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

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Session. 2021-22

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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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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ACKNOWLEDGEMENT

First and foremost, I extend my wholehearted gratitude to the Almighty Allah Subhanahuwata'ala for his unwavering guidance, boundless blessing and strength he has bestowed upon me throughout this journey. His divine support has been my constant source of inspiration and motivation and without his blessing this achievement would not have been possible.

Apart from the efforts of me, the success of this thesis depends largely on the encouragement and guidelines of many others. I take this opportunity to express my gratitude to the people who have been instrumental in the successful completion of this thesis.

I would like to express my deep and sincere gratitude to our honorable and respected Vice- Chancellor, Professor **Dr. A.S.M Lutful Ahasan** and Professor **Dr. Mohammed Nurul Absar Khan**, Dean, Faculty of Fisheries, CVASU for providing invaluable opportunity, necessary research facilities and resources to accomplish my research work.

I would like to express my utmost gratitude to my dynamic supervisor, **Md. Main Uddin Mamun**, Assistant Professor, Department of Fish Biology and Biotechnology, CVASU for his selfless guidance, continuous support, constructive criticism, valuable advice and encouragement throughout the entire research work. His dynamism, sincerity and motivation have deeply inspired me. It has been a great pleasure and honor to have him as my supervisor.

I am extremely privileged to convey my profound gratitude to my co- supervisor **Dr. Md. Mahiuddin Zahangir**, Associate Professor and Head, Department of Fish Biology and Biotechnology, CVASU for his kind and continuous help, guidance and encouraging attitude for the completion of this research work. He has been generous to spare his precious time for discussion and doing away with difficulties arising at various stage.Wihout his knowledge, perceptiveness and encouragement I would never have finished this work.

I am deeply grateful and would like to extend my heartfelt appreciation to **Md. Moudud Islam**, Associate Professor, Department of Fish Biology and Biotechnology, CVASU and **Fatema Akhter**, Assistant Professor, Department of Fish Biology and Biotechnology, CVASU. It was an immense pleasure and a true honor to have the

opportunity to work and learn under their guidance. Their mentorship has not only enriched my research but also greatly motivated me in my academic journey.

My heartfelt appreciation extends to my supportive friends and technical staff of the Department of Fish Biology and Biotechnology who has helped me to finish the research job, whether directly or indirectly.

Finally, my sincere gratitude and respect to my loving parents and family for their understanding and supports in completing this thesis. Without their help, it would have been impossible to overcome the difficulties faced during the research period.

The Author

June 2023

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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 .