

MACROBENTHIC COMMUNITY OF TULAR  
ESTUARINE AREA, JAWAH

THE UNIVERSITY OF MALAYA

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MACROBENTHIC COMMUNITY OF MUAR ESTUARINE AREA,  
JOHOR

By

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the requirements for the degree of  
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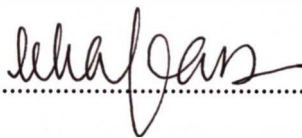
**DEPARTMENT OF MARINE SCIENCE  
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**APPROVAL OF RESEARCH REPORT I AND II**

It is certify that this research report entitles:

**Macrobenthic Community of Muar Estuarine Area, Johor, by Mohd Fauzi bin Abdullah**, matric number **UK7715**, had been revised and all the alterations that were suggested had been done. This research report submitted to Department of Marine Science in partial fulfillment of the requirements for the degree of Bachelor of Science (Marine Biology), Faculty of Science and Technology, University College of Science and Technology Malaysia, KUSTEM.

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## LIST OF ABBREVIATIONS AND SYMBOLS

$\mu\text{m}$	Micrometer
mm	Millimeter
$\text{M}^2$	Meter square
$\text{mgL}^{-1}$	Milligram per liter
$^{\circ}\text{C}$	Degree celcius
%	Percentage
$\sqrt{\quad}$	Square root
$\Sigma$	Total
log	Logarithm
sp.	Species
Ppt	Parts per thousand
DO	Dissolved oxygen
TOM	Total organic matter
$\text{H}^{\circ}$	Diversity Index
$\text{J}^{\circ}$	Evenness Index
$\text{R}^{\circ}$	Richness Index
ST	Station ST
K	Station K
M	Station M

## ABSTRACT

Study on macrobenthic community had been done at the estuarine area in Muar, Johor on July and September 2005 for four times sampling. The objectives of the study are to determine the density and diversity of the macrobenthos at three different area at Muar estuary; mussel culture, mangrove and river, and also to survey the community structure and effect of human activities to the environment by using the benthos and other macrobenthic as the indicator. The study had been started by sampling on a small boat by using hydrolab to determine the water parameters such like temperature, salinity, dissolve oxygen and pH and Ekman grab to get sample of the sediment. The sediment had been sieved to get the macrobenthos sample. Grouped the samples and analyzed the data. The study had found that the mussel culture area had highest density and the river and mangrove area which closed to human activities had lowest densities while polychaeta is the most dominant macrobenthos found in this study. The diversity for mussel culture area, mangrove area and river are 0.83, 0.54 and 0.43 each. The samples from the mussel culture area are similar with each others but not for the samples from mangrove and river area. The conclusion for this study is the diversity and density at the coastal area is much higher rather than at the river area due to heavy of human activities. The macrobenthos is highly potential to be biological indicator for environmental health of aquatic ecosystem.

## ABSTRAK

Kajian terhadap komuniti makrobentik telah dijalankan di kawasan muara di Muar, Johor pada bulan Julai dan September 2005 untuk empat kali penyampelan. Objektif kajian adalah untuk menentukan taburan dan kepelbagaian makrobentos di tiga kawasan yang berlainan di muara Muar; pelantar kupang, bakau dan sungai dan juga untuk meninjau struktur komuniti dan kesan aktiviti manusia terhadap persekitaran dengan menggunakan bentos dan makrobentos yang lain sebagai pengukur. Kajian bermula dengan penyampelan di atas bot kecil dengan menggunakan hydrolab untuk menentukan parameter air seperti suhu, kemasinan, oksigen terlarut dan pH dan pencengkam Ekman untuk mendapatkan sampel sedimen. Sedimen kemudiannya ditapis untuk mendapatkan sampel makrobentos. Sampel dikumpul mengikut kumpulan dan data dianalisa. Kajian ini mendapati kawasan pelantar kupang mempunyai taburan yang tinggi dan kawasan sungai dan bakau yang hampir dengan aktiviti manusia bertaburan rendah manakala polychaeta merupakan kumpulan makrobentos yang mendominasi hasil kajian ini. Kepelbagaian di kawasan pelantar kupang, bakau dan sungai masing-masing adalah 0.83, 0.54 dan 0.43 setiap satu. Sampel dari kawasan pelantar kupang adalah sama antara satu sama lain tetapi tidak bagi sampel dari kawasan yang bakau dan sungai. Kesimpulan yang dapat dibuat dari kajian ini adalah, kepelbagaian dan taburan di kawasan pesisiran adalah lebih tinggi berbanding dengan kawasan sungai disebabkan oleh aktiviti manusia yang banyak di kawasan tersebut. Makrobentos mempunyai potensi yang tinggi untuk menjadi pengukur biologi bagi kesihatan persekitaran ekosistem akuatik.