

DIEL VARIATION IN ABUNDANCE AND SIZE COMPOSITION OF  
ZOOPLANKTON IN CORAL REEF AREA OF BIDONG ISLAND

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MALAYSIA

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**DIEL VARIATION IN ABUNDANCE AND SIZE COMPOSITION OF  
ZOOPLANKTON COMMUNITY IN CORAL REEF AREA OF BIDONG ISLAND**

By

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Research Report submitted in partial fulfilment of the requirement for the degree of  
Bachelor of Science (Marine Biology)

Department of Marine Science

Faculty of Maritime Studies and Marine Science

UNIVERSITI MALAYSIA TERENGGANU

2013

This project report should be cited as:

Ozair, M. F. 2013. Diel variation in abundance and size composition of zooplankton community in coral reef area of Bidong Island. Undergraduate thesis. Bachelor of Science (Marine Biology). Faculty of Maritime Studies and Marine Science. Universiti Malaysia Terengganu. 47p.

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**DEPARTMENT OF MARINE SCIENCE  
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE  
UNIVERSITI MALAYSIA TERENGGANU**

**DECLARATION AND VERIFICATION REPORT  
FINAL YEAR RESEARCH PROJECT**

It is hereby declared and verified that this research report entitled: Diel variation in abundance and size composition of zooplankton community in coral reef area of Bidong Island by Muhammad Fithrie B Ozair, Matric No. UK 22491 has been examined and all errors identified have been corrected. This report is submitted to the Department of Marine Science as partial fulfillment towards obtaining the Degree of Bachelor of Science Marine Biology, Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

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## ACKNOWLEDGEMENT

Alhamdulillah, I am very grateful and would like to thank you to all of the lecturers that involve and help me a lot during my sampling until I have finished my Final Year Project. Special thanks to Dr. Roswati Md Amin and Dr. Teruaki Yoshida for their effort and guidance to make sure I have enough reference and knowledge to finish this thesis. To other lecturer in FMSM, a very big thank because of the knowledge I have gain since I was in 1<sup>st</sup> year. To all my family and friends, I am thankful for their support and motivation. Thank you very much for all that involve in my Final Year Project.

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## LIST OF ABBREVIATIONS

Ind.m<sup>-3</sup>      Individual per meter cube

(%)          Relative abundance

μm          Micrometer

m<sup>3</sup>          Meter Cube

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## ABSTRACT

A study on diel variation was carried out in Bidong Island fringing reef to understand coral-reef zooplankton ecology on diel basis, zooplankton abundance and size composition. The samples were taken for 48 hours with 3 hours interval. Zooplankton was collected vertically with 100 $\mu$ m mesh size Kitahara net and size-fractionated into 100-300  $\mu$ m and >300  $\mu$ m. Diel variation of the zooplankton showed that abundance during night was always greater compared to day. Nocturnal increase occurred most strongly in the large fraction (>300  $\mu$ m). In Bidong Island, the peak of zooplankton is late at night at 3a.m ( $22976 \pm 1339$  ind.  $m^{-3}$ ). Large size fraction (>300 $\mu$ m) zooplankton show strong pattern of nocturnal migration which consist of several species of zooplankton such as polychaetes, appendicularia, nauplius, copepods, arrow worms and radiolarian. While for small fraction zooplankton (100-300 $\mu$ m) most common zooplankton were polychaetes, appendicularia, copepods, bivalvia, gastropodanauplius and radiolarian. The highest peak for small size zooplankton was at 3a.m ( $11557 \pm 355$  ind.  $m^{-3}$ ). M-Whitney analysis shows that there were differences in the night and day zooplankton population ( $p<0.05$ ).

# **DIEL VARIASI DALAM KELAMBAKKAN DAN KOMPOSISI SAIZ ZOOPLANKTON KOMUNITI DI TERUMBU KARANG PULAU BIDONG**

## **ABSTRAK**

Satu kajian tentang migrasi diel telah di jalankan di Terumbu karang Pulau Bidong untuk memahami tentang ekologi, peratus kelambakkan dan komposisi saiz zooplankton terumbu karang. Sampel telah diambil dalam masa 48 jam diselangi oleh 3 jam. Zooplankton di kumpul secara menegak oleh 100 $\mu$ m saiz jaring Kitahara dan zooplankton dibahagikan kepada 100-300 $\mu$ m dan >300 $\mu$ m. Migrasi diel menunjukkan kelambakkan pada waktu malam selalu melebihi kelambakkan zooplankton pada waktu siang. Zooplankton bersaiz besar (>300  $\mu$ m) menunjukkan peningkatan yang ketara. Di Pulau Bidong, waktu kemuncak untuk kelambakkan zooplankton adalah pada pukul 3 pagi(22976  $\pm$  1339 ind. m<sup>-3</sup>). Zooplankton bersaiz besar (>300 $\mu$ m) menunjukkan corak yang kuat mengenai migrasi nokturnal dan terdiri daripada polychaeta, appendicularia, nauplius, kopepod, chaetognatha, dan radiolarian manakala untuk zooplankton bersaiz kecil (100-300 $\mu$ m) terdiri daripada polychaetes, appendicularia, nauplius, copepod, bivalvia, gastropoda dan radiolarian. Analisis M-Whitney menunjukkan terdapat perbezaan antara populasi malam dan siang ( $p < 0.05$ ).