



**Comparative Assessment of Gastrointestinal Indices
and Feeding Habits among Three Species of Jew Fish
from the Bay of Bengal, Bangladesh**

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Roll No. 0122/07

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**A thesis submitted in the partial fulfillment of the requirements for the degree of
Master of Science in Fish Biology and Biotechnology**

**Department of Fish Biology and Biotechnology
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June 2023

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The Author

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**This is to certify that we have examined the above Master's thesis and have
found that is complete and satisfactory in all respects and that all revisions
required by the thesis examination committee have been made**

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LIST OF ABBREVIATIONS

VSI	Visceral Somatic Index
HIS	Hepato Somatic Index
ISI	Intestine Somatic Index
RLG	Relative Length of Gut
GSI	Gonado Somatic Index
ANOVA	Analysis of Variance
SD	Standard Deviation
TL	Total Length
SL	Standard Length
BW	Body Weight

ABSTRACT

The Bay of Bengal (BoB) is one of the rich marine ecosystems with diverse fish species. Croakers, also known as jewfish are economically important fish species in the BoB. However, very little is known about the life-history traits of the croaker from the BoB. In this study, a total of 105 samples of croakers were collected during the months of September - October 2021 and September-October 2022 from the coast of Dorianogor jele polli of Cox's Bazar and an extensive analysis of biological indices and feeding habits was conducted on three croaker species - *Johnius borneensis*, *Otolithes ruber* and *Johnius belangerii*. The total length and total weight of the individual sample along with the length and weight of the targeted internal organs were measured to calculate gastrointestinal indices and RLG values. Results found significant variations in these gastrointestinal indices like visceral somatic index (VSI), hepato somatic index (HSI), intestine somatic index (ISI), relative length of gut (RLG) and gonado somatic indices (GSI) values among the studied croaker species. Results showed that *J. borneensis* exhibited the highest VSI, indicating superior energy storage compared to other species. The HSI values also demonstrated significant difference highlighting distinct nutritional requirements and metabolic activities among the croaker species. In addition, the dietary preferences of the croaker species were investigated through gut content analysis and also found variations in the food compositions and amount of food among three closely related croaker species. The findings of the present study will provide a baseline for valuable insights into the nutritional health, feeding behaviors and reproductive patterns of these croaker species, contributing to a better understanding of their ecological roles in the Bay of Bengal.

Keyword: Croakers, Visceral somatic indices (VSI), Hepato somatic indices (HSI), Intestine somatic indices (ISI), Gonado somatic indices (GSI), Relative length of gut (RLG), Gut content analysis .