DETERMINATION OF HEAVY METAL IN SEDIMENT AT KERTEH MANGROVE AREA, TERENGGANU

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2010

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Determination of heavy metal in sediment at Kerteh mangrove area, Terengganu / Nadiah Nazri.

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DETERMINATION OF HEAVY METAL IN SEDIMENT AT KERTEH MANGROVE AREA, TERENGGANU.

By

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Research Proposal submitted in partial fulfillment of
The requirements for the degree of
Bachelor of Science (Marine Science)

Department of Marine Science
Faculty of Maritime Studies and Marine Science
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2010

This project report should be cited as:

Nadiah, N. 2010. Determination of heavy metal in sediment at Kerteh Mangrove area. Undergraduate thesis, Bachelor Science in Marine Science, Faculty of Maritime and Marine Science, Universiti Malaysia Terengganu. 79p.

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ACKNOWLEDGEMENT

First of all, I would like to express my greatest appreciation to Allah S.W.T for his blessing which enable me to finish my study. Also my appreciations to my supervisor, Associate Professor Dr. Mohamad Kamil bin Abdul Rashid for his valuable guidance, advice, support, generosity and time. Without his supervision, this study and project including the presentation and report might not have been possible. I am also indebted to my honorable second supervisor, Mr. Yong Jaw Chuen for his helpful comment and encouragement.

Heartfelt thanks are accorded to the staff University Malaysia Terengganu (UMT) especially to FMSM staff for their helping me whether during sampling or laboratory work, En. Suliman and En. Sainol Aimi Saidin. My appreciation also forward to my parents, En. Nazri Lamun and YM Pn. Raja Siti Noryah Raja Wook, family members and all my beloved friend, Mohammad Afham b. Nasruddin, Norafidah Zulkifli, Farhana Othman, and Siti Nurhidayah Baharin. They are so kind and always are with me during my sampling and I really appreciate that. Their encouragement and support, moral and material has enabled me to complete this study until the end. All of your deeds are infinite and can only repay by Allah S.W.T. Thanks my friend.

Last but not least to master student, Kak Sue, Kak Syikin, Abg Razi and Kak Faizah for their guidance and advice to me to complete my thesis and project. Thanks a lot to sharing the information and knowledge also to guide me become good student.

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LIST OF ABBREVIATIONS

%	percentage
°C	Degree Celcius
μm	micrometer
Al	Aluminium
Cd	Cadmium
cm	centimeter
Co	Cobalt
Cr	Chromium
Cu	Copper
g	gram
ICP-MS	Inductively Coupled Plasma Mass Spectrometry
L	Litre
m	Meter
mL	milimeter
Mn	Manganese
Pb	Lead
TOC	Total Organic Carbon

ABSTRACT

A study on heavy metal concentration and pollution assessment in the surface and core sediment was conducted in Kerteh Mangrove area, Terengganu. The sampling was done twice on September 2009 and December 2009. The elements analyzed were Co, Cr, Cu, Mn, Pb and Al. Other than metal concentration determination, percentage of organic carbon also determined. Results showed that highest concentrations of heavy metal content in this study area were leading by Mn, Cr, Pb, Cu, Co, and Al for pre-monsoon and monsoon season. Enrichment factor calculation was using to determine the pollution input whether from natural environment or anthropogenic input. Correlation between heavy metal and total organic carbon also had been investigated to reveal the relationship between these two components. The result showed that all the metals have low relationship with organic carbon which is the organic carbon available at study area were not being used by metal ions for mobilization. In additional relationship between heavy metal concentration and seasonal changes also was studied. Therefore only Mn,Pb and Al showed significant differences with seasonal changes due to deposition on the monsoon season that diluted the metal thus increased it solubility. Other than that core sediment also was studied to find out history pollution at that study area.

ABSTRAK

Kajian bagi penentuan kepekatan dan tahap pencemaran logam berat di dalam enapan telah dilakukan di kawasan Bakau Kerteh. Aktiviti penyampelan telah dilakukan dua kali untuk seluruh kajian iaitu pada bulan September 2009 dan pada bulan Disember 2009. Antara elemen yang dikaji dalam enapan adalah Co, Cr, Cu, Mn, Pb dan Al. Selain daripada penentuan kepekatan logam berat, penentuan peratusan karbon organik juga turut dilakukan. Faktor pengkayaan juga dilakukan untuk mengukur tahap pencemaran adalah daripada sumber kerak bumi atau daripada aktiviti manusia. Hubungan antara logam berat dan karbon organic juga disiasat untuk mengetahui hubungan antara dua komponen ini. Keputusan yang diperolehi menunjukan semua logan berat yang disiasat mempunyai hubungan yang lemah dengan karbon organik. Tambahan daripada itu,hubungan antara logam berat dengan perubahan musim juga dikaji. Oleh yang demikian, hanya logam seperti Mn, Pb dan Al menunjukkan perubahan yang bermakna dengan perubahan cuaca berikutan pemendapan logam pada musim monsoon yang telah melarutkan logam dan menambahkan lagi tahap resapan logam ke dalam sedimen. Selain daripada itu, sediment eras juga dikaji bagi memperlihatkan sejarah pencemaran di kawasan kajian.