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TITLE: Spatio-temporal Variations of Macrobenthic Annelid Community of the Karnafuli River Estuary, Chittagong, Bangladesh

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ABSTRACT:

The spatial and temporal variation in species composition, distribution, abundance, biodiversity and succession of the macrobenthic annelid assemblages in the intertidal zone of the Karnafuli Estuary are analyzed in this paper. Samples were collected from nine stations placed in different tide marks from three sites of the study area. From the total of 180 samples collected during one year sampling period, a total of 4,46,516 individuals of macrobenthic annelids belonging to polychaete, oligochaete and clitellata classes and represented by 12 species/taxon were identified. The most abundant species recorded in this study were Capitella sp., Lycastonereis indica, Namalycastis fauveli , Nephthys oligobranchia within polychaetes; Tubifex sp. within oligochaete and Tubificoides insularis within clitellata. Capitellidae was the most abundant family represented by Capitella sp. which was distributed in the study area in all seasons of the year and it was ranged from a minimum value (Site1 (S 1 ): 23 individual/m²) during pre monsoon to a maximum value (Site2 (S 2 ): 243687 individual/m²) during post monsoon. This species supported the highest contribution (98.67%) to the average abundance recorded in post monsoon. The abundance of some species fluctuated in different seasons with a marked seasonal and spatial succession. Higher values of species diversity and evenness were recorded during monsoon and maximum numbers of individuals were counted during post monsoon. The macrobenthic annelid assemblages showed distinct seasonal differences (Analysis of similarities (ANOSIM test) by using PRIMER (v.6) software). All the seasons were distinguished at different significant level (global r = -0.083 and p = 63.8%). Average similarities within the macrobenthic annelid community compositions recorded during monsoon, post monsoon, winter and pre monsoon were 95.74%, 39.87%, 32.25% and 34.21% respectively. Similarly, average similarities recorded in site 1, site 2 and site 3 were 29.18%, 99.00% and 57.53% respectively. Average dissimilarity was highest (55.20%) between the species composition of post monsoon and winter and the lowest value (39.30%) of average dissimilarity was found between monsoon and post monsoon. Again average dissimilarity presented the highest value between site 1 & site 3 (55.93%) and the lowest value between the site 2 & site 3 (38.87%).

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