

HEAVY METALS IN SEDIMENT CORES OF
SULU-SULAWESI SEA (DARVEL BAY)

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**HEAVY METALS IN SEDIMENT CORES OF
SULU-SULAWESI SEA (DARVEL BAY)**

**By
Tracy Yii**

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

**Department of Marine Science
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**DEPARTMENT OF MARINE SCIENCE
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**DECLARATION AND VERIFICATION REPORT
FINAL YEAR RESEARCH PROJECT**

It is hereby declared and verified that this research report entitled : **Heavy Metals in Sediment Cores of Sulu-Sulawesi Sea (Darvel Bay)** by **Tracy Yii**, Matric No. **UK 16176**, have 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 **Bachelor of Science (Marine Science)**, Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

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LIST OF ABBREVIATIONS

Al	-	Aluminum / Aluminium
Fe	-	Iron
Mg	-	Magnesium
Cu	-	Copper
Zn	-	Zinc
Pb	-	Lead
HNO ₃	-	Nitric acid
HCl	-	Hydrochloric acid
HF	-	Hydrofluoric acid
SSME	-	Sulu-Sulawesi Marine Ecoregion
gmol ⁻¹	-	gram per mol
gcm ⁻³	-	gram per centimeter cubic
μg/g	-	microgram per gram
°C	-	degree Celcius
%	-	percent

ABSTRACT

Sediment core samples of Darvel Bay, Sabah were collected to assess the distribution of six metals (Al, Fe, Mg, Cu, Zn and Pb). The concentrations were determined using the Teflon bomb method, where mixed acid was used to digest the samples and detected using the Inductively Coupled Plasma – Mass Spectrometry (ICP-MS). This study is useful to understand and estimate the impact of human activities. The study was conducted in an area surrounded by numerous islands and fringing reefs, where it is believed to be an ecosystem with high degree of biological diversity. As it should be, the upper parts of the sediments have higher concentrations and decreasing with depth. The results obtained were different. Enrichment factor values were also calculated to assess any possible influence of heavy metal pollution.

ABSTRAK

Sampel sedimen kerak dari Teluk Darvel, Sabah diperolehi untuk menentukan taburan enam elemen logam (Al, Fe, Mg, Cu, Zn dan Pb). Kandungan logam dalam sampel ditentukan menggunakan kaedah Teflon bomb, di mana campuran asid digunakan untuk mengahadam sampel dan kepekatan logam ditentukan menggunakan *Inductively Coupled Plasma – Mass Spectrometry* (ICP-MS). Kajian ini berguna bagi memahami dan menjangka kesan aktiviti manusia. Kajian ini dijalankan di kawasan yang dikelilingi banyak pulau dan terumbu karang, yang mana dipercayai merupakan ekosistem yang tinggi diversity biologinya. Sepatutnya, bahagian atas sampel kerak mempunyai kandungan logam yang lebih tinggi dan berkurangan dengan pertambahan kedalaman. Keputusan yang diperolehi berlainan. Faktor pengayaan (EF) dikira untuk menganggar sebarang pengaruh pencemaran logam berat yang mungkin.