HEAVY METAL (Mn, Cu, Cr, Pb, Zn, Fe, Cd, Ni) CONCENTRATIONS IN SURFACE SEDIMENT OF BIDONG ISLAND WATER AREA

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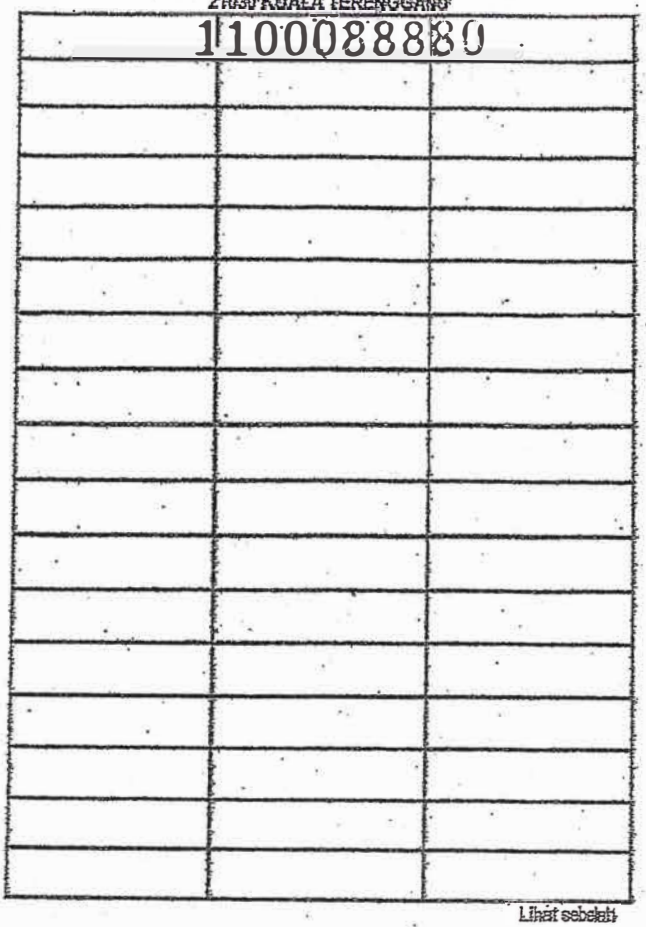
2012

Heavy metal (Mn, Cu,Cr, Pb, Zn, Fe, Cd, Ni) concentrations in surface sediment of Bidong Island water area / Hafiz Ridhuan Roslee.



Lihat sebelah

HEAVY METAL (Mn, Cu, Cr, Pb, Zn, Fe, Cd, Ni) CONCENTRATIONS IN SURFACE SEDIMENT OF BIDONG ISLAND WATER AREA.

By

Hafiz Ridhuan Bin Roslee

Research report submitted in partial fulfilment of
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DECLARATION AND VERIFICATION FORM

FINAL YEAR RESEARCH PROJECT

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

Heavy Metals (Mn, Cu, Cr, Pb, Zn, Fe, Cd, Ni) Concentrations in Surface Sediment of Bidong Island Water Area by **Hafiz Ridhuan Bin Roslee**, Matric No. **UK 20716** has been examined and all errors identified have been corrected. This report issubmitted 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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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS/SYMBOLS

SYMBOLS	MEANING
^{o}C	Degree Celcius
%	Percent
ø	Phi
ml	Mililiter
ppm	Part per million
HNO_3	Nitric Acid
Mn	Mangan
Cu	Copper
Cr	Cromium
Pb	Lead
Zn	Zinc
Fe	Iron
Cd	Cadmium
Ni	Nickel
ICP-MS	Inductively Coupled Plasma Mass Spectrometer
CF	Corrective Formula
CHR	Corrected Hydrometer Reading
$K^2Cr^2O^7$	Potassium Dichromate
TOC	Total Organic Carbon

LIST OF APPENDICES

ABSTRACT

Sediment collected from 32 stations from Bidong Island water area were analyzed for Pb, Fe, Cd, Cr, Ni, Cu, Zn, and Mn concentrations. Samples were collected using Smith McIntyre and analyzed using ICP-MS. The average concentrations of metals were 78.297 ppm for Cr, 48.276 ppm for Cu, 98.039 ppm for Mn, 51. 163 ppm for Zn, 8.405 ppm for Pb, 2.193 % for Fe, 3.551 % for Cd, and 18.518 ppm for Ni. The statistic analysis of Pearson Correlation proved that there is significant relationship between metal concentration and mean size. From enrichment factor, generally metal concentration in the sediment was much influenced by natural process. Sediment texture for most stations was sand and only 2 stations (24 and 28) was loamy sand. The average sorting for all stations is poorly sorting. The data obtained provides a better understanding as well as proper monitoring of pollution level in South China Sea.

ABSTRAK

Sedimen telah diambil dari 32 stesen yang terletak di kawasan perairan Pulau Bidong telah dianalisis untuk mengetahui nilai kepekatan Pb, Fe, Cd, Cr, Ni, Cu, Zn, dan Mn. Sampel telah diambil menggunakan Smith McIntyre dan dianalisa menggunakan ICp-MS. Purata kepekatan logambagi Cr ialah 78.287 ppm, Cu ialah 48.276 ppm, Mn ialah 98.093 ppm, Zn ialah 51.163 ppm, Pb ialah 8.405 ppm, Fe ialah 2.193%, Cd ialah 3.551%, dan Ni ialah 18.518 ppm. Analisis statistik Korelasi Pearson membuktikan terdapat hubungan yang signifikan antara kepekatan logam dan min saiz. Berdasarkan factor pengayaan, secara umum kepekatan logam di dalam sedimen dipengaruhi oleh proses semulajadi. Tekstur sedimen bagi kebanyakan stesen ialah pasir dan hanya 2 stesen (24 & 28) ialah pasir liat. Purata pengisihan bagi semua stesen ialah tidak sempurna. Data yang diperolehi menerangkan dengan lebih jelas tentang tahap pencemaran serta kaedah pemantauan yang berkesan di kawasan Laut China Selatan.