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(mg/Hour/Dry-weight) after 3 hours of incubation. The hypothesis was with the time stress of the mesozooplankton community will increase so is the respiration rate. The salinity, water-temperature and pH of the Ganges estuary was measured, which were 12.46, 28.92°C and 7.38, respectively. The mesozooplankton community consists of 30 species out of which 29 species were of copepods and the other was *Zonosagittabedoti*. End of 1<sup>st</sup> hour after the incubation time was over, the average respiration rate of the mesozooplankton community was 4.99 mg/Hour/Dry-weight. For next three successive hours such were 5.41, 13.93 and 11.20 mg/Hour/Dry-weight, respectively. Results showed a significant but non-linear increase in the metabolic stress of the mesozooplankton community with the progressive time and supports the conceived hypothesis. The variability in the metabolic stress of the mesozooplankton community could be the result of the variable environment that the community faced during the experimental period. Author suggests to carry out such eco-physiological investigations on various sections of the estuary and/or on controlled environment (e.g. salinity), for provide more insights of the metabolic stress and the stasis of the estuarine mesozooplankton.

**Keywords:** Respiration, Environmental variability, Eco-physiology.

## HOURLY VARIATION OF MESOZOOPLANKTON AND WATER QUALITY OF THAKURAN ESTUARY, INDIAN SUNDARBANS

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Hourly variation of mesozooplankton and water quality of Thakuran estuary, Indian Sundarbans, was studied. Mesozooplankton were sampled from stations S1 (22°07.992' N 88°48.989' E) and S2 (21°47.480' N 088°27.409' E) located near the head and mouth of the estuary, respectively, in December 2022, for 12 hours (from 20:00 to 09:00 next day) using a zooplankton net (mesh size 200µ, diameter 60cms) mounted with a mechanical flowmeter. Nitrate-nitrogen, phosphate, silicate and chlorophyll-a concentrations, water temperature, salinity, pH, total dissolved solids (TDS) and depth were also measured on hourly basis simultaneous with mesozooplankton sampling. Copepods dominated the mesozooplankton

community constituting 85.70–100%. The bulk of biomass representing 17 (S1) and 25 (S2) species of 13 genera were calanoid copepods, followed by cyclopoids comprising 5 species of 3 genera and lastly 2 harpacticoids at S1 and 1 monogeneric harpacticoid at S2. Chaetognaths, decapod larvae and *Lucifer* contributed significantly to the total mesozooplankton count, apart from copepods. At S2, water temperature ( $t=-4.73$ ,  $df=11$ ,  $p < 0.001$ ), salinity ( $t=-2.78$ ,  $df=11$ ,  $p=0.02$ ), pH ( $t=-6.33$ ,  $df=11$ ,  $p < 0.001$ ), TDS ( $t=-3.54$ ,  $df=11$ ,  $p=0.005$ ), depth ( $t=-5.29$ ,  $df=11$ ,  $p=0.003$ ) significantly declined but chlorophyll-a ( $t=4.40$ ,  $df=11$ ,  $p=0.001$ ) concentrations rose during the study. At S1, water quality did not vary significantly over time. Acartiidae and Pseudodiaptomidae maintained a negative relationship with other families. At S2, a separate cluster at 70% level of similarity was formed by *Acartiellatortaniformis*, *Oithonabrevicornis*, *Paracalanusparvus* and *Bestiolinasimilis*, being the most dominant throughout the study. The most dominant *Paracalanusparvus* formed a cluster at 80% level at S1. Canonical Correspondence Analyses reveal salinity, depth, chlorophyll-a and nitrate concentrations to be the major regulating factors of mesozooplankton distribution at S1; while temperature, chlorophyll-a and phosphate at S2. The results reveal minute variations in mesozooplankton community structure despite contrasting microhabitats of the estuary. Being a crucial trophic link in the aquatic ecosystem, the monitoring of hourly variation of plankton community is recommended.

**Keywords:** Copepod community, diversity and distribution, ecological monitoring

## FOOD AND FEEDING HABIT OF LUTJANDAE FROM GOPALPUR COAST, ODISHA

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Food is any substance consumed to provide nutritional support for living organisms. It is typically of plant or animal origin and contains essential nutrients that are necessary for the existence of life. The present study is designed to investigate these aspects of lutjanidae from the Gopalpur coast, east coast of India. Fish samples of lutjanidae were collected from the