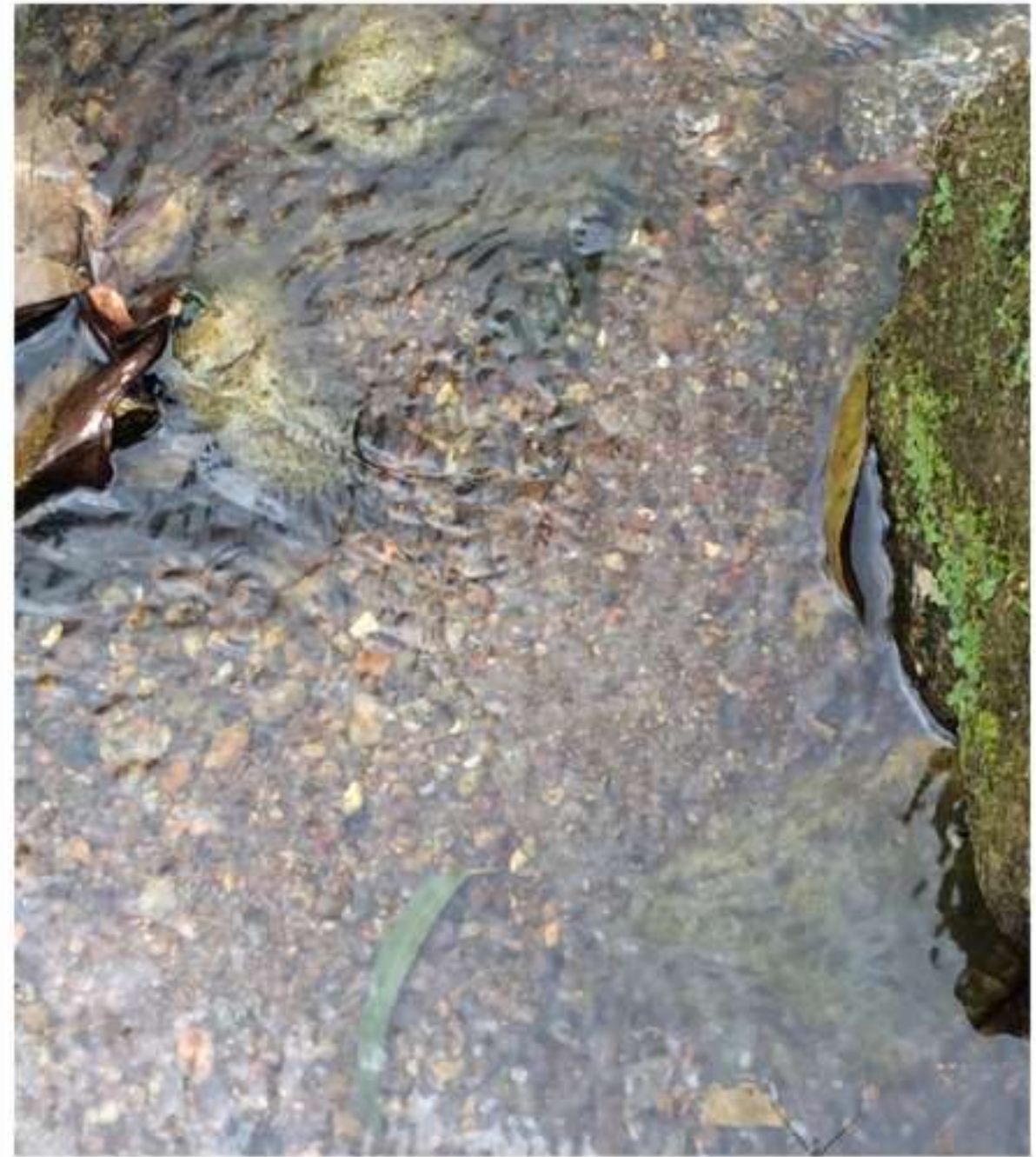
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The relationship between river bed substrate and the abundance of species

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Independent variables and methodology

- ❖ 1. Independent variables: river bed substrate
- ❖ Method of measurement: direct observation
- ❖ Site 1: sandy
- ❖ Site 2: stony
- ❖ Site 3: rocky
- ❖ Site 4: stony



Independent Variables

- ❖ 2. Independent variable: water depth
- ❖ Method of measurement: direct observation
- ❖ Site 1: shallow
- ❖ Site 2: shallow
- ❖ Site 3: deep
- ❖ Site 4: deep



Dependent variable: Abundance of species

- ❖ Method of measurement:
- ❖ Counting the number of species and individuals
- ❖ 1. Put a quadrat gently at a designated location
- ❖ 2. 5 mins sight surveying
- ❖ 3. 20 mins searching under the rocks and stones



Controlled variables

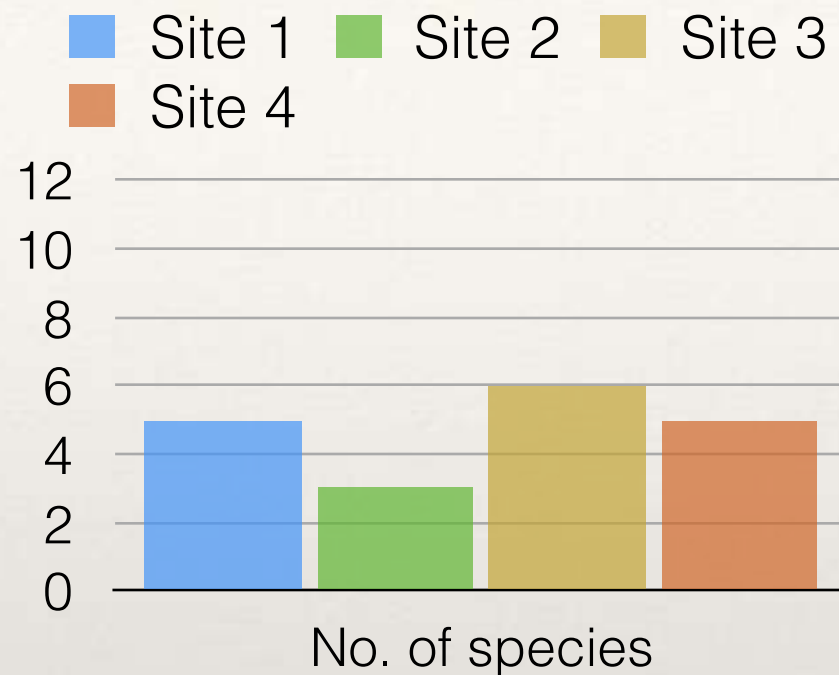
- ❖ Water flow rate: measured water flow meter
- ❖ Light intensity: light meter
- ❖ Water temperature: thermometer
- ❖ Abundance of water plants: by direct observation



Results

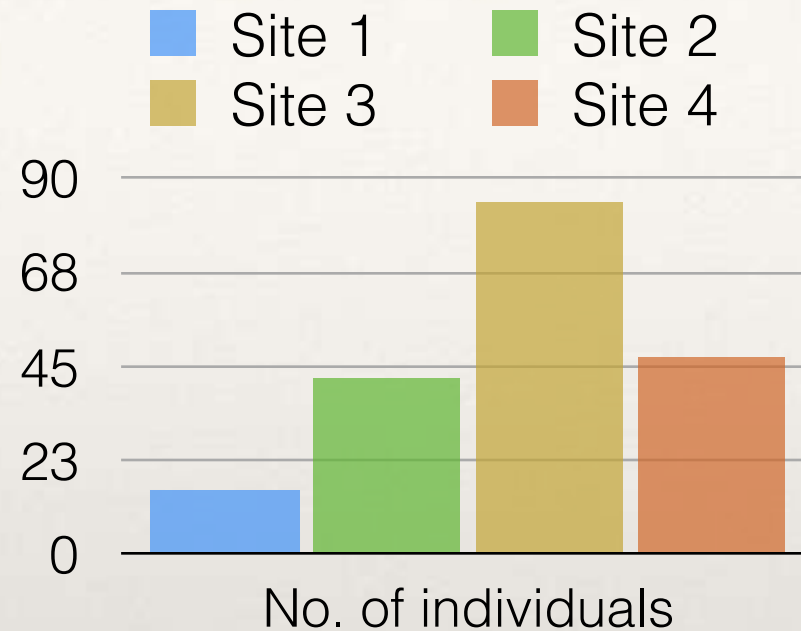
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Results and Analysis (independent variable 1)



- ❖ Number of species:
- ❖ i) At sandy, stony and rocky river bed, number of species are similar
- ❖ ii) Deep water has a relatively higher number of species than that at shallow water

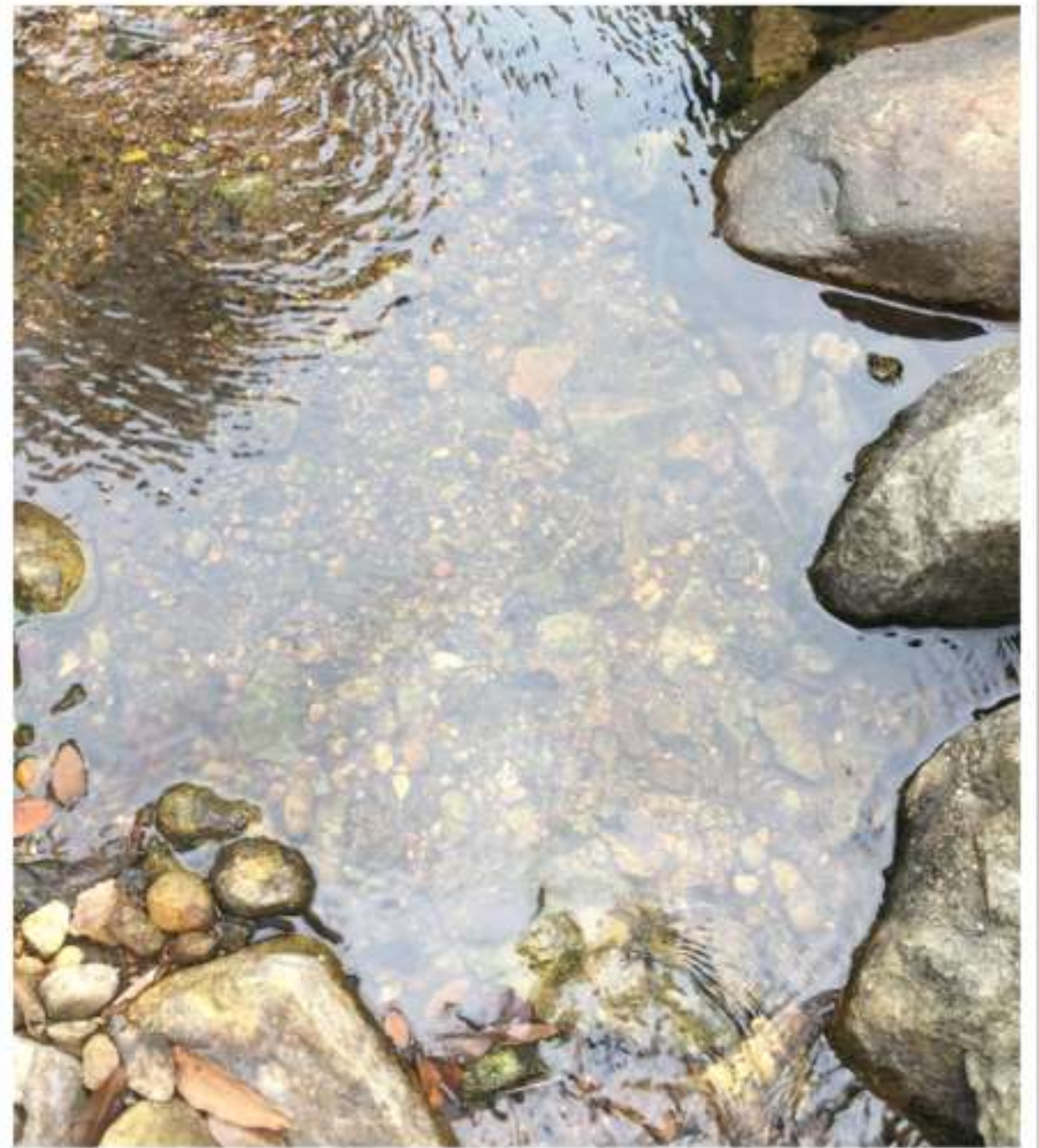
Results and Analysis (independent variable 2)



- ❖ Water depth:
- ❖ i) Rocky river bed has the highest number of individuals, following by stony river bed then sandy river bed
- ❖ ii) Deep water has a relatively higher number of individual than that at shallow water

Analysis

- ❖ Rocky river bed and deeper water provided a larger living space for more individuals
- ❖ Rocks provides a large surface area for Large Stream Nail to suck on and for more animals to hide from predators



Selected species: Broken-band Hillstream Loach

- ❖ It has a higher abundance on top of rocky river bed than that of stony and sandy river bed
- ❖ Because rocks can provide them shelter and protection from predators
- ❖ It has a higher abundance in deep water than that in shallow water
- ❖ Because it need larger room for activity and hunting of food



Conclusion

- ❖ At rocky river bed, the number of species and individuals are higher than that at stony and sandy river bed.
- ❖ Therefore, abundance of species is higher at rocky river bed.



Thank you!