

A STUDY ON THE HEAVY METAL CONTENTS OF
MERANG COASTAL SEDIMENTS

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FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
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2012

**A STUDY ON THE HEAVY METAL CONTENTS OF MERANG COASTAL
SEDIMENTS**

**BY
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**Research Report submitted in partial fulfillment of
the requirement for the degree of
Bachelor of Science (Marine Science)**

**Department of Marine Science
Faculty of Maritime Studies and Marine Science
UNIVERSITI MALAYSIA TERENGGANU
2012**

This project report should be cited as :

Nor Zuriati, M. R. 2012. A Study On The Heavy Metal Contents Of Merang Coastal Sediments. Undergraduate Thesis, Bachelor of Science in Marine Science, Faculty of Maritime Studies and Marine Science (UMT), Terengganu.64pp.

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**DEPARTMENT OF MARINE SCIENCE
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**DECLARATION AND VERIFICATION FORM
FINAL YEAR RESEARCH PROJECT**

It is hereby declared and verified that this research report entitled:

A Study on the Heavy Metal Contents of Merang Coastal Sediments by Nor Zuriati Binti Mohd Rani, Matric No. **UK21373** has been examined and all errors identified have been corrected. This report is submitted to the Department of Marine Science as partial fulfillment towards obtaining the Degree of **Bachelor of Science (Marine Science)**, Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

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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. Although this year is hard for me to finish my final year project, but I can go through all the difficulties with helping from the others. Also my appreciation to my supervisor, Dr. Nor Antonina Abdullah for her advices, supporting and helping me in finishing my project. Without her supervision, this study and report might not have been possible. Not forgetting, thank you very much to Mr Joseph Bidai for his helpful comment and encouragement.

Besides that, many thanks to the Universiti Malaysia Terengganu (UMT) especially to FMSM staff for their helping me wether during sampling or laboratory works, En. Suliman, En. Syed and En. Sainol. My appreciation also forward to my friends Elmi Suziana bt Othman, Nurulain bt Sumarji, Hafiz Ridhuan b Roslee and Muhamad Nor Firdaus. They are so kind and always be with me during my sampling and laboratory works and I really appreciate that. Their encouragement and support and moral has enabled me to complete this study untill the end.

Last but not least, thank you also to my family for their concerned and advices in pursuing my studies here. Thank you for your love. Thank you very much for all of you.

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LIST OF ABBREVIATIONS

Symbols

%	Percent
°C	degree Celcius
Ø	phi
r	correlation coefficient
µgg ⁻¹	microgram per gram
mL	milliliter
L	Liter
ppm	part per million
HF	Hydroflouric acid
HCl	Hydrochloric acid
HNO ₃	Nitric acid
K ₂ Cr ₄ O ₇	Potassium dichromate
AgSO ₄	Argentums sulphate
H ₂ SO ₄	Sulfuric acid
Fe	Iron
Mn	Manganese
Cu	Copper
Cr	Chromium
Zn	Zinc
Pb	Lead
Cd	Cadmium
ICP-MS	Inductively Coupled Plasma Mass Spectroscopy

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ABSTRACT

This study was conducted to determine the heavy metal contents in the Merang Coastal sediments. Seventeen samples of surface sediments were collected during June 2011. The sediment characteristics and concentrations of Fe, Mn, Cu, Cr, Zn, Pb and Cd were determined. Concentrations of heavy metals were generally lower than average shales. The average concentration of heavy metals were 3.15% for Fe, 75.47 $\mu\text{g/g}$ for Mn, 7.48 $\mu\text{g/g}$ for Cu, 34.38 $\mu\text{g/g}$ for Cr, 15.71 $\mu\text{g/g}$ for Zn, 6.78 $\mu\text{g/g}$ for Pb and 0.07 $\mu\text{g/g}$ for Cd. The correlation between heavy metals and sediment mean size and the correlation between heavy metals and organic carbon were almost negligible relationship. Enrichment factor (EF) indicated that heavy metals concentration were of background levels.

ABSTRAK

Kajian ini dijalankan untuk menentukan kandungan logam di dalam sedimen Perairan Merang. Tujuh belas sampel sedimen permukaan telah diambil semasa Jun 2011. Kriteria sedimen dan kepekatan Fe, Mn, Cu, Cr, Zn, Pb dan Cd telah dikenalpasti. Kepekatan logam berat adalah lebih rendah daripada purata logam di bumi. Purata kepekatan logam berat adalah 3.15% untuk Fe, 75.47 $\mu\text{g/g}$ untuk Mn, 7.48 $\mu\text{g/g}$ untuk Cu, 34.38 $\mu\text{g/g}$ untuk Cr, 15.71 $\mu\text{g/g}$ untuk Zn, 6.78 $\mu\text{g/g}$ untuk Pb dan 0.07 $\mu\text{g/g}$ untuk Cd. Korelasi antara logam berat dan min saiz sedimen dan korelasi antara logam berat dan karbon organik adalah hampir boleh diabaikan. Faktor Pengkayaan menunjukkan kepekatan logam berat berada pada tahap asalnya.