

## Body Indices and Population Dynamics of *Setipinna breviceps* (Cantor, 1849) from Batang Lassa Estuary, Sarawak, Malaysia

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Received: 26 August 2022

Accepted: 22 May 2023

Published: 30 June 2023

### ABSTRACT

The *Setipinna breviceps* is a commercially important and highly esteemed food fish. This species has scant of scientific formation particularly on population parameters like growth, mortality and recruitment. The present study aimed to estimate the body indices and population parameters of *Setipinna breviceps* of Batang Lassa Estuary (BLE). Samples were collected between April 2019 and September 2020. A local made bag net known as *Gnian* (mesh size 1.25 to 4.00 cm) was used for sampling the fish. A total of 287 qualified specimens were used for this study. The length and weight of individual fish was measured to the nearest 0.1 cm and 0.01 g, respectively. The length ranged from 5.50 to 24.00 cm and growth coefficient (b) was 2.563 ( $R^2 = 0.87$ ) which clearly indicated a negative allometric growth. About 50% of individuals showed flat or slender body ( $K_n < 1$ ) and 47% of the specimens were rounded shaped ( $K_n > 1$ ) while 2.44% of fishes measured an ideal shape ( $K_n = 1$ ). The parameters of growth  $L_\infty$ , K and  $\phi'$  were estimated at 24.15 cm, 0.23 yr<sup>-2</sup> and 2.13, respectively. The estimated natural mortality and fishing mortality were 0.74 and 0.29 yr<sup>-2</sup>, respectively and exploitation rate was 0.28. The recruitment pattern during the study was observed at two possible unequal peaks. The present study concluded that the anchovy was under exploited ( $E < 0.5$ ) as demonstrated by the under-sized fishes caught with small mesh size net. However, considering the minimum lengths and length at first catch, the BLE could be a productive nursery ground for *S. breviceps*. Therefore, management actions are required to avoid juvenile catches.

Keywords: Borneo Island, fish population dynamics, Short head hairfin anchovy

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### INTRODUCTION

Fisheries resource sustainability is a major challenge for coastal resource management (Mustafa *et al.*, 2021a). Malaysia is home to approximately 1,951 fish species, including marine, estuarine and freshwater, making it one of the world's major diversity hotspots (Chong *et al.*, 2010), and East Malaysia contributes a significant share of fishery resources. Sarawak coastal resources are endowed with huge estuarine and coastal fisheries. A total of 564 fish species has been recorded from Sarawak water mentioned by Abu Hena *et al.* (2022). Batang Lassa is one of the important estuaries having deltaic influence of

lower Rajang river that supports many commercial fishes. Marine capture fisheries account for around 79.21% reported by SEAFDEC (2017). This resource contributes significantly to the country's income, foreign exchange, and jobs, where, the contribution of fisheries sector in Malaysian GDP is 0.8% alone and about 12.5% in agricultural GDP of Malaysia (DoSM, 2020). Worldwide, eight species and variety of *Setipinna* were listed in FishBase (Froese & Pauly, 2020) out of which about six species occurred in Malaysian water bodies. *Setipinna breviceps* is a highly esteemed food fish in Malaysia with commercial value.