

ICHTHYOFAUNAL BIODIVERSITY IN NETRAVATI-GURUPUR ESTUARINE SYSTEM OF DAKSHINA KANNADA DISTRICT, KARNATAKA

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ABSTRACT : The present study was undertaken to assess the ichthyofaunal biodiversity in Netravati-Gurupur estuarine system of Dakshina Kannada district during the period from August-2014 to May-2015. The finfish samples were collected fortnightly from three selected stations of the estuary viz., Sulthan batteri (S₁), near bar mouth (S₂) and near Netravati bridge (S₃) using gillnet of different mesh size i.e., 30, 40, 50 and 60 mm. A total of 91 species belonging to 58 genera, 39 families and 11 orders were recorded. Diversity indices including Margalef's richness index (d), Shannon-wiener index (H') (at log₁₀), Simpson index (Ē), Hill diversity number (N₁) and (N₂) and Pielou's evenness (J') were calculated. The values of Margalef's species richness index (d) and the values of Shannon-wiener index (H') (at log₁₀) ranged between 3.547 to 11.076 and 1.053 and 1.649 respectively from all the three stations, whereas both the indices recorded highest value during month of Nov. 2014 in station-2 and lowest in the month of Sep. 2014 in station-3. The diversity indices Margalef's species richness index and Shannon-wiener index were generally high in station-2 followed by station-3 and station-1. The values of Simpson index (Ē), Hill diversity number (N₁), Hill diversity number (N₂) and Pielou's evenness (J') ranged from 0.025 to 0.096, 11.287 to 44.569, 10.390 to 39.540 and 0.915 to 0.984 respectively from all the three stations. The K-dominance curve plot showed that the density of fish species was high near the bar mouth region (S₂) and proved that the number of species (richness) more near the bar mouth region (S₂). Bray-Curtis similarity index revealed that the maximum similarity was found between S₂ and S₃ stations. The same pattern was also evident in the MDS plot and the stress value, which was overlying on the MDS plot (0.03, 0.03 and 0.06), showed an excellent ordination of the samples collected. The tests for taxonomic distinctness showed, statistically no deviation during the study period.

Key words : Ichthyofaunal biodiversity, Netravati-Gurupur Estuaries, Mangalore.

INTRODUCTION

India has a coastline of 8,118 km with associated continental shelf of 0.53 million km² and an Exclusive Economic Zone of 2.02 million km². India is one among 12 mega biodiversity countries and 25 hotspots of the richest and highly endangered eco-regions of the world. Among the Asian countries, India is perhaps the only one that has a long mangroves, backwaters, salt marshes, rocky coasts, sandy stretches and coral reefs, which are characterized by unique biotic and abiotic properties and processes. With only 2.5% of the land area, India accounts for 7.8% of the recorded species of the world (Anon, 2012).

Estuaries are the transitional zones between the rivers and sea and have specific ecological properties and biological composition. They offer immense biological wealth characterized by the diversified rich flora and fauna. The word estuary was derived from the Latin word "aestus" meaning "tide" and the adjective "aestuarum", which means "tidal". The more common definition in

literature was given by Pritchard (1967) as: "a semi-enclosed body of water which has a free connection with the open sea and within which seawater is measurably diluted with freshwater derived from land drainage".

Biodiversity is the variation in the genetics and life forms of populations, species, communities and ecosystem. It affects the capacity of living system to respond to changes in the environment and is essential for providing goods and services from ecosystems (e.g. nutrient cycling, clean water). Biological diversity is fundamental to the fulfillment of human needs and fishes form highest species diversity among all vertebrate groups apart from its economic importance (Siddiqui *et al.*, 2014). Sustainable use of fish resources is central to fisheries management given the long term significance of the fisheries sector in terms of sustenance and employment. Biodiversity is essential for stabilization of ecosystems, protection of overall environmental quality, for understanding intrinsic worth of all species on the earth (Ehrlich and Wilson, 1991).