

A STUDY ON THE SEDIMENTOLOGICAL CHARACTERISTICS AND HEAVY
METAL CONTENTS OF KEMAMAN COASTAL SEDIMENT DURING PRE-
MONSOON AND POST MONSOON SEASON

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**PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

A STUDY ON THE SEDIMENTOLOGICAL CHARACTERISTICS AND HEAVY METAL CONTENTS OF KEMAMAN COASTAL SEDIMENT DURING PRE-MONSOON AND POST-MONSOON SEASON oleh **SITI NOR AZWANIE BINTI RUSLI**, No.Matrik **UK 12291** 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 (Sains Samudera), Fakulti Pengajian Maritim dan Sains Marin, Universiti Malaysia Terengganu.

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LIST OF ABBREVIATIONS

Sb	Antimony
Cd	Cadmium
Se	Selenium
Ni	Nickel
Cu	Copper
Cr	Chromium
Al	Aluminium
Mn	Manganese
Fe	Ferum
GPS	Global Positioning System
HNO ₃	Nitric Acid
PSA	Particle Size analysis
H ₂ O ₂	Hydrogen Peroxide
He – Ne	Helium – Neon
ICP-MS	Inductively Coupled Plasma Mass Spectrophotometer
SRM	Standard Reference Materials
g	Gram
L	Liter
m	Meter
mL	Millimeter
%	Percentage
°C	Degree Celsius

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ABSTRACT

This study was conducted at Coastal of Kemaman, Terengganu during pre-monsoon (September 2007) and post-monsoon (March 2007). Sediment from Kemaman coastal for two periods of seasons was collected using Van Veen Grab. Samples were brought back to the laboratory then were defrosted and dried for further analysis. The sediments were sieved and the weight of each sample collected from different sieve was weighed for sedimentological characteristic. The sediment less than $63\mu\text{m}$ was kept for PSA and heavy metal analysis. The element of heavy metals that was analyzed is Cr, Mn, Co, Zn, Sr, Ba and Pb. From the analysis that have been done, the sedimentological characteristic for pre-monsoon differ from post-monsoon season. The mean value shows pre-monsoon has medium coarse sand of particle size while post-monsoon shows very fine sand. Finer mean size indicates high concentration of heavy metals. Sediment taken during the post-monsoon that has finer particle size has high concentration of heavy metals than pre-monsoon. There is correlation pattern between heavy metals and particle size of the sediment. There is three and five heavy metals show proportionate relationship for each monsoon. Normalization showed that the selected heavy metals originated from natural sources both for the monsoons.

Kajian Mengenai Ciri-ciri Sedimen Dan Kandungan Logam Berat Dalam Sedimen Di Pantai Kemaman Sebelum Dan Selepas Musim Tengkujuh

ABSTRAK

Kajian ini telah dijalankan dengan menggunakan sediment yang diambil dari Pantai Kemaman, Terengganu sebelum musim hujan (September 2007) dan selepas musim hujan (Mac 2007). Sedimen dari Pantai Kemaman diambil menggunakan Van Veen Grab. Sedimen kemudiannya dibawa balik ke makmal, disimpan di dalam peti dan dikeringkan untuk tujuan analisis. Sediment ditapis dan sampel sediment yang tertinggal di setiap penapis ditimbang bagi menentukan ciri-ciri sedimen. Sedimen yang kurang dari 63 μ m disimpan untuk PSA dan analisis logam berat. Logam berat yang dianalisis ialah Cr, Mn, Co, Zn, Sr, Ba dan Pb. Daripada analisis yang dijalankan, ciri-ciri sediment sebelum dan selepas musim hujan adalah berbeza. Nilai saiz min yang diperolehi menunjukkan sedimen bagi musim sebelum hujan mempunyai pasir yang kasar manakala bagi sedimen selepas musim hujan adalah pasir halus. Pasir yang halus mengandungi kepekatan logam berat yang tinggi. Sedimen yang diambil selepas musim hujan mempunyai kandungan logam berat yang tinggi berbanding selepas musim hujan. Terdapat perhubungan antara logam berat dan saiz min. Terdapat tiga logam berat dan lima logam berat yang menunjukkan perhubungan positif bagi setiap musim. Penormalan menunjukkan kesemua logam berat datang daripada sumber semulajadi untuk kedua-dua monsun.