

UNIVERSITY OF MALAYA  
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE  
KUALA LUMPUR, MALAYSIA

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**A STUDY ON DENSITY AND DIVERSITY OF BENTHIC FAUNA AT  
AQUACULTURE AREA IN SETIU, TERENGGANU**

**By**

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**Research Report submitted in partial fulfillment of  
The requirements for the degree of  
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**Department of Marine Science  
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JABATAN SAINS MARIN  
FAKULTI PENGAJIAN MARITIM DAN SAINS MARIN  
UNIVERSITI MALAYSIA TERENGGANU

PENGAKUAN DAN PENGESAHAN LAPORAN  
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Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

A study on density and diversity of benthic fauna at aquaculture area in Setiu, Terengganu oleh Maizah binti Mohd Abdullah, No .Matrik UK10582 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Marin sebagai memenuhi sebahagian daripada keperluan memperoleh ijazah Sarjana Muda Sains (Biologi Marin), Fakulti Pengajian Maritim dan Sains Marin, Universiti Malaysia Terengganu.

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*Imagination will often carry us to the world that never where, but without it we go nowhere...*

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(Ø)	Phi
<sup>0</sup> C	Degree Celcius
Ind./m <sup>2</sup>	Individual per meter square
Ppt	Part per thousand
PRIMER	Plymouth Routines in Multivariate Ecological Research
ANOSIM	Analysis of Similarity
MDS	Non-metric Multi-Dimensional Scaling
2D	Two-dimensions
DO	Dissolved oxygen

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## ABSTRACT

This study was conducted to determine the density, diversity and alteration of species composition of macrofauna and meiofauna in nearby stations and also with distance to the aquaculture cages in Setiu Lagoon, Terengganu. The macrobenthos of Phylum Annelida, Arthropoda, Mollusca, and Nemertea and the meiobenthos of Phylum Arthropoda, Nematoda, Annelida and Nauplii were determined. Multivariate analysis revealed that there were significant differences in macrobenthos composition during both samplings between samples taken near and far to the cages but there were no clear patches of meiofauna. Meiofauna only showed a significant reflects to the changes of physicochemical parameters on November with 1,972,121 (ind. /m<sup>2</sup>) found during first sampling and decreased to 1,570,909 (ind. /m<sup>2</sup>) during second sampling. Instead, macrofauna did not show significant reflects to the physicochemical changes. Total density (ind. /m<sup>2</sup>) of macrobenthos during first sampling was 5,020 (ind. /m<sup>2</sup>) and 6,412 (ind. /m<sup>2</sup>) macrobentos found during second sampling. Yet, both macrobenthos and meiobenthos increased their density at stations far from the cages (station five to eight). Particle size analysis of the stations showed that the sediments at sites were classified as fine sand with Phi values ranged from 1.96 until 2.57. Univariate analysis showed the diversity, evenness, and richness indexes for macrobenthos during second sampling which were much higher compared to the first sampling but still in the same pattern, but the values of all indexes for meiobenthos were much lower compared to the values of indexes for macrobenthos without clear pattern. Meiobenthos were much more susceptible to the environmental disturbance compared to macrobenthos.