LARVAL FISH DIVERSITY INFLUENCED BY ENVIRONMENTAL VARIABLES OR HABITATS STRUCTURE IN THE SEAGRASS-MANGROVE ECOSYSTEM OF GELANG PATAH, JOHOR, MALAYSIA

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Abstract - Larval fish composition, spatio-temporal distribution, density, family richness and Shannon-Wiener index were determined by analyzing samples collected from the seagrass-mangrove ecosystem of Gelang Patah, Johor Strait, Peninsular Malaysia between October 2007 and September 2008. Five stations were selected namely upper estuary (S1), middle estuary (S2) and lower estuary (S3) of Pendas River; seagrass beds (S4) and open seas (S5). Each sampling station was approximately 1 km apart from each other. Larvae fishes were collected by subsurface towing of Bongo net equipped with a flow meter. In total, 24 families of fish larvae belong to six orders were identified from seagrass-mangrove ecosystem of Gelang Patah, Johor Strait. Similarity matrix and cluster analysis revealed that there are six different families under the order Perciformes. In total, 24 families were identified from the coastal waters of Gelang Patah, Johor, Peninsular Malaysia. Among them, 14 occurred in upper estuary, 17 in middle estuary, 16 in lower estuary, 20 in seagrass beds and 16 in open sea. Overall five (Clupeidae, Blenniidae, Terapontidae, Gobiidae and Sillaginidae) were the most dominant in study areas. Shannon-Wiener index varied significantly within monsoon and intermonsoon seasons peaking in the months October-January and May-August. The highest density of larval fishes was recorded at seagrass station (S4) and the spatial variations in larval density were significant ($p < 0.05$) between seagrass and other four sampling sides. None of the diversity indices showed significant among-stations except only family richness was significantly ($p < 0.05$) higher in seagrass beds than upper estuary. Among 24 families, 18 families were found to have correlation either positively or negatively with the water parameters. The highest and significant regression coefficient was observed in Sillaginidae which indicated 72% abundance of Sillaginidae was influenced by the major water parameters and remaining 28% by other factors.

Keywords - Larval fishes, temperature, salinity, dissolved oxygen, pH, abundance, seagrass, mangrove, Johor, Malaysia