

Fish and Crustacean Communities and Fish Length-Weight Relationship of Lutong River, Miri, Sarawak, Malaysia

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Abstract: This study was carried out to determine the composition and diversity of fish and crustacean fauna in Lutong River, Sarawak and length-weight relationship of major fish species caught. A total of 33 species of fish and crustacean belonging to 28 genera and 23 families were recorded from the study area. Thirty-nine percent of the number of individuals caught was from the family Ambassidae, 15% from Penaeidae, 10% from Portunidae, 8% from Mugilidae, 6% from Megalopidae, 4% from Scatophagidae and 3% from Centropomidae. Many of the individuals caught were small-sized individuals indicating the role of the river, to a certain extent as a nursery area. However, compared to other less disturbed areas such as Paloh mangrove, the number of species and families recorded in Lutong River were only 47 and 58% respectively of those recorded in Paloh mangrove likely due to the lack of abundance of food as detritus were less in Lutong River. The values of parameter *b* of the length-weight relationships for nine fish species ranged from 2.65-3.10 with only three species showing positive allometric growth. The low number of species and low fish species with positive allometric growth were possibly due to the impacts of human settlement and petroleum industry.

Key words: Fish composition % Fish fauna % Length-weight relationship % Mangrove

INTRODUCTION

Mangrove forest is usually found at the mouth or estuary of most rivers in tropical and sub-tropical coastal regions. The low-energy intertidal zone encourages the development of this ecosystem [1] and is commonly associated with soft and muddy substrate. In Sarawak, mangrove forest covers an area of approximately 174,000 hectares and occupies about 60% of the 740 km length of its coastline. They are located mainly along the sheltered coastlines and estuaries within the major bays of Kuching Division, Sri Aman Division, Rajang Delta and Limbang Division [2]. Coastal aquaculture development has accelerated the loss of this extremely important habitat in many countries. In Sarawak, the demand for mangrove resources has been steadily increasing, not only for the products themselves but also for the land which is normally converted into sites for human settlement, industries, agriculture and aquaculture especially for shrimp and fish culture [3].

Mangrove forests are highly productive and valuable ecosystems [4]. They are important detritus contributor for the ecosystem food webs, which also benefit the estuarine and near shore fisheries. Mangrove forests also act as nursery, feeding, breeding and shelter areas for many species of aquatic life. Several fish species use mangrove habitats to breed and as their nursery ground especially for those in the juvenile stages [5-8]. Previous studies showed that juvenile fishes, including several of commercially important species, were found exclusively in mangrove areas [6, 9, 10]. In Sarawak, mangrove forests have traditionally been an essential resource for coastal communities. A small impoverished mangrove community also grows along the bank of Lutong River in Miri, Sarawak. In spite of the importance of mangrove as nursery, feeding, breeding and shelter areas for many species of aquatic life, almost no information is available on the fish communities of Lutong River. Furthermore, the length-weight relationship for fishes which is important for fish stock assessment has been reported in different