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Revisiting the concept of zooplankton diversity assessment: perspectives from carcasses

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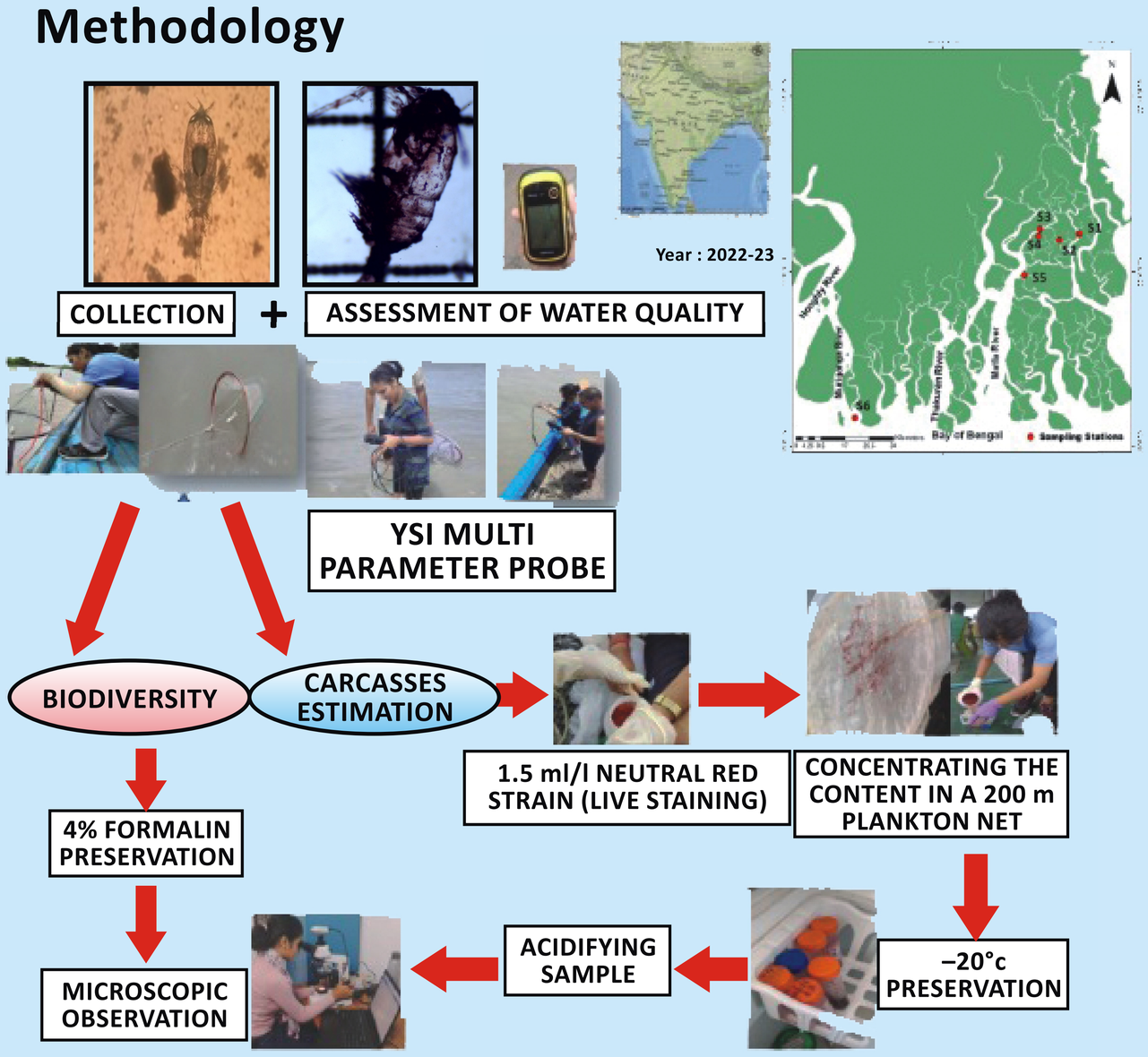
Background

- Copepods, a major group of zooplankton, are indicators of environmental variability
- Traditionally, in case of zooplankton sampling a considerable number of animals are generally captured dead
- Estimation of diversity indices, therefore, reflects both the alive and dead zooplankton. The study aims to revisit that traditional way of assessing biodiversity by incorporating the alive/dead state
- The copepods of Indian Sundarbans were used as an example community and sampled seasonally in 2022-2023 from the six stations spread across the Indian Sundarbans
- The results showed if alive/dead status is incorporated then some degree of deviation from the traditional method is evident

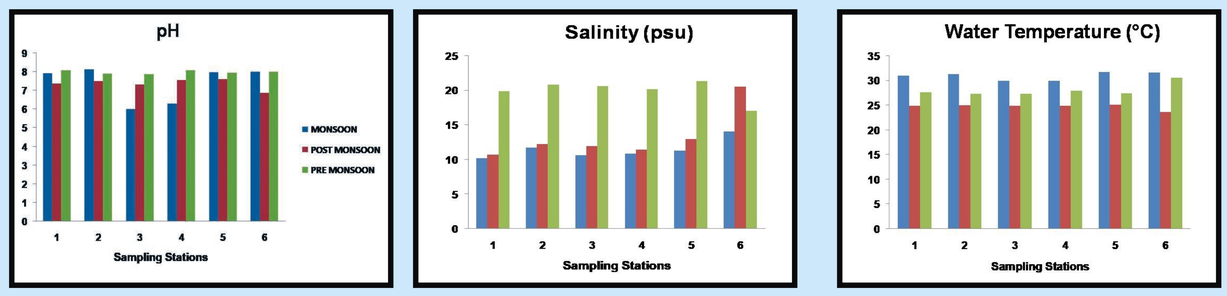
Objectives

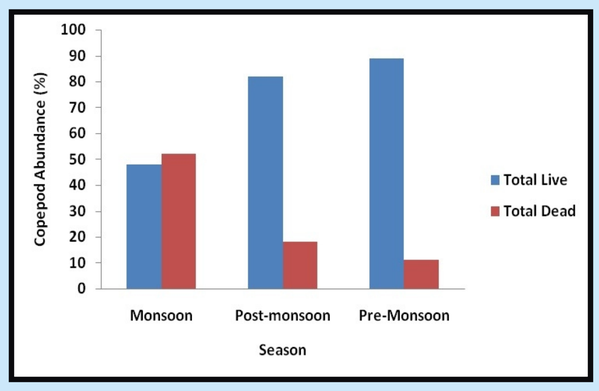
- Seasonal abiotic variability of Indian Sundarbans
- Biodiversity index calculation traditional vs. corrected by carcasses elimination

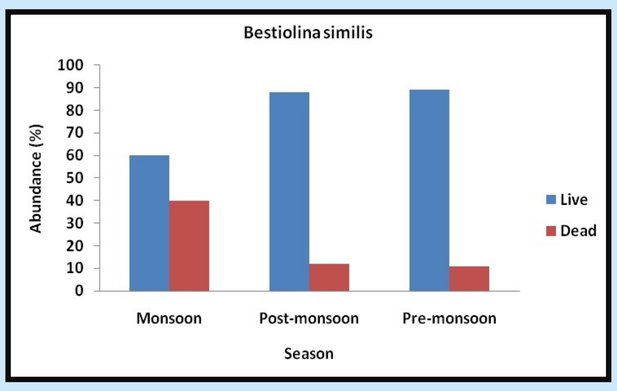
Methodology



Results







Discussion

- We identified 22 total copepod species belong to 12 genera and 8 families. 17 species were found to be from order Calanoida and remaining 5 species from Cyclopoida
- Most frequent encounters were B.similis and A.tortaniformis
- During monsoon, the copepod carcasses ranged from 1-48%, which appeared to be 5-43% in post-monsoon and 1-21% in pre-monsoon
- Carcasses found to be more abundant near the sea than top of the estuary
- The data implies there is significant scope of revisiting the traditional method of biodiversity estimation of plankton

Reference

1. Tang, K.W. and Elliott, D.T., 2014. Copepod carcasses: occurrence, fate and ecological importance. Copepods: diversity, habitat and behavior, pp.255-278
2. Elliott, D.T. & Tang, K.W., 2009. Simple staining method for differentiating live and dead marine zooplankton in field samples. Limnology and Oceanography: Methods, 7, Pp. 585594

Acknowledgement

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