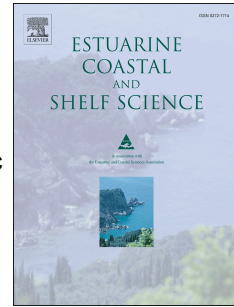


Accepted Manuscript

Do biotic interactions explain zooplankton diversity differences in the Meghna aquatic ecosystems of Bangladesh?

Subrata Sarker, Md Al-Noman, Shyamal Chandra Basak, Mohammad Mahmudul Islam



PII: S0272-7714(18)30253-1

DOI: [10.1016/j.ecss.2018.07.012](https://doi.org/10.1016/j.ecss.2018.07.012)

Reference: YECSS 5914

To appear in: *Estuarine, Coastal and Shelf Science*

Received Date: 25 March 2018

Revised Date: 4 July 2018

Accepted Date: 8 July 2018

Please cite this article as: Sarker, S., Al-Noman, M., Chandra Basak, S., Islam, M.M., Do biotic interactions explain zooplankton diversity differences in the Meghna aquatic ecosystems of Bangladesh?, *Estuarine, Coastal and Shelf Science* (2018), doi: 10.1016/j.ecss.2018.07.012.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Do biotic interactions explain zooplankton diversity differences in the Meghna aquatic ecosystems of Bangladesh?

Subrata Sarker¹, Md.Al-Noman², Shyamal Chandra Basak³, Mohammad Mahmudul Islam²

¹Departemnt of Oceanography, Shahjalal University of Science and Technology, Sylhet-3114, Bangladesh

²Department of Coastal and Marine Fisheries, Faculty of Fisheries, Sylhet Agricultural University, Sylhet-3100, Bangladesh

³Civil Service Commission, Government of the People's Republic of Bangladesh, Bangladesh

*Corresponding author: Email: Subratark-ocg@sust.edu, Phone: +8801710417753

Abstract

Differences in species diversity in ecosystems have long and often been discussed and interrogated in ecological research. A two year study on zooplankton diversity in the Meghna River its estuary of Bangladesh found that diversity is comparatively higher in the estuary than the river. This study examines whether the biotic interactions of species can explain the diversity difference between these two aquatic habitats. The study is based on several species diversity hypotheses related to biotic interactions (i.e. low interspecific interactions, comparatively higher disturbance, higher species recruitments and higher intransitivities cause higher species diversity). A first order Markov chain model was used to estimate the biotic interactions i.e. species displacement ability, disturbance, colonization and intransitivities. Monte Carlo Markov chain (MCMC) simulations were performed to estimate species interactions from the Markov chain model. Results suggest low inter-specific interactions, comparatively higher disturbance rate, higher species recruitment and intransitivities in the Meghna estuary have caused higher zooplankton than the Meghna riverine ecosystem. In addition, it is evident that the negative association of species colonization with species displacement ability and displacement risk also led to a comparatively higher diversity in the Meghna estuary than the Meghna River. It is apparent from the zooplankton abundance data, that biotic interactions can explain the zooplankton species diversity difference in the Meghna aquatic ecosystems of Bangladesh. With these findings the current study provides valuable insights into zooplankton diversity differences in tropical ecosystems.

Download English Version:

<https://daneshyari.com/en/article/8884624>

Download Persian Version:

<https://daneshyari.com/article/8884624>

[Daneshyari.com](https://daneshyari.com)