

SOME ECOLOGICAL ASPECTS OF BIVALVE  
AT TOK BANG MANGROVE FOREST  
MELAYAN DARUL TAQIM

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**SOME ECOLOGICAL ASPECTS OF INFAUNAL BIVALVE AT TOK BALI  
MANGROVE FOREST, KELANTAN DARUL NAIM**

**By**

**Norshida Ismail**

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**Department of Biological Sciences  
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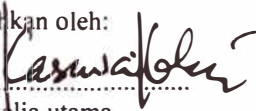
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**PENGAKUAN DAN PENGESAHAN LAPORAN**

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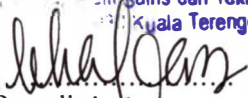
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## LIST OF ABBREVIATIONS

|     |                        |
|-----|------------------------|
| DO  | Dissolved oxygen       |
| E   | East                   |
| G   | gram                   |
| ha  | hectare                |
| m   | meter                  |
| N   | North                  |
| ppt | part per thousand      |
| PSA | Particle Size Analysis |
| spp | species                |
| TOM | Total Organic Matter   |
| °C  | degree of Celsius      |
| μ   | micron                 |
| φ   | phi                    |
| %   | percent                |

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## ABSTRACT

A study on the abundance and some ecological aspects that related to the abundance of infaunal bivalve species was done at Tok Bali mangrove. Samples and data collection was conducted during three different seasonal periods, on dry season (July), pre-monsoon (September) and monsoon (December). Sampling stations were chosen at four mangrove forests which were *Rhizophora* spp., *Avicennia* spp., *Nypa fruticans* and Mixed Mangrove. Collection of bivalve samples and sediment samples were done within 0.25 m<sup>2</sup> quadrates and measurement of physico-chemical parameters such as temperature, salinity, pH and dissolved oxygen were done using Hydrolab Quanta. Temperature, salinity and pH showed normal mangrove value and decreased during monsoon. While dissolved oxygen show increasing during monsoon. Mean of grain size ( $\phi$ ) value range from 1.9 to 2.66 indicated that the sediment is fine sand. Mean TOM ranges from 0.67-1.45 g/g. A total of five species of infaunal bivalves were observed, which were *Polymesoda expansa*, *Marcia japonica*, *Gari ambigua*, *Pillsbryconcha exilis* and *Donax faba*. Mean of bivalve densities for all sampling session range from 630 to 1824 individu/1m<sup>2</sup>. Diversity index H' range from 0.72-1.27 and evenness index E' range from 0.53-0.95 and richness index varied from 0.42-0.78. ANOVA tests show that there was no significant different of all data among stations ( $P>0.05$ ) but there was significant different of data obtained at different season ( $P<0.05$ ). Grain size is the only factor that show significant correlation with the density of infaunal bivalve ( $r=-0.642$ ,  $P<0.05$ ).

# ASPEK EKOLOGI BIVALVE INFAUNA DI PAYA BAKAU TOK BALI, KELANTAN DARUL NAIM

## ABSTRAK

Satu kajian tentang kepadatan dan aspek ekologi yang berkaitan dengan kelimpahan bivalve infauna telah dijalankan di kawasan paya bakau Tok Bali. Penyampelan data dan sampel dijalankan pada tiga musim iaitu musim kering (Julai), pra monsun (September) dan monsun (Disember). Empat stesen penyampelan telah dipilih berdasarkan jenis hutan yang berbeza iaitu *Rhizophora* spp., *Avicennia* spp., *Nypa fruticans* dan Hutan Campuran. Pengumpulan sampel bivalve dan sampel sedimen dilakukan dalam quadrat 0.25 m<sup>2</sup>. Faktor fisiko kimia iaitu suhu, kemasinan, pH dan keterlarutan oksigen diambil menggunakan Hydrolab Quanta. Suhu, kemasinan dan pH menunjukkan bacaan normal kawasan paya bakau dan menurun pada monsun. Sementara oksigen terlarut menunjukkan peningkatan semasa monsun. Purata saiz sedimen ( $\phi$ ) berjulat dari 1.9- 2.66, menunjukkan sedimen di kawasan ini ialah pasir halus. Purata bahan organik berjulat dari 0.67-1.45 g/g. Sejumlah lima species bivalve infauna telah ditemui iaitu *Polymesoda expansa*, *Marcia japonica*, *Gari ambigua*, *Pillsbryoconcha exilis* dan *Donax faba*. Purata kepadatan bivalve untuk semua penyampelan berjulat dari 630-1824 individu/1m<sup>2</sup>. Indeks kepelbagaian H' untuk semua penyampelan berjulat dari 0.72-1.27, indeks keserataan E' berjulat dari 0.53-0.95 dan indeks kekayaan berjulat dari 0.42-0.78. Ujian ANOVA menunjukkan tiada perbezaan bererti bagi semua data berdasarkan perbandingan antara stesen ( $P>0.05$ ). Tetapi terdapat perbezaan bererti bagi data berdasarkan perbandingan antara musim yang berbeza ( $P<0.05$ ). Ujian perkaitan menunjukkan hanya saiz butiran tanah mempunyai perkaitan bererti dengan kepadatan bivalve infauna ( $r=-0.642$ ,  $P<0.05$ ).