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**Cu AND Zn DISTRIBUTION IN SURFACE SEDIMENT FROM THE
COAST OF JOHOR IN RELATION TO PARTICLE SIZE**

By

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

**Department of Marine Science
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Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

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SYMBOLS

Symbol	Meaning
%	Percentage
μm	Micrometer
μg	microgram
Cu	Copper
EDTA	Ethylenediamenetetra Acidic
EF	Enrichment Factor
g cm ⁻³	Gram per senti meter cube
GPS	Global Positioning System
HCL	Hydrochloric Acid
HF	Hydrofluoric Acid
HNO ₃	Nitric Acid
H ₂ O ₂	Hydrogen peroxide
ICPMS	Inductively Couple Plasma Mass Spectrometry
Kg	kilogram
mm	millimeter
ml	milliliter
°C	Celsius Degrees
PSA	Particle Size Analysis
Zn	Zinc
Ø	phi

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ABSTRAK

Kepekatan logam Cu dan Zn yang terkandung dalam sedimen di perairan Johor telah ditentukan dan perkaitan antara saiz pertikal sediment dan kandungan karbon organik dengan kepekatan logam turut dikaji. Saiz pertikal didapati sederhana halus dengan purata min saiz $1.5531 \pm 0.4289 \text{ } \emptyset$. Kandungan karbon organik bagi sedimen Johor berjulat dari 0.0598% hingga 1.26% dengan nilai purata bagi kawasan Johor mencatat $0.4551 \pm 0.3338 \%$. Kepekatan logam berat pada saiz $63 \mu\text{m}$ mencatatkan $6.47 \pm 1.46 \mu\text{g/g}$ untuk Cu dan $114.15 \pm 40.68 \mu\text{g/g}$ untuk Zn.

Perhubungan antara saiz patikel dan karbon organik dengan logam berat bagi sedimen Johor didapati lemah. Kepekatan logam berat telah dianalisis dengan menggunakan kaedah factor pengkayaan (EF) untuk mengetahui paras pencemaraan di kawasan kajian. Daripada keputusan kajian, Zn boleh dikatogerikan sebagai pengkayaan bererti dan dijangkakan pencemaran berlaku hasil dari sumber antropogenik. Sementara, Cu boleh diketogerikan sebagai penkayaan yang sedikit.

ABSTRACT

The sediments off the Johor coast was measured for their Cu and Zn concentration and their relationship with particle size and organic carbon content were also studied. Johor sediment was found to be medium sand with an average mean size of $1.5531 \pm 0.4289 \text{ } \phi$ respectively. The organic carbon content were 0.0598% - 1.26% with average $0.4551 \pm 0.3338 \%$. Mean concentration of heavy metals for $63 \mu\text{m}$ fraction of Johor sediment were $6.47 \pm 1.46 \mu\text{g/g}$ for Cu and $114.15 \pm 40.68 \mu\text{g/g}$ for Zn.

The correlation between particle size and organic carbon with heavy metals were weak for Johor sediment. The heavy metal concentrations were analyzed by enrichment factor (EF) method to assess the contamination level of study area. The results indicate that there is significant enrichment of Zn while Cu can be categorized as slightly enriched.