Dynamics of fish diversity across an environmental gradient in the Seribu Islands reefs off Jakarta

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The reefs of Seribu Islands have been affected by multitude of anthropogenic pressures. However, the biodiversity of reef fishes across the archipelago linked to environmental condition is poorly known. This study aimed to investigate the biodiversity and the trophic level of fish communities across the archipelago. The study on reef fish communities was conducted on 33 reef sites associated with islands or shoal randomly chosen from each zone along environmental gradients from the inshore water nearest of Jakarta Bay to the offshore water of the outer islands. The study sites represented each sub-districts within the archipelago, namely Pari, Tidung, Panggang, Kelapa, and Harapan. A total of 46,263 individual fishes were counted, belonging to 216 species and 29 families. The multivariate analysis of fish abundance using the Bray Curtis similarity index and non-metric multidimensional scaling (MDS) clearly showed the clustering of sub-districts, near and far from Jakarta Bay. The results showed that the sub-districts can be clustered into three groups. Group one consists of one sub-district (Pari) located in the southern part of the Seribu Islands near Jakarta Bay. Group two consists of three subdistricts (Tidung, Panggang, Kelapa) located in mid of the archipelago. The third group consists of one sub-district (Harapan) located inthe northern part of the Seribu Islands. Based on species richness and fish diversity indices, the sub-districts can be clustered into two groups (1 = Pari and Tidung, 2 = Panggang Kelapa, Harapan). However, levels of similarities among sub-districts varied. The fish community in sub-district of Pari was dominated by carnivorous, omnivorous and herbivorous fishes, while those in the rest of subdistricts were dominated by omnivorous and carnivorous fishes. The present study results showed that the biodiversity of reef fishes across the Seribu Islands seemed to be linked to the environmental conditions.
**Key words:** Fish-habitat association, species diversity, anthropogenic stress, multivariate analysis