

MANGROVE COMMUNITY STRUCTURE AND ANALYSIS:
A CASE FOR TUMPAT, KELANTAN DELTA, EAST COAST OF PENINSULAR
MALAYSIA

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By
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**JABATAN SAINS MARIN
FAKULTI PENGAJIAN MARITIM DAN SAINS MARIN
UNIVERSITI MALAYSIA TERENGGANU**

PENGAKUAN DAN PENGESAHAN LAPORAN

PROJEK PENYELIDIKAN I DAN II


Adalah dengan ini, diakui dan disahkan bahawa laporan penyelidikan bertajuk:

**MANGROVE COMMUNITY STRUCTURE AND ANALYSIS:
A CASE FOR TUMPAT, KELANTAN DELTA, EAST COAST OF PENINSULAR
MALAYSIA**

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LIST OF SYMBOL

PCQM	=	Point-Centre Quarter Method
PRIMER	=	Plymouth Routines in Multivariate Ecological Research.
gbh	=	Girth at breast height
%	=	percentage

Mangrove Community Structure and Analysis:

A Case for Tumpat, Kelantan Delta, East Coast of Peninsular Malaysia

ABSTRACT

A study on the mangrove vegetation structure at Tumpat (Kelantan Delta) was conducted during 21 – 25 October 2007. Altogether, 21 stations (at 1km intervals) were chosen covering an area of approximately 32 sq. km (N: 6°12'00" - 6°13'30" & E: 102°09'30" - 102°13'00"), and reached to their nearest point with the help of a Global Positioning Systems. Out of 21 stations selected, seven represented mangroves proper. The Point-Centered Quarter Method (PCQM) was employed in all mangrove stations to estimate different tree structural parameters such as stem density (nos/0.1ha), basal area (m²/0.1ha), relative density (% composition), relative dominance (% composition), absolute frequency (% composition), and species individual ranking. Mangrove plant composition was represented by five dominant taxa i.e., *Avicennia alba*, *Bruguiera gymnorrhiza*, *Nypa fruticans*, *Rhizophora mucronata* and *Sonneratia caseolaris*. Based on stem density and basal area measurements, four species' associations were recognized. Group-1 represented by *S.caseolaris* and *N.fruticans* was abundant and distributed throughout the forest, Group-2 (*A.alba*) species is a pioneer species, Group-3 (*B.gymnorrhiza*) is a succeeded of the pioneer species, and Group-4 (*R.mucronata*) species have occurred only at the bay-mangrove periphery showing their preference to those high salinity regimes. Overall, the mangrove at Tumpat could categorize as "riverine mangrove" based on their ecological distribution.

Analisis dan Struktur Komuniti Paya Laut (Bakau):

Berdasarkan Perihal Tumpat, Delta Kelantan, Pantai Timur Semenanjung Malaysia.

ABSTRAK

Kajian mengenai struktur tumbuhan paya laut di Tumpat (Delta Kelantan) dilakukan pada 21 – 25 Oktober 2007. Keseluruhan kawasan kajian meliputi 32 sq. km (N: 6°12'00" - 6°13'30" & E: 102°09'30" - 102°13'00"), dan mencapai kawasan paling hampir dengan menggunakan Global Positioning Systems. Dari kesemua kawasan kajian, terdapat tujuh kawasan paya laut dan 14 kawasan daratan. Teknik Point-Centred Quarter Method (PCQM) digunakan untuk mendapatkan nilai analisis tumbuhan seperti kepadatan tumbuhan, kawasan litupan, peratusan kepadatan, dan turutan species individu. Tumbuhan bakau meliputi lima taxa i.e., *Avicennia alba*, *Bruguiera gymnorrhiza*, *Nypa fruiticans*, *Rhizophora mucronata* and *Sonneratia caseolaris*. Terdapat empat kumpulan spesis yang dianalisis. Kumpulan pertama mengandungi *S.caseolaris* dan *N.fruiticans*, ianya mempunyai kepadatan spesis yang berhubung dengan ketahanan spesis tersebut, kumpulan ke-dua ialah (*A.alba*), kumpulan ke-tiga ialah *B.gymnorrhiza* dan kumpulan ke-empat ialah (*R.mucronata*). Bersehubungan terhadap susunan tumbuhan yang terdapat di kawasan kajian, Paya laut di Tumpat dikategorikan sebagai kawasan "riverine mangrove".