

HEAVY METAL STUDY IN SEDIMENTS OF SETIU  
LAGOON, TERENGGANU

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**HEAVY METAL STUDY IN SEDIMENTS OF SETIU LAGOON, TERENGGANU.**

**By**

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telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains <sup>Samudera</sup> ~~Biologi~~ sebagai memenuhi sebahagian daripada keperluan memperoleh Ijazah..... *Sarjana Muda Sains Sains Samudera* ....., Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

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## LIST OF ABBREVIATIONS

Al	-	Aluminum
Co	-	Co
Cu	-	Copper
Cr	-	Chromium
Mn	-	Manganese
Ni	-	Nickel
Pb	-	Lead
Zn	-	Zinc
Al <sub>2</sub> O <sub>3</sub>	-	Bauxite
Fe <sub>2</sub> O <sub>2</sub>	-	Hematite
Fe <sub>3</sub> O <sub>4</sub>	-	Magnetic
MnO <sub>2</sub>	-	Mangan Oxide
ppb	-	Parts Per Billion
ppm	-	Parts Per Millon
HNO <sub>3</sub>	-	Nitric Acid
HCl	-	Hydrochloric Acid
HF	-	Hydroflouric Acid
°C	-	degree centigrade
mg	-	milligram
mL	-	milliliter
pH	-	potential of hydrogen
ppt	-	parts per thousand
cm	-	Centimeter

$\mu\text{g}$	-	Microgram
$\text{‰}$	-	Salinity
%	-	Percentage
$\phi$	-	Phi
r	-	Correlation Constant
PSA	-	Particle Size Analyzer
AAS	-	Atomic Absorption Spectrometry
WHO	-	World Health Organization

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## ABSTRACT

A study on heavy metals concentration and pollution assessment in the sediments was conducted in Setiu lagoon. The sampling was done only once on the 11<sup>th</sup> October 2004. The elements analyzed were Al, Cr, Cu, Co, Mn, Ni, Pb and Zn. Other than metals concentration determination, percentage of organic carbon and mean particle size of the sediments were also determined. Results showed that concentrations of Al, Cr, Cu, Co, Mn, Ni, Pb and Zn in sediments of Setiu lagoon is low and almost similar to results of other studies conducted in other places. Some of the stations showed Pb contamination due to anthropogenic inputs. The percentages of organic carbon in the sediments were low except for few stations which has higher values than the other stations. Dry sieving analysis also showed that most of the sediment was medium sand type. Correlation analysis showed positive between the percentage of organic carbon and mean particle size and all the elements showed negative correlation with the percentage of organic carbon. Only Pb shows positive correlation with mean particle size. Al, Cr, Cu, Co, Ni, Pb and Zn except Mn showed positive relationship with percentage of organic carbon and mean particle size.

## ABSTRAK

Kajian bagi penentuan kepekatan dan tahap pencemaran logam berat di dalam enapan telah dijalankan di lagun Setiu. Aktiviti penyampelan telah dilakukan hanya sekali untuk seluruh kajian pada 11 haribulan oktober 2004. Antara elemen yang dikaji dalam enapan adalah Al, Cr, Cu, Co, Mn, Ni, Pb dan Zn. Selain itu, penentuan peratus kandungan karbon organik dan min saiz enapan juga dijalankan. Hasil daripada kajian ini menunjukkan bahawa kesemua logam dalam enapan mempunyai kepekatan yang rendah dan hampir sama dengan kepekatan di kawasan yang lain apabila perbandingan dilakukan. Terdapat beberapa stesen kajian yang menunjukkan pencemaran logam Pb akibat sumber antropogenik. Peratusan karbon organik adalah rendah secara keseluruhan dalam enapan tetapi terdapat beberapa stesen yang menunjukkan peratusan yang tinggi. Daripada analisis ayak kering didapati bahawa kebanyakan enapan adalah jenis enapan pasir sederhana. Analisis korelasi juga menunjukkan korelasi positif antara peratusan karbon organik dalam enapan dengan min saiz enapan dan kesemua logam kajian menunjukkan korelasi negatif dengan peratusan karbon organik. Hanya logam Pb yang menunjukkan korelasi positif dengan min saiz enapan. Kesemua logam kecuali logam Mn menunjukkan hubungan positif dengan peratusan karbon organik dan min saiz enapan.