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Beyond Classical Approaches

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MORPHOLOGICAL DIFFERENCES OF TERUBOK SUNGAI (*TENUALOSA TOLI*) AND TERUBOK LAUT (*TENUALOSA MACRURA*) AND THEIR LENGTH-WEIGHT RELATIONSHIP

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ABSTRACT

Terubok Sungai (*Tenualosa toli*) and Terubok Laut (*Tenualosa macrura*) are commercially and culturally important fishes for the local community of Sarawak. Once widespread, *T. toli* is now confined to estuaries and adjacent coastal areas of Sarawak while *T. macrura* is now found only in the coastal waters of Sumatra and Borneo. Therefore, this study was designated to identify morphological characters of *T. toli* and *T. macrura*; to identify their morphological differences; and to identify their length-weight relationship for better understanding of their morphology and for conservation and management purposes. Specimens were bought from local fish market and by fishing trip with the help of local fishermen. All specimens were divided according to species, weighed, and measured to the nearest millimeters for 13 morphological characters (total length, fork length, standard length, head length, mouth length, eye diameter, snout length, caudal fin length, body height, caudal peduncle height, inner pelvic fin-anus, post anal fin-caudal length, height of head across eyes) and four meristic characters were count (post-pelvic scutes, dorsal fin rays, pectoral fin rays, and gillrakers number on lower part of first arch). Statistical analysis was conducted to identify the length-weight relationship for both species and to compare their mean weight using IBM SPSS Statistics 19 computer software. Overall, length of head; mouth; snout; caudal peduncle; inner pelvic anus; and height of head across eye for *T. toli* are larger while *T. macrura* have longer caudal fin, smaller head, and smaller mouth. Body height of *T. toli* is higher while *T. macrura* have slightly higher caudal-peduncle height. Gillrakers are fine but not numerous for both species with *T. toli* have higher number range than *T. macrura* while the dorsal fin and pectoral fin rays show similarity. Post-pelvic scutes of *T. macrura* are more than of *T. toli*. Length-weight relationship for both species shows very strong positive correlation ($r = 0.956$) for *T. toli* and ($r = 0.958$) for *T. macrura* while mean weight of this two fishes did not show significant difference ($p > 0.05$).

Keywords: *Tenualosa toli*, *Tenualosa macrura*, morphology, length-weight relationship

INTRODUCTION

Terubok is a local name given to two species of tropical shads from genus *Tenualosa* in Sarawak. Both species are commercially and culturally important for the local community especially coastal fishermen. Once widespread, *Tenualosa toli* (Valenciennes) or "Terubok Sungai" is now found only in the estuaries and adjacent coastal areas of Sarawak, while *Tenualosa macrura* (Bleeker) or "Terubok Laut" was previously widespread in South-east Asia, is now found only in the coastal waters of Sumatra and Borneo (Blaber *et. al.*, 2005).

In Sarawak, there are three "core Terubok areas" known as the main fishing areas for *T. toli* fisheries namely; estuaries of Lupar, Saribas, and Lassa rivers (Rajali, 1991). *T. macrura* fisheries on the other hand, mostly occurred at the large estuarine embayment formed by the mouths of Sadong, Lupar and Saribas rivers with fewer fisheries activity from coastal site of Sematan, Lundu, Oya, Mukah, Balingian, Bintulu, and Miri (Blaber *et. al.*, 2005). Terubok are broadly estuarine and coastal fishes in distribution as they did not enter freshwater ecosystem. *T. toli* and *T. macrura* are the characteristic of large turbid estuaries with high discharge that open into shallow and muddy