

Relationships between sagittal otolith size and body size of *Terapon jarbua* (Teleostei, Terapontidae) in Malaysian waters*

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Abstract Length-weight relationship provides basic information of a fish's condition while the morphometric data of otolith has been traditionally used to determine the range of fish sizes for various purposes. The length-weight relationship of *Terapon jarbua* (Forskål, 1775) was examined from 165 specimens, while 132 specimens were used in sagittal otolith biometry measurements. Fish specimens were obtained from various locations in Malaysia including Pahang, Selangor, Sarawak, and Sabah. The total length of fish ranged 12.5–32.5 cm, while the total weight ranged 26.28–444.30 g. The otolith length ranged 0.423–1.070 cm, and the otolith weight was 0.010 3–0.157 2 g. The specimens displayed a mixture of positive and negative allometry growth as indicated by fluctuating *b* values between 2.74 and 3.15. The overall coefficient of determination (R^2) between fish length and weight was 0.972 9, which implies a strong correlation. All regressions between the fish length and otolith dimensions were highly significant ($P < 0.001$). The otolith dimensions found to be most closely related to the fish total length was the otolith weight. This was supported by the regression model showing a high R^2 value of 86.57%. The aspect ratio of otolith was 1.80 ± 0.14 (mean \pm SD). Results confirm that the otolith growth reflects the somatic growth of *T. jarbua*. The length-weight relationship explained the growth conditions of the fishes in each location while the overall *b* value of 2.91 indicates that the condition of *T. jarbua* grown in Malaysian waters during the study period was generally in good condition. This study contributed to the database on the morphometric data of otolith of *T. jarbua* as well as the first report on fish length-weight relationship for *T. jarbua* in Malaysia.

Keyword: aspect ratio; otolith; length-weight relationship; grunter

1 INTRODUCTION

Terapon jarbua (Forskål, 1775) is commonly known as tiger perch, or “ikan mengkerong” in the local name (Department of Fisheries Malaysia, 2009; Du et al., 2019; Shyama et al., 2020). They are also called grunters in reference to the sound emitted by their unique swim bladder that is equipped with extrinsic muscles (Vari, 1978). *T. jarbua* is a catadromous species (Riede, 2004), in which they are born in saltwater, and subsequently migrate to

freshwaters as juveniles before migrating back into the ocean as adults for spawning (Rao et al., 2000). The total length of an adult is generally between 20 and 27 cm (Vari, 1978), but sometimes can reach up

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