

FAUNAL DIVERSITY AND DISTRIBUTION OF BENTHIC ORGANISMS IN
KELANTAN DELTA MANGROVE ECOSYSTEM

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**FAUNAL DIVERSITY AND DISTRIBUTION OF BENTHIC ORGANISMS IN
KELANTAN DELTA MANGROVE ECOSYSTEM**

By

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**JABATAN SAINS MARIN
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**PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

Faunal diversity and distribution of benthic organisms in Kelantan Delta mangrove ecosystem Oleh Nurul Ain Bt Razalli, No.Matrik UK11501 telah diperiksa dan semua pembedaan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Marin sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Sarjana Muda Sains (Sains Samudera), Fakulti Pengajian Maritim dan Sains Marin, Universiti Malaysia Terengganu.

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LIST OF ABBREVIATIONS

cm	-	centimeter
g	-	gram
mg	-	milligram
m	-	meter
ppm	-	part per million

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Species picture of benthic organism

ABSTRACT

The present study is to perform a survey on the composition and distribution of macrobenthos at Tumpat mangrove environment of Kelantan Delta. The faunal samples were collected using a benthic dredge, and the sediment samples by Ekman grab. Altogether, 18 species were encountered belonging to different groups such as annelids, gastropods, bivalves, crabs and shrimps. The Bray-Curtis similarity (hierarchical clustering) based on faunal abundance (root-transformed) data revealed six species' associations/groupings at Tumpat covering Bay, mangrove and estuarine waterways. Among others, gastropoda is the dominant group of benthic organisms. On the whole, species diversity is rich in the mangrove area (e.g. Station O4) ($H' = 1.3521$) followed by bay (e.g. Station A5) ($H' = 1.11999$) and the estuary (e.g. Station D8) ($H' = 1.012663$) in the order. The sediment nature is mostly composed of sand at seaward locations, while clay characterized mangrove/Bay environment. The species-environment relationship was examined through Canocoanal Correspondence Analysis (CCA), and it has been observed that the bivalve population was abundant exclusively in the Bay side locations (preferring sandy bottom), whereas gastropods including polychaeta/crabs inhabited mangrove/estuarine regions preferred clayey-silt sediment.

ABSTRAK

Kajian ini adalah untuk membuat survey terhadap komposisi dan taburan makrobentos di persekitaran paya bakau di Delta Kelantan, Tumpat. Sampel fauna di ambil menggunakan 'benthic dredge' dan sampel sediment menggunakan 'ekman grab'. Kesemuanya, 18 spesis didapati merujuk kepada kumpulan yang berbeza seperti anelida, gastropoda, bivalvia, ketam dan udang. 'Bray-Curtis similarity (hierarchical clustering)' berdasarkan kelimpahan fauna (root-transformed) data mendedahkan 6 spesis yang berkaitan /berkumpulan di Tumpat termasuk teluk, paya bakau dan muara. Diantara semua, gastropoda adalah kumpulan organisma bentik yang dominan. Secara keseluruhannya, kepelbagaian spesis yang kaya dengan organisma adalah di kawasan paya bakau. (Contoh: Stesen O4) ($H' = 1.3521$) diikuti dengan teluk (contoh: Stesen A5) ($H' = 1.11999$) dan di kawasan muara (contoh: Stesen D8) ($H' = 1.012663$) mengikut turutan. Kesemulajadian sedimen mengarah ke laut kebanyakannya didominasi oleh pasir, manakala kelodak mewakili kawasan paya bakau/teluk. Perkaitan antara spesis dengan persekitaran di periksa menggunakan 'Canoconial Correspondence Analysis (CCA)', dan ia telah menunjukkan bahawa populasi bivalvia berada secara eksklusif di teluk (lebih kepada dasar berpasir), manakala gastropoda termasuk polichaeta/ketam hidup di kawasan paya bakau/ muara yang lebih memilih sedimen berkelodak dan berlumpur.